

Public Disclosure Authorized
Public Disclosure Authorized
Public Disclosure Authorized
Public Disclosure Authorized

HEALTH PUBLIC EXPENDITURE REVIEWS: A HOW-TO GUIDE

WORLD BANK GROUP

Start Here

© 2025 International Bank for Reconstruction and Development / The World Bank
1818 H Street NW
Washington DC 20433
Telephone: 202-473-1000
Internet: www.worldbank.org

This work is a product of the staff of The World Bank with external contributions. The findings, interpretations, and conclusions expressed in this work do not necessarily reflect the views of The World Bank, its Board of Executive Directors, or the governments they represent.

The World Bank does not guarantee the accuracy, completeness, or currency of the data included in this work and does not assume responsibility for any errors, omissions, or discrepancies in the information, or liability with respect to the use of or failure to use the information, methods, processes, or conclusions set forth. The boundaries, colors, denominations, links/footnotes and other information shown in this work do not imply any judgment on the part of The World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries. The citation of works authored by others does not mean the World Bank endorses the views expressed by those authors or the content of their works.

Nothing herein shall constitute or be construed or considered to be a limitation upon or waiver of the privileges and immunities of The World Bank, all of which are specifically reserved.

Rights and Permissions
The material in this work is subject to copyright. Because The World Bank encourages dissemination of its knowledge, this work may be reproduced, in whole or in part, for noncommercial purposes as long as full attribution to this work is given.

Any queries on rights and licenses, including subsidiary rights, should be addressed to World Bank Publications, The World Bank Group, 1818 H Street NW, Washington, DC 20433, USA; fax: 202-522-2625; e-mail: pubrights@worldbank.org.

Cover and Guide Design: Andres de la Roche, Adelaroche Designs, LLC



HEALTH PUBLIC EXPENDITURE REVIEWS: A HOW-TO GUIDE

Continue

CONTENTS



HEALTH PUBLIC EXPENDITURE REVIEWS: A HOW-TO GUIDE

OVERVIEW

- Preface
- How to Navigate this Guide
- List of Acronyms

1 SECTION 1 What Is a Health PER?

- What Is a Health PER?
- List of Acronyms

2 SECTION 2 Cross-Cutting Efficiency and Equity Analysis

- Assessing Spending Efficiency
- Assessing Equity in Health Spending
- List of Acronyms

3 SECTION 3 Topic-Specific Analysis

- Country Context
- Health Financing
- Inputs
- Service Delivery
- Outcomes
- List of Acronyms

4 SECTION 4 Additional Guidance

- Benchmarking
- Health Labor Market Analysis & Health Workforce Projections
- Service Availability & Readiness
- Quality of Health Services
- Crafting Impactful Recommendations in PERs
- Health Expenditure Data Sources
- List of Acronyms

To easily navigate within the Toolkit, you may click on each section or subsection.

The button will always take you back to this Table of Contents.

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

4 SECTION 4
Additional Guidance



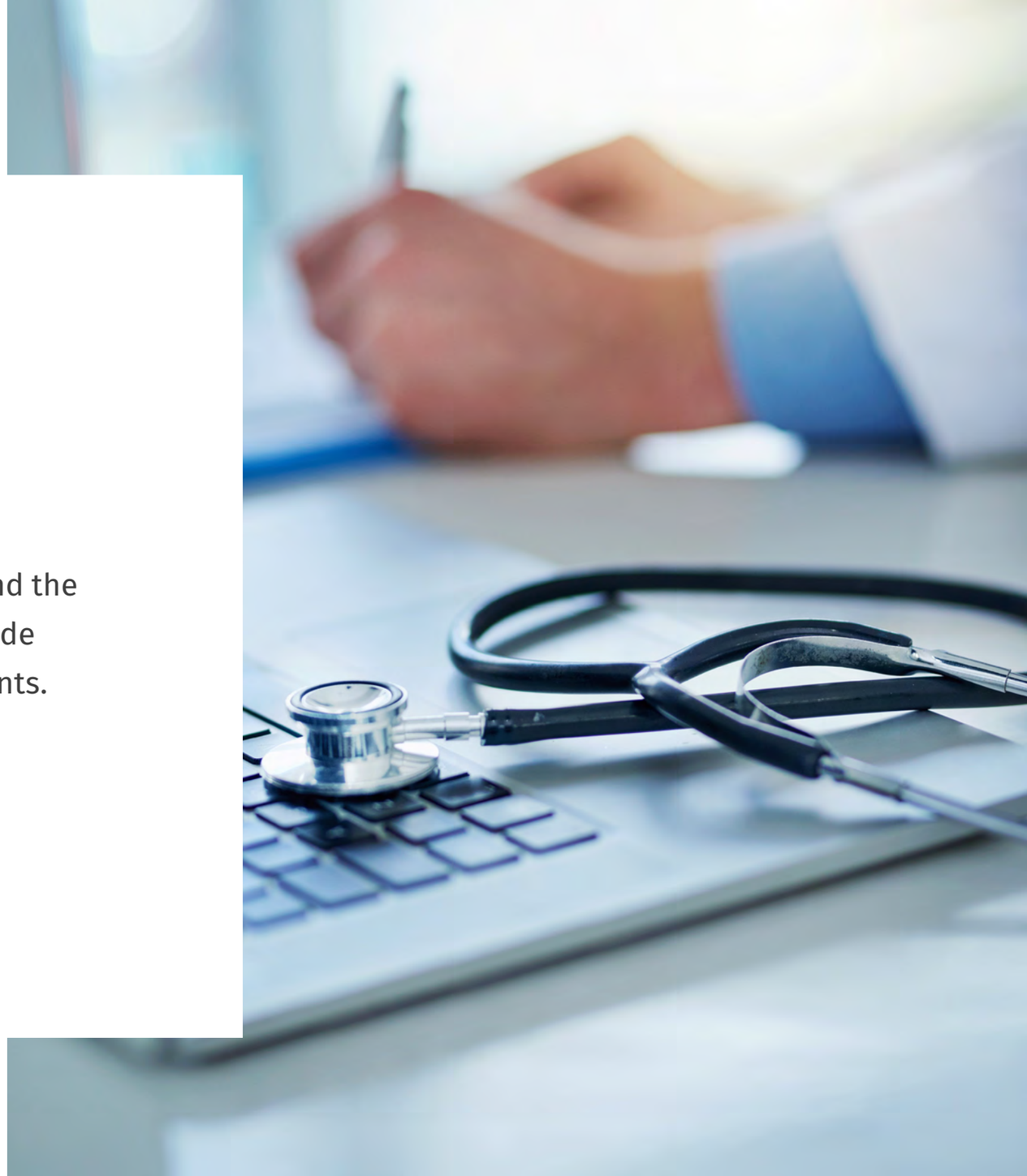
Overview

This section helps PER authors understand the context, contents, and purpose of the guide and how to best use each of its components.

PREFACE

HOW TO NAVITE THIS GUIDE

CONTINUE



Preface
How to Navigate this Guide
List of Acronyms

1 SECTION 1 What Is a Health PER?

2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3 Topic-Specific Analysis

4 SECTION 4 Additional Guidance

PREFACE

The 2024 Guidance Update

Building on the earlier guidance, this latest update responds to significant shifts in global health over the past 15 years. These shifts include the increasing recognition of health as a driver of inclusive economic growth; evolving health system objectives with a focus on universal health coverage (UHC); and emerging challenges, such as aging populations, changes in the burden of disease, and technological advances.



The 2024 update also aligns with the World Bank's renewed strategic priorities for Health, Nutrition, and Population, including the goal to support countries in delivering affordable, quality health services to 1.5 billion people by 2030, as well as the World Bank's Human Capital Project.[1]

This new 2024 guidance offers significant practical support for PER authors and other stakeholders. It is intended as a living document that will continue to evolve as shifts in the health sector continue and even accelerate. For example, future updates might incorporate approaches to assessing public expenditure on pandemic preparedness. Additionally, it is crucial to consider how to strengthen country capacities to carry out public expenditure reviews in health.

Public expenditure reviews (PERs) are among the World Bank's core diagnostic tools, with a long tradition in the institution. In 1996, the World Bank produced the first guidance and framework for public expenditure analyses (Pradhan 1996).

A PER is an evaluation of the effectiveness of government-wide expenditures in a country, their consistency with policy priorities, and their contributions to health outcomes. Although PERs generally focus on public expenditures, they also include an analysis of private health expenditure. As such, a health PER examines the flow of funds within the health sector, the performance of the health system in ensuring and financing the provision of care and improving welfare, and specific aspects of sector performance in accordance with policy priorities.

The primary principles of this initial guidance remain relevant today:

- The aggregate levels of public spending and deficit must be consistent with the medium-term macroeconomic framework, yielding a sustainable deficit and public debt.
- The aggregate spending should be allocated within and across sectors to maximize social welfare, including the impact on the poor.
- The role of the government versus the private sector ought to be a principal criterion governing the choice of programs for public financing and provision.

These principles formed the basis for the development of health-specific public expenditure guidance notes first in 2004 and then an update in 2009 (World Bank 2009).

1 For example, the guidance draws on the Human Capital Project's work Investing in Human Capital for a Resilient Recovery: The Role of Public Finance.

Acknowledgments

Health Public Expenditure Reviews: A How-to Guide was developed under the overall guidance of HNP Directors Muhammed Pate and Juan Pablo Uribe. Christoph Kurowski spearheaded the project, with Catalina Gutiérrez and Denise Silfverberg leading and coordinating efforts at different stages.

The initiative has been a truly collective effort of HNP GP staff. A dedicated working group, including Sarah Alkenbrack, Marion Cross, Laura Di Giorgio, Denizhan Duran, Patricia Geli, Eko Setyo Pambudi, Fedja Pivodic, Moritz Piatti, Marvin Ploetz, Nicolas Rosemberg, Owen Smith, Yemdaogo Tougma, Huihui Wang, and Soazic Elise Wang Sonne, developed the concept, conceptual framework, and structure. Catalina Gutiérrez, Jacopo Gabani, and Priyanka Saksena made significant contributions to the conceptualization and structuring of the guide during the later stages of the project. Agnès Couffinhal led the final review process.

The development of individual chapters was led by topic experts, including Kathryn Gilman Andrews, Edson Araujo, Alexandra Beith, Nejma Cheikh, Bernardo Coelho, Agnès Couffinhal, Olena Doroshenko, Denizhan Duran, Riku Elovainio, Patrick Hoang-Vu Eozenou, David Evans, Ian Forde, Jacopo Gabani, Laura Di Giorgio, Catalina Gutiérrez, Dominic Haazen, Xiaohui Hou, Christoph Kurowski, Ana Mercado, Somil Nagpal, Sven Neelsen, Moritz Piatti-Fünfkirchen, Lubina Fatima Qureshy, Priyanka Saksena, Martin Schmidt, Andreas Seiter, Jigyasa Sharma, Pia Schneider, Zara Shubber, Denise Silfverberg, Sakshi Thorat, and Thomas Wilkinson.

Special thanks to staff who reviewed drafts, providing thoughtful feedback that immensely strengthened chapters, including Miriam Ally, Christophe Lemiere, Mickey Chopra, Olena Doroshenko, Patrick Hoang-Vu Eozenou, David Evans, Jacopo Gabani, Catalina Gutiérrez, Reem Hafez, Christopher Herbst, Anurag Kumar, Mathew Neilson, Ha Thi Hong Nguyen, Kyoko Shibata Okamura, Anne Marie Provo, Jumana Qamruddin, Priyanka Saksena, Martin Schmidt, Pia Schneider, Gil Shapira, Mirja Sjoblom, Owen Smith, Jeremy Veillard, Manuela Villar, Luka Voncina, and Huihui Wang. Additional thanks to Jennifer Anderson, who led the logistical and administrative support during the first years of the project; Carmen del Rio, who provided communication and project management support; as well as editor Cathy Lips and designer Andres de la Roche.

Finally, sincere appreciation to the peer reviewers, who provided excellent feedback at the concept stage and final progress reviews: Samer Al-Samarrai, Nick Carroll, David Coady, Yohana Dukhan, Driss M. Zine-Eddine El-Idrissi, Maureen Lewis, Magnus Lindelow, and Christel Vermeersch.

References

Hafez, R., ed. 2020. *Measuring Health System Efficiency in Low- and Middle-Income Countries: A Resource Guide*. Joint Learning Network for Universal Health Coverage. https://jointlearningnetwork.org/resources/resource-guide-for-measuring-health-system-efficiency-in-low-and-middle-inc/.

Musgrove, Philip. 1999. "Public spending on health care: how are different criteria related?" *Health Policy* 47 (3): 207–23. https://www.sciencedirect.com/science/article/abs/pii/S016885109900024X?via%3Dihubare.

Pradhan, Sanjay. 1996. "Evaluating Public Spending: A Framework for Public Expenditure Reviews." World Bank Discussion Paper. World Bank, Washington, DC. https://documents1.worldbank.org/curated/en/509221468740209997/pdf/multi-page.pdf.

World Bank. 2009. *Core Guidance: Preparing PERs for Human Development*. Washington, DC: World Bank. http://siteresources.worldbank.org/EXTPERGUIDE/Resources/PER-Core.pdf.

World Bank. 2017. *Education Public Expenditure Review Guidelines*. Washington, DC: World Bank. https://documents1.worldbank.org/curated/en/155861497609568842/pdf/Education-public-expenditure-review-guidelines.pdf.

World Bank. 2021. *Investing in Human Capital for a Resilient Recovery: The Role of Public Finance*. Washington, DC: World Bank. http://hdl.handle.net/10986/35840.

Preface
How to Navigate this Guide
List of Acronyms

1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
4 SECTION 4 Additional Guidance



HOW TO NAVIGATE THIS GUIDE

Health Public Expenditure Reviews: A How-to Guide is a collection of standalone modular tools and notes. PER authors can select, combine, and tailor these resources to meet their specific needs, depending on the timeframe, the analysis requirements, and the scope of the health public expenditure review (for simplicity referred to as "PER" throughout the *How-to Guide*. It is not intended to be read cover to cover but to be used as a flexible guide for targeted support.

Structure and Contents of the Guide

The *How-to Guide* is organized into four sections, each addressing different stages and needs of the PER process.

If you...	*If you...*	*If you...*	*If you...*
• Are starting a PER... • New to PERs...	• Want to investigate efficiency and/or equity with a cross-cutting view of the health system	• Are focusing the analysis on a few topics • Complementing the analysis of Section 2	• Need more additional guidance...
GO TO	GO TO	GO TO	GO TO
SECTION 1 **What Is a Health PER?**	**SECTION 2** **Cross-Cutting Efficiencey and Equity Analysis**	**SECTION 3** **Topic-Specific Analysis**	**SECTION 4** **Additional Guidance**
• The purpose of a PER • Framework for analysis • Conducting a PER: Procedural considerations • Generic outline for a PER report	• Assessing Efficiency of Health Spending • Assessing Equity in Health Spending	• Health system context (1 module) • Resource mobilization, pooling, and allocation (5 modules) • Inputs (3 modules) • Service delivery (2 modules) • Final and intermediate outcomes (4 modules)	• Benchmarking results • Health labor market analysis • Service availability and readiness • Quality of health services • Providing policy recommendations • Measuring heath spending

Preface
How to Navigate this Guide
List of Acronyms

1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
4 SECTION 4 Additional Guidance

SECTION 1 What Is a Health PER?

This section provides a framework for the analysis and step-by-step guidance on conducting a PER.

SECTION 2 Cross-Cutting Analysis on Efficiency and Equity

This section, rather than targeting specific health spending components like medicines or hospitals, provides an overall view, offering a high-level understanding of these critical areas:

- **Assessing Efficiency of Health Spending:** This note offers guidance for PER authors to understand a country's overall efficiency. The first section focuses on macro efficiency. It helps PER authors assess how the country's health outcomes compare with those of other countries with similar spending levels and development. The second section discusses efficiency using micro-data and offers a set of tracer indicators that provide a cross-cutting view of efficiency issues. These indicators help determine whether the country is using an appropriate mix of inputs, procuring inputs at the lowest cost, and combining them effectively to optimize productivity. The note also includes indicators to evaluate allocative efficiency, examining whether the country is producing the right mix of health services.
- **Assessing Equity in Health Spending (forthcoming):** This note will offer guidance for PER authors to determine whether health services are reaching all segments of the population proportional to their health needs, regardless of geographic location, income, or socioeconomic group.

SECTION 3 Topic-Specific Analysis

This section is designed to support authors focusing their analysis on specific topics or looking to build on the insights from Section 2. Section 3 offers in-depth modules on various components of an analytical framework that views the health system as a results chain, where resources are mobilized and pooled to purchase inputs and are then transformed into health services to improve health outcomes.

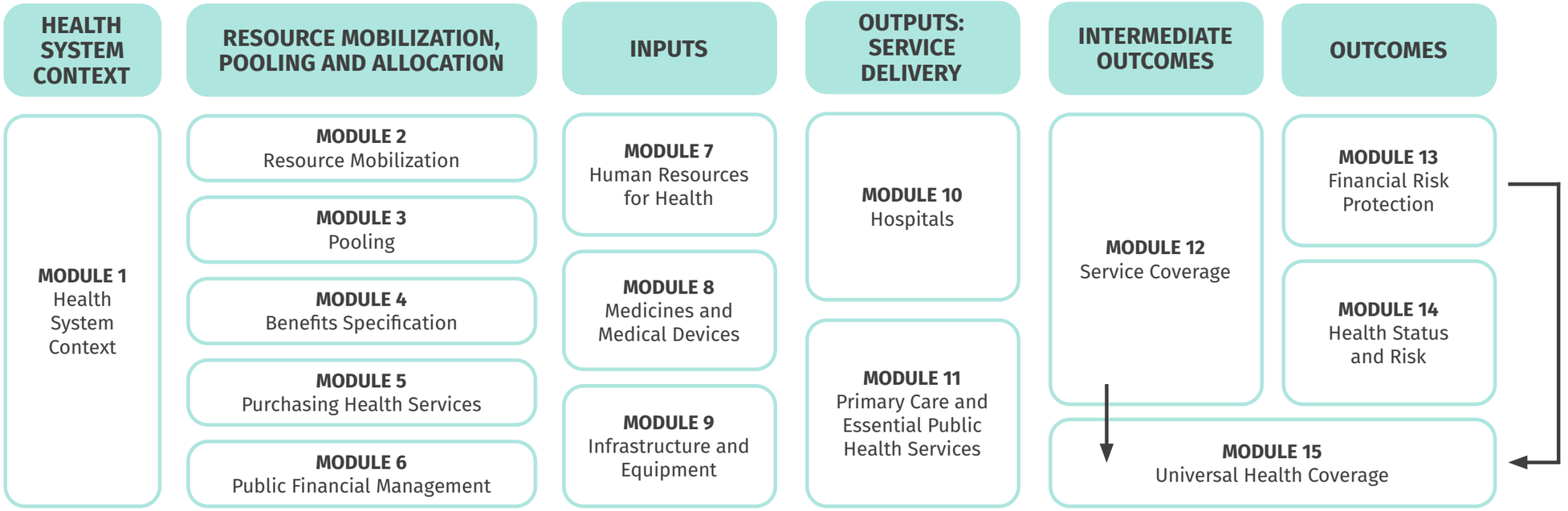
Preface
How to Navigate this Guide
List of Acronyms

1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
4 SECTION 4 Additional Guidance

Each module addresses questions related to the efficiency and equity of spending, as well as sustainability and the processes and rules governing expenditure:

- **Module 1** provides guidance on understanding the country context.
- **Modules 2–6** offer insights into resource mobilization, allocation, and pooling.
- **Modules 7–9** provide guidance to analyze the distribution and efficiency of spending on health inputs.
- **Modules 10–11** investigate spending on hospitals and primary care and essential public health functions.
- **Modules 12–15** focus on health system outcomes, providing tools to evaluate the results of health spending.

This section allows PER authors to delve into specific areas of interest, enabling a targeted and comprehensive analysis of specific components of health spending.



Preface
How to Navigate this Guide
List of Acronyms

1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
4 SECTION 4 Additional Guidance

SECTION 4 Additional Guidance

This section offers more detailed information through six technical notes covering health labor market analysis, measuring quality of health services, measuring service readiness and availability, benchmarking and cross-country comparisons, how to best communicate policy recommendations, and on concepts and data sources for measuring health expenditure.



1 SECTION 1 What Is a Health PER?

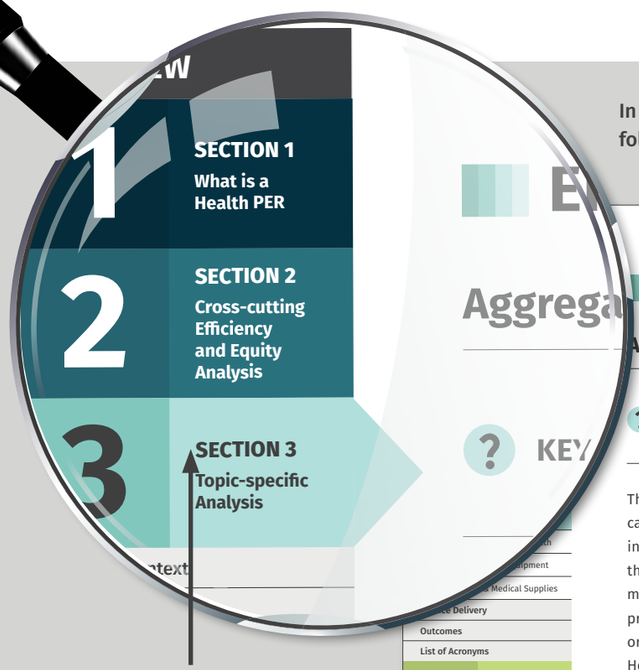
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3 Topic-Specific Analysis

4 SECTION 4 Additional Guidance

Navigation, and Downloading

Health Public Expenditure Reviews: A How-to Guide is an interactive PDF file, which allows for easy navigation across sections and their content and provides easy-to-follow guidance. The figure below shows the navigation tools and the structure of the Topic-Specific Modules. PER authors have the flexibility to download the entire *How-to Guide* or select individual sections, notes, or modules. However, if only individual components are downloaded, the embedded links to other parts of the guide will not function offline. When authors are online, these links will direct them to the PER webpage, where they can manually download any additional components they need.

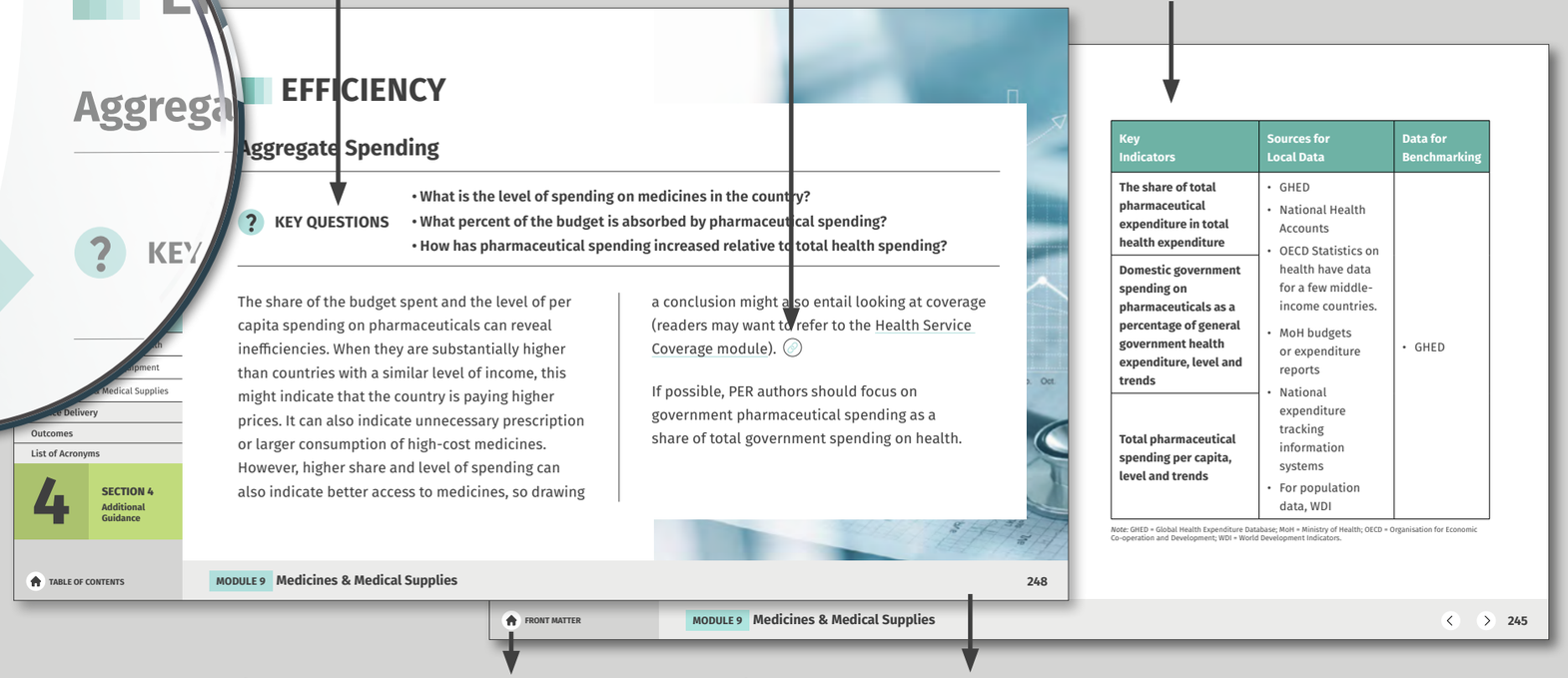


The left menu allows navigation between sections and within components of each section, and shows which section and module or guidance/additional guidance are displayed.

In Section 3, each section starts with key questions followed by guidance on how to answer them.

Clicking on the link symbol will take PER authors to other content in the *How-to Guide*.

In Section 3, each section provides indicators to help answer the key question, with sources where the indicator can be obtained or data from which it can be constructed. Whenever possible, the table also indicates sources of data for international comparisons or benchmarking.



EFFICIENCY

Aggregate Spending

KEY QUESTIONS
- What is the level of spending on medicines in the country?
- What percent of the budget is absorbed by pharmaceutical spending?
- How has pharmaceutical spending increased relative to total health spending?

The share of the budget spent and the level of per capita spending on pharmaceuticals can reveal inefficiencies. When they are substantially higher than countries with a similar level of income, this might indicate that the country is paying higher prices. It can also indicate unnecessary prescription or larger consumption of high-cost medicines. However, higher share and level of spending can also indicate better access to medicines, so drawing a conclusion might also entail looking at coverage (readers may want to refer to the Health Service Coverage module).

If possible, PER authors should focus on government pharmaceutical spending as a share of total government spending on health.

Key Indicators	Sources for Local Data	Data for Benchmarking
The share of total pharmaceutical expenditure in total health expenditure	• GHED • National Health Accounts • OECD Statistics on health have data for a few middle-income countries. • MoH budgets or expenditure reports • National expenditure tracking information systems • For population data, WDI	• GHED
Domestic government spending on pharmaceuticals as a percentage of general government health expenditure, level and trends		
Total pharmaceutical spending per capita, level and trends		

Note: GHED = Global Health Expenditure Database; MoH = Ministry of Health; OECD = Organisation for Economic Co-operation and Development; WDI = World Development Indicators.

TABLE OF CONTENTS | MODULE 9 Medicines & Medical Supplies | 248

FRONT MATTER | MODULE 9 Medicines & Medical Supplies | 245

The arrows will move authors between pages and the home button will take them to the front matter.

Preface
How to Navigate this Guide
List of Acronyms
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
4 SECTION 4 Additional Guidance

ACRONYMS

HNP
Health Nutrition and Population

HNP
GP Health Nutrition and Population Global Practice

PER
Public Expenditure Review

UHC
Universal Health Coverage



OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

4 SECTION 4
Additional Guidance

SECTION 1

What is a Health PER?

AUTHORS

Agnès Couffinhal, Catalina Gutiérrez, Denise Silfverberg, and Pia Schneider

This introduction to the updated "*Health Public Expenditure Reviews: A How-to Guide*" defines the purpose of health Public Expenditure Reviews (PERs) and introduces an analytical framework to guide the review. It highlights the key steps for conducting a PER and offers an example of an outline for a PER report.

CONTINUE



THE PURPOSE OF A PER

A Public Expenditure Review aims to evaluate the effectiveness of government expenditures in a country.

The objective of a health-specific PER is to assess the effectiveness of public spending in supporting the achievement of health system goals and policy priorities by examining performance in one or more of four core domains: sustainability and sufficiency, efficiency, equity, and governance. PERs typically examine the flow of funds within the health sector and analyze public spending over several years. Health PERs also assess the articulation and the role of private and public entities operating in the sector. A successful health PER identifies, assesses, and prioritizes areas to strengthen the use of public financial resources and thus improve health outcomes.[1]

1 In the remainder of this document, for ease of reference, health systems goals are referred to as "health outcomes."

CORE HEALTH PER QUESTIONS

A HEALTH PER SHOULD ADDRESS THE FOLLOWING:

1. **Sustainability and sufficiency:** How does revenue capacity compare with the expected level of health spending necessary to achieve national health goals in the medium term? Is the level and growth of spending in line with fiscal sustainability?
2. **Efficiency:** Can health outcomes be improved with the same level of spending? Is the country spending on those things that improve most the outcomes and welfare?
3. **Equity:** Who benefits from health spending? Is health spending improving health outcomes and financial protection for all, regardless of geographic location and socioeconomic status? Is health spending adequately targeting the poorest and most vulnerable segments of the population?
4. **Governance:** Are the rules, processes, and institutional arrangements that govern health spending aligned to achieve health system goals? Do public financial management systems improve predictability, transparency, and accountability of health spending?

A health PER may be prepared specifically for the health sector as a standalone document (for example, Namibia). It may cover the health sector in a social sector or macroeconomic PER (for example, Armenia, Georgia, Egypt), in a human capital PER (for example, Pacific Islands), or in a government-wide PER (for example, Belize PER, Comoros PER health chapter). Authors should ensure government ownership of the health PER throughout the policy dialogue, using workshops and regular meetings.

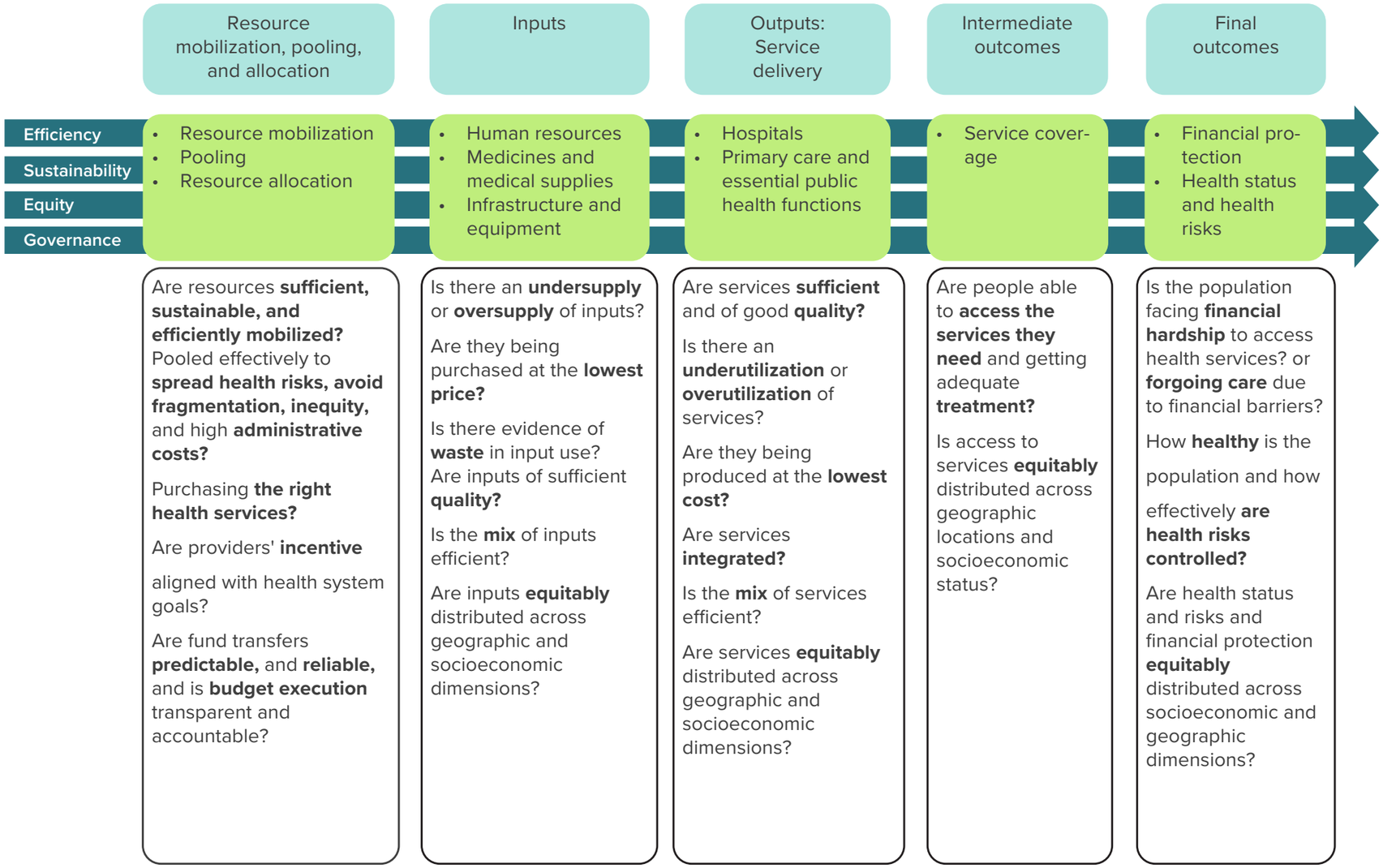


FRAMEWORK FOR ANALYSIS

The guidance adopts a single overarching analytical framework that conceptualizes the health system as a results chain—from mobilizing, pooling, and allocating resources to health outcomes (Figure 1).[2] Financial resources are used to pay for inputs: human resources for health, infrastructure, equipment, and medical supplies. Different processes convert these inputs into outputs (health services delivered via hospitals, primary health care, and public health functions), which subsequently translate into intermediate and final health outcomes (service coverage, financial protection, and health status and risks). Efficiency, equity, governance, and financial sustainability are the main lenses used when looking at the different parts in the results chain. Section 3 provides guidance to analyze expenditure on each component of the results chain

2 The framework refines earlier concepts to assess the efficiency of health systems (Hafez 2019; Smith, O. 2017; Smith, P. 2012).

FIGURE 1: ANALYTICAL FRAMEWORK



Source: World Bank staff.

CONDUCTING A PER: PROCEDURAL CONSIDERATIONS

The World Bank follows a standard operational process to prepare a PER

In line with Bank procedures, PER authors first prepare a concept note (CN) to describe the activity and demonstrate how the proposed analysis will help the country solve the problem to be addressed. The CN acknowledges the scope and key policy issues to be addressed in the study. It will lay out the proposed scope and depth of analysis to be covered, data and resources needed, reasons for possible limitations, and the outline for the report. The Bank's quality assurance process will have to approve the CN during a review meeting, which is usually chaired by the Bank's country director.

Second, authors collect data from government and stakeholders, conduct the analysis for the PER, and write the report. Findings are shared and discussed with government and development partners. The final PER report will be peer reviewed by Bank staff and will have to be approved at the decision review meeting before it is published. Authors should prioritize strengthening the government's analytical capacity and fostering ownership of the health PER. This can be achieved by having government leaders assign staff to collaborate and work with the Bank team and by organizing regular stakeholder meetings to discuss preliminary findings. Finally, dissemination events are organized with policymakers and relevant stakeholders to present the PER results and discuss recommendations and their implementation.

The process for conducting a PER can be structured into a five-step approach, as outlined in this section. Figure 2 provides an overview.

FIGURE 2. Five steps to prepare a health PER

STEP 1: Define the Scope

- Understand the context in which the PER is being conducted: new or renewed engagement, government-driven request, informing a World Bank project.
- Consider whether the document is a standalone PER or section/chapter of a broader PER.
- Identify budget and time frame.

STEP 2: Define the Objectives and Key Questions

- Identify country key informants who understand the way the health system operates and the government's main concerns about efficiency, sustainability, governance, and/or equity.
- Engage informants in a discussion about key concerns and their causes. Inquire about other possible issues using the list of core questions (Box 1), the results chain framework, and previous analytical work.
- Develop a list of the main concerns of stakeholders—MoF, MoH, providers, etc.—and agree on the scope, objectives, and areas/questions the PER will seek to address.
- Agree on the final scope, objectives, and questions with key policymakers.

STEP 3: Seek Data to Answer the Key Questions

- Identify primary and/or secondary government data (from MoF, MoH, insurance agency/purchaser, statistics office), including raw data, government reports, and laws and regulations.
- Identify data available in international data repositories (WHO Global Health Expenditure Database, WHO Global Health Observatory, World Bank, etc.).
- Identify key informants for qualitative information.
- Collect the data.

STEP 4: Conduct the Analysis

- Referring to the chapter "How to Navigate this Guide" in Section 1, define which cross-cutting notes (Section 2), modules (Section 3), or technical notes (Section 4) will be used for the analysis.
- Identify other tools that will be needed to complement the analysis.
- Follow the guidance and construct the indicators. Analyze the indicators using the guidance provided.
- Draft preliminary findings.

STEP 5: Present the Results to Key Policymakers and Define Policy Actions

- Present the preliminary findings to key policymakers to confirm they agree with the results.
- Adjust the analysis based on discussions about the results. Go back to step 4 if needed.
- Prioritize which sources of inefficiency, inequities, unsustainability, or governance issues warrant action.
- Start the discussion about possible policy levers to improve prioritized inefficiencies, inequities, unsustainability, or governance issues; feasibility; and possible obstacles.
- Identify where further analysis and technical assistance are needed to define the policy actions and work with the appropriate part of government to develop a detailed strategy.

Source: World Bank staff. *Note*: MoF = Ministry of Finance; MoH = Ministry of Health; WHO = World Health Organization.

1 SECTION 1
What Is a Health PER?

What Is a Health PER?

List of Acronyms

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

4 SECTION 4
Additional Guidance

STEP 1 Defining the Scope

The first step involves defining and refining the scope of a specific health PER and elaborating a list of prioritized policy issues important to the country. The scope and depth of a health PER is defined by the policy issues important to the country. In addition, authors need to determine which of the questions in Box 1 their PER will address and whether it will examine all or just a few components of the results chain.

Defining the scope is an iterative process that begins with understanding the context and motivation for undertaking the analysis. A PER might be initiated to engage or renew the World Bank's involvement in the country's health system. In such cases, a thorough diagnostic may be necessary if there are no up-to-date analyses of the health system. Alternatively, the government might request the review to assess specific policy issues, such as health spending in a context of tight fiscal constraints, the need to improve spending efficiency, identify possible savings, or sustainable financing in a country with an aging population and a costlier disease profile. Here, a narrower scope might be appropriate, focusing on reforms in infrastructure investments, pharmaceutical procurement, rightsizing the health workforce, or hospital spending efficiency.

When responding to government requests, the Ministry of Finance (MoF) often has specific questions about whether government spending on health is in line with the country's financing ability and goal to achieve health objectives in an efficient way. Additionally, a PER may be needed to help inform the policy dialogue and Bank lending operations. Overarching health system reform requires a wider analysis, covering in depth each or several components of the results chain, if the relevant data are available.

The scope of the analysis should also be informed by whether the PER is a standalone health PER or a health chapter in a broader PER covering multiple sectors. A health chapter should have a narrower scope. The chapter might focus on one to two key questions, or the PER authors could review relevant documents and conduct stakeholder interviews to identify two to three main sources of inefficiency or inequity in the results chain. Equity analyses in a health chapter should pinpoint the primary challenges (for example, which groups lack access to care or financial protection) and determine whether the distribution of inputs or funding schemes contributes to these inequalities. The scope must be informed by and aligned with the overall objective of the multisectoral PER.

A standalone health PER can investigate all four core PER areas of analysis: financial sustainability and sufficiency, efficiency, equity, and good governance. While all PERs share these high-level objectives, the specific scope and questions of individual PERs may vary depending on the country context. A PER analysis is data driven. For instance, if the data show high spending on medicines and medical supplies, identifying and addressing the underlying reasons may become a policy priority.

It is crucial that the scope reflects the available budget, time frame, and data. A shorter time frame will necessitate a narrower scope and a more focused approach, especially in countries with limited data. Once the preliminary scope is defined, it is important to discuss it with the key stakeholders (typically, the Ministry of Health (MoH) and the the Ministry of Finance (MoF)) and agree on the final scope, objectives, and policy questions—with modification as needed. This early engagement is important for ensuring client ownership of the PER process and the resulting report. Continued stakeholder engagement throughout the process increases the chance that the findings and policy recommendations will be relevant, accepted, and implemented.

STEP 2 Defining the Objectives and Questions

To define the objectives and questions, PER authors need to obtain relevant data from the government. They also should identify key informants familiar with the health system to interview about their main concerns and issues and whether these pertain to efficiency, sustainability, equity, or governance. Once the main policy issues, scope, and objectives have been acknowledged, authors can list the questions the PER will aim to address. If the data are available for analysis and it is within the time frame and framework, the questions in all four PER core areas can be addressed (otherwise, authors should focus on the one or two most important areas). After developing a preliminary list of the issues and priority topics revealed in key informant interviews, authors can consider whether any unraised issues merit analysis. To do so, they can use the framework in Figure 1 and the list of modules in Section 3. The questions listed for each component of the results chain can guide author discussions, complemented by existing analytical work from the World Bank

and country development partners. Before proceeding to the next step, the final list of questions and well-defined, clearly stated objectives should be agreed on by key stakeholders. PER analysts will collaborate with country counterparts to define the scope, objectives, and policy questions of the PER, engaging the following groups:

- **Policymakers:** To align on the PER approach, secure approval to meet with government staff, and access essential data (for example,, budgets, expenditures, health services, policies, and surveys).
- **Government Staff:** Including HMIS PER authors, health and finance ministries, and relevant department heads (for example,, pharmaceuticals for related PER topics). Analysts may also interview health facility managers and health insurance leaders to identify challenges.
- **Development Partners:** To coordinate efforts, identify synergies, address additional relevant questions, and facilitate data sharing.

STEP 3 Gathering Data and Information

PERs use a mix of quantitative and qualitative data, evidence from the literature, and stakeholders' tacit knowledge. Once the objectives and questions are defined, PER authors can identify all existing data sets and resources within the country, including those from national statistics offices and the MoH and MoF. In countries with insurance systems or a payer-provider split, data from the insurance agency might also provide relevant information. Authors are advised to consult with government and development partners in a country to identify the relevant datasets and reports that can be used for analysis.

Regardless of the type of PER, the analysis should build on earlier sector advisory services and analytics from the World Bank and development partners. These may include the most recent PERs for the country (if available), other Bank documents (poverty assessments, systematic country diagnostic, Public Expenditure and Financial Accountability (PEFA) assessments. The International Monetary Fund (IMF) provides its Article 4 Reports, which contain macroeconomic assessments. Key government documents, such as national sectoral development plans, laws, and regulations as well as academic literature and country research reports, can also be important information sources.

An effort was made to ensure that the indicators in this guidance can be constructed with data likely available in low- and middle-income countries. The indicators rely primarily on five types of data sources:

1 International Repositories of Health and Economic Information

- **Global repositories with data for multiple countries:** The World Health Organization (WHO) Global Health Expenditure Database, Organisation for Economic Co-operation and Development (OECD) Health at a Glance, the European Health Interview Survey, Global Health Workforce Statistics database, the World Health Survey, and Global Burden of Disease (GBD) data provide standardized data for comparing health expenditures, outcomes, and workforce statistics across countries. Relevant macroeconomic and fiscal data, such as GDP, general government revenues, and expenditures, can be found on the World Bank's World Development Indicators (WDI) website, which also provides information on health outcomes and expenditures.

2 Country Revenue and Expenditure Data

- **Government budget and expenditure data:** A crucial source for PERs is government administrative data provided by the MoF and MoH. Access to these data can be facilitated by the Bank's country economist. These include budget reports (both audited and unaudited), budget execution reports, and other expenditure-related documents. The BOOST database, where available, is a key tool to analyze detailed budget data across sectors, while national websites often provide public finance information. Guidance on accessing these data is detailed in the Public Financial Management (PFM) module.
- **Health insurance reports:** If the country has health insurance programs (public and/or private), authors should also meet with insurance management to receive annual reports on membership, revenue and expenditures, and health service use. Private health insurance performance indicators are usually published by the country's insurance oversight body in the annual insurance market report.
- **National Health Accounts (NHAs):** When available, NHAs offer insights into health expenditures from multiple sources, including government, private, and development partners. They show the flow of funds through intermediary agencies and their use by different types of health care providers. This is covered in more depth in the Resource Mobilization Module 2.

3 Health Sector-Specific Data

- **Health sector data:** Detailed data on health infrastructure, workforce composition, service use, and health status are critical for analyzing the efficiency and performance of health

expenditures. Sources include MOH annual reports, Health insurance agency reports, health management information systems (HMIS), and strategic documents such as health policies, laws, and regulations. The private health sector can provide additional data through associations or regulatory bodies.

- **Population and demographic profiles:** Data on population structure, gender, educational attainment, and future demographic trends are necessary for projecting health needs and expenditures. National statistics offices and sources like the Wittgenstein Center's Data on Multidimensional Demographics provide detailed insights into population trends and their impact on health service demand. United Nations, Population Division Data Portal provides population projections.

4 Special-Purpose Surveys

- **Household surveys:** Household surveys provide critical information for analyzing household health expenditures, access to care, health service usage, and equity in health financing. The World Bank central data catalog provides a list of Demographic and Health Surveys (DHS), income and expenditure surveys, and the Multiple Indicator Cluster Survey (MICS), all of which provide valuable data for understanding how health financing impacts different population groups. Equity-focused PERs especially benefit from this data.
- **Service readiness and delivery surveys:** These include tools such as the Service Readiness Assessment (SARA) and Service Delivery Indicators (SDI), which provide insights into the readiness and capacity of health facilities to deliver services, as well as overall service performance.

5 Key Informant Interviews

- PER authors will conduct interviews with key informants in the health sector, mainly to gather additional information, interpret findings, and validate results and recommendations.

PER authors should rely on readily available data on government budgets and expenditures, health service utilization, the composition of the health workforce, and household surveys whenever possible. For PERs with a broader scope and longer time frame, authors may consider conducting primary data collection and analysis to enhance existing data collection efforts. Qualitative data collected from key informant interviews can provide crucial insights to help interpret findings.

The PER guidance in Section 2 and Section 3 offers potential sources of information for each suggested indicator.

Next, it is crucial to ensure that the government shares the data needed for the PER analysis. It is beneficial to include among the PER authors at least one person who is very familiar with the offices that hold the data. This person ideally should be country based to travel easily and affordably to gather data.

During the concept stage of a health chapter or standalone health PER, authors should consider synergies in health data collection efforts occurring in the country and aim to optimize output from these exercises, such as existing NHA exercises or Resource Mapping and Expenditure Tracking (RMET). It is also useful for PER authors to discuss opportunities for coordinating such efforts between sectors and development partners.

After the data sources are secured, the next step is to conduct the analysis using the guidance provided.

STEP 4 Analyzing the Data and Validating the Results

The *How-to Guide* offers alternative approaches to the analysis. The cross-cutting notes in Section 2 provide an overall view of health system efficiency and health equity. These notes are useful for PER authors with a broader scope. The notes may also be preferred by authors aiming to reengage or develop new engagements with country governments.

The modules in Section 3, however, cover each component of the results chain in more depth, addressing several or all four core health PER areas and questions. These modules complement the analysis from the cross-cutting notes—and are ideal for PER authors with specific government requests or those using PER analysis to inform targeted health projects, such as improving the availability, procurement, and efficiency of spending on medicines,

or redesigning the health service delivery model. Authors informing a large reform might use the macro-efficiency section of the Efficiency Cross-Cutting Note to set the stage for discussion, alongside several modules from Section 3.

The modules and cross-cutting notes are structured around key questions and provide a comprehensive set of indicators for each component of the results chain. For each indicator, data sources are indicated. The indicators can illuminate a range of performance issues by using simple analytical approaches like benchmarking and trend analysis (see Additional Guidance 1 for more on benchmarking). The guidance also provides, when possible, benchmarks for comparing country results. In cases where no agreed-on benchmarks exist or data for similar countries are unavailable, the results should guide discussions with stakeholders and experts. In some instances, it may be possible to compare performance across geographical areas or providers.

PER authors should identify the most pertinent issues they want to validate with key stakeholders and policymakers. If many issues are identified, to ensure clarity and succinctness in the PER, authors can work with the stakeholders and policymakers to narrow the list, as discussed in the next step.

STEP 5 Presenting the Results to Key Policymakers and Defining Policy Actions

1 Prioritize Issues for Action

After the preliminary performance issues have been validated with stakeholders, the next step is to agree on priority issues that warrant action and are amenable to policy interventions that are technically feasible and politically viable. This step may be unnecessary for PERs with narrow scopes of two or three issues. It can also be unnecessary when the PER is informing a sector-wide reform, and multiple domains will be tackled. In these cases, authors can proceed directly to developing policy recommendations.

There are several ways to prioritize issues for policy action. During an unstructured discussion with policymakers and key stakeholders, for example, PER authors can (1) present the results from the previous step; (2) pose open questions about which issues merit more attention and prioritized action; and (3) seek to build consensus on the three to five most important issues. Or authors can take a more structured approach, such as multicriteria analysis.

Multicriteria analysis is often used to prioritize intervention areas or policy options. It helps analysts and decision makers visualize how a list of options compares with a set of evaluation criteria. The first step in multicriteria analysis is to select the criteria or goals on which the areas or policies will be evaluated. For a PER, authors should compare actions in at least four domains: relevance, technical feasibility, political viability, and strength of the evidence. Figure 3 shows an example of multicriteria analysis.

In discussions with policymakers and key stakeholders, each issue should be graded, for example, on a scale of 1 to 4, and the total score for each issue calculated. The highest-scoring issues can then be prioritized for policy actions. Grades can be tallied by consensus or, if no consensus is reached, averaged among participants.

FIGURE 3. MULTICRITERIA ANALYSIS

Relevance How important is the issue to improving overall performance (sustainability and sufficiency, efficiency, equity, governance)? *Score from 1 to 4 (1 = low relevance and 4 = high relevance).*	**Technical Feasibility** Are there effective policies that can address the issues? If so, are the human, financial, and technical resources available to undertake the policy actions? *Score from 1 to 4 (1 = low technical feasibility and 4 = high feasibility).*	**Political Feasibility** Are the issues aligned with the current national health plans and the political priorities? *Score from 1 to 4 (1 = low alignment/ political support and 4 = very high alignment/ political support).*	**Strength of the Evidence** What is the strength of the supporting evidence? Have identified challenges been confirmed through data, evidence in the literature, and tacit knowledge of policymakers? *Score from 1 to 4 (1 = weak evidence and 4 = very strong evidence).*
Issue 1			
Issue 2			
Issue 3			
Issue 4			

Source: World Bank staff.

Relevance is a criterion used to assess the importance of an issue or challenge in improving overall system efficiency, equity, institutional performance, or financial sustainability, and its role within the results chain. It evaluates whether the issue constitutes the weakest link or root cause in a chain of causes and effects. Relevance can pertain to the questions in one or more of the core areas of a health PER (sustainability and sufficiency, efficiency, equity, and governance).

If issues are evaluated against all four sets of questions, it may be better to have separate relevance criteria for each question. Alternatively, a single relevance criterion can be used, with a graded scale reflecting the breadth of performance issues addressed. For example, a score of 1 would be assigned if the issue addressed only one core performance question, while a score of 4 would be given if it addressed all four.

Technical feasibility examines the likelihood of overcoming the challenge. This includes evaluating whether effective policies exist to address the issues and whether the necessary human, financial, and technical resources are available to implement these policies. PER authors should be prepared with information on potential policies that can address the issue, evidence of their effectiveness, and a rough estimate of the costs involved. Ideally, authors should review the available budget to ensure the proposed solutions are financially viable.

Political feasibility examines whether the identified issues are likely to be prioritized by decision makers, budget authorities, and lawmakers. It also considers whether powerful stakeholders benefit from maintaining the status quo. Alignment with national health goals or plans is a clear indication that the government is likely to support action on an issue. Participants in the prioritization exercise may choose to drop issues with very low political feasibility or, if an issue scores very high on other criteria, they may decide to add technical support to justify addressing the issue and raise awareness of its importance to garner political support.

Strength of the evidence is crucial because significant time and resources are likely to be devoted to addressing a particular issue. It is important to ensure that the evidence is robust to avoid erroneous diagnostics and wasted efforts. For instance, have the identified challenges been confirmed through data, literature evidence, and the tacit knowledge of policymakers? Or was the issue identified through a few informal interviews and without data to triangulate or confirm the results? When evidence is weak, authors should consider delaying any decision on the topic until stronger evidence is collected.

When prioritizing efficiency and sustainability issues for policy action, PER authors should be aware that efficiency gains do not automatically translate into more fiscal space for health. Barroy et al. (2021) suggest that three preconditions need to be met for efficiency gains to be converted into additional budget: (1) countries must develop well-defined and -targeted interventions that change the prices or the mix of inputs; (2) the interventions must generate sizable and quantifiable financial gains; and (3) public financial management (PFM) systems must allow those gains to be kept within the health sector and repurposed toward prioritized health needs, in particular, flexible PFM systems that allow the central or local levels as well as purchasers and providers to keep and repurpose the savings that need to be in place. Moreover, most reforms do not generate cash on hand but rather allow providers and purchasers to do more with the same resources, except when prices of inputs, such as medicines, are reduced. Reforms that improve quality and processes might take several years or more to reduce expenditure and often require large upfront investments. For example, quality improvements in promotion and prevention of noncommunicable diseases might only yield savings from improved health decades later.

2 Identify Policies to Address the Prioritized Issues

The purpose of *Health Public Expenditure Reviews: A How-to Guide* is to provide the methodology to analyze data for a PER, develop recommendations based on findings, engage policymakers, and disseminate results to stakeholders. Authors should avoid generic recommendations that do not include specific actionable strategies and policies to achieve the intended goal.

The following actions can help PER authors develop and communicate policy options. Authors should:

- Search the literature for information on policies used to tackle similar issues in comparable country contexts and the resulting impacts. The topic-specific modules provide references that can aid in identifying potential policies.
- Identify World Bank expertise that can help develop actionable policy options.
- Initiate with policymakers a discussion about possible policy levers to improve prioritized inefficiencies, inequities, sustainability or governance issues, and potential obstacles.

- Identify where further analysis and technical assistance are needed to define the policy actions and work with the appropriate part of government to develop a detailed strategy.
- When making recommendations, avoid generic suggestions that do not include specific actionable strategies and policies to achieve the intended goal. Recommendations such as "increase expenditure in infrastructure," for example, "reduce waste in the use of medicines," or "improve primary health care" are not useful, because they are not actionable. Before presenting recommendations, consult with and receive validation from policymakers and key stakeholders. Recommendations should be justified and well documented to ensure credibility and buy-in. When a recommendation could lead to a potential "tradeoff" of results (for example, a policy measure to improve efficiency may come at the expense of equity), that should be clearly stated and, if possible, a reconciliation discussed.

Once finalized, authors should present the PER to government and various stakeholders during an in-country workshop. The goal of the workshop could also be to help the government identify possible support for the implementation of recommendations from Bank projects and development partners and other stakeholders.

Additional Guidance 5 offers further guidance on providing recommendations.



Pulling It All Together: A Generic Outline

Findings from the analysis are presented in the health PER report. The structure for the report will depend on the scope and context of the PER. Therefore, this outline is primarily illustrative, offering (1) high-level guidance on key issues typically covered in a PER report, and (2) links to relevant content in *Public Expenditure Reviews: A How-to Guide*. PER authors should take the actions set out below

1 Introduction and Objectives

Provide a brief description of the key health policy concerns facing the government, acknowledging recent reforms and any challenges in their implementation. Clearly outline the objectives of the PER along with the key questions guiding the analysis and the overall scope of the review.

2 Socioeconomic and Health Context

Set the stage for the health analysis by offering an overview of macrofiscal challenges and socioeconomic and poverty issues relevant to the health PER. This section includes:

- A description of the current and projected population profile, the burden of disease (current and future), and emerging health threats.
- A review of the health system's structure, including governance, service delivery, and financing arrangements, such as the role of public and private sectors.
- Key health system indicators, such as life expectancy, under-five mortality, immunization rates, and access to health care.
- An assessment of government health priorities and reform plans, based on the most recent policy and strategy documents, highlighting their alignment with emerging health concerns.

See: Country Context Module, Service Coverage Module, Health Status and Risk Module, Universal Health Coverage Module, and Additional Guidance 1 on Benchmarking

3 Overview of Health Financing (Resource Mobilization, Pooling, Allocation, and Budgetary Performance)

This section assesses the adequacy and sufficiency of health spending in relation to national health goals, the sustainability and predictability of resources, the allocation of health expenditure among different categories, and the performance of PFM. It is likely to include:

- An analysis of the composition levels and trends in total and public expenditure on health (with some benchmarking).
- An analysis of the fiscal impact of government health expenditures and issues of sustainability and sufficiency.
- A breakdown of health financing sources, including domestic government spending, external donors, and household out-of-pocket payments.
- A description of the organization and governance of public financial flows in the system.
- An assessment of the adequacy, sustainability, and equity of the health financing system.
- An evaluation of budget execution in the health sector, including delays, any discrepancies between planned and actual spending, and an analysis of fund allocation across national and subnational levels, if relevant.
- A discussion on whether the PFM system effectively supports health policy implementation and the achievement of health objectives.
- If there is health insurance, a description of the methods of government budget allocation to public health insurance, as well as a list of the issues that need policy attention, such as sustainability.

PER authors should conclude with a summary of the fiscal and economic implications of health financing, assessing whether funding sources, spending priorities, and allocation methods align with government objectives and health priorities. Authors should highlight critical issues, including financial accountability, adequacy, efficiency, equity, and sustainability, to provide a clear and actionable conclusion.

See: Resource Mobilization Module and Public Financial Management Module

4 Efficiency of Health Expenditures

This section assesses whether the country is utilizing its health resources efficiently, minimizing waste, and focusing spending on areas that most improve population health and welfare. It can begin with an introduction describing expenditure disaggregated by function (for example," ["for example,," in tables and figures], inpatient, outpatient,

medical goods) and provider type, and continue by covering selected topics, tailored based on the country's context and government priorities. The most relevant policy issues and concerns should be selected in the health sector. Not all topics may be applicable or necessary. Below are potential areas for PER authors to assess:

- **Analysis of expenditures on key inputs:** Assess spending on critical resources such as infrastructure, human resources for health (HRH), and pharmaceuticals. This could include issues like workforce management, health payroll concerns, pharmaceutical procurement, and facility maintenance.

See: Human Resources in Health Module, Medicines and Medical Devices Module, Infrastructure and Equipment Module, Additional Guidance 1 on Benchmarking, and Additional Guidance 2 on Health Labor Market Analysis

- **Evaluation of health service delivery performance:** PER authors should review efficiency in hospitals, primary care, and essential public health functions. This includes access to care, quality of services, availability of essential medicines, and health facility readiness. Metrics like bed occupancy rates, length of stay, cesarean section rates, and service use are crucial for understanding service delivery efficiency. Further, authors should evaluate whether purchasing mechanisms are aligned with efficiency objectives.

See: Primary Health Care and Essential Public Health Functions Module, Hospitals Module, Purchasing of Health Services Module, Additional Guidance 3 on Service Availability and Readiness, and Additional Guidance 4 on Quality of Health Services

- **Efficiency in pooling, benefit specification, and purchasing of health services:** In countries with health insurance or multiple financing pools, PER authors should assess how well resources are pooled and whether purchasing, and procurement mechanisms lead to duplication, high prices or inefficiency. This also includes examining the efficiency implicit in benefit package(s) provided by insurance schemes or government programs.

See: Pooling Module, Benefits Specification Module, Purchasing Health Services Module

- **Specific policy issues:** Depending on national priorities, this section can delve into specific health concerns such as HIV/AIDS, noncommunicable diseases (NCDs), or maternal and child health.

5 Equity of Health Expenditures

This section analyzes how health spending is distributed across different population groups (urban vs. rural, rich vs. poor, gender) and geographic regions, with an emphasis on the most vulnerable population groups. It assesses:

- The equity of service use and spending based on household survey data, with particular attention to disparities in service coverage between socioeconomic groups, insured vs. uninsured populations, and geographic locations.
- Financial protection, analyzing how out-of-pocket expenditures differ across socioeconomic groups and the insured/uninsured divide.
- Any inequities in benefit packages provided by various insurance schemes or government programs, identifying reforms needed to improve equity in health financing and service delivery.

See: Benefits Specification Module, Service Coverage Module, Financial Protection Module, UHC Module, and, Cross-Cutting Note on Equity

6 Conclusions, Recommendations, and Policy Options

Authors should summarize key findings, highlighting inefficiencies, equity gaps, and opportunities for improving health sector performance. Recommendations should be in groups of short- or medium-term actions that are most relevant for improving population health. Authors should consider the fiscal and resource implications of recommendations and identify eventual barriers to implementation. Actionable policy recommendations should be provided. These can be grouped by topic:

- Resource mobilization strategies: Proposals to increase fiscal space for health, including raising domestic resources (for example,, health taxes) and improving the sustainability of external financing, as well as improvements in PFM.
- Efficiency improvements: Recommendations for optimizing health spending through upgrading resource allocation, reducing inefficiencies, and improving governance in health system functions (for example, procurement, HRH management).
- Equity-focused strategies: Proposals to reduce disparities in access to care, particularly for vulnerable populations, and reduce out-of-pocket payments. PER authors should discuss the next steps for implementing reforms, monitoring progress, and evaluating the government's capacity to address these challenges, based on projected economic growth and fiscal space.

See: Additional Guidance 5 on Recommendations

7 Annexes

- Detailed data tables on health expenditures, service delivery performance, and health outcomes.
- Technical appendixes that provide methodological notes, including approaches to data collection, analysis, and interpretation.

References

Barroy, Hélène, Jonathan Cylus, Walaiporn Patcharanarumol, Jacob Novignon, Tamás Evetovits, and Sanjeev Gupta. 2021. "Do efficiency gains really translate into more budget for health? An assessment framework and country applications." *Health Policy and Planning*, Volume 36, Issue 8: 1307–15. https://doi.org/10.1093/heapol/czab040.

Hafez, R., ed. 2020. *Measuring Health System Efficiency in Low- and Middle-Income Countries: A Resource Guide*. Joint Learning Network for Universal Health Coverage. https://jointlearningnetwork.org/wp-content/uploads/2020/02/Resource-Guide-Measuring-Health-System-Efficiency-200807.pdf.

Smith, Owen. 2017. Note on Efficiency of Health Spending. Preliminary version of unpublished document.

Smith, Peter C., and Andrew Street. 2006. "Concepts and Challenges in Measuring the Performance of Health Care Organisations." Centre for Health Economics, University of York. https://pure.york.ac.uk/portal/en/publications/concepts-and-challenges-in-measuring-the-performance-of-health-ca.

ACRONYMS

CN
Concept Note

DHS
Demographic and Health Survey

GBD
Global Burden of Disease

GDP
Gross Domestic Product

HMIS
Health Management Information System

HRH
Human Resources for Health

IMF
International Monetary Fund

MICS
Multiple Indicator Cluster Survey

MoF
Ministry of Finance

MoH
Ministry of Health

NCD
Noncommunicable Disease

NHA
National Health Accounts

OECD
Organisation for Economic Co-operation and Development

PEFA
Public Expenditure and Financial Accountability

PER
Public Expenditure Report

PFM
Public Financial Management

RMET
Resource Mapping and Expenditure Tracking

SARA
Service Readiness Assessment

SDI
Service Delivery Indicators

UHC
Universal Health Care

WDI
World Development Indicators

WHO
World Health Organization

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

4 SECTION 4
Additional Guidance



SECTION 2

Cross-Cutting Analysis on Efficiency and Equity

Rather than targeting specific health spending components like medicines or hospitals—which are covered in Section 3—this section provides tools for a high-level understanding of the efficiency and equity of spending.

CONTINUE

CROSS-CUTTING NOTE 1

ASSESSING SPENDING EFFICIENCY

CROSS-CUTTING NOTE 2

ASSESSING EQUITY IN SPENDING ***(FORTHCOMING)***

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

- Assessing Spending Efficiency
- Assessing Equity in Spending
- List of Acronyms

3 SECTION 3
Topic-Specific Analysis

4 SECTION 4
Additional Guidance

CROSS-CUTTING 1

Assessing Spending Efficiency

AUTHORS

David B. Evans, Christoph Kurowski, and Denise V. Silfverberg

CONTINUE



INTRODUCTION

Raising additional funds for health to move closer to universal coverage with quality health services and financial protection is important to countries at all income levels. However, the absolute need for additional funds is particularly high in low- and lower-middle-income countries that lack the resources necessary to reach the Sustainable Development Goals (SDGs) for health by 2030 (World Bank 2017; Kurowski et al. 2021).

At the same time, studies suggest that somewhere between 20 percent and 50 percent of current health spending is used inefficiently, or even totally wasted, even in countries with very little to spend (Cutler 2007; WHO 2010; OECD 2017).[1,2] While inefficiency is not unique to the health sector, any improvement in the efficiency of health spending has the potential to facilitate substantial increases in coverage with health services and financial protection for the available resources.[3] Efficiency improvements can also help generate additional resources. Demonstrated improvements in the efficiency of health spending gives ministries of finance the confidence that additional resources will be well used, so they can then allocate more to health.

Despite inefficiencies, health systems still produce important benefits for the population, hence the recognition that inefficiency and waste exist does not warrant a blanket approach such as across-the-board cuts of the health budget. While such an approach can reduce spending on some unproductive activities, it also risks cutting back on activities that produce critical health benefits. The challenge for policymakers is, therefore, to search for ways to improve efficiency without doing harm, a "surgical approach," using a scalpel rather than a cleaver (Cutler 2007). This requires

1 WHO. 2010. The World Health Report 2010. *Health Systems Financing: the Path to Universal Coverage.* Geneva: World Health Organization.

2 OECD. 2017. *Tackling Wasteful Spending on Health*. Paris: OECD Publishing. Organisation for Economic Co-operation and Development. http://dx.doi.org/10.1787/9789264266414-en.

3 One study found that inefficiency in health spending is similar to the inefficiency in education spending but less than in infrastructure spending (Herrera and Ouedraogo 2018), while another found that the potential for output gains from increases in efficiency was higher in education than health spending (Dutu and Sicari 2016; 2020).

understanding the main causes of inefficiency in the health system cutting as a first step, one of the critical issues explored in this document.

Three considerations. When examining the efficiency of health spending, public expenditure review (PER) authors need to keep three considerations in mind. First, on average, countries with lower levels of health spending tend to be more inefficient than those with higher per capita spending (Herrera and Ouedraogo 2018). Efficient production of even a limited set of health services requires minimum quantities of a range of inputs, including sufficient health workers of different types, adequate medicines and other health products, medical equipment for tests, and buildings for outpatient and inpatient care. The lower the level of available funds, the more difficult it is to ensure that all of them are available at sufficient levels, in the right place and at the right time, to enable the health system to operate efficiently.

Second, in countries with very low levels of spending, any efficiency improvement can have only a relatively low impact on health service coverage and other outcomes compared to population needs. For example, a 10 percent increase in the efficiency of resource use in a country with an annual government health spending of $10 per capita will yield benefits equivalent to only $1 per capita. While important, the effect is small in terms of the estimated annual government spending requirement of $115 per capita necessary to reach the health SDGs by 2030 in low-income countries (LICs) (Stenberg et al. 2017).[4]

Third, efficiency improvements in the health sector typically result in greater productivity, that is, achieving more with the available resources. Only sometimes do they save and free up funds that can be reallocated to other uses. One of the few exceptions is in procurement—for example, of medicines—where negotiating lower prices results in financial savings. Moreover, efficiency improvements often require an upfront or even sustained investment before they have any impact. For example, the introduction of gatekeeping rules to reduce the number of patients who seek care at secondary or tertiary health facilities without a referral will require staff training, communication strategies, and information systems, costing money and taking time to produce results.

4 The Stenberg et al. estimates for government spending are updated to 2023 constant dollars using the US gross domestic product (GDP) deflator. The necessary level of government spending per capita in 2030 is estimated as 81 percent of the total in LICs based on the assumptions in Stenberg et al. (2017).

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

Assessing Spending Efficiency

Assessing Equity in Spending

List of Acronyms

3 SECTION 3
Topic-Specific Analysis

4 SECTION 4
Additional Guidance

OBJECTIVES AND STRUCTURE OF THE DOCUMENT

The purpose of this cross-cutting note is to outline the ways in which PER authors can assess the efficiency of health spending. It draws on the other modules in the Health PER How-to Guide that focus on specific components of health spending.

Following a brief description of the main focus of the document (on spending efficiency) in section 3, section 4 covers definitions and concepts. Section 5 then provides guidance on how to assess the macro efficiency of health systems. It introduces the concept of macro efficiency and different methodologies for assessing it, including a simple approach and more formal frontier models. Section 6 turns to identifying sources of inefficiency using micro data and information on inputs, outputs, and the relationship between them. It draws on the framework described in Section 1 of the Health PER How-to Guide to illustrate how different upstream components in the financing results chain can influence the inefficiencies linked to inputs and outputs purchased or produced with health spending. Section 7 then provides guidance on how to prioritize multiple sources of inefficiencies for policy action. The note continues in section 8 with a short section on identifying inefficiencies that, when addressed, can result in financial savings before the conclusions of section 9.



A FOCUS ON THE EFFICIENCY OF GOVERNMENT SPENDING

For the purposes of this PER guidance note, public expenditure on health is defined as spending from general government funds or from social health insurance contributions, including any expenditure from development assistance for health (DAH) channeled through government systems.

In contrast, spending from private sources comprises expenditure from forms of voluntary private health insurance (excluding any transfers from government revenues), payments for health by corporations (profit, not-for-profit, and civil society), and out-of-pocket (OOP) spending by households. Expenditure from DAH commingled with any of these sources is also classified as private (OECD, Eurostat, WHO 2016).

By definition, the PER focuses on the efficiency of public spending. However, inefficiencies also exist in the different forms of private spending, including OOP spending—for example, the purchase of inappropriate medicines, or suboptimal doses sold over the counter.

Nevertheless, some insights on how to improve private spending may well emerge during a PER focusing on government spending, and this is considered further toward the end of this note. Inefficiency in spending relates to purchasing inputs to make health services or to purchasing the services themselves. Inefficiency can also exist in resource mobilization, pooling, and in the way revenues, once collected, are channeled to financing schemes and agencies, and then to public health and health system functions—that is, resource allocation. These "upstream" activities can also have an impact on spending efficiency further downstream. Both issues are considered briefly before focusing on the question of spending efficiency.

Finally, a selection of indicators is provided in the various sections that can help PER authors identify the extent and nature of inefficiency and possible causes. Wherever possible, the selection prioritizes indicators that are suggested in the modules in Section 3 of the How-to Guide, and indicators that are available in the World Bank's Health Financing Data Visualization Tool (DVT)—although PER authors will invariably need to search for other sources of data as well. The DVT is available on Resources (mcas.ms), under Data Tools.[5]

5 Contact person is Kat Andrews: kandrews@worldbank.org.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

Assessing Spending Efficiency

Assessing Equity in Spending

List of Acronyms

3 SECTION 3
Topic-Specific Analysis

4 SECTION 4
Additional Guidance

SPENDING EFFICIENCY: SOME ECONOMIC CONCEPTS AND DEFINITIONS

Health economics typically defines two types of efficiency—allocative and technical (World Bank 2017)—see Box 1. A system is allocatively efficient if it produces the mix of goods and services that maximizes society's objectives for the sector (PER authors should think of this as "doing the right things"). Traditionally, this has been assessed in terms of whether the available mix of health services maximizes population health status for the expenditure.

A system is technically efficient when it produces the maximum outputs with the available inputs (authors should think of it as "doing things right"). Inputs include, for example, different types of health workers, medicines, other medical supplies, equipment, and infrastructure, and outputs are usually measured in terms of service coverage. The health economics literature often subsumes the concept of production efficiency from microeconomics under technical efficiency. Production efficiency means that a system produces the chosen set of goods and services at the lowest cost.

Analysis of both allocative and technical efficiency requires specifying the desired outcome, the numerator, with costs as the denominator. For allocative efficiency, the literature has traditionally specified benefits in terms of population health indicators such

BOX 1. WHAT IS EFFICIENCY?

ALLOCATIVE EFFICIENCY

Allocative efficiency is achieved when the mix of health goods and services that maximizes social objectives is produced for the available resources.

TECHNICAL EFFICIENCY

Technical efficiency requires that the mix of inputs used produces the maximum possible output.

PRODUCTION EFFICIENCY

The concept of production efficiency—the lowest cost mix of inputs is used to achieve the desired output—is usually subsumed under technical efficiency in health economics.

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

Assessing Spending Efficiency

Assessing Equity in Spending

List of Acronyms

3 SECTION 3
Topic-Specific Analysis

4 SECTION 4
Additional Guidance

as disability adjusted life years avoided (DALYs), years of life or healthy years of life gained (HLEs), "healthy life expectancy", or quality adjusted life years gained (QALYs). For technical efficiency, outputs such as coverage levels achieved for specific health services are usually used rather than outcomes such as DALYs.

In the universal health coverage (UHC) era, however, improving coverage with health services, and through that, health status, is only one of the two objectives of health financing policy. The second is to ensure that people do not suffer undue financial hardship associated with paying out of pocket for the health services they receive (WHO 2010). While health financing policy is increasingly considering the impact of different strategies on both pillars of UHC (for example, Verguet, Kim, and Jamison 2016; Fraser et al. 2024), the analysis of both allocative and technical efficiency still focuses essentially on how well resources increase coverage with quality health services or improve population health.

Two main ways of assessing inefficiency in health spending exist—macro-efficiency and micro-efficiency analysis. They are now discussed in turn.



MACRO-EFFICIENCY ANALYSIS

For a PER, the primary objective of a macro-efficiency study is to gain insights into whether a country obtains less (or more) from its health spending than comparable countries. Assessing the relative macro efficiency of health systems can be helpful in initiating discussions on the importance of reducing inefficiency with country counterparts and stakeholders. It will not, however, reveal the causes of inefficiency. For this, more granular assessments are required.

In federal systems, PER authors might find it useful to undertake a macro-efficiency analysis comparing the efficiency of subnational units, or health facilities such as hospitals,[6] to identify which ones achieve relatively less than others for their health expenditures. The techniques are the same as for the cross-country macro-efficiency analyses described here.

Two ways of assessing macro efficiency are possible. First, a quick and simple approach that is not data intensive can help raise the importance of efficiency improvements with policymakers. The alternative is to use formal methods, most commonly data envelopment analysis (DEA) and stochastic frontier analysis (SFA), to obtain a numerical estimate of the relative efficiency of a country's health system in cross-country comparisons. This approach is data intensive and time consuming. The first approach is described in the next subsection, followed by more formal methods.

6 The Hospitals module in Section 3 of the How-to Guide goes deeper into how the comparative efficiency of hospitals in a country can be assessed, including through macro-efficiency analysis.

Quick and Simple

A quick and simple way of gauging how efficiently a health system translates inputs into outcomes is to compare a specific health outcome with per capita spending levels across a set of similar countries—usually chosen because they have similar levels of health spending per capita. The goal is to see if the PER country achieves more or less from its spending than comparator countries.

For this type of analysis, current per capita health expenditure is commonly used as a proxy for all the inputs that go into producing the particular outcome. Current health spending is preferred to total country health spending (total is current plus capital) on the grounds that capital spending is "lumpy", often with large variations across years—for example, in countries prone to natural disasters where buildings need to be rapidly repaired or rebuilt. All health spending, public and private, is included because it is impossible to determine which part of the outcome is attributable to each source of spending. It is therefore critical not to interpret the results of a macro-efficiency analysis as implying efficiency or inefficiency in government health spending alone.

Outcomes are typically measured in terms of some indicator of population health status such as life expectancy, some of its variants that include both mortality and morbidity components such as healthy life expectance, or mortality rates (Table 1). The Universal Health Coverage Index may also be used: a weighted average score of service coverage targeting a range of health conditions (WHO and World Bank 2021).

When selecting outcome indicators, it is important to choose those that are affected mainly by factors within the health system. For example, childhood stunting may not be the best choice, because it is affected by many factors outside the control of the health system, including poverty rates and the availability of food.

If of interest to a government, the same approach can be used to assess the efficiency of a specific health program compared to those in other countries or across health facilities for a particular condition. Recent examples cover noncommunicable disease and malaria control (for example, Bala, Singh, and Gautam 2022; Novignon et al. 2023).

To illustrate the approach, a recent Zambia health PER (World Bank 2019b) visually explores the relationship between country health expenditure and three separate outcome indicators: a

Healthcare Access and Quality (HAQ) Index that had been calculated for multiple countries, the maternal mortality rate, and the under-5 mortality rate. The analysis suggests that Zambia was less efficient in translating its health expenditure into improved access and quality, and in reducing under-5 mortality, than comparator countries. Interestingly, it performed better than the comparator countries with similar levels of per capita health spending in terms of reducing maternal mortality. This led to discussions about the implications for the allocation of the available funds to the different programs as well as for ways to improve efficiency.

Where the analysis shows that a country achieves low levels of health outcomes or service coverage compared to countries with similar levels of health spending, it is suggestive that it is less efficient in transforming inputs (spending) into health outcomes or coverage. This is, of course, not strictly correct. First, there are many other determinants of health outcomes that might vary across countries in addition to the current year's health spending. For example, investments in water and sanitation, differences in female education levels, and poverty rates vary across countries and can result in differences in health outcomes independent of differences in current health spending. Second, there can be variation across countries in factors that mediate how effectively inputs can be translated into outputs, including population density and topography: urbanization, for example, reduces while mountainous terrains increase the costs of health service provision to populations.

Table 1. Possible Indicators for Assessing Macro Efficiency

Outcomes	Indicators
Life expectancy	• Life expectancy at birth • Healthy life expectancy at birth
Mortality	• Neonatal mortality • Infant mortality rate • Under-5 mortality rate • Maternal mortality rate
Morbidity	• New cases of vaccine preventable diseases
Coverage	• UHC Health Coverage Index[7]

Note: UHC = universal health coverage. See WHO (2018a) for a range of indicators that might be useful depending on data availability in the country.

In the case that the analysis shows that a country attains relatively high health outcomes or service coverage levels in comparison with countries of similar spending levels, the results are still

7 WHO and World Bank 2021, 2023. The estimates of the HAQ Index used in the Zambia PER are available only for 2016.

no reason for complacency. The risk is that policymakers may conclude that there is no need to address inefficiency, but the truth is that even relatively high-performing countries suffer from inefficiencies that are worth addressing—the inefficiencies might be equivalent to 20 percent of all health spending—the lower rather than the higher end of the estimated 20–50 percent of health resources wasted—but even a 20 percent loss due to inefficiency needs action.

Whatever the result, the quick and simple macroanalysis of spending efficiency can be misleading, and care needs to be taken in the interpretation of the results. It can, nevertheless, be a useful starting point for conversations with policymakers about inefficiency in sector spending and how to reduce it. And it may prompt interest and show whether a more formal macroanalysis of spending efficiency is worth it.

Using the Health Financing GSG Data Visualization Tool

The World Bank Global Solutions Group data visualization tool (DVT) can be helpful for this type of efficiency analysis. It allows PER authors to chart per capita health spending against an outcome or coverage indicator, and benchmark against comparator countries. The tool also allows easy groupings of countries.

An example is shown in Figure 1 where life expectancy at birth is used as the outcome variable, mapped against current health expenditure per capita (in natural logarithms) for 2020. Each dot is a low- or middle-income country, and blue dots are countries in Sub-Saharan Africa.

As a general trend, life expectancy increases with increasing expenditure. Focusing now on the Sub-Saharan African countries with spending ranging from $50 to $100 per capita, the life expectancy at birth in Côte d'Ivoire is below 60 years, and in Nigeria below 55 years. In contrast, Senegal has the highest life expectancy, nearly 70 years, at similar expenditure levels.

This type of analysis can be used to start a conversation with the governments of Nigeria and Côte d'Ivoire about why they might perform relatively poorly and the role that inefficiency in health spending might play.

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

Assessing Spending Efficiency

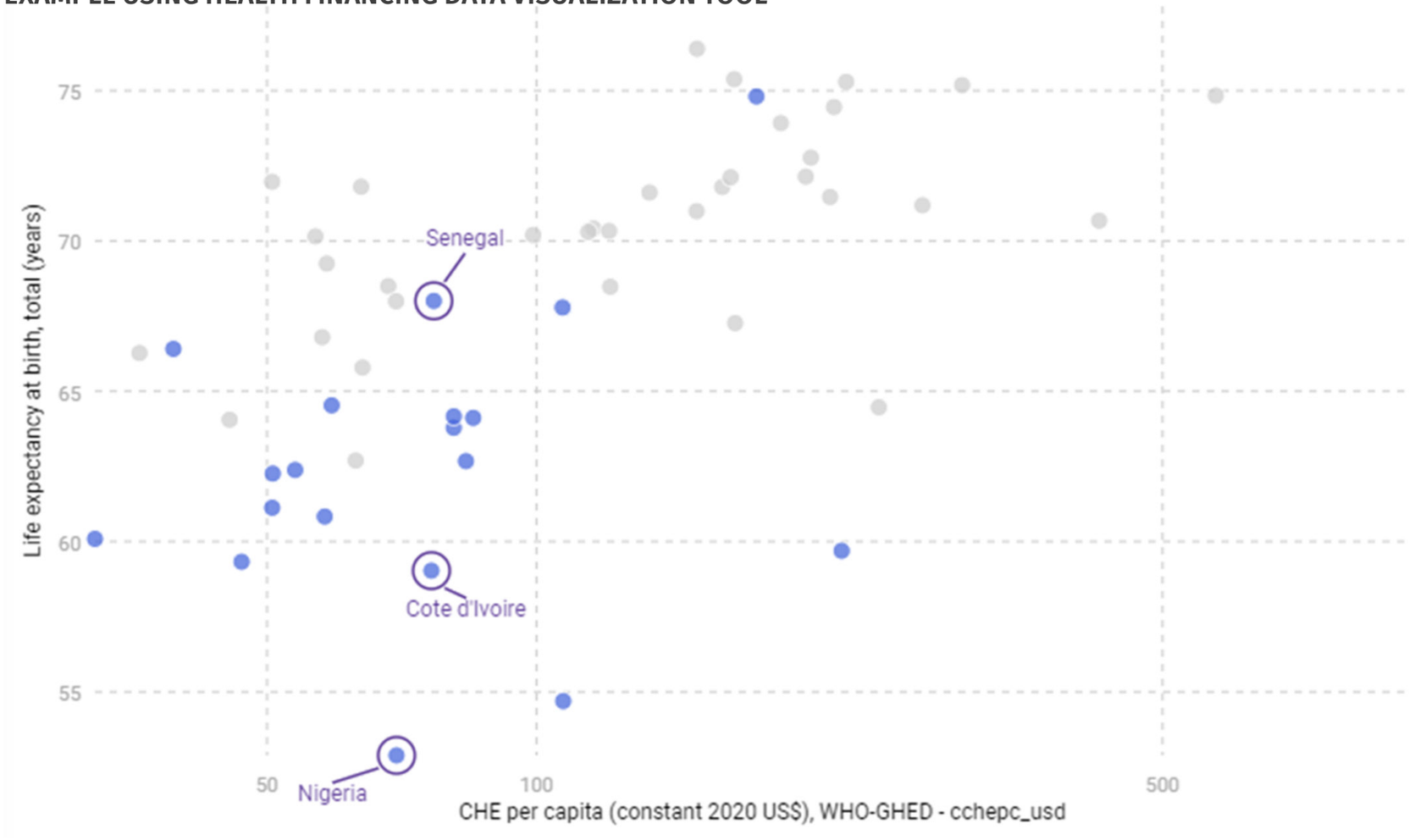
Assessing Equity in Spending

List of Acronyms

3 SECTION 3
Topic-Specific Analysis

4 SECTION 4
Additional Guidance

FIGURE 1
EXAMPLE USING HEALTH FINANCING DATA VISUALIZATION TOOL



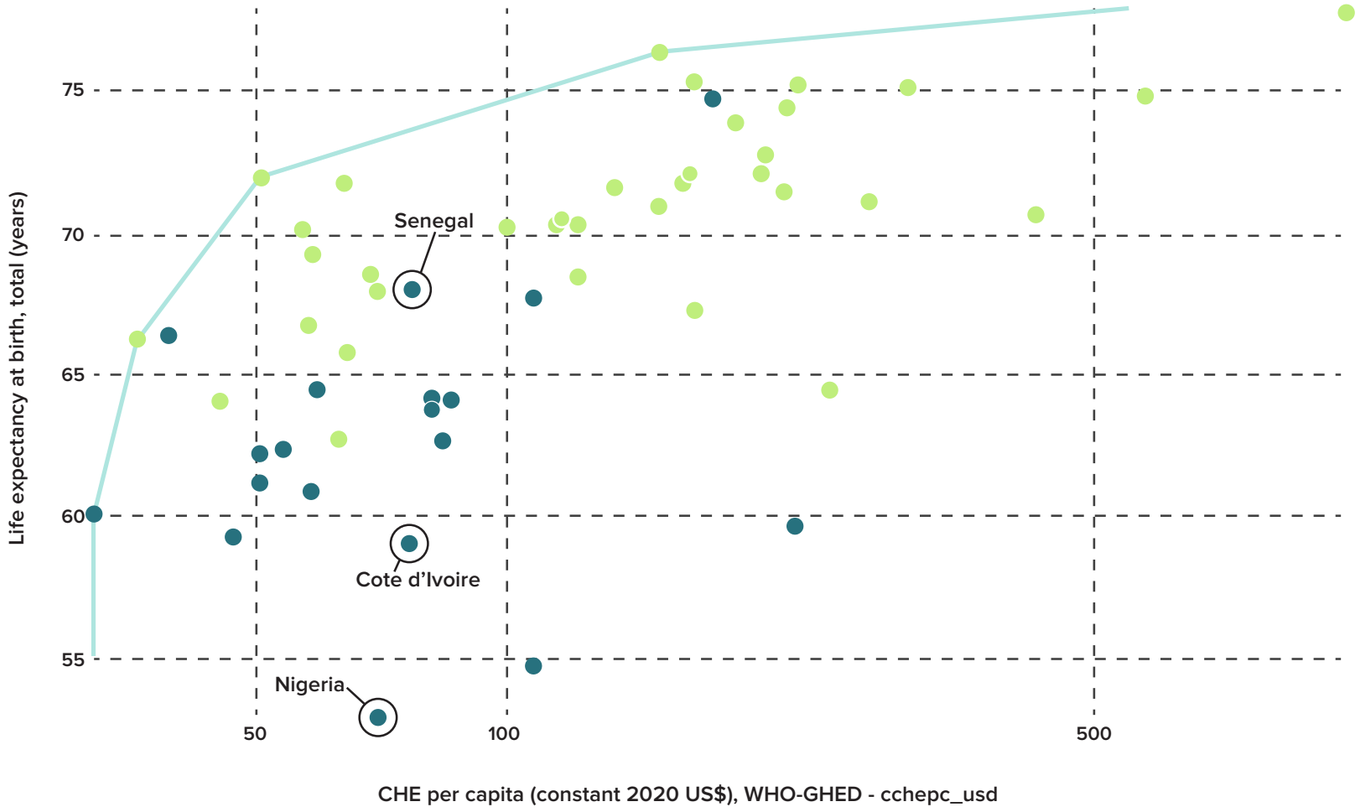
Sources: CHE (current health expenditure) per capita (constant 2020 US$). WHO-GHED-cchepc_usd: World Bank staff calculations using data from WHO Global Health Expenditure Database
Life expectancy at birth, total (years): World Development Indicators

Formal Methods for Macro-Efficiency Analysis

Simple and quick analysis is only suggestive of spending inefficiency because it does not control for the myriad other possible determinants of health outcomes or service coverage. Formal methods have been developed to do this, though they are also less than perfect. Two of these methods are data envelopment analysis (DEA) and stochastic frontier production function analysis (SFA), and more recently, the methods are sometimes combined.

Both essentially estimate a frontier from the set of country data points: the maximum attainment (for example, life expectancy at birth in Figure 1) possible for any level of per capita health spending. The frontier, or upper envelope line, is illustrated in Figure 2 using the data in Figure 1.

FIGURE 2
EXAMPLE OF A FRONTIER FOR LIFE EXPECTANCY



Sources: CHE per capita (constant 2020 US$). WHO-GHED-cchepc_usd: World Bank staff calculations using data from WHO Global Health Expenditure Database. Life expectancy at birth, total (years): World Development Indicators

Inefficiency for a given country is estimated as the gap between its level of attainment and the frontier, after adjusting for the contributions of the other possible determinants of attainment (health status or service coverage). (See the modules on Health Status and Health Risks and Service Coverage.)

Explanations of the theoretical basis of the two approaches are widely available, as is STATA code and alternative packages for estimating them (for example, Cylus, Papanicolas, and Smith 2016; chapter 3 in Thanassoulis, Portela, and Despic 2008; Greene 2008). Briefly, DEA is a nonparametric method that uses mathematical programming to estimate a frontier from the observed data points.[8] SFA is a parametric approach that specifies a functional form for the relationship between health spending, other possible inputs, and the chosen output or outcome. SFA employs regression analysis to estimate a frontier equation—a production or cost function—with an error term showing the departure from the frontier that cannot be explained by the different explanators that have been included in the model. The error term is then subdivided into random noise (random variation due to chance) and the component of inefficiency.

In contrast to the simplified approach described in the previous section, these formal methods seek to control for potential sources of variation in the outcome that are not attributed to inefficiency by including other explanatory variables in addition to health expenditure (for example, Hollingsworth 2003, 2008; Herrera and Pang 2005; Jourmard, André, and Nicq 2010; Liu, Wu, and Yao 2022). In the past 15 years, they have also become increasingly sophisticated, and PER authors with good econometric skills might want to consult the work of Berenguer et al. (2016); Olesen and Petersen (2016); Hamidi and Akinci (2016); Herrera and Ouedraogo (2018); and Izadikhah (2022) for some of the latest developments.

Although formal methods seek to account for a range of possible determinants of outcome other than health spending, they also have limitations. In essence, they treat unexplained deviations from the frontier—deviations from the maximum possible level of attainment given the level of health expenditure and levels of other determinants — as inefficiency. This is only true if it is possible to measure and control for all the other possible determinants, which is rare.

8 Parametric methods derive statistical implications using assumptions about the population distribution being studied—for example, it might be assumed to be a normal distribution. Nonparametric methods make no such assumptions but simply observe what is happening. For an easy-to-understand explanation, see Difference between Parametric and Non-Parametric Methods—GeeksforGeeks (https://www.geeksforgeeks.org/difference-between-parametric-and-non-parametric-methods/).

PER authors should also be aware of a range of other issues, including:

- The models assume that countries on the frontier are efficient, when more micro-level work suggests forms of inefficiency exist in all countries.
- The efficiency scores and rankings are sensitive to the model specification and the data used for inputs, outputs/outcomes, and determinants: sometimes a country (or health facility) will appear relatively inefficient in one specification and relatively efficient in another (Gearhart 2016).
- The existing models, even those using panel data (where many years of data points are included), assume a relationship between expenditure and outcomes only in the year of the expenditure. They do not capture the lags that are important in translating inputs into outputs and outcomes. For example, health spending today on prevention produces health benefits for many years rather than simply in the year the expenditure is made.
- The models allow for assessing a country's efficiency in producing health relative to other countries but, like the quick and simple method, do not unpack the reasons for its performance being better or worse than others or the causes of any apparent inefficiency.
- As the quick and simple approach, the formal methods use current health expenditure per capita as an explanator of outcome. As such, they do not show inefficiency in government spending, the usual focus of a PER, but in total health spending. As explained earlier, it would not be correct, however, to use GHE per capita as the explanatory variable, because health outcomes are determined by the mix of both private and government spending and the techniques do not allow the assessment of the efficiency of government spending alone.
- Finally, the models have not yet integrated the two goals of UHC—coverage with health services (or health outcomes) and coverage with financial protection—as joint objectives of efficiency. They focus on some indicator of coverage with health services or health status.

When to Carry Out a Macro-Efficiency Assessment and What Approach to Use

On balance, if policymakers are convinced of the need to reduce inefficiency in health spending, there is no need to undertake a macro-efficiency analysis (see Table 2). However, if this is not the case, the quick and simple approach (the data visualization tool can help with this) allows checking if health spending looks inefficient compared to comparator countries (with similar current health spending per capita, similar regional grouping).

A If "yes," the analysis can be used as an entry point to discussions with policymakers about the need to pay attention to inefficiency; or

B If "no," it may be better to turn directly to the micro-efficiency approach and combine the identification of sources of inefficiencies with an attempt to quantify their impact on overall spending efficiency.

In general, a formal macro-efficiency study is likely to be the exception, not the rule, for a health PER. Sometimes a formal analysis can be found in the literature for a range of countries, including the PER country. If so, the earlier discussion of the approach should be helpful in interpreting the results.

If a country is concerned with the relative efficiency of production units such as hospitals, or subnational health units, it might be useful to undertake a formal analysis, though data requirements will be substantial. An example is the health chapter of the Chile PER (World Bank 2016) that assessed the relative efficiency of regional public integrated service delivery networks and its determinants using formal techniques. Other useful examples include Kirigia et al. (2004), Osei et al. (2005), Kohl et al. (2019), Cinaroglu (2020), Jiang and Andrews (2020), Nwakobi (2020), and Cordero et al. (2023).

Table 2. Pros and Cons of a Macro-Efficiency Analysis

Approach	Value	Possible Problems
Quick and simple	Can help to convince decision makers that it is important to improve the efficiency of sector spending.	**A.** Can have the opposite effect if a country turns out to be relatively efficient—this does not mean there are no major causes of inefficiency, so the exercise could be counterproductive. **B.** Does not control for other determinants of outcome, so only a possible indication of relative efficiency. **C.** Gives no idea of the sources of inefficiency, or possible ways to address them—micro-efficiency analysis is still required.
Macro efficiency—formal modeling (e.g., stochastic production functions, data envelopment)	**A.** Can help convince decision makers that it is important to improve the efficiency of sector spending. **B.** Controls for some of the other possible determinants of output or outcome, hence, may be perceived as having more validity.	**A.** Data availability restrictions mean that the methods cannot control for all determinants of outcome. Hence, while it is more accurate than the quick and simple approach, it gives only an indication of relative efficiency. **B.** Gives no idea of the sources of inefficiency, or possible ways to address them—micro-efficiency analysis is still required. **C.** Different model specifications give different efficiency rankings for the same data and country, so it is difficult to be sure unless a country is consistently ranked high or low.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

Assessing Spending Efficiency

Assessing Equity in Spending

List of Acronyms

3 SECTION 3
Topic-Specific Analysis

4 SECTION 4
Additional Guidance

MICRO APPROACHES TO IDENTIFYING SOURCES OF INEFFICIENCY

For a health PER, the prime objective of a micro-efficiency analysis is to identify the main sources of inefficiency in the health system, which can then be addressed by policy action.

A PER micro-efficiency analysis would consider how inputs interact and translate into the production of outputs and outcomes, based on the definitions of efficiency described earlier. It would consider the range of possible sources of inefficiency separately and some of their linkages but could not estimate the implications of all these sources together for overall health system efficiency.[9]

Secondary objectives of a micro-efficiency analysis are to:

- Identify the sources of inefficiency that are likely or unlikely to generate cost savings.
- Identify policy levers to address all sources.
- Prioritize the areas for immediate policy action considering the associated costs, possible benefits, and likely political and other constraints to action.

9 Another common use of microanalysis asks whether a proposed use of health funds represents value for money compared to alternative uses (Leelahavarong et al. 2019; Bloem et al. 2021). This form of micro-efficiency analysis is most commonly used in deciding whether new medicines or health technologies should be publicly financed. It would not usually come into a health PER and is not considered further.

The Health Financing Framework as an Entry Point

The introduction to the Health PER How-to Guide describes the health financing framework used to organize the discussion in the various modules. A simplified version for the purposes of the micro-efficiency analysis is reproduced in Figure 3. It is then used to organize the subsequent discussion. It can also help PER authors understand the various factors that influence inefficiency, as well as providing a structure for thinking about the various sources of inefficiency and their interlinkages. Many possible sources of inefficiency could emerge from the analysis, and PER authors will need to focus on a subset that is most important to them. Accordingly, the micro-efficiency discussion concludes by describing an approach for putting all the available information together and focusing on areas that are priorities for the PER country.

FIGURE 3
HEALTH FINANCING FRAMEWORK AND EFFICIENCY

	ENABLERS	INPUTS	OUTPUTS: SERVICE DELIVERY	INTERMEDIATE OUTCOMES	OUTCOMES
DIMENSION	Resource Mobilization Pooling Resource Allocation	• Input Quantity • Input Productivity and Quality • Input Prices • Input Mix	• Allocative Efficiency: The mix of health goods and services produced or purchased • Technical Efficiency of Production • Service Quality	• Service Coverage	• Efficiency in Producing Outcomes Considered Part of Macro-Efficiency Analysis

Sources: World Bank staff.

The Framework and Efficiency

Reiterating the earlier definitions of efficiency, technical efficiency requires that the inputs that are used produce the maximum possible benefit, which in micro-efficiency analysis is usually measured in terms of the outputs achieved—for example, coverage with a specified health service or the number of bed days occupied annually in a hospital. This cuts across the columns in the framework of Figure 3 marked at outputs and intermediate outcomes.

Technical efficiency also requires that the output is achieved at the lowest cost. There are two implications of this requirement: the prices paid for each input (of a specified quality) should be the lowest possible, and inputs should not be wasted—that is, the minimum possible quantity of an input should be used to achieve the desired output (of a specified quality). Technical efficiency, therefore, requires consideration of the inputs used to make health services as well as the relationship between those inputs and the outputs achieved.

Allocative efficiency requires that the "right" set of outputs or health services are produced. This requires identifying the range of services available, their quality, and their coverage levels achieved compared to an ideal set—the range, quality, and coverage levels that would maximize the desired outcome (assuming each is produced in a technically efficient manner).

While spending efficiency analysis focuses on the relationship between inputs and outputs, enablers in the framework—the health financing functions—can be important to a micro-efficiency analysis in two ways. First, there can be technical inefficiencies in the "upstream" activities of resource mobilization, pooling, and resource allocation. Second, the way these activities are organized can influence the efficiency of subsequent spending. Understanding these links can help identify the possible causes of any inefficiencies in health spending. The next subsection considers these aspects for resource mobilization, pooling, and resource allocation.

Resource Mobilization, Pooling, and Resource Allocation

This section considers the inefficiencies found in the upstream activities of resource mobilization, pooling, and resource allocation, as well as the way their organization can influence spending efficiency. This understanding enables PER authors to think through what types of inefficiencies to look for. It also helps them consider possible reasons that various types of spending efficiency exist.

Resource Mobilization

Inefficiencies in resource mobilization. Government revenue collection systems, including tax administration, particularly in LICs and LMICs, are often inefficient in that they do not collect anywhere near the full amount that would be expected from the taxes and charges (including social contributions such as obligatory health insurance) that are specified in law. The ministry of finance or a tax authority is usually responsible for collecting most tax revenues, so questions about the efficiency of this type of revenue collection are not generally the responsibility of the health sector or a health PER. The International financial institutions such as the World Bank and IMF, however, work with countries to improve revenue collection and undertake country- and region-specific reports (Dom et al. 2022; IMF 2023a). For the broader objectives of a PER, it is often important to explore whether this type of work has been or is being undertaken in the PER country to gauge the extent that overall revenue mobilization is likely to improve as a share of gross domestic product (GDP) over time.

If this information is not available, government revenue (or tax revenue) as a share of GDP compared to countries with similar levels of GDP per capita is useful to PER authors as a rough indicator of the efficiency of government revenue generation efforts: this is suggested in the Resource Mobilization module of the Health How-to Guide. These indicators do not, of course, reflect only inefficiency in collecting currently defined taxes and charges, but can also be associated with differences across countries in the range of taxes and charges that are levied, their rates, and the range of people and firms required to pay—the so-called tax base—and need to be interpreted cautiously.

The collection of obligatory health insurance contributions is sometimes the responsibility of a ministry of finance and sometimes a health insurance or social insurance agency. As with tax payments, evasion and other forms of inefficiency in the collection of social insurance contributions abound (McGillivray 2001; Minerva and Sefanov 2018; Yazbeck et al. 2021). Where social health insurance (SHI) contributions are collected separately to tax contributions, PER authors may be interested in understanding the extent that the revenues expected from the mandated contributions are collected along the lines of Jowett and Hsiao (2007) and Alkenbrack, Hanson, and Lindelow (2015).

The impact of resource mobilization on spending efficiency. In many countries, OOP spending remains an important source of revenues for the health system. When charged by for-profit service providers, OOP spending can be associated with different forms of spending inefficiency, including overservicing for people who can afford it. Where fees are charged for government health services, or copayments for obligatory health insurance, the largest impact is likely to be on deterring the people who cannot afford them from seeking services. This can result in subsequent spending inefficiency in that people delay seeking care until their case is more severe, sometimes requiring higher treatment costs than would have resulted from more timely treatment. This is difficult to measure and track, although the share of OOP spending in country health expenditure compared to comparable countries might give an idea of the extent of this type of inefficiency.

Where countries rely heavily on external funding, donors sometimes choose to create their own systems rather than using existing country systems (for example, for channeling funds, audit, reporting, laboratory testing, even service delivery). Duplication of costs leads to system-wide inefficiency. This occurs mostly where DAH is not channeled through the government so would not be picked up by a health PER focusing only on government spending. PER authors could usefully consider the proportion of country health expenditure provided by donor funding and the share of donor spending that is on-budget. If, for example, the share of DAH passing through government channels is low relative to comparable countries, it would be useful to evaluate the extent of duplication of different components of the health system linked to off-budget DAH.

Pooling

Pooling inefficiencies. Technically, inefficiency can arise in pooling when the administration and operation of the pool(s) cost more than necessary. For obligatory health insurance, this can occur particularly where there are multiple pools, each with its own administration, but

it also happens in single pools where administration absorbs a high share of the revenue in salaries and other benefits for staff (Mathauer and Nicole 2011; Mathauer et al. 2020).

The most common way of looking at this is in terms of administrative costs as a share of total spending. The Pooling module suggests that anything above the benchmark of 1–3 percent implies that administration and operation costs are higher than necessary. The 3 percent figure is the average across Organisation for Economic Co-operation and Development (OECD) countries for all administrative costs associated with health, including health insurance (obligatory and voluntary) (OECD 2013; Mueller, Hagenaars, and Morgan 2017). Indeed, in most LICs and LMICs, pooled funds for health derive predominantly from general government revenues, so the share of general government health spending, including SHI, taken by administration is more relevant than the share of administration in the spending of SHI agencies alone.

The OECD data suggest that countries' administrative costs absorb greater shares of spending for private than for obligatory insurance and absorb more in countries with SHI than for health funded solely from general government funds (Mueller, Hagenaars, and Morgan 2017). Data on administrative spending by health insurance agencies should be available in their annual accounts.

More broadly, country health account studies report all administrative costs relating to health (including health insurance)—under the category of governance and health-system and financing administration (OECD 2013). The share of country health expenditure allocated to governance and administration tends to fall as income per capita rises (Dieleman et al. 2017). This cannot be construed as being inefficiency—part may, for example, be due to economies of scale in administration. A health system requires a minimum level of spending on administration to operate, but once that is achieved, the incremental administrative costs of expanding the system might be relatively low. On the other hand, differences across countries at similar income levels in the share of country health expenditure allocated to governance and administration could be an indicator of possible inefficiency. PER authors could check this if their country has undertaken a recent health account study.

The impact of pooling on spending efficiency. Large pools allow for increased bargaining power in purchasing negotiations with the suppliers of inputs or health service providers. This has the potential to reduce prices. PER authors could explore the nature of pooling and the resulting purchasing arrangements—for example, do hospitals, health centers, subnational levels of government, or different social health insurance schemes hold funds allowing them to purchase independently, each with lower bargaining power, or is there some form of central purchasing? This may well happen more in decentralized systems.

This is useful background information for exploring, in subsequent stages of the efficiency analysis, whether and why prices paid are "too high."

Resource Allocation

Resource allocation refers to the distribution of government funds, once collected, to financing schemes and agencies including ministries, social health insurance agencies, and subnational levels of government. This also includes any financial transfers between agencies—for example, risk equalization mechanisms when there are multiple insurance agencies. The next stage of resource allocation involves transfers from these agencies to different types of departments, agencies, and health programs (for example, hospitals versus primary health care (PHC) centers; malaria versus control of noncommunicable diseases) and to secure public health and health system functions. The final step involves the flow of funds from purchasers to the providers of inputs or services.

Inefficiency in resource allocation. Corruption and leakages of various types are major sources of inefficiency in resource allocation in many countries, though they are apparently higher in lower-income settings due to relatively weak public financial management (Artificial Fiscal Intelligence 2023; Laing 2023). Using a "follow the money" approach in the budget cycle—budgeting, commitment, procurement, contract management, verification and payment, audit—Artificial Fiscal Intelligence (2023) recently illustrated how corrupt officials can receive payment to divert budget flows from their intended use and reduce the available funds to spend on budget priorities. Interestingly, a higher proportion of total losses were estimated to occur in the budgeting step than in the other steps of the budget cycle—for example, interested parties pay so that public funds are budgeted for activities that directly benefit political allies or entities that are controlled by them (Artificial Fiscal Intelligence 2023).

Other types of leakages involve pilfering of medicines, equipment, or cash reserves. There are no simple indicators of the extent of leakages in health by itself, but the Artificial Fiscal Intelligence (2023) study estimates losses for 2012–18 for many countries, including most LICs and LMICs. PER authors can also search for similar studies undertaken for their PER country.

The impact of resource allocation on spending efficiency. Drawing on work from the Public Financial Management (PFM) Performance Framework (PEFA 2019), the OECD's Good Budgeting Practices (OECD 2023), the Artificial Fiscal Intelligence approach (2023) described above, and a recent application to Kenya (Musiega et al. 2023),

all stages of the budget cycle can impact the level and nature of the flows of government resources from collecting agencies to purchasers, with implications for spending efficiency. This is illustrated using the budget cycle described earlier from Artificial Fiscal Intelligence (2023) with the components budgeting, commitment, procurement, contract management, verification and payment, and audit.

- ***Budgeting.*** Input-based line-item budgets often have limited in-year budget flexibility because of tight limits on transfers between budget lines (virements). This can lead to shortages of the inputs where a budget line is exhausted—even if the original intention was to ensure there was sufficient funding for each input. Forms of program budgeting with overly detailed budgeting can limit the flexibility of purchasers to reallocate funds within their budgets when needed. Where budget execution is routinely monitored, over- or underspends can be identified early and corrected.
- ***Commitment.*** Delays in releases from a ministry of finance or from a ministry of health to purchasing units (for example, health centers, subnational levels of government) can mean that medicines, equipment, and personnel cannot be purchased in a timely manner, possibly resulting in shortages of inputs. When the funds become available, they need to be purchased rapidly, before the cutoff date for spending in the financial year, which can lead to paying higher than necessary prices. Delays also result in arrears—bills being unpaid—meaning suppliers are less willing to provide inputs or services in the future or demand higher prices, believing there will be payment delays. Delayed release of funds can also result in underspending on some budget lines, meaning funds are returned to the treasury at the end of the fiscal year. Although not an inefficiency per se, it means that the available funds could not be used to improve health and financial wellbeing (Fritz, Sweet, and Verhoeven 2014; Barroy, Sparkes, and Dale 2016; WHO 2016; Cashin et al. 2017).
- ***Procurement.*** A lack of accountability across purchasers for how they follow PFM rules such as competitive bidding can lead to paying too much for inputs or services. Similarly, a lack of accountability or capacity across purchasers for specifying clear contract deliverables and timelines leads to higher costs or lower outputs. Payroll management is a case in point where ineffective management can lead to overpayments to existing workers or payments for workers who do not exist—ghost workers (WHO 2020). Complex procurement rules, often introduced to restrict corruption, can also lead to delays in obtaining the necessary inputs or services. Contingency frameworks setting rules for how procurement can be undertaken during any sudden shocks (for example, pandemics, natural disasters) sometimes relax these complexities to allow rapid and efficient responses to emergencies.

- ***Contract management, verification, and payment.*** Irregular monitoring of contract deliverables or lax enforcement of timelines reduce productivity and can lead to corruption—for example, payment for services that were not delivered with kickbacks to the payer. Inadequate verification of deliverables before payment has the same effect, while on the other hand, late payment by purchasers can lead to delayed delivery of inputs or services, or reduced quality.
- ***Audit.*** Low capacity to conduct internal audits can mean that expenditures are not used as intended following the country's PFM rules, or are used corruptly—for example, channeled to other uses that benefit the payer.

Table 3 on the following page draws on this discussion to summarize indicators that might suggest inefficiency in resource mobilization, pooling, and resource allocation as well as how they might affect spending efficiency.



Table 3. Inefficiency in Resource Mobilization, Pooling, and Resource Allocation

Key Indicators	Sources
Resource Mobilization	
Inefficiency in RM	
• Tax revenues as % of GDP	IMF World Economic Outlook (IMF 2023b)
• General government revenue as % of GDP	
Impact on spending efficiency	
• OOP spending as a share of country health spending	Country health accounts and WHO (2024)
• DAH as a share of country health spending	
• On-budget DAH as a share of DAH	
Pooling	Country health accounts
Inefficiency in pooling	
• Administrative costs in health, including SHI, as a share of total spending	Country health accounts; annual report(s) or financial statement(s) of SHI scheme(s)
• Administrative costs as a percentage of total SHI spending	
• Administrative costs per member per year*	
• Impact on spending efficiency	
• Number of obligatory prepaid financing schemes in the country including subnational levels of government	Policy documents, reports, key informants
Resource Allocation	Artificial Fiscal Intelligence (2023) study or recent country-specific reports
Inefficiency in resource allocation	
• Leakages as a share of general government health expenditure	
Impact on spending efficiency	PEFA country report where available (PEFA 2019)
• Country study of PEFA indicators (31) of PFM system relating to the budget cycle	

* Only useful where there are multiple schemes to compare.
Note: DAH = development assistance for health; GDP = gross domestic product; IMF = International Monetary Fund; OOP = out-of-pocket; PEFA = Public Expenditure and Financial Accountability; PFM = public financial management; RM = resource mobilization; SHI = social health insurance; WHO = World Health Organization.

Inputs

Earlier it was shown that technical and allocative inefficiency in health spending requires considering both inputs and outputs, as well as their relationship. In the next two sections, we run through inputs and outputs showing how PER authors can think about the way they relate to the different forms of inefficiency, linking back to the discussion on the enablers where appropriate. A set of indicators that PER authors can draw on to explore inefficiency in their context is also suggested. Subsequently, an approach that PER authors can use to tie all this information together to explore sources of inefficiency in public spending on health is described.

To reiterate, technical efficiency requires that any output is produced at the lowest possible cost. This means ensuring there is no waste in the use of inputs, each input is of sufficient quality and as productive as possible, prices paid for each input are the lowest possible, and the mix of inputs minimizes cost for the level of output. These ideas are now explored in turn. Inputs include the different types of human resources, physical infrastructure, equipment, and medicines and medical supplies (see the modules on Human Resources for Health, Physical Infrastructure and Equipment, and Medicines and Medical Supplies).

Input Quantity

The quantity of an input used is not, by itself, an indicator of inefficiency. For technical efficiency, the quantity of an input that should be used depends on its price and how much each additional unit of the input will produce of the desired output. This is not easy to assess in the health sector, given the difficulty of measuring the impact of each additional unit of an input in terms of increasing coverage with needed services or financial protection. It also means that simply looking at the quantity of an input (in total or per population) without an understanding of its price and productivity says little about its under- or overuse.

A rapid assessment of the relative availability of different types of key inputs, however, can be useful in suggesting where to look for possible inefficiencies, particularly in terms of oversupply and likely underuse. This can be done by running through the availability of each of the major inputs—health workers, equipment, inpatient beds, medicines—and comparing the findings to comparator countries.

For example, if there are relatively more hospital beds per population in a country (or part of a country) compared to others, there is more likely to be "underutilization" in terms of low bed occupancy rates. The different sources of data that might be used to rapidly benchmark the PER country against similar countries are found for each indicator described in Table 4.[10]

Findings of relative oversupply, however, need to be interpreted carefully. There are no valid indicators of need for the different inputs for a population with a given disease burden and pattern, and it is likely that many LICs and LMICs, even those with higher levels of each input, do not have enough to meet the real health needs of the population. So, where the PER country has higher levels of different inputs compared to other countries, for example, health workers per 10,000 population, there may still not be sufficient inputs to meet population health needs. However, PER authors could use this information to look deeper into the productivity and appropriate mix of the relatively abundant inputs, for example, outpatient visits per full-time-equivalent doctor.

On the other hand, a yardstick has been developed for a country having too few health workers to enable the health system to function—an extreme of inefficiency. The World Health Organization (WHO) estimated that 44.5 health workers per 10,000 population is the minimum necessary to achieve at least a 25 percent score on 12 SDG health targets (WHO 2016).[11]

The other aspect of input quantity relating to efficiency is waste. Examples are medicines expiring before they can be used, pilfering of medicines, and equipment that is not functional (Table 4).

10 The Health PER How-to Guide module on Physical Infrastructure and Equipment suggests using a combination of utilization and availability in this way to make judgments about under- and overuse.

11 See the Human Resources for Health module in Section 3 of the How-to Guide for more information.

Table 4. Possible Indicators for Input Quantities Linked to Efficiency

INPUT QUANTITY	
Input Types and Indicators	**Sources**
Health workers • Number of health workers of all types (doctors, nurses and midwives, other types) per 10,000 population • Number of particular types of health workers per 10,000 population	• MoH human resource information system • Professional councils and associations • WHO Global Health Workforce Statistics • OECD Health Statistics • World Bank Open Data
Physical infrastructure • Number of acute care hospitals beds per 1,000 population • Number of PHC facilities per 100,000 population (could be disaggregated by level, e.g., community versus health center/dispensary	• MoH • World Development Indicators • WHO—regional observatories
Equipment • Number of different types of equipment per 10,000 population • Proportion of different types of equipment that are nonfunctional	• MoH • Specific studies • Hospital performance assessment framework data
Medicines and medical supplies • Value of expired medicines annually • Value of estimated leakage of medicines from public system • % of facilities with acceptable storage facilities meeting minimal standards of protection from theft, ventilation, temperature, and humidity	• Specific studies • MoH • Hospital performance assessment framework data • Audit reports

Note: MoH = Ministry of Health; OECD = Organisation for Economic Co-operation and Development; PHC = primary health care; WHO = World Health Organization.

Input Productivity and Quality

Technical efficiency requires that each chosen input produces as much output as possible, sometimes called "input productivity." Human resources, infrastructure, and equipment can face inefficiency in the form of low production per unit of use. For human resources, a low number of patient contacts per full-time-equivalent health worker per day suggests that health workers are not being fully utilized, although the reasons for this would need to be explored by PER authors. High absenteeism rates mean that health workers are being paid for this time but are not producing any benefit in terms of coverage with needed health services. Ideally, PER authors would work through all inputs to explore whether evidence of low productivity can be found.

At the other extreme, where health workers are in short supply, in some countries there is evidence of "overuse," which can also be inefficient. An example is clinical health workers having to see many patients each hour, leading to possible medical errors because they can spend little time with each patient.

Low productivity of infrastructure and equipment such as X-ray machines can be proxied by inpatient bed occupancy rates and number of pictures per week, respectively. Relatively low utilization means that the investments costs incurred were not needed, or the services are unaffordable.

High utilization rates, however, do not always suggest the efficient use of these capital items. Where hospitals are paid on a daily rate, for example, they sometimes compensate for relatively low admission rates by keeping patients in the hospital longer, so it is also useful to check average length of stay for particular conditions against clinical guidelines. WHO, for example, suggests that the clinically necessary length of hospital stay after a normal delivery is 24–48 hours, though in practice, the duration varies considerably across settings (WHO 2022; Campbell et al. 2016).

Overutilization also occurs with equipment—more diagnostic tests are ordered than needed, for example. Mostly, this occurs in the private sector when providers are paid fee-for-service either by patients directly or by forms of insurance, including SHI. PER authors should check the extent that government health spending is used to purchase services on a fee-for-service basis before exploring this avenue of overuse of inputs.

Inappropriate use and overuse are well-known problems with medicines as well, particularly of antibiotics. Overuse of antibiotics creates resistance, reducing the effectiveness of treatment in the future, while inappropriate use means that health spending is higher than it needs to be to achieve the same result.

There are no scientific cut points for the indicators that unequivocally show what level of productivity is too little. Benchmarking against similar countries using the data visualization tool, or across subnational units or health facilities in a country if data are available, can be useful for PER authors to consider if there are signs of low productivity.

A complication of this discussion is that the quality and costs of different inputs can vary. One X-ray machine might produce a picture more rapidly, or require servicing less frequently, than another. It is also likely to be more expensive. Comparing X-ray machines in terms of the number of pictures per week will give a misleading picture of their relative efficiency. This requires information on their relative costs as well.

Another problem is that the output produced by any given input might not be comparable. So, a health center with a high number of outpatient visits per full-time-equivalent health workers might not be more efficient than others, because the quality of each visit is lower. This can occur if some health providers understand or follow clinical guidelines less than others or spend an inadequate amount of time with patients to properly diagnose the problem and inform the patient of the prescribed treatment.

Technical efficiency would normally seek to minimize the costs of producing an output of a given quality, but in health, it has proven difficult to combine the quantity and quality of the outputs that are produced—for example, the quality of the average outpatient visit in one health facility compared to another, or one country compared to another, is difficult to assess in a single indicator. Accordingly, the assessment of efficiency in health tends to consider indicators of quality separately from the productivity indicators described above. This requires PER authors to assess average productivity indicators and average quality indicators concomitantly to make an assessment of how each input is performing.

To facilitate this work, Table 5 includes some indicators of quality for the various inputs to the production of health services along with productivity indicators that might be available. Output quality is discussed subsequently. For example, readiness metrics have been developed to capture quality (and sometimes quantity and productivity) for various inputs, including basic amenities available at health facilities, diagnostic capacity, and essential medicine availability. These are available for some countries and years from the WHO Service Availability and Readiness Assessments (SARA) (WHO 2024a) and the World Bank's Service Delivery Indicators (SDI) (World Bank 2024) while the Demographic and Health Survey (DHS) of USAID has revised its service provision assessment (SPA)

with indicators of quality and productivity (USAID 2024).[12] They are, however, not efficiency indicators by themselves and need to be interpreted carefully.

Take a primary level health facility, for example. Its domain score on essential medicines might be lower than its score on diagnostic capacity and basic amenities. Does this indicate inefficiency in the use of the current budget? If so, funds should be transferred from ensuring diagnostic capacity or from basic amenities to ensuring that more essential medicines are available. Simply examining relative domain scores, or other indicators of quality by themselves, cannot answer this question, although they give PER authors an entry point for a dialogue with policymakers about how efficiency could be improved at primary-level facilities if budgets remain constant or if they increase. At the extreme, there might be domain score levels below which safe care is no longer possible.



12 Service Delivery Indicators (SDI) reports are currently available for selected countries in Sub-Saharan Africa, the most recent from 2019.

Table 5. Possible Indicators for Input Productivity and Quality

INPUT PRODUCTIVITY AND QUALITY		
Input Type	**Indicators**	**Possible Sources**
HRH	***Productivity***	
	• Number of consultations per day per full-time equivalent (fte) doctor (by type of facility) • Number of consultations per day per full-time nurse (by type of facility) • % days absent during a given period for different types of HRH at different types of health facilities	• Facility surveys • Administrative data from MoH, health insurance fund • Specific studies
	Quality	
	• Diagnostic accuracy • Adherence to clinical guidelines	• Specific studies
Physical infrastructure	***Productivity***	
	• Hospital admission rate per 10,000 population • Inpatient bed occupancy rate • Average length of stay for specific conditions compared to clinical guidelines	• MoH • Health insurance data • Specific studies
	Quality	
	• Domain score for basic amenities	• SDI (World Bank 2024), SARA (WHO 2024a), or revised SPA (USAID 2024) where available*
Equipment	***Productivity***	
	• Number of investigations (e.g., scans, X-rays) per machine per week	• MoH • Health insurance records
	Quality	
	• Proportion of different types of equipment not in working order • Domain score for readiness of basic equipment	• MoH • Specific studies • SARA or SDI
Medicines and medical supplies	***Productivity***	
	• Relative consumption of first-line vs. second-line medicines for a particular condition such as malaria, childhood pneumonia, etc.	• Special studies
	Quality	
	• Value of counterfeit drugs seized in the country	• Special studies

*As of April 12, 2024, the WHO SARA website was no longer functioning, with a note that an updated archive is under development. PER authors should check whether recent surveys have been undertaken in their country.
Note: MoH = Ministry of Health; SARA = Service Availability and Readiness Assessment; SDI = Service Delivery Indicators; SPA = Service Provision Assessment; USAID = United States Agency for International Development.

Input Prices: Paying Too Much

Comparing price levels of key inputs can point to inefficiencies in the form of paying too much for the inputs purchased. PER authors may want to search for the price paid for critical inputs and make decisions about whether prices are "too high."

Frequently, however, the availability of data is limited to medicines, medical supplies, and equipment. Some PERs have also undertaken work on health worker salaries, either across countries or across different types of health workers. Health worker salaries have sometimes been compared to those of teachers as well, partly to understand why vacancy rates of health workers might be high.

As for salaries of human resources for health (HRH), the cross-country variation can be substantial. For example, within the OECD, the most generous countries pay doctors two to five times more than the least generous as a share of the average wage (Fujisawa and Lafortune 2008). However, even if a country pays more than comparable countries at similar income levels, there might be other explanations: for example, there is a relatively high migration of health workers to richer countries and the salary scales reflect an attempt to retain as many as possible. Deciding how much is too much is not really feasible, therefore, and even if it were possible, public service salaries are not within the control of a minister of health but are usually set by a civil service commission or equivalent.

Paying "too little" for HRH can result in low levels of motivation and low productivity. That being said, when resources of health are scarce, there is a clear tradeoff between employing more health workers at lower wages or paying higher wages, which means hiring fewer workers.

It is simpler to decide whether a country pays too much for medicines or different types of equipment and medical supplies. The United Nations Children's Fund (UNICEF) acts as a purchaser for many inputs that countries might need to import, and its website provides details of the prices that countries would be able to obtain currently for these items (UNICEF 2024). They can be compared with the prices the country recently paid. The Pan American Health Organization (PAHO) publishes reference prices for some medicines (PAHO 2024).

The use of brand-name medicines rather than generics, which are usually cheaper with the same therapeutic effect, is another source of overpaying for medicines. There is no easy international source of data on which countries have purchased brand-name

medicines when generics are available. One way for PER authors is to take a selection of medicines purchased by a central purchasing agency (or purchasing agencies) where generics are available, preferably those responsible for relatively high expenditures. The purchases of the brand-name and generic versions can be collated, though this requires good recordkeeping in the purchasing agency, and it can take time. Other sources might be studies already undertaken in a country including Master's and PhD theses.

Another option for medicines suggested in the Health PER How-to Guide is to check the share of generics in total medicine expenditure or in government medicine expenditure. This is sometimes available from health account studies or other more specific studies. The Medicines and Medical Supplies module advises that even though there is no magic number, comparing this against comparator countries might give an idea of the relative use of generics.

Table 6 provides some of the possible indicators that might be available to explore the idea of paying more than necessary for particular inputs, but PER authors would need to supplement this by adding any other data they can find on other inputs.

Table 6. Paying Too Much for Inputs

INPUT PRICES		
Prices	**Indicators**	**Possible Sources**
Human resources for health (HRH)	• Physician/nurse salary ratio • Physician/teacher salary ratio • Different types of HRH salaries as a ratio of the average wage	• MoH • MoH and Ministry of Education • Ministry of Labor
Medicines, other medical products and equipment	• Prices of medicines and medical supplies and equipment compared to the lowest international prices • Expenditure on a brand-name medicine minus the estimated expenditure if a generic had been used for particular conditions • Share of total medicine expenditure on generics	• UNICEF (2024) • PAHO (2024) specific studies

Note: MoH = Ministry of Health; PAHO = Pan American Health Organization; UNICEF = United Nations Children's Fund.

The Mix of Inputs

The COVID-19 pandemic, which started toward the end of 2019, highlighted the problems with service delivery caused by imbalances in the mix of inputs—for example, insufficient health workers in some countries to deliver the available vaccines. Extreme cases of imbalance can also be documented in terms of health centers with no skilled health workers to provide clinical care, or infrastructure that is purchased or donated but cannot then be serviced because of a shortage of operational funds.

However, once extreme cases are accounted for, it is more difficult to identify inappropriate mixes of inputs. Technical efficiency requires that the least cost mix is used to produce the desired output. Identifying the lowest cost mix of inputs is complicated, requiring an understanding of unit prices and the benefit from using each additional unit—for example, would the last unit of nursing time have achieved more than additional units of medicines, or equipment, in extending coverage with tuberculosis treatment? This type of calculation is beyond the scope of a health PER.

Instead, it is sometimes possible to start to ask questions about inefficiency by considering the share of health spending on particular inputs. For example, high and increasing shares of government spending on HRH might indicate there are insufficient inputs of other types—medicines, for example—to allow health workers to do their jobs appropriately.

Another type of indicator compares the absolute numbers of inputs most appropriate to HRH. For example, operating with a high ratio of doctors to nurses or to all other types of health workers (who typically are paid at lower rates) might suggest that the available funds could be used better by increasing the relative proportion of other types of health workers. The same idea applies to the ratio of specialist to generalist doctors.

In terms of medicines, the question of whether the PER country's formulary or benefit package for medicine is based on the WHO medicine list is a first step in assessing whether the mix of medicines is appropriate. The proportion of health facilities with a core set of essential medicines is another option, although this might reflect the availability of funds more than the appropriate mix of medicines in many cases.

Table 7 suggests indicators on the mix of inputs, largely drawn from the other health PER modules.

Table 7. Indicators for the Mix of Inputs

Input	Indicators	Possible Sources
HRH vs. other inputs	• Spending on HRH as a % of government health expenditure	• Health accounts • Consolidated government spending
HRH—mix of health workers	• Ratio of nurses to physicians (full-time equivalents) • Ratio of practicing specialist medical doctors to generalist medical doctors	• MoH
Medicines—mix of medicines	• Spending on medicines as a % of government health expenditure • Is the country's formulary or guaranteed benefit package for medicines based on the WHO essential medicines list? • Proportion of facilities with availability of a core set of essential medicines	• Health accounts • Key informants • Surveys or studies
Infrastructure and equipment	• Capital expenditure as a % of total health expenditure	• Government expenditure records • Health accounts • WHO GHED

Note: HRH = Human Resources for Health; MoH = Ministry of Health; WHO GHED = World Health Organization Global Health Expenditure Database.

However, care needs to be taken when interpreting this type of indicator. For example, a change in the share of HRH in total government spending is not easy to interpret, and the policies to address any apparent inefficiency are not straightforward.[13]

Does an increased share reflect the fact that overall health spending is being constrained, and employment is being protected by reducing expenditure on other items? If so, it might be true that health workers are operating with fewer inputs than in the past—inputs such as medicines, diagnostics, and other health products—and efficiency

13 The indicator is more meaningful where governments make services—for example, they employ health workers to provide health services. Where governments purchase health services on behalf of the population, data on HRH spending are very difficult to obtain and are probably misleading—for example, how much of the cost of an outpatient visit to a general practitioner can be attributed to the cost of the doctor (and any other staff involved)?

is falling. However, the policy implications are not obvious—for example, does this mean the government should have fired health workers during the downturn, which might have been impossible with existing employment contracts? It would also make it more costly to rehire when government spending expands, meaning that the short-term response might be more efficient in the longer term.

Does an increasing share reflect an attempt to expand the workforce because of historical shortages, in an expansionary budget? If so, coverage with health services should increase and the increasing share might reflect reduced efficiency if the supply of medicines or medical products does not increase at the same rate as the increased number of health workers, meaning they cannot do their jobs effectively.

Does an increasing share imply that health worker wages are rising rapidly rather than new workers being employed? If so, this might also constrain spending on other essential inputs, although this could be counterbalanced if the motivation and productivity of health workers increase.

Moving to the ratio of doctors to nurses (or skilled to unskilled health workers),[14] a high ratio might imply inefficiency and that more highly paid doctors are undertaking tasks that nurses could do. Benchmarking across countries might be useful to identify whether the country under discussion is an outlier with relatively more doctors in comparison to nurses, although differences in the relative wages of health workers across countries could also contribute. Deriving policy implications is, however, again tricky. If there are shortages of health workers of all types, it probably means that training should focus more heavily on nurses (often the domain of the education rather than health department). Firing doctors to reduce the ratio of doctors to nurses in current health spending, though, would only lead to reductions in health service coverage—unless the required number of nurses and other staff could be hired immediately. If shortages of health workers do not exist, then firing doctors (or skilled workers) to reduce the ratio is still politically complicated, especially given the strength of unions in many countries. Again, the implications for policy are more long term: increasing the training of nurses compared to doctors.

14 Some data sources include nurses, midwives, and nurse assistants rather than simply nurses. In any benchmarking, it is important to check the definitions used for a particular country.

Outputs

Allocative efficiency first requires that the mix of goods and services produced in the health system maximizes the objective function of UHC, although as discussed earlier, only health outcomes have typically been considered. Allocative efficiency requires technical efficiency in the production of each output or service. Quality is a component, although its relationship with efficiency is not straightforward because, as described earlier, higher quality of inputs is often associated with higher productivity, but also higher cost. So, higher quality of an output will often be associated with higher cost. Initially the mix of goods and services produced is considered in the next subsection, then questions relating to the production of each health service, including quality, are discussed.

Mix of Goods and Services

Health systems produce a large number of goods and services, including personal health services (promotive, preventive, curative, rehabilitative, and palliative), population-based health services, and goods and services required for cross-cutting essential public health functions, from surveillance to system governance (WHO 2021a).

It is complex to determine whether the existing mix of services produced by public spending on health maximizes the health and financial protection outcomes required for UHC for a specific level of expenditure. Cost-effectiveness analysis (CEA) has been used extensively to determine the relative efficiency of personal health services (though almost always in terms of health outcomes alone), particularly in richer countries. It has generally been used, however, in an incremental fashion: to help decisions about whether new technologies or medicines should be publicly funded. CEA is used less frequently to determine the allocative efficiency of the current mix of health services and whether resources should be transferred to allow some services to be scaled up by scaling others down—the work of the WHO-CHOICE project is the only source of comparative information of this nature, but not necessarily available by country except in a few cases (WHO 2021b).

There are important tradeoffs to consider, however. One is whether more should be spent on public health functions such as pandemic preparedness, with the implication that a country should spend less of the current budget somewhere else. However, it is simpler to measure the impact of personal health interventions, and some population-based interventions such as health education, on

health outcomes than for most of the public health functions, so any assessment by PER authors and country policymakers of this nature will be inherently subjective.

Other tradeoffs to consider are the balance between promotive/preventive versus curative services and between primary health care and higher levels. Again, there are no simple ways of determining scientifically if too much of one (and not enough of something else) is being produced for a given level of expenditure.

Although there is no foolproof way of assessing whether the current mix of government health spending should be changed to improve allocative efficiency, some hints can be obtained in the following ways.

Where there is an explicit set of guaranteed services, one role for a health PER might be to consider whether any of these items is not cost-effective compared to any that are not included.[15] A variant is to consider coverage of key interventions to see if those considered to be more cost-effective have low coverage compared to some that are less cost-effective.

A general idea of the cost-effectiveness of multiple interventions is provided in the WHO-CHOICE project's database (WHO 2021b), the various Disease Control Priority (DCP) publications (WHO 2023b; University of Bergen 2023), and individual studies. There are also "rules of thumb" for deciding if a particular intervention is cost-effective compared to other ways of using resources, with the dollar value of the thresholds for cost-effectiveness varying according to country incomes per capita. For example, some time ago, a WHO Commission suggested that interventions costing less than the value of GDP per capita to achieve a unit of health improvement (measured in terms of disability adjusted life years (DALYs) averted) was very cost-effective (WHO Commission on Macroeconomics and Health 2001). More recently, it has been argued that the threshold should be lower, at around 0.5 percent of GDP per capita in most low- and lower-middle-income countries (Pichon-Riviere et al. 2023).

Some of the interventions generally shown to be cost-effective in low- and lower-middle-income settings, and for which coverage data are often available, are reported in Table 8. Many LICs and LMICs do not report coverage for noncommunicable disease (NCD) interventions partly because denominators, the number of people who need treatment, are often not available. Some of these interventions have also been shown to be very cost-effective (WHO 2021b), so the full evaluation of coverage rates along the lines suggested above may be more difficult in these countries.

15 The term "cost-effectiveness" is used here to capture all variations of cost-effectiveness analysis, including cost-utility analysis.

Table 8. Allocative Efficiency: Interventions Considered Cost-Effective in Low- and Lower-Middle-Income Countries

Interventions and Coverage Indicators		Possible Sources
UHC	• UHC service coverage index	• WHO and World Bank (2023)
Pregnancy and delivery	• Antenatal care: % women 15–49 years with a live birth in a given time period who received antenatal care, four times or more times from any provider[16]	• All these indicators are part of the Global Monitoring Report, UHC service coverage index. The definitions and sources of data are provided in WHO and World Bank (2023).
Childhood diseases	• Treatment of acute respiratory infection (ARI): % children under 5 years with suspected ARI taken to an appropriate health facility or provider	
Tuberculosis	• Treatment coverage with all forms of tuberculosis	
HIV/AIDS	• Antiretroviral therapy coverage of people living with HIV	
Malaria prevention	• Insecticide treated net (ITN) use—% population in endemic areas who slept under an ITN the previous night	
Family planning	• % married women 15–49 years who have their need for family planning satisfied with modern methods	
Noncommunicable diseases	• Prevalence of treatment for hypertension, adults 30–79 years • Mean fasting plasma glucose adults 30+ years (diabetes) • Tobacco use among people aged 15+ years	

Note: HRH = Human Resources for Health; MoH = Ministry of Health; UHC = universal health coverage GHED = World Health Organization Global Health Expenditure Database.

Other disease-specific interventions that are usually deemed cost-effective can also be considered depending on the country context and data availability (refer to the module on Service Coverage for a discussion on additional interventions, including for malnutrition and other NCDs). More recently, attention has been focused on the share of government health spending that is on PHC as a proxy for spending on the set of highly cost-effective interventions. There have been many questions about what types of spending should be denoted as being part of PHC, and different country studies have used different methods. However, WHO is now producing estimates

16 Formal definitions for this and subsequent variables are found in WHO (2018).

of expenditure on PHC annually, and as a share of current health expenditure, as part of its Global Health Expenditure Database (GHED) (WHO 2024b).It shows that PHC expenditure varies from 30 to 80 percent of current health spending: PER authors can determine if the share in their country is relatively low compared with comparator countries (Table 9). PER authors could also compare the share of government health spending on PHC using this source.

A similar argument can be made for examining the share of government health expenditure (GHE) spent on high-benefit or high-priority interventions, where data are available. Although there is no gold-standard share, the indicator could be compared across comparator countries, so it is also included in Table 9.

Along the same lines, the relative share of critical inputs at the PHC level can be compared across countries or subnational units. Most relevant is the share of different types of health workers at the primary level (Table 9).

Table 9. Shares of Spending and Health Workers as Indicators of the Appropriate Mix of Services

Areas	Indicators	Possible Sources
Relative spending on a set of cost-effective interventions	• Share of current health spending on PHC • Share of government health spending on PHC • Share of government health spending on high benefit/priority programs	• Health accounts • WHO GHED (WHO 2024b)
Preventive and promotive versus curative services	• Expenditure on preventive care as a share of current health spending	• Health accounts • WHO GHED (WHO 2024b) • National budget documents
Capacity in PHC versus other services	• Share of primary care health workers as a percent of total health workers, by cadre	• MoH • Human resource information system • Professional councils and associations • Reports on HRH (will typically have the latest available numbers)

Note: HRH = Human Resources for Health; MoH = Ministry of Health; PHC = primary health care; WHO GHED = World Health Organization Global Health Expenditure Database.

Technical Efficiency of Individual Health Services

This subsection addresses the question of whether each individual service output is produced in a technically efficient way, that is, the combination of inputs produce the maximum output possible. While indicators of the volume of services produced are available, it is difficult to relate each service volume to a specific set of inputs that have been used to produce them. Where specific health programs are managed separately from others, or there are program budgets and the associated expenditure of each program can be identified, the cost per unit of outcome for that program can be used to capture its technical efficiency. The most common examples relate to disease programs—for example, the cost per child fully immunized with the basic childhood vaccines (for example, Vaughan et al. 2019)—or to health facilities (costs per outpatient visit for health centers or costs per inpatient day for hospitals) (for example, Chatterjee, Levin, and Laxminarayan 2013; Prinja et al. 2016; Hicks et al. 2019).

In these cases, to get an indication of efficiency, the costs per unit of output need to be benchmarked somehow. For disease programs such as vaccination, this is usually done by comparing countries with higher costs per unit of outcome, suggesting less efficient programs: this type of comparison can also be done across subnational units in a single country. For hospitals and health centers, the comparison of cost per unit of output is usually across multiple units in a single country, sometimes using more formal forms of efficiency analysis, discussed in the macro-efficiency section earlier (for example, Kirigia et al. 2004; Cinaroglu 2020; Cordero et al. 2023).

Another approach is to search for indicators of unnecessary use of particular services, which means higher than necessary spending with a possibility of doing harm to the patient (Brownlee et al. 2017). This was discussed for medicines, diagnostic tests, and inpatient days in the earlier section on inputs of this cross-cutting note. For a health PER, it is worth discussing with Ministry of Health officials if there might be other examples for which data are available. One possible source relates to caesarean section rates. WHO suggests that 10 Caesarean sections per 100 live births might be medically justified, so higher rates represent not only the likelihood of harm to the patient, but also unnecessary use of resources (WHO 2021c).

Presumptive treatment for malaria when rapid, low-cost blood tests are readily available is another example of a technically inefficient delivery mode. In the same vein, inpatient care when outpatient or day surgery would achieve the same results at a lower cost also uses resources unnecessarily. Table 10 summarizes two indicators of inappropriate or unnecessary care relevant to LICs and LMICs, which might be available in many countries.

Table 10. Ineffective and Inappropriate Care

Areas	Indicators	Possible Sources
Maternal and child health	• Caesarean sections per 100 live births	• MoH, health insurance, hospitals • Specific studies
Tertiary care	• Avoidable hospital admissions	• Hospital performance assessment studies

Note: MoH = Ministry of Health.

Outputs: Quality of Services

The quality of inputs was considered earlier. The quality of health services is generally understood as "[the] ... degree to which health services for individuals and populations increase the likelihood of desired health outcomes. ..." (WHO, World Bank, and OECD 2018). Many dimensions of the quality of health care have been proposed over the years, starting with the influential work of Donabedian (1966).[17] This body of work has recently been used as the basis of a framework for assessing the quality of health systems (Kruk et al. 2018; Peabody et al. 2018). Drawing on this extensive literature as well as the indicators suggested in the Additional Guidance on Quality of Health Services (Section 4 of the Health PER How-to Guide), and in the Primary Health Care and Essential Public Health Functions and the Hospitals modules of Section 3 of the guide, a set of indicators that PER authors can use to explore service quality alongside the other components of efficiency described earlier are found in Table 11.

The indicators are organized around five dimensions:

1. Effectiveness: care is offered based on scientific knowledge and evidence-based guidelines.
2. Safety: care minimizes harm, including preventable injuries and medical errors.
3. Timeliness: delays in providing and receiving services are kept to a minimum.
4. Integration: care received across facilities and providers is coordinated.
5. Patient-centeredness: care respects and responds to the

17 See also Berwick and Fox (2016).

Table 11. Output Quality

Dimensions	Indicators	Sources
Effectiveness	• Diagnostic accuracy • Adherence to clinical guidelines or standard care protocols • Hospital readmission rates • Hospital mortality rate	• MoH • National health insurance fund • Hospital performance assessment framework data • Surveys such as SARA, SDI
Timeliness	• Proportion of adults with up-to-date NCD screening • Proportion of cancer cases treated in early stages • Cancer five-year net survival rate (for different types of cancer)	• MoH • Health insurance data • Specific studies
Safety	• Hospital acquired infection rates • Domain score for standard precautions for infection prevention • Overall volume of opioids prescribed • Total volume of antibiotics for systemic use	• MoH • National health insurance fund • Hospital performance assessment framework data • Surveys such as SARA, SDI
Patient-centeredness	• Community engagement efforts • Information on responsiveness and patient experience by socioeconomic status	• Hospital performance assessment framework data • Surveys such as SARA, SDI • Specific studies
Integration	• Rates of emergency admissions • Avoidable hospital admissions for acute conditions, vaccine preventable conditions, and chronic conditions	• MoH • Surveys such as SARA, SDI

Note: MoH = Ministry of Health; NCD = noncommunicable disease; SARA = Service Availability and Readiness Assessment; SDI = Service Delivery Indicators.

patient's preferences, needs, and values.[18]

Many other indicators have been proposed (see Dudley et al. 2022), but the ones listed here are more likely to be available in low- and lower-middle-income countries. PER authors should feel free to use others that are available in the countries being assessed, mapping them to the dimensions that are described in more detail below.

18 Efficiency and equity are sometimes included as dimensions of quality, but here they are considered separate cross-cutting issues for a PER—indeed, the focus of this cross-cutting note is on efficiency.

When care is not effective, safe, or timely, it can result in the deterioration of health. This, in turn, requires more (for example, more outpatient visits, hospital admissions) and eventually more costly interventions, and can result in avoidable morbidity, disability, and mortality.

Patient-centeredness means that patients are well informed and actively participate in the management of their diseases and conditions. Failure to ensure patient information and activation can result in low compliance and discontinuity of care processes and regimes. The consequences are the same as for poor effectiveness, safety, and timeliness, that is, possibly more, and more costly, care and avoidable mortality, disability, and mortality.

Shortcomings in care integration can also result in gaps in the continuation of care, but also waste in the form of duplication of services and avoidable care episodes. Resources are wasted that could have been put to good use elsewhere.

The indicators listed in Table 11 are not always readily available, particularly in LICs and LMICs, and PER authors working on such countries may have to draw on studies that are indicative but not necessarily representative of the entire health system. Even in these cases, any data need to be interpreted carefully.

Referring to the earlier discussion on quality of inputs, technical efficiency in nonhealth areas considers whether a producer minimizes the cost of producing a product of a given quality. Costs of production can be lower simply because the choice was made to produce a lower-quality product, rather than because of efficiency. Along these lines, the costs of malaria treatment in one country might be higher than in another because treatment is of a higher quality (treating patients in a more timely manner, for example) rather than because the country is relatively less efficient. So, comparing the costs per patient treated for malaria across countries, or subnational units, can give a misleading picture of efficiency.

As argued earlier, in health, it is more difficult to assess the relative quality of each service that is produced to allow a full assessment of technical efficiency. For that reason, the indicators suggested above need to be used alongside information on the costs of producing each service to make an overall assessment of efficiency.

This also has implications for policy decisions about how to improve efficiency. A decision to improve any dimension of quality of a service with the existing budget means taking resources from something else, so the net impact on outcomes would need to be calculated. And if new resources become available, even if it is clear which dimension of quality needs to be improved first, the improvement

in outcomes would need to be compared to the improvements that could be obtained by spending the funds in another way—perhaps increasing coverage of needed health services.

The best way for PER authors to use this information is to enable them to raise questions with country policymakers in an efficiency discussion. For example, if there is evidence that some forms of care are not delivered in a timely manner, or that medical errors occur, the possible consequences for efficiency could be raised. The policymakers would then need to consider how best to address them, the funds that would be required, and whether the funds would achieve more results if used in a different way.

Micro-Efficiency Analysis: Tying It All Together

The framework of Section 1 of the PER How-to Guide helps PER authors understand where to look for the different types of inefficiency in a system, with the focus on inputs, outputs, and the relationship between them. It also provides the basis for considering what might cause the observed inefficiencies.

Each of the tables in the micro-efficiency section includes a range of indicators, and their possible sources, that could be used to explore the different forms of inefficiency. Not all will be readily available in every country, and PER authors will need to explore other possible sources in the countries they are assessing, particularly specific studies that have been undertaken by government agencies, external partners, universities, or civil society organizations.

A complementary step can help narrow the search, making the task less daunting. It draws on evidence of the most common causes of inefficiency that have been identified in health systems across many countries. This approach begins from the assumption that inefficiency affects all health systems and while all countries are different, there are likely to be some similarities (WHO 2010; Chisholm and Evans 2010; World Bank 2017; OECD 2017; Hafez 2020). Table 12 below lists common causes that have been identified in the literature, organized according to the financing and service delivery results chains.

Table 12. Common Causes of Inefficiency in the Health System

Types of Inefficiency	Sources of Inefficiency
Allocative efficiency	
Outputs: Mix	Spending on the wrong things: services vs. financial protection; prevention/promotion vs. treatment; essential public health functions vs. personal services
Technical efficiency	
Resource mobilization and pooling	Fragmentation in revenue generation or pooling leading to higher administration costs than necessary
Inputs: HRH	HRH located in the "wrong places"
	Inefficient mix of HRH: e.g., ratio of doctors to nurses; nurses to nurse assistants
	Low productivity of HRH
Inputs: Infrastructure	Over- or underutilization of infrastructure: e.g., excess capacity in hospitals
Inputs: Equipment	Underutilization of equipment: excess capacity
	Unnecessary use of equipment: too many tests ordered
Inputs: Medicine	Overpaying for medicines
	Overuse of medicines
	Use of ineffective medicines
	Use of brand name when generics available
	Allowing medicines to expire or deteriorate
	Using medicines at the wrong time
Inputs: Cross-Cutting	Inefficient mix of inputs to produce particular services
	Leakages or waste of funds, medicines, equipment
	Higher management costs and prices for negotiated inputs or services higher than necessary because of fragmentation of procurement
Outputs: Mode of delivery or level of care	Services are delivered at a higher level of care than is clinically necessary, or services are delivered in an inefficient mode—inpatient vs. outpatient surgery
Outputs: Mix of goods and services	Ineffective or inappropriate use of services: e.g., too many caesarean sections
Outputs: Quality of services	Medical errors
Resource mobilization	Proportion of adults with up-to-date NCD screening

Sources: Adapted from WHO 2010; World Bank 2017.
Note: HRH = Human Resources for Health.

The list in Table 12 can be used in discussions with country stakeholders who might understand the nature of inefficiencies in the PER country because of their involvement in the governance, administration, and use of the health system. This could be done through informal discussions or a more formal set of consultations or working groups to gather this tacit knowledge.

Many different stakeholders could offer valuable perspectives on inefficiencies. These include:

1. MoH staff and staff from obligatory health insurance agencies, including health administrators at different levels of seniority and the system, as well as those involved in support services linked to health—for example, procurement, distribution, health insurance claims, and MoH lawyers.
2. Health workers of different types and at different locations.
3. Ministry of Finance staff responsible for interactions with line ministries dealing with health.
4. Academics.
5. Patients or organizations representing them.

In the course of this conversation, PER authors would also be seeking the data needed to assess inefficiency, building on the financing framework presented earlier, as well as to verify the tacit knowledge of stakeholders. For example, if people claim that the country pays higher prices than necessary for medicines, this claim could be checked by comparing prices paid by a purchasing agency(ies) with those that UNICEF would charge if they were purchased via UNICEF.



OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

Assessing Spending Efficiency

Assessing Equity in Spending

List of Acronyms

3 SECTION 3
Topic-Specific Analysis

4 SECTION 4
Additional Guidance



Micro-Efficiency Analysis: When to Use It

Unlike macro-efficiency analysis, PER authors exploring inefficiency would always undertake some form of micro-efficiency analysis. This requires examining the different aspects of the inputs used in the health system, the outputs produced, and the relationship between them. There are many types of inputs, and the health system produces myriad different types of health services, as well as undertakes various governance functions. The data requirements to run through the inputs and outputs components of the results chain are enormous, but the earlier sections outlined a range of indicators that would help PER authors explore the various sources of inefficiency.

The use of tacit knowledge of stakeholders combined with an understanding of the main causes of inefficiency commonly found across health systems complements the use of indicators in three ways. First, PER authors can use the list to ensure that they do not miss any inefficiencies that are common internationally, or that local stakeholders think are important. Second, if data are not readily available to confirm that these inefficiencies exist, PER authors can do focused deep dives searching for other sources of data in these areas—such as research written for PhD or Master's theses at local universities. Third, the approach requires early engagement with policymakers about their perceptions of inefficiency in the health system, rather than trying to engage with them seriously only after the PER results are available. This is more likely to result in strong political support for addressing the forms of inefficiency that are identified.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

Assessing Spending Efficiency

Assessing Equity in Spending

List of Acronyms

3 SECTION 3
Topic-Specific Analysis

4 SECTION 4
Additional Guidance

POLICY RESPONSES

The macro-efficiency approach helps PER authors and policymakers understand if the health system under review (or components of it, such as a malaria program) appears inefficient compared to comparator countries (or components). Micro-efficiency analysis is required to identify the main sources of inefficiency in the health system. The dialogue with policymakers then moves to developing policies to redress them. The discussion on the upstream parts of the health financing results chain is valuable in this respect by helping PER authors should identify possible causes of the identified inefficiencies.

Prioritization

Priorities for policy response, and suggested responses, require consideration of causes of the inefficiencies that are identified (causes), the costs and likely payoff to each possible policy response (costs and impact), and the likelihood of success based on technical and political feasibility (feasibility).

Causes

The framework used to organize the discussion of micro efficiency can help identify some of the potential causes of each inefficiency that are linked to health financing, thereby suggesting possible policy responses. For example, if it is verified that purchasing agencies pay too much for medicines, one of the causes could

be fragmentation in purchasing. Another could be corruption, where the question would be whether strengthening PFM might be a response. If purchasing staff do not have experience negotiating prices with the private sector or are not aware of the prices paid by other countries, this might also contribute. There might be others, but understanding the reasons for each of the major causes of inefficiency is required before policy responses can be developed.

Impact and Costs of Intervention

The aim is to gauge the costs of each possible policy to reduce inefficiency, and their possible impact. The next question is to determine the costs of taking action. The first part is understanding whether redressing the inefficiency would save money, but mostly that will not happen. Improving timeliness of care avoids downstream costs but requires an upfront investment. It is not suggested that a full costing study be undertaken for the PER, but the options could be graded as high, medium, and low cost (using net costs—costs of implementing minus any possible subsequent savings in present value terms).

Similarly, the relative impact of all possible interventions needs to be assessed and graded high, medium, or low impact. Reassigning health workers to areas where they are most needed, for example, increases intervention coverage and population health for the same number of staff. This needs to be compared with the impact on population health of improving patient safety during operations in hospitals.

Feasibility of Change

The final step is to anticipate possible obstacles to implementing each policy to improve efficiency. Some barriers might be technical—for example, scanning equipment might be sitting idle because there are no trained technicians to repair it. This will not be resolved in the short run but will require hiring and training of appropriate staff. Other barriers can be political, and these will vary by country. Closing hospitals where there is overcapacity has often proven to be politically complicated, for example. Task shifting from higher paid to lower paid staff has also met with resistance from unions. Together with consideration of the impact and costs of the range of possible intervention, the feasibility will enable a final list of priority policies to reduce inefficiency to be decided.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

Assessing Spending Efficiency

Assessing Equity in Spending

List of Acronyms

3 SECTION 3
Topic-Specific Analysis

4 SECTION 4
Additional Guidance



INEFFICIENCY IN PRIVATE SECTOR SPENDING

While the focus of a PER is predominantly on government spending, in the process of the efficiency evaluation for a PER, sources of inefficiency that affect private spending might be identified as well. An example might be the prescription of unnecessary medicines for people who can afford to pay, or longer length of stays for people covered by private health insurance.

For policy purposes, PER authors and counterpart policymakers would first need to consider the extent to which the government is concerned about the identified inefficiency. Some countries, for example, are not concerned if people with private health insurance pay more for medicines or stay in the hospital longer than is clinically necessary. However, some inefficiencies might be of concern to the government—for example, overprescription of antibiotics, which does not just waste resources but also leads to increasing drug resistance. In such cases, PER authors would explore with policymakers' actions that governments could take to reduce "unacceptable" private spending inefficiencies using the same process as described above for public spending—causes, costs and impact, and feasibility of change.

LOOKING FOR SAVINGS

Governments constantly seek savings options. The rationale and objectives may vary, usually one or a combination of the following:

- The economy is contracting as are government revenues.
- Reprioritize expenditures to improve the alignment of spending with government priorities and increase value for money.
- Create fiscal space to accommodate emerging fiscal pressures or new policy priorities.
- Reduce the growth or level of spending (fiscal consolidation).

A PER efficiency analysis is not, however, designed to search for savings. As stated earlier, only a few interventions to improve efficiency result in net savings: most require upfront and sometimes continuing investment to derive the intended benefits. Accordingly, a PER authors would be ill-advised to imply to the government that the authors will find areas where it can make net savings. The main purpose is to facilitate the achievement of higher levels of coverage with needed health services and financial protection with the available funds.

However, PER authors might find themselves in a situation where spending cuts are considered in a country because the economy is contracting or because of the other reasons outlined above. Accordingly, described here are the principles that apply to spending reviews, which can also be useful to PER authors in this process.

Spending reviews are processes specifically designed to develop and adopt savings measures based on the systematic assessment of baseline

For a detailed discussion on policy options resulting in savings, see "From Double Shock to Double Recovery—Implications and Options for Health Financing in the Time of COVID-19" (Kurowski, Evans, Tandon, Hoang-Vu Eozenou, Schmidt, Irwin, Salcedo Cain, Pambudi, and Postolovska 2021).

expenditures (Robinson 2013). The scope of spending reviews may be comprehensive, government-wide, or targeted to individual sectors, programs, or agencies.

Spending reviews include, as a first step, a systematic assessment of baseline expenditures which aims to generate a set of promising savings options. Savings options fall into the two broad categories of:

1. ***Efficiency/operational savings:*** Expenditure reductions that are achieved through changes in the production of services that generate the same quantity and quality of outputs at lower costs.
2. ***Strategic/output savings:*** Expenditure reductions achieved through cutting back on services or transfers.

In a second step, each savings option is assessed in terms of its feasibility and likely results, including the medium-term fiscal impact; sectoral, distributional, and economic implications; consequences for stakeholders and citizens; legislative and operational requirements; and administrative and compliance costs.

In the COVID-19 pandemic and post-pandemic era, governments may increasingly seek advice from the World Bank on possible savings options, especially options to reduce the growth or level of spending in the short term. Almost all low- and middle-income countries are expected to go through a prolonged period of fiscal adjustment. And after significant investment in response to the pandemic, moreover, growing spending needs in the sector (for example, vaccination), governments may target the search for savings options to health.

The proposed approach to identify opportunities for efficiency improvement as part of World Bank PERs cannot substitute for a full-fledged spending review. Most importantly, decisions on strategic savings are inherently political. Moreover, the process is typically driven by savings targets, including the expected type and timing of savings.

What to cut ...

When setting priorities on what to cut, it is important for policymakers to fully appreciate the intended and unintended effects of spending cuts on health system performance.

Spending categories that tolerate cuts without major harm to health system performance tend to be context specific and spending reviews critical to identify them. Decisions need to weigh both short-

and longer-term effects. In past crises, administrative budgets have been considered spending categories where cuts would do little damage to the system, at least in the short term. Indeed, in times of crisis, health-sector agencies often demonstrate their commitment to reduce inefficiencies by cutting administrative costs.

In some instances, targeted cuts in spending and entitlements can result in lasting, positive effects on equity and efficiency. For example, where entitlements were initially broadly defined and systems relied on implicit rationing, some countries seized past emergencies as opportunities to introduce explicit benefits packages that prioritized the most cost-effective interventions.

... what to protect ...

The challenge for policymakers is not only to cut where it does the least harm, but also to protect spending critical for the performance of the health system. Spending categories to protect in times of crisis include, first and foremost, programs and policies that ensure access to care for vulnerable populations, such as the poor, mothers, and children, and the goods and services that benefit these groups most, in particular, essential medicines, immunization and nutrition programs, and primary health care. The COVID-19 crisis has also highlighted the need to protect spending on essential public-health functions.

... and what to watch out for

In times of declining health budgets, policymakers must also apprehend and adjust for so-called “automatic cuts.” This term refers to the pattern whereby, as budgets shrink, expenditures on salaries crowd out spending on nonsalary items, due to difficulties in downsizing the payroll. The effect on nonsalary expenditures, for example, medicines and other medical supplies, is compounded when currency devaluations drive up the prices of imported goods. The shift in the composition of spending and resulting change in the balance of medical inputs can quickly erode the quality of health services.

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

Assessing Spending Efficiency

Assessing Equity in Spending

List of Acronyms

3 SECTION 3
Topic-Specific Analysis

4 SECTION 4
Additional Guidance

CONCLUSIONS

This cross-cutting note is designed to help PER authors develop a plan for how they will assess efficiency in the health sector. Clearly, the first step is to discuss with government counterparts their expectations.

A rapid check of the rapid macro-efficiency approach will show if it is worth undertaking a more in-depth macro-efficiency analysis—for example, if the quick approach suggests the country is relatively efficient compared to others, a more detailed macroanalysis is not warranted. PER authors can then move immediately to the micro-efficiency approach.

Some form will always be necessary, but the process of identifying major inefficiencies would involve some combination of:

1. Checking the availability of data on inputs, outputs, and their relationship as described in the discussion on the results chain.
2. Discussing with a variety of stakeholders their perceptions of major causes of inefficiency, using the global experience as a guide.
3. Digging deeper for data on indicators for inefficiencies identified in step b. for which indicators were not readily available from step 1.

Together, these steps provide the basis not only for identifying key inefficiencies, but also for the subsequent discussion with policymakers about which ones to address first, and what policies would be the most effective. Again, the discussion in the results chain section is a useful guide to possible causes, suggesting where solutions might be found.

It is, of course, hoped that the consideration of inefficiency and how to reduce it will not stop after the PER is completed. PER authors should seek to encourage local counterparts to institutionalize regular assessments of progress in reducing inefficiency in health if that is not already the case.

References

Alkenbrack, S., K. Hanson, and M. Lindelow. 2015. "Evasion of 'mandatory' social health insurance for the formal sector: evidence from Lao PDR." *BMC Health Services Research* 15: 473. 10.1186/s12913-015-1132-5.

Anti-Corruption Knowledge Hub (online), Transparency International. 2023. https://knowledgehub.transparency.org/

Intelligence. 2023. "Estimating the Costs of Corruption and Efficiency Losses from Weak National and Sector Systems." Development Policy Paper Discussion Draft (Revised). May 9. Costs-Corruption-and-Efficiency-Losses-Draft.pdf (artificialfiscalintelligence.com).

Bala, M.M., S. Singh, and D.K. Gautam. 2022. "Stochastic frontier approach to efficiency analysis of health facilities in providing services for non-communicable diseases in eight LMICs." *International Health*, p.ihac080.

Barroy, H., S. Sparkes, and E. Dale. 2016. "Assessing fiscal space for health expansion in low-and-middle income countries: a review of the evidence." Health Financing Working Paper 3. World Health Organization, Geneva. WHO-HIS-HGF-HFWorkingPaper-16.3-eng.pdf.

Berenguer, G., A.V. Iyer, and P. Yadav. 2016. "Disentangling the efficiency drivers in country-level global health programs: An empirical study." *Journal of Operations Management* 45: 30–43.

Berwick, D., and D.M. Fox. 2016. "Evaluating the Quality of Medical Care: Donabedian's Classic Article 50 Years Later." *The Milbank Quarterly* 94 (2): 237–41. Published online June 6. doi: 10.1111/1468-0009.12189. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4911723/.

Bloem, L.T., R.A. Vreman, N.W. Peeters, J. Hoekman, M.E. van Der Elst, H.G. Leufkens, O.H. Klungel, W.G. Goettsch, and A.K. Mantel-Teeuwisse. 2021. "Associations between uncertainties identified by the European Medicines Agency and national decision making on reimbursement by HTA agencies." *Clinical and Translational Science* 14 (4): 1566–77.

Brownlee, S., K. Chalkidou, J. Doust, A.G. Elshaug, P. Glasziou, I. Heath, S. Nagpal, V. Saini, D. Srivastava, K. Chalmers, and D. Korenstein. 2017. "Evidence for overuse of medical services around the world." *The Lancet* 390 (10090): 156–68. July 8, 2017. doi: 10.1016/S0140-6736(16)32585-5.

Epub July 9, 2017. Erratum in: *The Lancet* 399 (10328): 908. March 5, 2022.

Campbell, O.M.R., L. Cegolon, D. Macleod, and L. Benova. 2016. "Length of Stay After Childbirth in 92 Countries and Associated Factors in 30 Low- and Middle-Income Countries: Compilation of Reported Data and a Cross-Sectional Analysis from Nationally Representative Surveys." *PLOS Medicine* 13 (3): e1001972.

Cashin, C., D. Bloom, S. Sparkes, H. Barroy, J. Kutzin, and S. O'Dougherty. 2017. "Aligning public financial management and health financing: sustaining progress toward universal health coverage." Health Financing Working Paper 4. World Health Organization, Geneva. 9789241512039-eng.pdf (who.int).

Chatterjee, S., C. Levin, and R. Laxminarayan. 2013. "Unit cost of medical services at different hospitals in India." *PLOS One* 8 (7): e69728.

Chisholm, D., and D.B. Evans. 2010. "Improving health system efficiency as a means of moving towards universal coverage." Background paper 28, *The World Health Report 2010.* World Health Organization, Geneva. http://www.who.int/healthsystems/topics/financing/healthreport/whr_background/en/index1.html.

Cinaroglu, S. 2020. "Integrated k-means clustering with data envelopment analysis of public hospital efficiency." *Health Care Management Science* 23 (3): 325–38.

Cordero, J.M., A. García-García, E. Lau-Cortés, and C. Polo. 2023. "Assessing Panamanian hospitals' performance with alternative frontier methods." *International Transactions in Operational Research* 30 (1): 394–420.

Cutler, D.M. 2007. "Use a Scalpel, Not a Meat Cleaver." *Cato Unbound.* September 12. Use a Scalpel, Not a Meat Cleaver | Cato Unbound (cato-unbound.org).

Cylus, J., I. Papanicolas, P.C. Smith, and World Health Organization. 2016. *Health system efficiency: How to make measurement matter for policy and management*. European Observatory Health Policy Series. Copenhagen: World Health Organization Regional Office for Europe.

Dieleman, J., M. Campbell, A. Chapin, E. Eldrenkamp, V.Y. Fan, A. Haakenstad, J. Kates, Y. Liu, T. Matyasz, A. Micah, and A. Reynolds. 2017. "Evolution and patterns of global health financing 1995–2014: development assistance for health, and government, prepaid private, and out-of-pocket health spending in 184 countries." *The Lancet* 389 (10083): 1981–2004.

Dom, R., A. Custers, S. Davenport, and W. Prichard. 2022. *Innovations in Tax Compliance: Building Trust, Navigating Politics, and Tailoring Reform*. Washington, DC: World Bank. doi:10.1596/978-1-4648-1755-7. License: Creative Commons Attribution CC BY 3.0 IGO.

Donabedian, A. 1966. "Evaluating the Quality of Medical Care." *The Milbank Memorial Fund Quarterly* 44 (3) (suppl): 166–206. Reprinted in *The Milbank Quarterly* (2005) 83 (4): 691–729.

Dudley, L., P. Mamdoo, S. Naidoo, and M. Muzigaba. 2022. "Towards a harmonised framework for developing quality of care indicators for global health: a scoping review of existing conceptual and methodological practices." *BMJ Health & Care Informatics* 29 (1).

Dutu, R., and P. Sicari. 2016. "Public spending efficiency in the OECD: benchmarking health care, education and general administration." Economics Department Working Papers 1278. Organisation for Economic Co-operation and Development, Paris. Reprinted (2020) in *Review of Economic Perspectives* 20 (3): 253–80.

Fraser, H.L., I. Feldhaus, I.P. Edoka, A.N. Wade, C.N. Kohli-Lynch, K. Hofman, and S. Verguet. 2024. "Extended cost-effectiveness analysis of interventions to improve uptake of diabetes services in South Africa." *Health Policy and Planning:* p.czae001.

Fritz, V., S. Sweet, and M. Verhoeven. 2014. "Strengthening Public Financial Management: exploring drivers and effects." World Bank Policy Research Working Paper 7084. World Bank, Washington, DC.

Fujisawa, R., and G. Lafortune. 2008. "The remuneration of general practitioners and specialists in 14 OECD countries: what are the factors influencing variations across countries?" OECD Health Working Papers 41. Organisation for Economic Co-operation and Development, Paris. https://doi.org/10.1787/228632341330.

Gearhart, R. 2016. "No theory: an explanation of the lack of consistency in cross-country health care comparisons using non-parametric estimators." *Health Economics Review* 6 (1): 40.

Greene, W., 2004. "Distinguishing between heterogeneity and inefficiency: stochastic frontier analysis of the World Health Organization's panel data on national health care systems." *Health Economics* 13 (10): 959–80.

Greene, W. 2008. "The Econometric Approach to Efficiency Analysis," in Fried, H.O., C.K. Lovell, and S.S. Schmidt, eds. 2008. *The measurement of productive efficiency and productivity growth,* 92–250. Oxford: Oxford University Press.

Hafez, R., ed. 2020. *Measuring Health System Efficiency in Low- and Middle-Income Countries: A Resource Guide*. Joint Learning Network for Universal Health Coverage.

Hamidi, S., and F. Akinci. 2016. "Measuring Efficiency of Health Systems of the Middle East and North Africa (MENA) Region Using Stochastic Frontier Analysis." *Applied Health Economics and Health Policy*: 1–11.

Herrera, S., and G. Pang. 2005. "Efficiency of public spending in developing countries: an efficiency frontier approach." World Bank Policy Research Working Paper 3645. World Bank, Washington, DC.

Herrera, S., and A. Ouedraogo. 2018. "Efficiency of public spending in education, health, and infrastructure: an international benchmarking exercise." World Bank Policy Research Working Paper 8586. World Bank, Washington, DC.

Hicks, P., S. Huckson, E. Fenney, I. Leggett, D. Pilcher, and E. Litton. 2019. "The financial cost of intensive care in Australia: a multicentre registry study." *Medical Journal of Australia* 211 (7): 324–25.

Hollingsworth, B. 2003. "Non-parametric and parametric applications measuring efficiency in health care." *Health Care Management Science* 6 (4): 203–18.

Hollingsworth, B., 2008. "The measurement of efficiency and productivity of health care delivery." *Health Economics* 17 (10): 1107–28.

IMF. 2023a. Tax and Customs Administration web page. International Monetary Fund, Washington, DC. Tax-and-Customs-Administration (imf.org).

IMF. 2023b. World Economic Outlook Databases. International Monetary Fund, Washington, DC. World Economic Outlook Databases (imf.org).

Izadikhah, M., 2022. "A fuzzy stochastic slacks-based data envelopment analysis model with application to healthcare efficiency." *Healthcare Analytics* 2: 100038.

Jiang, N., and A. Andrews. 2020. "Efficiency of New Zealand's District Health Boards at providing hospital services: a stochastic frontier analysis." *Journal of Productivity Analysis* 53: 53–68.

Jowett, M., and W. Hsiao. 2007. "The Philippines: Extending Coverage Beyond the Formal Sector": xi, 172. In W. Hsiao and R. Shaw, eds. *Social Health Insurance for Developing Nations.* Washington, DC: World Bank.

Kirigia, J.M., A. Emrouznejad, L.G. Sambo, N. Munguti, and W. Liambila. 2004. "Using data envelopment analysis to measure the technical efficiency of public health centers in Kenya." *Journal of Medical Systems* 28: 155–66.

Kohl, S., J. Schoenfelder, A. Fügener, and J.O. Brunner. 2019. "The use of Data Envelopment Analysis (DEA) in healthcare with a focus on hospitals." *Health Care Management Science* 22: 245–86.

Kurowski, C., D.B. Evans, A. Tandon, P. Hoang-Vu Eozenou, M. Schmidt, A. Irwin, J. Salcedo Cain, E.S. Pambudi, and I. Postolovska. 2021. "From Double Shock to Double Recovery: Implications and Options for Health Financing in the Time of COVID-19." Health, Nutrition and Population (HNP) Discussion Paper. World Bank Group, Washington, DC. From-Double-Shock-to-Double-Recovery-Implications-and-Options-for-Health-Financing-in-The-Time-of-COVID-19.pdf (worldbank.org).

Kruk, M.E., A.D. Gage, C. Arsenault, K. Jordan, H.H. Leslie, S. Roder-DeWan, O. Adeyi, et al. 2018. "High-Quality Health Systems in the Sustainable Development Goals Era: Time for a Revolution." *The Lancet* 6 (11): 1196–1252. https://doi.org/10.1016/S2214-109X(18)30386-3.

Laing, A. 2023. "Costing corruption and efficiency losses from weak PFM systems." International Monetary Fund Blog, April 3. Costing Corruption and Efficiency Losses from Weak PFM Systems (imf.org).

Leelahavarong, P., S. Doungthipsirikul, S. Kumluang, A. Poonchai, N. Kittiratchakool, D. Chinnacom, N. Suchonwanich, and S. Tantivess. 2019. "Health technology assessment in Thailand: institutionalization and contribution to healthcare decision making: review of literature." *International Journal of Technology Assessment in Health Care* 35 (6): 467–73.

Liu, H., W. Wu, and P. Yao. 2022. "A study on the efficiency of pediatric healthcare services and its influencing factors in China—estimation of a three-stage DEA model based on provincial-level data." *Socio-Economic Planning Sciences* 84: 101315.

Mathauer, I., and E. Nicolle. 2011. "A global overview of health insurance administrative costs: what are the reasons for variations found? *Health Policy* 102 (23): 235–46.

Mathauer, I., L.V. Torres, J. Kutzin, M. Jakab, and K. Hanson. 2020. "Pooling financial resources for universal health coverage: options for reform." *Bulletin of the World Health Organization* 98 (2): 132.

McGillivray, W. 2001. "Contribution Evasion: Implications for Social Security Pension Schemes." *International Social Security Review,* Vol. 54, 4.

Minerva, D., and R. Stefanov. 2018. *Evasion of Taxes and Social Security Contributions.* European Platform on Undeclared Work, European Commission.

Musiega, A., B. Tsofa, L. Nyawira, R.G. Njuguna, J. Munywoki, K. Hanson, A. Mulwa, S. Molyneux, I. Maina, C. Normand, and J. Jemutai. 2023. "Examining the influence of budget execution processes on the efficiency of county health systems in Kenya." *Health Policy and Planning* 38 (3): 351–62.

Novignon, J., G. Aryeetey, J. Nonvignon, K. Malm, N.Y. Peprah, S.A. Agyemang, S. Amon, and M. Aikins. 2023. "Efficiency of malaria service delivery in selected district-level hospitals in Ghana." *Health Systems* 12 (2): 198–207.

Nwakobi, M.N. 2020. "On the Efficiency of Health Systems in West Africa: A Data Envelopment Analysis Approach." *Communication in Physical Sciences* 6 (2).

Olesen, O.B., and N.C. Petersen. 2016. "Stochastic Data Envelopment Analysis—A review." *European Journal of Operational Research* 251 (1): 2–21.

OECD. 2013. *Guidelines to improve estimates of spending on health administration and health insurance.* Paris: OECD Publishing. Organisation for Economic Co-operation and Development. Improving-Estimates-of-Spending-on-Administration.pdf (oecd.org).

OECD. 2017. *Tackling Wasteful Spending on Health*. Paris: OECD Publishing. Organisation for Economic Co-operation and Development. http://dx.doi.org/10.1787/9789264266414-en.

OECD, Eurostat, and WHO. 2016. *A System of Health Accounts 2011 (Revised Edition)*. Paris: OECD Publishing. Organisation for Economic Co-operation and Development. http://dx.doi.org/10.1787.

OECD. 2023. Applying good budgeting practices to health. OECD Joint Network of Senior Budget and Health Officials. Paris: Organisation for Economic Co-operation and Development

Osei, D., S. d'Almeida, M.O. George, J.M. Kirigia, A.O. Mensah, and L.H. Kainyu. 2005. "Technical efficiency of public district hospitals and health centres in Ghana: a pilot study." *Cost Effectiveness and Resource Allocation* 3 (1): 1–13.

PAHO. 2024. PAHO Strategic Fund. Washington, DC: Pan American Health Organization. https://www.paho.org/en/paho-strategic-fund#q2.

Peabody, J., R. Shimkhada, O. Adeyi, H. Wang, E. Broughton, et al. 2018. "Quality of Care," chapter 10. In D.T. Jamison, H. Gelband, S. Horton, P. Jha, R. Laxminarayan, C.N. Mock, and R. Nugent, eds. *Disease Control Priorities (Third Edition), Volume 9: Improving Health and Reducing Poverty.* Washington, DC: World Bank.

Public Expenditure and Financial Accountability (PEFA). 2019. *Framework for Assessing Public Financial Management, (Second Edition).* Washington, DC: PEFA Secretariat. PEFA-Framework_English.pdf.

Pichon-Riviere, A., M. Drummond, A. Palacios, S. Garcia-Marti, and F. Augustovski. 2023. "Determining the efficiency path to universal health coverage: cost-effectiveness thresholds for 174 countries based on growth in life expectancy and health expenditures." *The Lancet Global Health* 11 (6): e833–42.

Prinja, S., A. Gupta, R. Verma, P. Bahuguna, D. Kumar, M. Kaur, and R. Kumar. 2016. "Cost of delivering health care services in public sector primary and community health centres in North India. *PLOS ONE* 11 (8): e0160986.

Stenberg, K., O. Hanssen, T.T.T. Edejer, M. Bertram, C. Brindley, A. Meshreky, J.E. Rosen, J. Stover, P. Verboom, R. Sanders, and A. Soucat. 2017. "Financing transformative health systems towards achievement of the health Sustainable Development Goals: a model for projected resource needs in 67 low-income and middle-income countries." *The Lancet Global Health* 5 (9): e875–87.

Thanassoulis, E., M.C. Portela, and O. Despic. 2008. "Data envelopment analysis: the mathematical programming approach to efficiency analysis." In H.O. Fried, C.K. Lovell, and S.S. Schmidt, eds. 2008. *The Measurement of Productive Efficiency and Productivity Growth*: 251–420. Oxford: Oxford University Press.

UNICEF. 2024. Price catalogue. New York: United Nations Children's Fund. Home page (unicef.org).

University of Bergen. 2023. *Disease Control Priorities* 4. Bergen Centre for Ethics and Priority Setting in Health. Bergen, Norway: University of Bergen. Fourth Edition of Disease Control Priorities (DCP-4) | Bergen Centre for Ethics and Priority Setting in Health (BCEPS) | UiB.

USAID. 2024. *Introducing the Revised Service Provision Assessment. Demographic and Health Surveys Program, USAID.* Washington, DC: United States Agency for International Development. DHSM22.pdf (dhsprogram.com).

Vaughan, K., A. Ozaltin, M. Mallow, F. Moi, C. Wilkason, J. Stone, and L. Brenzel 2019. "The costs of delivering vaccines in low- and middle-income countries: findings from a systematic review. *Vaccine: X*, Vol. 2: 100034.

Verguet, S., J.J. Kim, and D.T. Jamison. 2016. "Extended cost-effectiveness analysis for health policy assessment: a tutorial." *Pharmacoeconomics* 34 (9): 913–23.

WHO. 2010. *The World Health Report 2010. Health Systems Financing: The Path to Universal Coverage*. Geneva: World Health Organization.

WHO. 2016. "Health Workforce Requirements for Universal Health Coverage and the Sustainable Development Goals." Human Resources of Health Observer Series 17. World Health Organization, Geneva. https://scholar.google.com/scholar_ookup?author=World+Health+Organization&title=Health+workforce+requirements+for+universal+health+coverage+and+the+Sustainable+Development+Goals.%28Human+Resources+for+Health+Observer%2C+17%29&publication_year=2016&journal=Human+Resources+for+Health+Observer+Series+No+17&volume=17.

WHO. 2020. "Findings from a rapid review of literature on ghost workers in the health sector: towards improving detection and prevention." Policy Brief. World Health Organization, Geneva. Findings from a rapid review of literature on ghost workers in the health sector: towards improving detection and prevention (who.int).

WHO. 2021a. *21st Century Health Challenges: Can the Essential Public Health Functions Make a Difference?* Geneva: World Health Organization. 21st century health challenges: can the essential public health functions make a difference?: discussion paper (who.int).

WHO. 2021b. "New Cost-Effectiveness Updates from WHO-CHOICE." World Health Organization, Geneva. New cost-effectiveness updates from WHO-CHOICE.

WHO. 2021c. "WHO Statement on Caesarean Section Rates." World Health Organization, Geneva. WHO Statement on Caesarean Section Rates.

World Health Organization. 2022. *WHO Recommendations on Maternal and Newborn Care for a Positive Postnatal Experience*. Geneva: World Health Organization. https://www.who.int/publications/i/item/9789240045989.

WHO. 2023. "New Cost-Effectiveness Updates from WHO-CHOICE." World Health Organization, Geneva. New cost-effectiveness updates from WHO-CHOICE.

WHO. 2024a. "Service availability and readiness assessment" reports. Geneva: World Health Organization. Service availability and readiness assessment (SARA) (who.int).

WHO. 2024b. Global Health Expenditure Database. Online version. Geneva: World Health Organization. Global Health Expenditure Database (who.int)

WHO and World Bank. 2021. *Tracking Universal Health Coverage: 2021 Global Monitoring Report*. Geneva: World Health Organization and Washington, DC: International Bank for Reconstruction and Development/The World Bank. Tracking Universal Health Coverage: 2021 Global monitoring report (who.int).

WHO, World Bank, and OECD. 2018. *Delivering Quality Health Services: A Global Imperative for Universal Health Coverage. Geneva: World Health Organization; Washington, DC: World Bank; and Paris: Organisation for Economic Co-operation and Development.* World Bank Document.

World Bank. 2016. *The Republic of Chile Public Expenditure Review*. Washington, DC: World Bank. The Republic of Chile Public Expenditure Review | Public Expenditure Review (worldbank.org).

World Bank. 2017. "Greater efficiency for better health and financial protection." Background paper, Second Annual UHC Health Financing Forum. World Bank, Washington, DC. Second Annual Universal Health Coverage Financing Forum (worldbank.org).

World Bank. 2019a. *High-Performance Health Financing for Universal Health Coverage: Driving Sustainable, Inclusive Growth in the 21st Century*. Washington, DC: World Bank. https://openknowledge.worldbank.org/handle/10986/31930 License: Creative Commons Attribution CC BY 3.0 IGO.

World Bank. 2019b. *Zambia Health Sector Public Expenditure Review: 2006-2016*. Washington, DC: World Bank.

World Bank. 2024. Service Delivery Indicators. World Bank, Washington, DC. Service Delivery Indicators (SDI) (worldbank.org).

Yazbeck, A.S., W.D. Savedoff, W.C. Hsiao, J. Kutzin, A. Soucat, A. Tandon, A. Wagstaff, and W. Chi-Man Yip. 2020. "The Case Against Labor-Tax-Financed Social Health Insurance For Low- And Low-Middle-Income Countries: A summary of recent research into labor-tax financing of social health insurance in low-and low-middle-income countries." *Health Affairs* 39 (5): 892–97.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

Assessing Spending Efficiency

Assessing Equity in Spending

List of Acronyms

3 SECTION 3
Topic-Specific Analysis

4 SECTION 4
Additional Guidance

TABLE OF CONTENTS

CROSS-CUTTING 2

Assessing Equity in Spending

This cross-cutting note is forthcoming.



ACRONYMS

ARI
Acute Respiratory Infections

CEA
Cost-Effectiveness Analysis

CHE
Current Health Expenditure

DAH
Development Assistance for Health

DALY
Disability Adjusted Life Years

DEA
Data Envelopment Analysis

DHS
Demographic and Health Survey

DVT
Data Visualization Tool

FTE
Full-Time Equivalent

GDP
Gross Domestic Product

GHE
Global Health Expenditure

GHED
Global Health Expenditure Database

HAQ
Healthcare Access and Quality

HLE
Healthy Life Expectancy

HRH
Human Resources for Health

IMF
International Monetary Fund

LIC
Low-Income Country

LMIC
Lower-Middle-Income Country

MoH
Ministry of Health

NCD
Noncommunicable Disease

OECD
Organisation for Economic Co-operation and Development

OOP
Out-of-Pocket

PAHO
Pan American Health Organization

PEFA
Public Expenditure and Financial Accountability

PER
Public Expenditure Review

PFM
Public Financial Management

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

Assessing Spending Efficiency

Assessing Equity in Spending

List of Acronyms

3 SECTION 3
Topic-Specific Analysis

4 SECTION 4
Additional Guidance

ACRONYMS

PHC
Primary Health Care

QALY
Quality Adjusted Life Years

RM
Resource Mobilization

SARA
Service Availability and Readiness Assessments

SDG
Sustainable Development Goal

SDI
Service Delivery Indicators

SFA
Stochastic Frontier Analysis

SHI
Social Health Insurance

SPA
Service Provision Assessment

UHC
Universal Health Coverage

UNICEF
United Nations Children's Fund

USAID
United States Agency for International Development

WDI
World Development Indicators

WHO
World Health Organization

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

4 SECTION 4
Additional Guidance



SECTION 3

Topic-Specific Analysis

Section 3 offers guidance to analyze each of the components of the analytical framework described in the previous section.

CONTINUE

HEALTH SYSTEM CONTEXT

MODULE 1 HEALTH SYSTEM CONTEXT

HEALTH FINANCING

MODULE 2 RESOURCE MOBILIZATION

MODULE 3 POOLING

MODULE 4 BENEFITS SPECIFICATION

MODULE 5 PURCHASING HEALTH SERVICES

MODULE 6 PUBLIC FINANCIAL MANAGEMENT

INPUTS

MODULE 7 HUMAN RESOURCES FOR HEALTH

MODULE 8 PHYSICAL INFRASTRUCTURE AND EQUIPMENT

MODULE 9 MEDICINES AND MEDICAL SUPPLIES

SERVICE DELIVERY

MODULE 10 HOSPITALS

MODULE 11 PRIMARY CARE AND ESSENTIAL PUBLIC HEALTH FUNCTIONS

OUTCOMES

MODULE 12 SERVICE COVERAGE

MODULE 13 FINANCIAL RISK PROTECTION

MODULE 14 HEALTH STATUS AND HEALTH RISKS

MODULE 15 UNIVERSAL HEALTH COVERAGE

LIST OF ACRONYMS

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
M-1: Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance



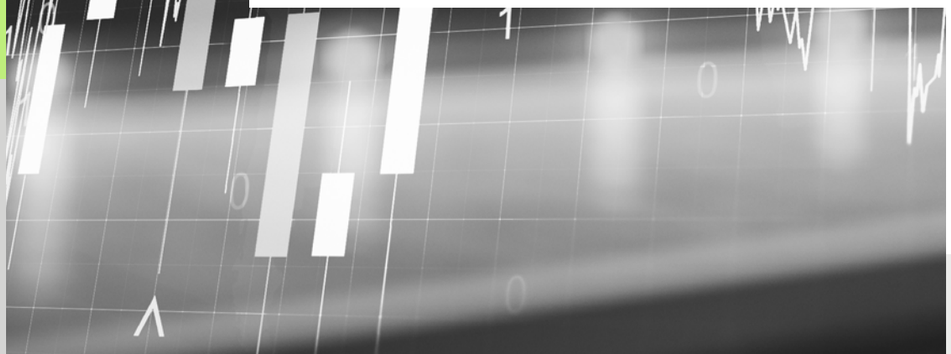
SECTION 3

Health System Context

The module in this section sets the context for health PER assessments. It provides information to understand how the health system is organized and funded, and explores the country's epidemiological and socioeconomic profile.

MODULE 1 HEALTH SYSTEM CONTEXT

CONTINUE



OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context

M-1: Health System Context

Health Financing

Inputs

Service Delivery

Outcomes

List of Acronyms

4 SECTION 4
Additional Guidance

TABLE OF CONTENTS

MODULE 1

Health System Context

AUTHORS

Christoph Kurowski, David B. Evans, Sakshi Thorat, Jacopo Gabani, Denise Silfverberg, and Catalina Gutiérrez

START



OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
M-1: Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
List of Acronyms
4 SECTION 4 Additional Guidance

INTRODUCTION

KEY QUESTIONS

- **What are the country's macro-fiscal trends and constraints?**
- **What is the state of poverty and inequality?**
- **What are the key demographic trends and their impact on population health?**
- **How is the health system organized and governed?**
- **How is the health system financed, and what are its key challenges?**

A country's socioeconomic, demographic, and health context influences the extent to which a government mobilizes resources, manages them, and uses them to deliver health care and should ideally set the context for any health PER assessment. The questions in this module aim to help PER authors understand the context of their country to set the stage for a health PER.

Of note, authors must select the most relevant indicators for their country from the list of indicators below. Usually, a good introductory context section should be brief: good examples are found in the Kenya health PER (DiGiorgio et al. 2022) and in the Zambia health PER (Chansa et al. 2019). Last, while the aim is to provide indicators that are relevant for most countries, each country has a different context, which might require assessing indicators or breakdowns of indicators (subnational level breakdowns) that are not necessarily listed here (for example, indicators broken down by region, by population group, or specific health indicators).

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context

M-1: Health System Context

Health Financing

Inputs

Service Delivery

Outcomes

List of Acronyms

4 SECTION 4
Additional Guidance

Finally, PER authors can choose which of the questions below to include a in the analysis. For example, PERs that are chapters in broader Public Expenditure Review may not need to include a macro-fiscal context, as this will most likely be covered in other sections of the broader PER. PER authors who choose to use the module on Resource Mobilization to dive deeper into this topic may not need to include the section on overall health spending, and so forth.

In general, the country context chapter should remain short and concise and avoid duplicating information that will be covered later in the analysis.



OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context

M-1: Health System Context

Health Financing

Inputs

Service Delivery

Outcomes

List of Acronyms

4 SECTION 4
Additional Guidance

MACRO-FISCAL CONTEXT, POVERTY, SHARED PROSPERITY, AND POPULATION HEALTH

Knowledge of a country's macro-fiscal context is important. The macro-fiscal context has direct implications for the general government budget and in turn affects the government budget for health and ultimately service coverage and population health.

For example, the size of the economy (that is, GDP) will likely affect the amount of revenues the government can raise (via taxes or other sources), and these will determine government expenditures and ultimately government health expenditures. Similarly, poverty and shared prosperity are also crucial for better informing health financing policies, due to their effects on population health. Poverty and shared prosperity (that is, income inequality) have an impact on population health (Smith 1999; Pickett and Wilkinson 2015), as poorer populations might not have access to good health care. Equal health outcomes across income groups is a widely accepted goal in many countries.

This section provides guidance on the introductory chapter of a PER. It is organized into three subsections. The first covers the macroeconomic and fiscal context, while the second subsection discusses poverty and shared prosperity. Finally, demographic and population trends are reviewed in the last section.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context

M-1: Health System Context

Health Financing

Inputs

Service Delivery

Outcomes

List of Acronyms

4 SECTION 4
Additional Guidance

Macro-Fiscal Context

KEY QUESTION • What is the macro-fiscal context?

The size and outlook of the economy constrain a government's capacity to fund public investments. Gross domestic product per capita and its growth rate, inflation, government revenues, the fiscal context, and the degree of indebtedness all affect government health expenditures. The subsequent key indicators can be shown to describe trends (for example,, across the three past years to the near future). Comparison with other countries (for example, countries in the same region and/or income group) can be included.

The first indicators refer to the level of GDP and its growth and consumer prices. General government revenues and expenditures will ultimately impact the amount of government spending for health. In many low- and middle-income countries (LMICs), external funding is a big source of funding for health expenditures, and therefore an overview of external funding is important (see the Module on Resource Mobilization).

General government gross debt as a percentage of GDP and the fiscal deficit in percent of GDP are important as well and can be found in the World Bank World Development Indicators (WDI) and World Bank Prosperity data, respectively.

Finally, as medical goods are often imported in LMICs, currency (de)evaluation might often impact health care costs. When a currency loses value against the US dollar (or any other relevant currency used to import medical goods), this will affect the import of goods by the government.

These indicators can be sourced from databases such as the WDI and the IMF World Economic Outlook (WEO). However, PER authors should triangulate the data obtained from databases with official government documents, such as the medium-term expenditure framework and/or budget documents. Authors should also select the most important measures based on their local context.

Key Indicators	Sources
GDP per capita (real local currency or constant US$, PPP)	• IMF WEO • MoF documents
Rate of real GDP per capita growth	• IMF WEO • MoF documents
Inflation, average consumer prices	• World Bank WDI • IMF WEO • MoF documents
General government expenditures as % of GDP	• IMF WEO • MoF documents
Tax revenues as % of GDP*	• World Bank WDI • IMF WEO • MoF documents
General government gross debt as % of GDP	• IMF WEO • MoF documents
Currency exchange rate with US$	• Central bank or MoF

*For most countries, tax revenues as a percent of GDP would be enough. However, for some countries, other government non-tax revenues (for example, revenues related to natural resources) and/or social security contributions (for example, to social health insurance schemes) should be considered.
Note: GDP = gross domestic product; IMF = International Monetary Fund; MoF = Ministry of Finance; PPP = purchasing power parity; WDI = World Development Indicators; WEO = World Economic Outlook.

Poverty and Shared Prosperity

KEY QUESTION

- **What is the overall level and distribution of poverty, informality, and education in the country?**

Understanding a country's overall level and distribution of poverty and level of education is crucial for providing a full assessment of health inequalities and equity of health care spending. This is because people with a higher income and those with better education usually report better health outcomes (Raghupathi and Raghupathi 2020; Currie 2009). In addition, as the informal sector is difficult to tax, high levels of informality will limit income tax revenues and access to care in countries with large contributory schemes, ultimately affecting health outcomes (Yazbeck et al. 2023; Gabani et al. 2024). A country's gender equality rating is also important, as it provides information on the extent to which a country has enacted policies to promote equal access to health care across gender. PER authors can use the ILO definition of informality or the national definition of informality (see section 7 of the ILO database description).[1]

It is important for PER authors to analyze these indicators using comparator countries and trends over time.

Key Indicators	Sources
Poverty headcount ratio at $2.15 a day (2017 PPP), % of population	• World Bank WDI • MoF • National institute or agency of statistics, especially for subnational data • ILO or World Bank Informal Economy Database (for informal employment)
Poverty headcount ratio at national poverty line,* % of population**	
Gini index	
Primary school completion rate total (% of relevant age group)***	
Proportion of informal employment in total employment	
Labor force participation rate (% of total population)	
Unemployment, total (% of total labor force)	
CPIA gender equality rating (1=low to 6=high) (labor force)	

*National poverty lines can be used, as they are typically used by country governments. However, for comparison across countries, international poverty lines are required. **Analysis by region or rural/urban areas. *** Analysis by female and male.
Note: CPIA = Country Policy and Institutional Agreement; ILO = International Labor Organization; MoF = Ministry of Finance; PPP = purchasing power parity; WDI = World Development Indicators. The World Bank Informal Economy Database data are until 2020. However, it might cover more countries than ILO data.

1 https://ilostat.ilo.org/methods/concepts-and-definitions/description-labour-force-statistics/.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context

M-1: Health System Context

Health Financing

Inputs

Service Delivery

Outcomes

List of Acronyms

4 SECTION 4
Additional Guidance

Population Health and Overall Health Spending

KEY QUESTION

• What are the main demographics and health outcomes trends?

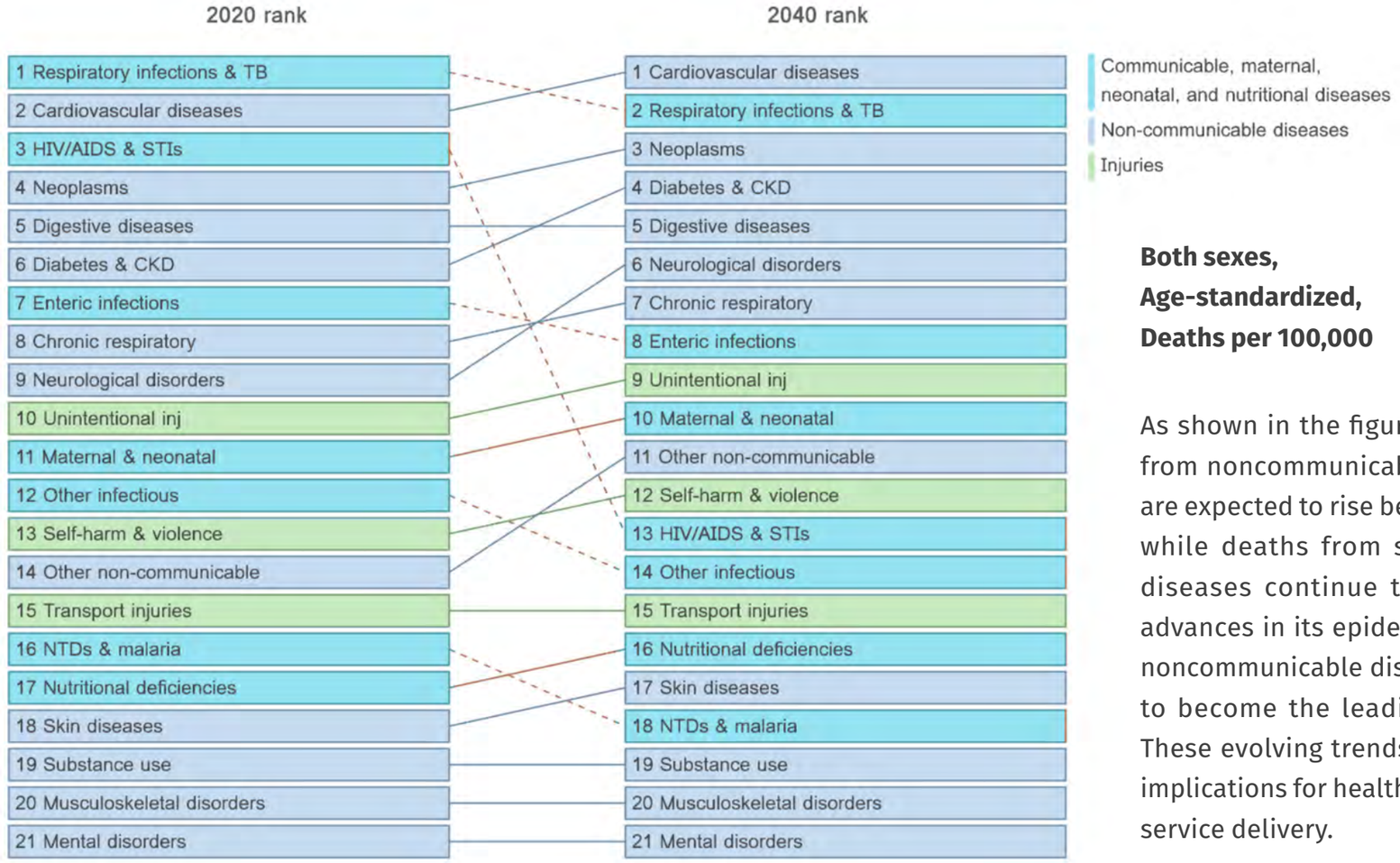
Analyzing a country's demographic profile for a public expenditure review helps PER authors understand the population health care needs; for example, older populations would have different needs (for example, noncommunicable–diseases-related services) than younger populations (for example, reproductive, maternal, neonatal, child, and adolescent health services). In addition, the demographic profile of a country has implications for the government's ability to raise revenues and is needed to guide resource allocation (for example, a large young population would require more government spending on education). Authors should assess fertility rates, age distribution, and age dependency ratios to determine the extent to which aging is an issue in their country.

Measuring a country's progress in key health outcomes, such as life expectancy, mortality, and morbidity patterns (using disease burden distributions), is also important for assessing the extent to which expenditure translated to outcomes. For some countries, net migration and/or the size of the refugee population would also be of interest; data on these two indicators can be found in the World Bank WDI.

Key Indicators	Sources
Population size, aging distribution, and growth rate	• World Bank WDI • Demographic and health surveys • National institutes of statistics
Fertility rate, total (births per woman)	
Age dependency ratio (% of working age population)	
Life expectancy at birth, total (years)	
Mortality rate, under 5 (per 1,000 live births)	
Maternal mortality ratio (per 100,000 live births)*	
Overall disease burden distribution by category of condition (communicable diseases, NCDs, and injuries)	• WHO GHO • Institute of Health Metrics and Evaluation, most recent GBD study**
Net migration, refugee population by country or territory of asylum	• World Bank WDI

*Maternal mortality ratio exists in both "modeled estimates" and "national estimates" formats. National estimates are usually preferred to modeled estimates, if the quality and frequency of the national estimates are judged to be sufficient. The decision might be different in each country depending on the context. **At the time of writing, the most recent GBD study was for 2021.
Note: GBD = Global Burden of Disease; GHO = Global Health Observatory; NCD = noncommunicable disease; WDI = World Development Indicators; WHO = World Health Organization.

BOX 1. KENYA'S LEADING CAUSES OF DEATH



Both sexes,
Age-standardized,
Deaths per 100,000

As shown in the figure, forecasted deaths from noncommunicable diseases in Kenya are expected to rise between 2020 and 2040, while deaths from some communicable diseases continue to decline. As Kenya advances in its epidemiological transition, noncommunicable diseases are anticipated to become the leading causes of death. These evolving trends will have significant implications for health system financing and service delivery.

Source: GBD Foresight Visualization Tool. Calculations based on GBD 2021 Causes of Death Collaborators. "Global burden of 288 causes of death and life expectancy decomposition in 204 countries and territories and 811 subnational locations, 1990–2021: A systematic analysis for the Global Burden of Disease Study 2021." *The Lancet 403* (10440) 2024: 2100–32. https://www.sciencedirect.com/science/article/pii/S0140673624003672.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
M-1: Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

Overall Level of Health Spending

KEY QUESTION • **What does the overall spending on health look like?**

Finally, it should be emphasized that in this section, PER authors could also include a brief introduction on the overall level of spending on health, as well as the sources of spending (out-of-pocket household expenditures, government sources, and/or external sources). The following table includes four high-level aggregate spending indicators that authors could use in an introductory section. Authors should review the module on Resource Mobilization for guidance on how to assess aggregate health financing sources and schemes in more detail. They should also be aware that current health expenditures do not include capital health expenditures. Therefore, in case capital health expenditures are important, PER authors should report them using the "Capital health expenditure" indicator from the World Health Organization (WHO) Global Health Expenditure Database. The indicator is available for both domestic financing and external financing.

Key Indicators	Sources
Current health expenditure per capita, local currency,* real	• World Bank WDI
External financing as % of current health expenditure	
Domestic general government health expenditure as % of current health expenditure	
Out-of-pocket health expenditure as % of current health expenditure	

*PER authors can also use US$ PPP for comparisons across countries.
Note: WDI = World Development Indicators.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
M-1: Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance



HEALTH SYSTEMS ORGANIZATION AND FINANCING

Public Expenditure Reviews (PERs) typically begin with a brief description of the health system's organization and financing to provide context for the analysis. While a thorough understanding of the health system is crucial for analyzing expenditure and identifying opportunities to improve efficiency and equity, the report itself only needs a brief introductory description.

PER readers, such as government officials and other stakeholders, are already familiar with the health system's functioning.

Health PERs that are part of a broader public expenditure review selectively describe components of the health system usually in two to three paragraphs.

OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
M-1: Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
List of Acronyms
4 SECTION 4 Additional Guidance

Organization

KEY QUESTION

- **How is the health system organized, and how are the responsibilities distributed among institutions?**

The following indicators capture the governance structure of the health care system in a country to set the context for the main actors and their roles, the relationships between different actors and stakeholders involved in health care, and the level of decentralization.

PER authors should discuss the mix of public/private authorities and the extent to which the public system is decentralized and to what level. The PER can include an overview of major reforms—recently undertaken, ongoing, or planned—that will be important for the analysis.

Key Indicators	Sources
How is the health system organized? Describe the levels at which the health systems (e.g., national, state, district/county) function and their respective roles and responsibilities for financing, planning, administration, regulation, and provision of health care.	• KIIs • Country reports • MoH documents
Who are the main actors/institutions responsible for financing, planning, administration, regulation, and provision of health care? Refer to the roles at different levels of governments.	
Who are the main providers operating in the health financing system?	

Note: KII = key informant interview; MoH = Ministry of Health.

OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
M-1: Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
List of Acronyms
4 SECTION 4 Additional Guidance

Provision

KEY QUESTION

- How is the provision of health care organized?

This section summarizes the levels at which health care is provided, along with the number of facilities aggregated by level, geographic area, and ownership. It also summarizes how the facilities are funded (as an example, refer to Kenya's health care provision in the annex). Again, PER authors can choose not to include this analysis in the country context if they will use the modules in Service Delivery, as this information will be covered in those modules. However, PERs that will rely on the cross-cutting notes for the analysis might benefit from including a description of how services are organized, as this information is not described in the cross-cutting notes.

Key Indicators	Sources
What are the levels at which health care services are provided (e.g., national, state, subnational)? Describe the types of services provided at each level.	• KIIs • Country reports • MoH documents
What is the distribution of health facilities at each level?	
What is the distribution of health facilities across geographical regions?	
What is the mix (public/private) of health facilities (if available)?[2]	

Note: KII = key informant interview; MoH = Ministry of Health.

2 If there are no data on the distribution of facilities between public and private, PER authors can ask for other types of information on the relative weight of public and private services in the country, for example, the distribution of beds among public and private facilities, among others.

OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
M-1: Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
List of Acronyms
4 SECTION 4 Additional Guidance

Financing

KEY QUESTION

- **How is the health system financed?**

This section overviews the sources of revenue that finance the health system, coverage, and how funds are collected. PER authors can review the modules on Resource Mobilization, Pooling, and Purchasing for more detail. For a detailed example, refer to Kenya's "Intergovernmental Fiscal Transfers and Fund Flows" in Annex 1.

Authors can refer to "Classification of Revenues of Financing Schemes" (chapter 8 of SHA 2011) for information on financing sources (central or local government revenue, user premiums, employee/employer contributions, social contributions, external donors, and so on). They should analyze the fund flows within different levels of the health system, if helpful. PER authors should also summarize any financing reforms—past, current, or planned—that have impacted or will impact these fund flows.

Key Indicators	Sources
What are the different health financing schemes? Describe the type of schemes (national health system, with input-based financing; contributory or noncontributory insurance schemes; and population covered).	• Health accounts • KIIs • Country reports
How is each scheme financed (that is,, revenue source) and at what administrative level are funds pooled?	

Note: KII = key informant interview.
A health financing scheme is a distinct system of rules that govern the provision and financing of health benefits. Examples include national health services, social health insurance, private health insurance, out-of-pocket payments, and donor-funded health programs. Each scheme has its own structure and rules on financing sources, beneficiaries, and resource distribution for health care services (see the Pooling module for more information).

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context

M-1: Health System Context

Health Financing

Inputs

Service Delivery

Outcomes

List of Acronyms

4 SECTION 4
Additional Guidance

ANNEX

Example 1: Kenya Health Care Provision

The Kenya health system is organized into four tiers based on the type of health services delivered: community, primary care, county and subcounty referral hospitals, and national referral hospitals. The community tier includes all community-based services per the MoH community strategy. Primary health care includes services provided by public and private maternity homes, health centers, and dispensaries. County referral services include first-level referral hospitals that are managed by counties, except for the national referral hospitals, which are under the national government. All other facilities are managed by county governments.

Figure 1 presents the tiers in Kenya's health system and the types of services delivered at each level; Figure 2 shows the distribution of health facilities by level and ownership type.



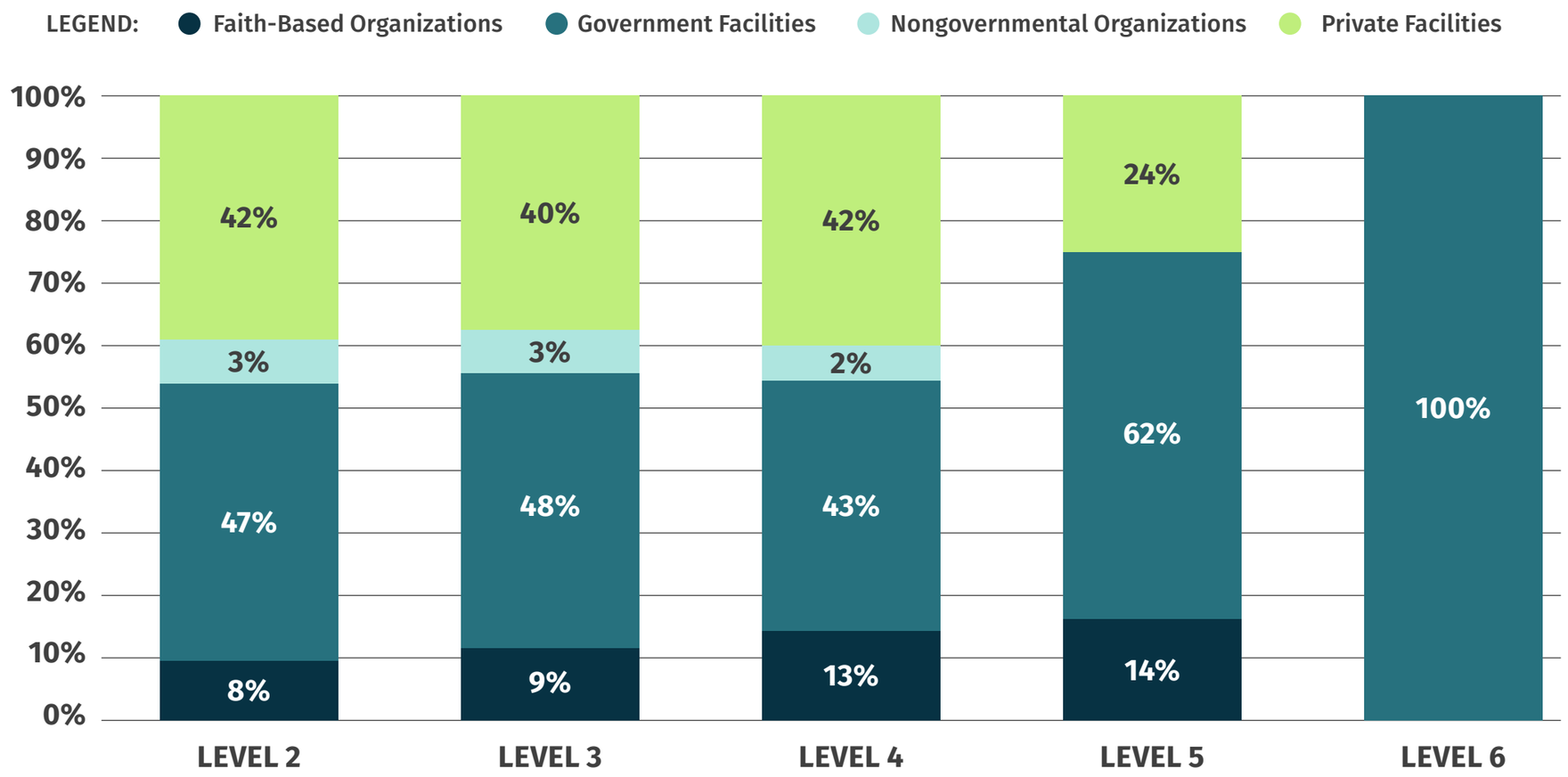
FIGURE 1. Health System Organization and Services by Care Level, Kenya

The Kenya health system is organized around four tiers of hierarchy that are based on the type of health services delivered: community, primary care, county and subcounty referral hospitals (secondary hospitals), and national referral hospitals. The health care system comprises both the public sector, including the MoH and parastatal organizations, and the private sector, such as nongovernmental organizations (NGOs), private for-profit, and faith-based organizations (FBO) facilities.

Level of Care	County/ National	Type of Services
NATIONAL REFERRAL HOSPITALS **Level 6:** Tertiary care hospitals	**NATIONAL**	• Tertiary/highly specialized services, including high-level specialist medical care, reference laboratory support, blood transfusion services, and research have a defined level of self-autonomy
SECONDARY HOSPITALS **Level 5:** Secondary care hospitals **Level 4:** Primary care hospitals	**COUNTY**	• Comprehensive inpatient diagnostic, medical, surgical, and rehabilitiative care, including reproductive health services • Specialized outpatient services • Hospitals managed by a county
PRIMARY HEALTH CARE **Level 3:** Health centers **Level 2:** Dispensaries and clinics	**COUNTY**	• Disease prevention and health promotion services • Inpatient services for emergency clients awaiting referral, clients for observation, and normal delivery services
Level 1: Community	**COUNTY**	• Community-based health services

OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
M-1: Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
List of Acronyms
4 SECTION 4 Additional Guidance

FIGURE 2. Health Facility Distribution, Kenya, 2019



Source: Kenya Master Health Facility List (KMHFL)

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

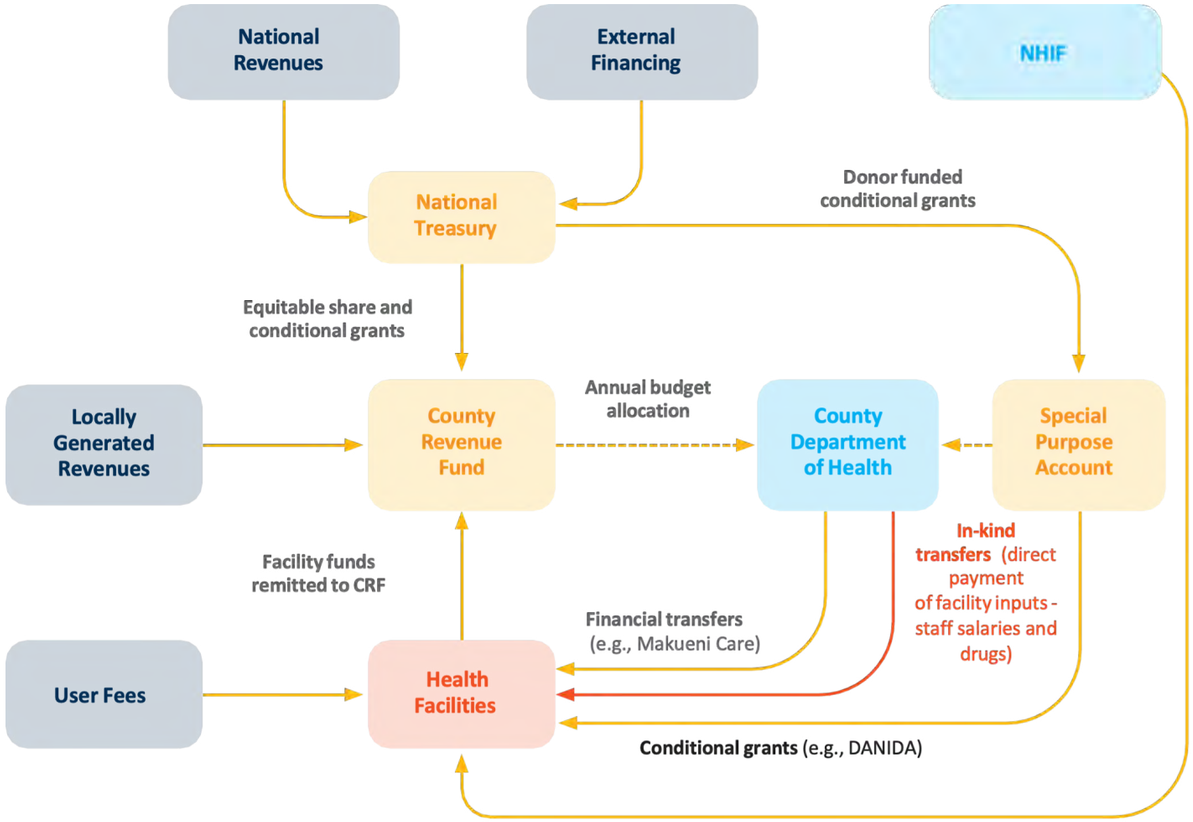
Health System Context
M-1: Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

Example 2: Kenya Health Systems Financing—Intergovernmental Fiscal Transfers and Funds Flow

Devolution has changed the way health care is financed by introducing an intergovernmental fiscal transfer system that has drastically changed the funds flow landscape. Although this system has granted county governments the fiscal autonomy to manage resources, the intergovernmental fiscal transfer system has introduced a complex flow of funds mechanism, shown in Figure 3. The mechanism has created several operational and administrative challenges that have led to inefficiency in county health spending.

FIGURE 3. POST-DEVOLUTION FUNDS FLOW FOR HEALTH IN KENYA



Source: Mbuthia, B., I. Vîlcu, N. Ravishankar, and J. Ondera. 2019. "Purchasing at the Country Level in Kenya". https:/./thinkwell.global/wp-content/uploads/2019/11/Kenya-county-purchasing-report-2019_11_01-Final.pdf.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context

M-1: Health System Context

Health Financing

Inputs

Service Delivery

Outcomes

List of Acronyms

4 SECTION 4
Additional Guidance

References

Chansa, Collins, Netsanet Workie Walelign, Moritz Otto Maria Alfons Piattifuenfkirchen, Thulani Clement Matsebula, and Katelyn Jison Yoo. 2019. *Zambia—Health Sector Public Expenditure Review* (English). Washington, DC: World Bank Group. http://documents.worldbank.org/curated/en/756921559624225552/Zambia-Health-Sector-Public-Expenditure-Review.

Currie, Janet. 2009. "Healthy, Wealthy, and Wise: Socioeconomic Status, Poor Health in Childhood, and Human Capital Development." *Journal of Economic Literature* 47 (1): 87–122. doi: 10.1257/jel.47.1.87. https://www.aeaweb.org/articles?id=10.1257/jel.47.1.87.

Di Giorgio, Laura, Katelyn Jison Yoo, and Thomas Maina. 2022. *Kenya Public Expenditure Review for the Health Sector FY2014/15–FY2019/20*. Washington, DC: World Bank.

Gabani, J., S. Mazumdar, and M. Suhrcke. 2023. "The effect of health financing systems on health system outcomes: A cross-country panel analysis." *Health Economics* 32 (3): 574–619. March. doi: 10.1002/hec.4635. Published online December 8, 2022. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10107855/.

Pickett, Kate E., and Richard G. Wilkinson. 2015. "Income inequality and health: A causal review." *Social Science & Medicine* 128: 316-26. doi: 10.1016/j.socscimed.2014.12.031. Published online December 30, 2014. https://pubmed.ncbi.nlm.nih.gov/25577953/.

Raghupathi, V., and W. Raghupathi. 2020. "The influence of education on health: An empirical assessment of OECD countries for the period 1995–2015." *Archives of Public Health* 78 (20). https://doi.org/10.1186/s13690-020-00402-5.

Smith, James P. 1999. "Healthy Bodies and Thick Wallets: The Dual Relation Between Health and Economic Status." *Journal of Economic Perspectives* 13 (2): 144–66. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3697076/pdf/nihms461647.pdf.

Yazbeck, Abdo S., Agnes L. Soucat, Ajay Tandon, Cheryl Cashin, Joseph Kutzin, Julia Watson, Sarah Thomson, Son Nam Nguyen, and Tamas Evetovits. 2023. "Addiction to a bad idea, especially in low- and middle-income countries: Contributory health insurance." *Social Science & Medicine*, Vol. 320, March. https://www.sciencedirect.com/science/article/abs/pii/S0277953622004749?via%3Dihub.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

TABLE OF CONTENTS



SECTION 3

Health Financing

This section provides guidance on assessing the efficiency and equity of health financing functions: *resource mobilization, pooling, benefit definition, purchasing, and public financial management.*

A PER should evaluate whether resources are mobilized through an appropriate mix of sources, ensuring sufficient and sustainable financing to advance universal health coverage. Revenues should be pooled to minimize system fragmentation, efficiently manage health risks, promote financial protection for all, and reduce operational costs. Proper benefit design and strategic purchasing should prioritize cost-effective services, prevent overprovision, manage cost escalation, and ensure equitable access to services across socioeconomic and geographic lines. Effective public financial management should promote transparency and timely flow of resources. The PER can also examine whether the institutional arrangements, processes, and rules that govern financing functions promote efficiency and equity.

MODULE 2 RESOURCE MOBILIZATION

MODULE 3 POOLING

MODULE 4 BENEFITS SPECIFICATION

MODULE 5 PURCHASING HEALTH SERVICES

MODULE 6 PUBLIC FINANCIAL MANAGEMENT

CONTINUE

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
M-2: Resource Mobilization
M-3: Pooling
M-4: Benefits Specification
M-5: Purchasing Health Services
M-6: Public Financial Management
Inputs
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

FRONT MATTER

MODULE 2

Resource Mobilization

AUTHORS

Jacopo Gabani, David Evans, Martin Schmidt, and Denise Silfverberg

START



INTRODUCTION

This module is designed to facilitate the analysis of resource mobilization for health in the context of a Public Expenditure Review (PER). Resource mobilization[1] refers to the mobilization of financial resources by countries to develop and operate their health systems. Contributions typically come from individuals, households, and firms, in the form of tax payments or through health-specific contributions.

Taxation is the most common system used to collect government revenues. General revenues collected via taxes specified in law (for example, direct tax on income or indirect tax on goods and services) then become revenues for health when the central government transfers part of those revenues from the general revenues pool to a government health ministry, department, or agency (MDA). The second most common way used by governments to collect health revenues is via compulsory contributions to a public health insurance scheme (that is,, health-specific contributions), which are also usually specified in law. Current health expenditure also encompasses other sources of funding that are not part of domestic government revenues: households' out-of-pocket (OOP) payments, households' and firms' contributions to voluntary private health insurance, and development assistance for health (DAH).[2]

Understanding how resources are being mobilized for health is crucial for assessing how a country can achieve intended health system outcomes and accelerate progress toward universal health coverage, as well as equity. Resource mobilization that efficiently generates sufficient and sustainable funding is central to transformative health financing.

1 Also called "raising revenues."

2 For DAH, the report will detail later the difference between "on-budget DAH," that is,, transfers from foreign origin distributed by government, which are part of general (not domestic) government health expenditures, and "off-budget DAH."

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context

Health Financing

M-2: Resource Mobilization

M-3: Pooling

M-4: Benefits Specification

M-5: Purchasing Health Services

M-6: Public Financial Management

Inputs

Service Delivery

Outcomes

List of Acronyms

4 SECTION 4
Additional Guidance

The literature on resource mobilization is vast. Resource mobilization from compulsory sources and pooled by governments is crucial for delivering on the promise of UHC. However, the reality is that out-of-pocket expenditure remains high in several countries. In general, there is an expansive literature on the effects of public health expenditures on health (Nakamura et al. 2016). It has also recently focused on the effect of social health insurance and noncontributory schemes (Yazbeck et al. 2020; Yazbeck et al. 2023; Gabani et al. 2023; Wagstaff et al. 2009). On the topic of government resources, there is a substantive literature on fiscal space for health (Tandon 2010). DAH effectiveness and trends have also received substantive attention (IHME 2024). Finally, the literature has assessed the effect of global shocks (for example, the COVID-19 pandemic, and conflicts) on the ability of governments to mobilize resources for health (Kurowski et al. 2022; Kurowski et al. 2023).

The subsequent key questions aid the understanding of resource mobilization in countries. The first section of this module informs PER authors about the levels of health spending. The second section facilitates introductory analyses of the mix of revenue sources. Finally, efficiency in mobilizing revenues is reviewed. The module concludes with a reflection on assessing the equity of resource mobilization. If significant issues (for example, inefficiency or inadequacy of public resources) related to resource mobilization surface following the assessment described in this module, Authors should refer to the “Domestic Resource Mobilization for Increased Health Sector Fiscal Space Guidance Note” (Eozenou 2021) for a deep dive into the topic.



OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
Health Financing
M-2: Resource Mobilization
M-3: Pooling
M-4: Benefits Specification
M-5: Purchasing Health Services
M-6: Public Financial Management
Inputs
Service Delivery
Outcomes
List of Acronyms
4 SECTION 4 Additional Guidance

ANALYSIS OF SPENDING LEVELS AND MIX OF REVENUE SOURCES

Analysis of the levels of spending on health

KEY QUESTIONS

- **What is the level of spending on health?**
- **What is the level of government health spending in the country?**

As a first step, PER authors should check the levels of spending on health from any sources via current health expenditure per capita and as a share of GDP. Comparisons can be made across other countries and over time. It is important to note that capital expenditures are not included in current health expenditure: in countries where capital expenditure is particularly important, PER authors might want to analyze that as well.

To begin assessing public health expenditures, PER authors can use government health expenditures including on-budget donor spending, that is, as noted below, FS1+FS2+FS3 in WHO GHED and NHA. It should be noted that the indicator "compulsory financing agreements" will also be equivalent to government health spending in the vast majority of low- and middle-income countries.[3] In addition,

Key indicators	Sources
Current health expenditure per capita*	• National Health Accounts • WHO GHED • World Bank WDI
Current health expenditure as a share of GDP	

Note: GDP = gross domestic product; WHO GHED = World Health Organization Global Health Expenditure Database; WDI = World Development Indicators. *Authors should choose the most appropriate currency, usually the local currency in real terms. However, purchasing power parity (PPP) constant US$ can be used in certain cases, for example, if the local currency is not used by the government, or in the country, due to hyperinflation.

3 The only difference is that compulsory financing agreements would also include compulsory private health insurance, which is a very rare occurrence in low- and middle-income countries.

to assess whether a country's per capita health spending level is adequate, PER authors can compare current health expenditure per capita with suggested benchmarks—for example, Stenberg et al. 2017, country-specific cost estimates for universal health coverage (UHC), and peer countries (see also Annex 1 for further analyses on sufficiency of funding). Studying the time trend shows whether spending levels are increasing or decreasing. A look at the current health expenditure share of GDP over time reveals whether health spending growth is keeping up, falling behind, or overtaking GDP growth. A constant share indicates equal growth, a decreasing share points to lower growth, and an increasing share signals faster growth.

Low levels of government health spending is often a reason for slow progress toward UHC and can also be a key driver of inequity and inefficiencies. When government health spending is relatively low, it is likely to be accompanied by high OOP spending, which raises concerns about the efficiency and equity of current health expenditure. In addition, low levels of government health expenditure might be accompanied by higher levels of development assistance for health (DAH) from several donors, which might not be well coordinated, and ultimately raise further concerns about efficiency as well as substantive efforts to coordinate and align DAH with country health sector policies.

Key Indicators	Sources
General government health expenditure per capita (FS1+FS2+FS3) per capita*	• National health accounts • Government (e.g., MoF) documents • WHO GHED
Domestic general government health expenditure per capita*	• National Health Accounts • WHO GHED • World Bank WDI • Government budgets and spending reports (for more recent data, unaudited figures may be available)
Domestic general government health expenditure (% of general government expenditure)	
Domestic general government health expenditure (% of current health expenditure)	

Note: GDP = gross domestic product; MoF = Ministry of Finance; WDI = World Development Indicators; WHO GHED = World Health Organization Global Health Expenditure Database. The first indicator, general government health expenditure, includes on-budget external financing. However, the second indicator (domestic general government health expenditure (GGHE-D)) does not include on-budget external financing. The codes FS1, FS2, and FS3 in parentheses refer to the WHO GHED codes, which are sourced from the 2011 System of Health Accounts.
*PER authors should choose the most appropriate currency. Usually, that would be the local currency in real terms. However, purchasing power parity (PPP) constant US$ can be used in certain cases, for example, if the local currency is not used by the government, or in the country, due to hyperinflation. PER authors might refer to the module on Public Financial Management for guidance on collecting government budget data.

OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
Health Financing
M-2: Resource Mobilization
M-3: Pooling
M-4: Benefits Specification
M-5: Purchasing Health Services
M-6: Public Financial Management
Inputs
Service Delivery
Outcomes
List of Acronyms
4 SECTION 4 Additional Guidance

KEY QUESTION

- **How can fiscal policies contribute to decreased unhealthy behaviors, and increasing public resources available for health?**

Key Indicators	Sources
Health tax revenues as % of total government revenues	• Government documents
Excise tax rates for: Alcohol; Tobacco; Sugar-sweetened beverages	• Government documents

When PER authors begin to evaluate general government health expenditure, they can compare levels with government policy targets, and peer countries from the same region, income groups, or other classification (for example, fragile and conflict-affected countries, small island states, and others). Common, aspirational benchmarks (for example, 15 percent of general government expenditure (Abuja Declaration 2001),[4] 5 percent of GDP (WHO 2010)) could also be used, if authors deem them relevant for the country context. A comparatively low share of domestic and/or general government health expenditure as a percentage of GDP might be due to a low priority of health within general government expenditure[5] or a limited ability and willingness of the government to raise revenues (see Annex 1 questions related to the capacity of government to raise revenues). As government health spending levels in developing countries are typically low, a downward trend of per capita government health expenditure should generally be cause for concern, as it would suggest that government health expenditure is not keeping pace with population growth. In addition, PER authors would want to explore the trend of government health expenditure per capita in real or constant terms, that is, accounting for inflation (preferably, and if available, health care services inflation). Decreasing shares of government health expenditure in general government expenditure or GDP also merit further exploration. Authors may conduct a quick exercise to assess the relationship between government financing for health and GDP to unpack the potential for increased government financing.[6] The analysis is linked to questions on sufficiency (that is, comparing resource needs to resources available) and sustainability. Also of note, the Kenya 2022 (Di Giorgio et al. 2022) and the Zambia 2019 (Chansa et al. 2019) health PERs are good examples of how to analyze government financing trends.

4 The Abuja Declaration is a pledge made by African Union (AU) member states in April 2001 to allocate at least 15 percent of their annual budgets to health care.

5 For clarity, general government expenditure includes on-budget development assistance. However, domestic general government health expenditure does not include on-budget development assistance for health. PER authors might want to then calculate government health expenditure as a share of general government expenditure to ensure that on-budget donor funding is included in the numerator and the denominator of the share.

6 See the "Domestic Resource Mobilization for Increased Health Sector Fiscal Space and Universal Health Coverage: A Health Financing System Assessment 'Drill-Down' Guidance Note" (Eozenou 2021) for an example of this.

OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
Health Financing
M-2: Resource Mobilization
M-3: Pooling
M-4: Benefits Specification
M-5: Purchasing Health Services
M-6: Public Financial Management
Inputs
Service Delivery
Outcomes
List of Acronyms
4 SECTION 4 Additional Guidance

The indicators can be used to compare a country's excise tax rates of health taxes with peer countries, and with WHO recommended levels of tax for each specific product (for example, WHO recommends tobacco tax to be at least 75 percent of the retail price of tobacco (WHO 2024)). This is particularly relevant for countries where no such taxes exist or where the levels of taxation are relatively low. In this context, PER authors may discuss the opportunities and political environment to introduce or increase sin taxes (tobacco, alcohol, sugar-sweetened beverages) that are generally earmarked to finance public health. Authors may consider conducting health tax simulations to assess the potential for raising additional revenue in the country in collaboration with the Country Economist and other relevant colleagues. Authors must refer to the colleagues in the Macroeconomics, Trade and Investment (MTI) Practice at the World Bank, including the Country Economist. PER authors could also refer to the MTI toolkit to analyze tobacco revenues.[7] Health 'taxes' primary objective is to disincentivize unhealthy behaviors; they do not necessarily increase health revenues. For example, revenues from health taxes might simply be pooled together with total general government revenues, and therefore health revenues would grow only to the extent that health revenues grow the "pie" general revenues. In case health taxes are earmarked to the health sector, Ministries of Finance might decrease the allocation to health by an equivalent or similar amount: in this case, incremental health revenues from health taxes might be very limited, if any. Finally, authors should also consider that subsidies are another type of fiscal that might impact health negatively, for example, subsidies to fossil fuels. In this case, authors might consider how to decrease those subsidies to limit their negative effect on health, and potentially how those resources could be redirected toward the health sector.

7 https://www.worldbank.org/en/topic/nutrition/brief/health-taxes.

Mix of revenue sources

KEY QUESTIONS

- What are the sources of financing for health?
- What proportion of financing for health is through public sources?
- What proportion of DAH is off budget?

The sources of financing for health provide critical insight into how efficiently and equitably health is financed in the country. The level of government health expenditure is critical for financial protection in health. It is also a prerequisite for sufficient bargaining power of purchasers vis-à-vis providers and thereby impacts input and output prices in the health system.

Key indicators	Sources
Health revenues, by health care financing scheme, % of current health expenditure: • Domestic general government health expenditure (FS1+FS3), formed by: 1. Budget transfers from government domestic revenues (FS1) 2. Contributions to social health insurance (FS3) • Voluntary prepayment (i.e., voluntary private insurance premiums) (FS5) • Household out-of-pocket payments (FS6.1) • Development assistance for health (DAH) (financial or in kind) (FS2 plus FS7). Note: DAH on-budget is FS2, DAH off-budget is FS7	• National Health Accounts • Government budgets and reports (for more recent data, unaudited figures may be available) • Household surveys • WHO GHED • Health Resource Tracking exercises for the health sector (e.g., Resource Mapping)

Note: WHO GHED = World Health Organization Global Health Expenditure Database.
The codes provided beside each indicator are the System of Health Accounts 2011 (Organisation for Economic Co-operation and Development, Eurostat, and World Health Organization 2011) codes for the revenues module that are used in the WHO GHED. PER authors interested in contributions to compulsory prepayments other than social health insurance (i.e., compulsory private health insurance schemes) can find these under FS.4 in the WHO GHED. For DAH, FS2 indicates on-budget DAH. PER authors should assess trends of DAH on budget (FS2), DAH off budget (FS7), as well as total DAH (see the following paragraph).

Using the preceding indicators, PER authors should analyze the trend in recent years for the country using government data, and then benchmark across similar, comparator, countries using World Bank WDI and/or WHO GHED. Trends can point to potential drivers of changes in government health expenditures (for example, changes in DAH). The extent health expenditures are funded through prepaid and pooled government mechanisms (that is, general government health expenditure) is crucial for discussing financial protection and barriers to accessing health services (see the module on Financial Risk Protection). The level of revenues from OOP health expenditure is important. A 20 percent share of OOP payments is often used as a first benchmark (empirically, an OOP share greater than 20 percent is associated with significant inequities, for example, a much higher incidence of impoverishing and catastrophic payments).

In case there are different schemes of a substantial size (relative to current health expenditure), such as a noncontributory scheme and a contributory (SHI) scheme, PER authors could consider their trends both together and separately. It should be noted that SHI expenditure is often financed by both compulsory contributions and budget transfers from government revenues: the sources of funding for each scheme is certainly policy-relevant information that authors could uncover. A further indicator that they might consider when SHI is funded by budget transfers and mandatory contributions is HF 1.2.1 in the WHO GHED and National Health Accounts, which shows the expenditure channeled via SHI schemes, regardless of whether the sources are contributions or budget transfers. Similarly, HF 1.1 will show the expenditure of non-contributory schemes, thereby excluding the budget transfers toward SHI usually used to fund non-contributory schemes. Finally, PER authors should examine government health expenditure both including on-budget DAH and excluding on-budget DAH to assess potential effects of on-budget DAH on domestic government revenues for health. Again, the Kenya 2022 (Di Giorgio et al. 2022) and the Zambia 2019 (Chansa et al. 2019) health PERs are good and recent examples of how to analyze financing trends across different sources.

External financing (donor financing) can be on budget (delivered via the recipient government financial management systems, noted as FS2 in the WHO GHED and NHA) or off budget (delivered via nongovernmental organizations (NGOs), private health care providers, or similar organizations, noted as FS7 in the WHO GHED and NHA). PER authors can start by analyzing the extent DAH is contributing to current health expenditure. (This information was provided in the previous section (DAH revenues as a percentage of current health expenditure) and is noted again here for completeness.)

In some countries, usually low-income countries, a significant proportion of external financing is not channeled through the government's budget processes, which can lead to inefficiencies when off-budget DAH-funded efforts are fragmented. Fragmentation of financing sources, including DAH, might result in large coordination costs and ultimately a possible loss of efficiency (Gabani et al. 2024, Martinez Alvarez and Acharya 2012).

PER authors should analyze trends in recent years and benchmark across similar countries. If authors find an upward trend in and/or an excessive share of off-budget external financing, some of the following questions may be addressed through key informant interviews:

- Are the health services financed through off-budget external financing aligned with the country's health sector priorities? Are they coordinated with the government health system (for example, they might create competition for scarce human resources, not be well integrated into care pathways, and/or focus on vertical programs)?
- What are the main reasons for donors not using government systems? How can DAH (on and off budget) be tracked appropriately to enable coordination with government plans, and accountability of DAH financiers and implementers?

In this section, PER authors may also want to describe the donor financing landscape and highlight such issues as the concentration of external funding on specific diseases, and assess sustainability of DAH, for example,, how GHE can be increased to finance DAH-supported areas in a volatile donor context.

Key indicators	Sources
Share of off-budget DAH in total DAH	• Health Resource Tracking exercise for the health sector (e.g., Resource Mapping) • Government documentation/reports • National Health Accounts • WHO GHED

Note: WHO GHED = World Health Organization Global Health Expenditure Database.
If using the WHO GHED, this indicator is not readily available and needs to be calculated by PER authors. Authors need to identify "transfers distributed by government from foreign sources" (code FS2), which represents on-budget external financing. Therefore, "transfers distributed by government from foreign sources" divided by total external financing (FS2 + FS7) provides the percentage of external financing that is on budget. The percentage of external financing that is off budget can finally be calculated as 100 percent minus the percentage of external financing that is on budget.

OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
Health Financing
M-2: Resource Mobilization
M-3: Pooling
M-4: Benefits Specification
M-5: Purchasing Health Services
M-6: Public Financial Management
Inputs
Service Delivery
Outcomes
List of Acronyms
4 SECTION 4 Additional Guidance

EFFICIENCY OF RESOURCE MOBILIZATION

KEY QUESTION

- **What is the level of revenue that is not collected due to evasion of taxes or mandatory contributions?**

As outlined in the introduction, taxation, defined by law (that is, direct tax, indirect tax, and so on), is the most prevalent method for collecting government revenues. These general revenues become health revenues when the central government transfers a portion to a government health ministry, department, or agency (MDA). Another common method for governments to collect health revenues is through mandatory contributions to a public health insurance scheme, which are also often legally mandated.

Revenue collection systems, particularly in low-income countries and lower-middle-income countries, are often inefficient, as they do not collect nearly the full amount that would be expected from the taxes and charges (including social contributions, such as obligatory health insurance) that are specified in law. For example, in some countries, the informal sector might not pay all the mandatory contributions required by law which would ultimately finance contributory health insurance schemes (Yazbeck et al. 2020, Yazbeck et al. 2023, Gabani et al. 2023).

As with tax collection, evasion and other forms of inefficiency are also common when mandatory social or public health insurance contributions are collected (McGillivray 2001; Yazbeck et al. 2020). Where SHI contributions are collected separately from tax contributions, PER authors may be interested in understanding the extent the revenues expected from the mandated contributions are collected.

PER authors could also make their own estimates to assess the amount of taxes or mandatory contributions not raised, for example, estimate the amount of income tax to be paid per informal sector employee, and multiply by informal sector employees. Authors should refer to the Country Economists who usually conduct these types of analyses.

General government revenue (or tax revenue) as a share of GDP compared with countries with similar levels of GDP per capita could be used as a rough indicator of the capacity and efficiency of revenue raising. This indicator needs to be interpreted cautiously, as it might reflect other factors (for example, the available tax base).

Key indicators	Sources
Estimated tax evaded (% of collected taxes)	• Government estimates
People or households not contributing to health insurance scheme (% of total people or households mandated to contribute)	• Government estimates
Tax revenues as % of GDP	• Government estimates • World Bank WDI
Estimated unpaid mandatory health insurance contributions (% of total collected contributions)	• Government estimates

Note: PER authors should consider that one or more of these indicators might not be relevant for their context. For example, "People or households not contributing to health insurance scheme (% of total people or households mandated to contribute)" would not be relevant for a country without a health insurance scheme that mandates health insurance contributions.



EQUITY

PER authors might be interested in assessing the equity of health revenues. This can be done via a financing incidence analysis. The objective of a financing incidence is to ascertain whether health care resources are collected equitably.

Usually, health revenues collection is considered equitable when it is either proportional to household incomes (so that richer households contribute more than poorer households in absolute terms) or progressive, that is, a richer household's contribution to health revenues is more than proportional to the household income. While equity can be defined in several ways, PER authors can define equity in health financing as the situation in which households contribute to health revenues (at least) according to their ability to pay (Ataguba et al. 2018).

PER authors can run their own financing incidence analysis if the necessary household survey data are available; guides on how to run a financing incidence analyses are available (O'Donnell et al. 2008, Ataguba et al. 2014). Authors are also encouraged to look for existing financing incidence analyses that could be discussed as part of a PER (see, for example, *Zambia—Health Sector Public Expenditure Review* (Chansa et al. 2019)). Of note, a financing incidence analysis is often accompanied by a benefit incidence analysis, because equity in service delivery (assessed by a benefit incidence analysis) and equity in resource mobilization (assessed by a financing incidence analysis) are two aspects of the same thing. Households pay taxes, and in exchange they receive health care benefits (when needed). When richer households contribute more taxes than poorer households, and poorer households receive more health care benefits than richer households, the public health care sector could be redistributing resources toward poorer households and decreasing income inequality. PER authors interested in assessing the income inequality effect of the public health care system can also do so through a fiscal incidence analysis, which merges benefit and financing incidence analyses (Gabani et al. 2024). For a better understanding of these assessments, authors can refer to World Bank publications on this topic: (O'Donnell et al. 2008 for benefit and financing incidence analysis, and Inchauste and Lustig 2017 for fiscal incidence analysis).

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
M-2: Resource Mobilization
M-3: Pooling
M-4: Benefits Specification
M-5: Purchasing Health Services
M-6: Public Financial Management
Inputs
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

References

Ataguba, John E., Augustine D. Asante, Supon Limwattananon, and Virginia Wiseman. 2018 "How to do (or not to do) … a health financing incidence analysis." *Health Policy and Planning*, Vol. 33, Issue 3: 436-44. April. https://doi.org/10.1093/heapol/czx188.

Chansa, Collins, Netsanet Walelign Workie, Moritz Otto Maria Alfons Piattifuenfkirchen, Thulani Clement Matsebula, and Katelyn Jison Yoo. 2019. *Zambia—Health Sector Public Expenditure Review* (English). Washington, DC: World Bank Group. http://documents.worldbank.org/curated/en/756921559624225552/Zambia-Health-Sector-Public-Expenditure-Review.

Di Giorgio, Laura, Katelyn Jison Yoo, and Thomas Maina. 2022. *Staying Ahead of the Curve: Challenges and Opportunities for Future Spending on Health in Kenya, Kenya Public Expenditure Review for the Health Sector*. Washington, DC: World Bank Group. https://documents1.worldbank.org/curated/en/099150006242224188/pdf/P175146046aa000170926707583dac4738d.pdf.

Eozenou, Patrick Hoang-Vu, Ajay Tandon, and Jewelwayne Salcedo Cain. 2021. *Domestic Resource Mobilization for Increased Health Sector Fiscal Space and Universal Health Coverage: A Health Financing System Assessment "Drill-Down" Guidance Note* (English). Washington, DC: World Bank Group. http://documents.worldbank.org/curated/en/776161637038610846/Domestic-Resource-Mobilization-for-Increased-Health-Sector-Fiscal-Space-and-Universal-Health-Coverage-A-Health-Financing-System-Assessment-Drill-Down-Guidance-Note.

Gabani, Jacopo, Marc Suhrcke, Sven Neelsen, Patrick Hoang-Vu Eozenou, and Marc-Francois Smitz. 2024. "Does health aid matter to financial risk protection? A regression analysis across 159 household surveys, 2000–2016." *Social Science & Medicine*, Vol. 356. https://doi.org/10.1016/j.socscimed.2024.117148.

Gabani, Jacopo, Sumit Mazumdar, Sylvester Bob Hadji, and Michael Matthew Amara. 2024. "The Redistributive Effect of the Public Health System: The Case of Sierra Leone." *Health Policy and Planning*, Vol. 39, Issue 1: 4–21. https://doi.org/10.1093/heapol/czad100.

Gabani, Jacopo, Sumit Mazumdar, and Marc Suhrcke. 2023. "The effect of health financing systems on health system outcomes: A cross-country panel analysis." *Health Economics*, Vol. 32, Issue 3: 574–619. https://doi.org/10.1002/hec.4635.

Gaspar, Victor, Laura Jaramillo, and Philippe Wingender. 2016. "Tax Capacity and Growth: Is There a Tipping Point?" Working Paper 16/234. International Monetary Fund, Washington, DC.

Institute for Health Metrics and Evaluation (IHME). 2024. *Financing Global Health 2023: The Future of Health Financing in the Post-Pandemic Era*. Seattle, WA: IHME. https://www.healthdata.org/sites/default/files/2024-05/FGH_2023_Accessible_Digital_Version_with_Translations_2024.05.13.pdf.

Inchauste, Gabriela, and Nora Lustig, eds. 2017. *The Distributional Impact of Taxes and Transfers: Evidence from Eight Low- and Middle-Income Countries.* Directions in Development series. Washington, DC: World Bank. License: Creative Commons Attribution CC BY 3.0 IGO. doi:10.1596/978-1-4648-1091-6. https://documents1.worldbank.org/curated/en/947831504161332955/pdf/119229-PUB-PUBLIC-pubdate-8-24-17.pdf.

Kaldor, Nicholas. 1963. "Will Underdeveloped Countries Learn to Tax?" *Foreign Affairs*, January 1, 1963. https://www.foreignaffairs.com/articles/asia/1963-01-01/will-underdeveloped-countries-learn-tax.

Kurowski, Christoph, David B. Evans, Ajay Tandon, Patrick Hoang-Vu Eozenou, Martin Schmidt, Alec Irwin, Jewelwayne Salcedo Cain, Eko Setyo Pambudi, and Iryna Postolovska. 2022. "From Double Shock to Double Recovery—Implications and Options for Health Financing in the Time of COVID-19, Technical Update 2: Old Scars, New Wounds." Discussion Paper, Double Shock, Double Recovery series, World Bank, Washington, DC. https://openknowledge.worldbank.org/server/api/core/bitstreams/76d5786b-9501-5235-922a-caa71f99f0fc/content.

Kurowski, Christoph, Anurag Kumar, Julio Cesar Mieses, Martin Schmidt, and Denise Valerie Silfverberg. 2023. "Health Financing in a Time of Global Shocks: Strong Advance, Early Retreat." Discussion Paper, Double Shock, Double Recovery series, World Bank, Washington, DC. http://hdl.handle.net/10986/39864 License: CC BY-NC 3.0 IGO.

Martínez Álvarez, Melisa, and Arnab Acharya. 2012. "Aid Effectiveness in the Health Sector." Working Paper No. 2012/69, United Nations University—Wider, Helsinki

McGillivray, Warren. 2022. "Contribution Evasion: Implications for Social Security Pension Schemes." *International Social Security Review*, Vol. 54, No. 4: 3–22. https://doi.org/10.1111/1468-246X.t01-1-00102.

O'Donnell, Owen, Eddy van Doorslaer, Adam Wagstaff, and Magnus Lindelow. 2008. *Analyzing Health Equity Using Household Survey Data: A Guide to Techniques and Their Implementation*. Washington, DC: World Bank. http://hdl.handle.net/10986/6896.

Organisation for Economic Co-operation and Development, Eurostat, and World Health Organization. 2017. *A System of Health Accounts 2011: Revised Edition*. Paris: OECD Publishing. https://doi.org/10.1787/9789264270985-en.

Stenberg, Karin, Odd Hanssen, Tessa Tan-Torres Edejer, Melanie Bertram, Callum Brindley, Andreia Meshreky, et al. 2017. "Financing Transformative Health Systems Towards Achievement of the Health Sustainable Development Goals: A Model for Projected Resource Needs in 67 Low-Income and Middle-Income Countries." *The Lancet*, Vol. 5, Issue 9: e875–87. https://www.thelancet.com/action/showPdf?pii=S2214-109X%2817%2930263-2.

Tandon, Ajay, and Cheryl Cashin. 2010. "Assessing Public Expenditure on Health from a Fiscal Space Perspective." Discussion Paper, Health, Nutrition, and Population, World Bank Group, Washington, DC. http://documents.worldbank.org/curated/en/333671468330890417/Assessing-public-expenditure-on-health-from-a-fiscal-space-perspective.

Wagstaff, Adam, and Rodrigo Moreno-Serra. 2009. "Europe and central Asia's great post-communist social health insurance experiment: Aggregate impacts on health sector outcomes." *Journal of Health Economics*, Vol. 28, Issue 2: 322–40. https://doi.org/10.1016/j.jhealeco.2008.10.011.

World Health Organization. 2010. *Health Systems Financing—The Path to Universal Coverage*. Geneva: World Health Organization. https://iris.who.int/bitstream/handle/10665/44371/9789241564021_eng.pdf?sequence=1.

World Health Organization. 2024. "Promoting taxation on tobacco products," accessed September 1, 2024. https://www.who.int/europe/activities/promoting-taxation-on-tobacco-products.

Yazbeck, A.S., W.D. Savedoff, W.C. Hsiao, J. Kutzin, A. Soucat, A. Tandon, A. Wagstaff, and W. Chi-Man Yip. 2020. "The Case Against Labor-Tax-Financed Social Health Insurance for Low- and Low-Middle-Income Countries." *Health Affairs (Millwood)*, 39 (5): 892–97. doi: 10.1377/hlthaff.2019.00874. https://pubmed.ncbi.nlm.nih.gov/32364862/.

Yazbeck, A.S., A.L. Soucat, A. Tandon, C. Cashin, J. Kutzin, J. Watson, S. Thomson, S.N. Nguyen, and T. Evetovits. 2023. "Addiction to a Bad Idea, Especially in Low- and Middle-Income Countries: Contributory Health Insurance." *Social Science & Medicine*, Vol. 320: 115–168. doi: 10.1016/j.socscimed.2022.115168. https://pubmed.ncbi.nlm.nih.gov/36822716/.

OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
Health Financing
M-2: Resource Mobilization
M-3: Pooling
M-4: Benefits Specification
M-5: Purchasing Health Services
M-6: Public Financial Management
Inputs
Service Delivery
Outcomes
List of Acronyms
4 SECTION 4 Additional Guidance



ANNEX 1. HEALTH SPENDING SUFFICIENCY AND SUSTAINABILITY

Comparing Resources to Health Needs

KEY QUESTIONS

- **How does health spending compare to health spending required to attain policy objectives?**
- **How does the revenue capacity compare to the health spending needs of the population?**

To assess whether health spending (overall and government) is adequate, PER authors should compare the spending levels to the spending needs to achieve health objectives in the country.

For developing countries, the spending needs to achieve health objectives are equated to what is required for the country to achieve the aspirational SDG 3 targets (see, for example, Stenberg et al. 2017). However, developing countries typically also have specific national health goals that are achievable in the short term with more modest spending levels. For high-income countries, spending needs generally equal the spending levels required to achieve national health goals.

PER authors can estimate the gap between current actual government spending per capita and government spending per capita needs to achieve government health objectives. If government health spending needs are not specified, authors can produce an estimate using benchmarks for government expenditures (see Stenberg et al. 2019). PER authors can conduct a deeper analysis of the adequacy of health spending on health is needed, authors can consult the report on the Health Financing Sustainability and Resilience Assessment (HFSRA) framework (World Bank 2024).

Key indicators	Sources
Estimated spending necessary to achieve SDG3 targets per capita (for LICs, LMICS, UMICs), and gap versus estimated available resources	• Health sector plans • Costing exercises
Estimated spending necessary to achieve short-term or national health goals per capita (for LICs, LMICS, UMICs, HICs), and gap versus estimated available resources	• Health sector plans • Costing exercises

Note: HIC = high-income country; LIC = low-income country; LMIC = lower-middle-income country; UMIC = upper-middle-income country.

Some points related to adequacy of funding should be noted. First, global benchmarks might not be relevant for a specific country; indeed, global benchmarks are a guidance rather than prescriptive funding needs. Costing exercises might be relevant in certain cases to ascertain the funding needs to deliver National Health Sector policies (see for example, the Joint Learning Network "Costing Manual Toolkit"). Second, very often, and especially in low-income and lower-middle-income countries, the financing required to either reach global benchmarks

Key indicators	Sources
General government revenue as % of GDP	• IMF WEO
Tax revenues as % of GDP	• World Bank WDI

Note: GDP = gross domestic product; IMF = International Monetary Fund; WDI = World Development Indicators; WEO = World Economic Outlook.

of health expenditures, or to cover the cost of a National Health Sector plan, might be infeasible (for example,, covering National Health Sector plan costs or achieving a global benchmark on health expenditures requires government domestic health expenditure to reach 75 percent of general government expenditure). In this case, and when advocating for additional resources for health, PER authors are encouraged to consider sequencing over time and sequencing by priority. Sequencing over time refers to recommending the development of "roadmaps" or "paths to policy" documents, which show how governments can, incrementally and over time, ultimately reach the expected domestic health expenditure target, via sequencing domestic health expenditure increases. In addition, there can also be sequencing by priority. One possible recommendation is to identify high priority interventions by their cost-effectiveness (for example,, primary health care interventions) and provide funding to cover financing needs for those highly efficient interventions first.

Higher revenues can expand a government's fiscal space and create opportunities for a larger health budget. The next indicators measure the revenue capacity of the government generally, not the health sector itself. The International Monetary Fund (IMF) provides historical data and projects general government revenue as a share of gross domestic product (GDP) over the medium term. Comparing with peer countries and investigating the medium-term trend can point to subpar revenue mobilization and potential revenue threats. An essential aspect of a government's revenue mobilization capacity is its ability to collect taxes, measured by the tax-to-GDP ratio. Comparing with similar countries and examining the medium-term trend can provide valuable insights. It is also worth considering a recognized benchmark. Countries that consistently collect taxes exceeding 15 percent of GDP tend to experience sustained and inclusive growth (for example, Kaldor 1963, Gaspar et al. 2016).

It is also noteworthy that SHI contributions are usually considered social contributions, rather than tax, and that they are considered part of general government revenues. Therefore, general government revenues as a percentage of GDP is preferred over tax revenues as a percentage of GDP if the focal country or at least one comparator country collects substantial health revenues via SHI contributions, or via any other government revenue source (for example,, natural resources). PER authors can run both analyses, that is,, using only tax and using all general government revenues.

OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
Health Financing
M-2: Resource Mobilization
M-3: Pooling
M-4: Benefits Specification
M-5: Purchasing Health Services
M-6: Public Financial Management
Inputs
Service Delivery
Outcomes
List of Acronyms
4 SECTION 4 Additional Guidance



Sustainability

KEY QUESTIONS

- **How predictable are resource flows to the health sector?**
- **What are the levels of the country's fiscal deficits and debts?**

Sustainability is the capacity to attain and maintain the levels of health spending necessary to achieve the desired levels of coverage over the medium term, considering possible sources of revenues in the domestic public sector, private sectors, and from development partners. Threats to sustainability can arise either from increased costs and higher expenditure needs or from reduced revenues. The following questions focus on the revenue side of sustainability.

PER authors can also refer to the Health Financing Sustainability and Resiliency Assessment report (World Bank 2024) for more in-depth guidance on assessing health financing sustainability; it also considers efficiency, equity, and resilience.

In this section, methods to assess resource flows and debt are proposed. It should be noted that further analyses on financial

flows, and financial management more broadly, are suggested in the Public Financial Management module. The budgeting and planning process is critical for ensuring that there are adequate government funds for achieving national health goals, especially in countries where the primary source of government health funding is via allocations from general government revenues. This is usually the case for nearly all low-income countries and many upper-middle-income countries. Inefficient budgeting and planning processes of governments can impede attaining adequate spending levels. In addition, PER authors are encouraged to connect with MTI colleagues on the topics of debt and sustainability of health spending within the general government budget, including wage bills consideration.

First, PER authors should review the forecasts for government expenditures from the IMF World Economic Outlook (WEO), or from the country Article IV report, to form expectations of health expenditure (for example, use general government expenditure to forecast domestic health expenditures, assuming that the domestic government health expenditures as a percentage of general government expenditure remains flat). This will show whether there are large deviations in expected health expenditures in the short to medium term. In case there are relevant analyses from the World Bank (for example,, the Double Shock Double Recovery paper series estimates), these can be used.

Key indicators	Sources
Expected domestic government health ex-penditures (assuming flat prioritization of health if no sectoral MTEF)	• Medium-term expenditure framework (where available for sector) • Projections from SHI agencies • IMF WEO • World Bank estimates (e.g., Double Shock Double Recovery paper series estimates)
Deviations in domestic government health ex-penditure between the last three years and the corresponding medium-term fiscal projections	• Health accounts and WHO GHED • Government budgets and reports (for more recent data, unaudited figures may be available) • MTEF for health
Trends in DAH per capita in most recent 5 years	• Health accounts and WHO GHED • Health resource tracking exercises if available

Note: DAH = development assistance for health; IMF WEO = International Monetary Fund World Economic Outlook; MTEF = medium-term expenditure framework; WHO GHED = World Health Organization Global Health Expenditure Database.

Second, PER authors should assess how a country's health expenditures over the past three years compare to the corresponding medium-term fiscal projections. The latter are laid out in the country's sectoral medium-term expenditure framework (MTEF) or equivalent document. Some countries lack a MTEF for the sector; however, governments may have set target commitments for health spending to achieve health policy objectives that can serve as substitutes for fiscal projections. Health expenditure may be measured in terms of government health expenditure (GHE) per capita, GHE as a percentage of GDP, or GHE as a percentage of general government expenditure (GGE), depending on the format of the MTEF projections. Public expenditure and financial accountability (PEFA) assessments also evaluate the predictability of financing. Finally, authors are encouraged to take cost pressures into account: medical inflation, or new policies, might result in either buying less goods/labor with the same amount of funding, or having less money to spend for existing services.

Lastly, it is important to assess predictability of DAH and whether the government could, at least in principle, continue funding DAH-funded if donors stop paying for those services (for example,, HIV or malaria). It is important to assess the predictability of DAH in countries with a high DAH as a percentage of current health expenditure (CHE) (for example, many low-income countries).

PER authors should analyze past and future trends in DAH to see how DAH has changed over time and can also benchmark across similar countries. Authors may link the discussion to the earlier key question about off-budget DAH and highlight whether the DAH is largely channeled through the government. It is ideal to indicate whether there is a transition plan in place, particularly for countries where DAH comprises a significant proportion of financing the health sector.

Countries with low levels of debt and low fiscal deficits are less burdened by interest payments. This supports the attainment and maintenance of spending levels across all sectors, including the health sector.

Key indicators	Sources
General government gross debt as % of GDP	• IMF WEO • Government financial forecast (e.g., in MTEF documents)
Debt service as % of GNI	• World Bank WDI • Government financial forecast (e.g., in MTEF documents)

Note: GNI = gross national income; IMF WEO = International Monetary Fund World Economic Outlook; MTEF = medium-term expenditure framework; WDI = World Development Indicators.

Data on gross debt, that is, the total amount of a government's outstanding debt obligations, and medium-term projections are published biannually by the IMF. Data on interest payments are more limited. Comparing a country's debt level with peer countries can point to sustainability challenges—especially when debt is not issued in local currency units and mainly held externally. A steadily increasing debt level is a potential cause for concern, as it will often result in higher debt servicing, which in turn restricts sectorial spending.

To estimate current and future interest payments, authors can draw on IMF projections and use the difference between primary deficit and fiscal deficit. The difference equates to net interest payments, that is, the sum of debt servicing costs and interest receipts from financial assets. In most countries, and particularly most developing countries, debt servicing costs far exceed interest receipts. Therefore, net interest payments can serve as a first approximation of debt servicing costs. Interest payments that rise quicker than government expenditure or government revenue can undermine health spending. Therefore, in countries where fiscal health is weak, authors need to consider the implications for the sustainability of health spending.

Finally, there is a growing interest in health taxes. Usually, these types of taxes can be used to limit unhealthy behaviors (for example,, smoking cigarettes) rather than increase resources for health. One main reason is that health tax revenues might be shared across all sectors rather than earmarked to the health sector. In addition, even if health tax revenues are earmarked to the health sector, the Ministry of Finance might decrease other budget transfers to compensate for the earmarked health revenues (that is,, earmarked health tax revenues are not incremental). Given the complexity of the topic, it is suggested that these analyses are done in collaboration and/or led by fiscal policy experts and by Ministry of Finance counterparts.[8]

8 https://www.worldbank.org/en/topic/nutrition/brief/health-taxes.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
M-2: Resource Mobilization
M-3: Pooling
M-4: Benefits Specification
M-5: Purchasing Health Services
M-6: Public Financial Management
Inputs
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

TABLE OF CONTENTS

MODULE 3

Pooling

AUTHORS

Somil Nagpal, Laura Di Giorgio, and Denise Silfverberg

START



INTRODUCTION

Pooling involves the accumulation and management of prepaid revenues for health on behalf of a covered population. These funds are used to purchase or provide health services so that beneficiaries can obtain services without bearing the full cost. The funds can be pooled and managed by the Ministry of Health, a public or private insurance or purchasing agencies, or semiautonomous agencies that, for example, manage programs for specific populations.

Although a pool is most often used to refer to insurance pools, any arrangement that manages prepaid resources on behalf of an eligible population is a pool. Examples of pooled or prepaid health financing schemes include national health systems, social health insurance (SHI), and voluntary health insurance schemes, including private health insurance. Supply side financing, where the health budget flows in a vertically integrated way to service providers, constitutes a pool (Mathauer, Saksen, and Kutzin 2019). Finally, pooled funds not only pay for individual-based health services on behalf of beneficiaries, but they also pay for population-based health services, pandemic preparedness, and cross-cutting essential public health functions.

Pooling spreads the financial risks from health care among the population of the pool. It does so through cross-subsidization between the healthy and sick, and in some cases, the rich and poor. Effective pooling contributes to progress toward universal health coverage (UHC) in several ways. It can reduce financial barriers to accessing health services, increasing coverage for needed services. Consequently, it helps reduce forgone care caused by financial barriers as well as exposure to financial hardship from paying out of pocket (OOP) for health services.

PER authors analyzing pooling arrangements from the perspective of a PER can explore whether current pooling arrangements promote efficiency and equity in financing and service use. Pooling

can be inefficient if it results in high administrative costs, inability to spread risks evenly—with some pools serving high risk population while others serve lower risk groups, overuse of services, or fragmented health services[1]. Multiple pools and schemes can generate inequity if pooling is fragmented across socioeconomic lines. For example, formal workers obtain better services and coverage than informal workers or poorer segments of the population, as they are covered by different insurance schemes, with different providers and benefit packages.

The module is organized into two sections. The first section, on efficiency, covers key questions around quantity, structure, and composition of financing schemes and pooling arrangements. Its aim is to help PER authors understand potential inefficiencies. The second section covers key questions on equity of pooling arrangements.

The box below presents definitions of terms used in this module.

1 Fragmentation in care can result when the insurance system covers some benefits, say, consultation and a laboratory test for HIV follow-up, while other services are covered by the MoH, such as ART treatment. The user will need to seek care through different provider networks that are often ill suited to coordinate care.



BOX 1. DEFINITIONS OF TERMS

HEALTH RISK
The probability of experiencing ill health by an individual or a population.

HEALTH FINANCING SCHEME
A financing scheme is a distinct system of rules that govern the provision and financing of health benefits. Examples include national health insurance, social health insurance, private health insurance, OOP payments, and donor-funded health programs. Each scheme has its own structure and rules regarding financing sources, beneficiaries, and resource distribution for health care services. Annex 1 contains further details, providing a classification of health financing schemes according to the National Health Accounts system.

RISK POOL
A health insurance risk pool is a group of individuals whose health risks and associated costs are combined and paid from a common pool of resources. In health financing, a pool can also refer to a fund used to finance services for an eligible population. However, in this context, the term "pool" refers to a group of individuals under a single risk-sharing arrangement. There can be multiple pools within one health financing scheme. For example, government schemes might have pools for special populations, such as beneficiaries of social assistance programs, children, or different regional pools.

MORAL HAZARD
This refers to the change in behavior by individuals when they do not bear the full cost of care, either because they are privately or publicly insured or covered by a government scheme. Moral hazard results in the increased use of services beyond what is optimal from a societal or individual welfare perspective, creating allocative inefficiency. Methods to address moral hazard include partial insurance, copayments, deductibles, waiting lists, gatekeeping, and limiting individual choice.[2]

ADVERSE SELECTION
When health insurance is voluntary, a situation may arise in which only those who are sick or anticipate needing health care buy or opt into the insurance scheme, while those who are healthy will not insure. Adverse selection leads to insurance pools with primarily high-risk member profiles and high costs, and underinsurance among healthy individuals. Adverse selection will lead to higher premium and may render insurance schemes financially unsustainable.

CREAM SKIMMING
This occurs when insurance funds discourage enrollment by people who are at high risk of incurring health costs and accept only potential low-cost enrollees.

RISK EQUALIZATION
A method by which insurance entities are compensated by having a pool of sicker individuals, risk equalization can mitigate cream skimming.

UNBALANCED RISK POOLS
Adverse selection and cream skimming might result in unbalanced risk pools—pools with higher-than-average costs and health risks.

2 See https://www.sciencedirect.com/topics/economics-econometrics-and-finance/moral-hazard#:~:text=Moral%20hazard%20occurs%20when%20an,(ex%20ante%20moral%20hazard).

OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
Health Financing
M-2: Resource Mobilization
M-3: Pooling
M-4: Benefits Specification
M-5: Purchasing Health Services
M-6: Public Financial Management
Inputs
Service Delivery
Outcomes
List of Acronyms
4 SECTION 4 Additional Guidance

EFFICIENCY

Pooling Arrangements

KEY QUESTIONS

- **How many financing schemes exist in the country?**
- **How many pools are in each scheme?**
- **What are the size and composition of each pool?**

The number of health financing schemes is a starting indicator of the number of pooling arrangements that exist in the country. There may be more than one pooling arrangement in each health financing scheme.

Where multiple pooling arrangements and health financing schemes have developed, each one might have its own rules for participation and levels of coverage and can lead to the "fragmentation" of health systems. Fragmentation can be a barrier to cross-subsidization between the healthy and sick and between the rich and poor if different pools cover each population, for example, if one pool is designated only for the rich and another for the poor. It can also lead to inefficiency due to duplication of administration costs, or duplication of services if each pool has its own service provision network. Fragmentation in care can also arise if, for example, one scheme covers primary care while another covers secondary and tertiary care or if donor programs fund certain diseases while national systems or health insurance fund others.

Key indicators	Sources
Number of prepaid financing schemes in the country	• Policy documents • KIIs
Number of pools per financing scheme	• Policy and organizational structure documents of financing schemes
Number of members per pool	• Annual report or other reporting document of financing schemes
Percent of population covered by each pool	• Annual report or other reporting document of financing schemes
Characteristics of members per pool: **• Age distribution** **• Gender** **• Health risks** **• Occupational groups** **• Income levels**	• Annual report or other reporting document of financing schemes • In-country studies

Note: KII = key informant interview.

PER authors can map the various health financing schemes in a diagram for easy reference (the Resource Mobilization module covers sources of financing for health). In some countries, there might be a large number of smaller schemes that account for a small share of current health expenditures (for example, community-based health insurance schemes, private voluntary insurance, other nongovernmental-organization-run schemes). While authors can mention in the country's PER the existence of such schemes, the discussion should focus on major financing schemes, usually compulsory public schemes[3]. PER authors should also note that there may be one or more SHI funds in countries with primarily SHI-dominant schemes.

The existence of multiple pools may indicate differences in terms of benefits and health risk profiles of the people who are covered, causing inequities in service coverage and financial protection. Multiple pools can also be a source of inefficiency when there is duplication in coverage.

There may be multiple pools within each financing scheme. For instance, tax-financed government health care provision may be

3 The combination of a public mandate, regulation, and funding makes the schemes "public" even if they are managed by non-profit or for-profit private entities.

divided across subnational units, operating subpools or separate pools (if there are no linkages to other subnational units). When mapping the number of pools and discussing the potential implications, PER authors should also consider whether the number of pools has increased or decreased over time and whether there have been efforts to merge pools.

The size and demographic composition of each pool will show the extent of fragmentation. As highlighted in earlier questions, fragmentation impacts the ability to cross-subsidize between groups, leading to both inefficiency and inequity. Small pools can also pose a threat to the financial sustainability of the pooling scheme. Large pools with diverse health risk profiles ensure that the presence of a few people at risk of incurring high costs will not bankrupt the pool.

Using the key indicators, PER authors should analyze the size and diversity of pools to assess the fragmentation level across the system. They then should link the results to questions in the equity section to understand the equity impact of the pooling arrangements in the country.

When analyzing the composition of pools according to risk, authors can use the following guide:[4]

- **Low risk:** primarily younger and healthier people, employed people
- **High risk:** older and less healthy people, workers with greater exposure to health hazards, self-employed

Other groups that imply a greater need for health services include very young children, women of childbearing age, and the elderly. In addition to using the key indicators on size and composition, PER authors can conduct a descriptive analysis of the interaction between different fund pools to ascertain whether there is a mechanism of cross-subsidization across different pools. For noninsurance schemes, authors should identify the types of resource allocation or equalization mechanism[5] used to distribute resources across pools. For countries with SHI schemes, PER authors should describe whether there are automatic stabilizers in place, which may include formula-based transfers from the government to the SHI, transfers that adjust to any unexpected costs, or stabilization funds.

4 The composition of pools may be estimated using household surveys if available, by looking at socioeconomic characteristics and income level by type of coverage scheme (public system, insurance scheme for formal workers, special populations). The composition of the pool can also be inferred from the eligible population, for example, contributory schemes for formal workers usually cover the better-off more educated groups. PER authors may be able to obtain this information from key informant interviews. Insurance agencies, whether public or private, participating in public compulsory schemes often publish reports detailing covered population by age.

5 "Risk equalization" refers to the transfer of funds between pools depending on the health risk profile of their enrollees. This reduces the incentive for the pools to seek to enroll only people projected to incur low costs. Countries may have developed their own approach to determining how and when funds are transferred between pools.

Moral Hazard, Adverse Selection, and Administrative Costs

KEY QUESTIONS

- **Are administrative costs of operating the schemes higher than optimal?**
- **Is membership voluntary or compulsory for the different schemes? Is there any evidence of cream skimming?**
- **Is there evidence of overuse of services (adverse selection)?**

A typical inefficiency emerging from the existence of multiple pools is high administrative costs. Administrative costs as a percentage of total SHI costs can be benchmarked against the median observed in high-income countries of 3.5 percent (WHO 2010). Administrative costs tend to increase as GDP per capita decreases, with some lower-income countries spending more than 30 percent on administration. This may be explained by lower-income and lower-middle-income countries having smaller programs, so that fixed costs become a larger share of total costs.

Schemes or pools with voluntary membership will likely encounter the problem of adverse selection or cream skimming. PER authors can compare the demographic composition of each pool (see the earlier question on size and composition of pools) with that of the overall population to assess the impact of voluntary versus compulsory membership. When participation in a scheme is voluntary, there is a tendency for sicker people to join and healthier people to opt out or pick pools with lower (co)payments/contributions and/or deductibles. Pools with sicker people will ultimately have higher average costs than other pools.

Key indicators	Sources
Administrative cost as a share of current health expenditure **Administrative cost of public compulsory schemes as a share of total government health expenditure**	• Government budget • Annual report or financial statements of the insurance scheme
Administrative cost as a percentage of total SHI costs	• Annual report or financial statements of SHI scheme
Administrative cost per member per month	• Annual report or financial statements of SHI scheme
Compulsory membership for schemes (Yes/No)	• Government reports and normative documents • KIIs
Option for member to opt out of the scheme (Yes/No)	• Policy documents • KIIs
Is there evidence of cream skimming? (Yes/No)	• KIIs
Is there evidence of overuse of services due to adverse selection? (Yes/No)	• KIIs • Government reports • Academic studies

Note: KII = key informant interview; SHI = social health insurance.

PER authors should also assess whether schemes are able to deny membership and if so, on what grounds. In this discussion, authors should highlight whether there is a "safety net" option (such as a publicly financed fund) for individuals who are not accepted by any risk pool. PER authors should link this analysis with the previous questions when discussing risk equalization mechanisms for risk adjustments across pools.

EQUITY

KEY QUESTIONS

- **Are there differences in per capita spending by scheme?**
- **Are there differences in benefits across schemes?**
- **Are there regressive subsidies across pools?**

Fragmented and ineffective pooling arrangements can lead to significant inequities in coverage, reflected in the level of financial protection and health service use of its members.

PER authors should exclude administrative costs when calculating the per capita spending of a scheme in order to better account for the benefits members are receiving. Authors can analyze the overall level of OOP spending as the percent of household income, by scheme or by pool, if household data are available and report the household's health coverage scheme. When data are available, this may be taken a step further by looking at impoverishing and catastrophic spending by beneficiary type. PER authors can benchmark across other schemes within the financing system. Authors may also choose to benchmark against similar countries. When doing this, they should ensure that the indicator is converted to constant US dollars. In addition, PER authors should analyze past trends in per capita spending.

Different schemes may offer different levels of coverage to their respective members. For instance, civil servant schemes typically have higher levels of government funding per person, resulting in better service coverage and financial protection. In contrast, members of community-based health insurance schemes receive limited benefits. Authors can conduct a qualitative comparison of benefits package contents across schemes.



Key indicators	Sources
Yearly per capita spending for a given scheme	• Annual report or financial statements of financing scheme
Out-of-pocket spending per capita by scheme or by pool	• Household surveys • In-country studies
Health service use by scheme or by pool (corrected for needs, where possible)	• Household surveys • In-country studies

Note: KII = key informant interview.

The discussion can be linked to key questions in the Benefits Specification module. For countries with SHI schemes, PER authors should determine whether the scheme covers the range of lower-cost, frequent events typically found at the primary care level, as well as higher-level care.

Inequities can also arise when insurance schemes benefit the affluent only and rely on general taxes for the sustainability of the formal sector schemes (for example, by covering deficits). PER authors can explore whether these types of transfers are creating regressive implicit or explicit subsidies.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
M-2: Resource Mobilization
M-3: Pooling
M-4: Benefits Specification
M-5: Purchasing Health Services
M-6: Public Financial Management
Inputs
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

References

Mathauer, Inke, Priyanka Saksena, and Joe Kutzin. 2019. "Pooling arrangements in health financing systems: a proposed classification." *International Journal for Equity in Health*, Vol. 18: 1 -11. https://doi.org/10.1186/s12939-019-1088-x

World Health Organization. 2010. *Administrative costs of health insurance schemes: Exploring the reasons for their variability*. No. HSS/HSF/DP. E. 10.8. https://iris.who.int/bitstream/handle/10665/85710/HSS_HSF_DP.E.10.8_eng.pdf?sequence=1

ANNEX 1: Classification of Financing Schemes

	Mode of Participation	Benefit Entitlement	Basic Method For Fundraising	Pooling
HF.1.1 Government Schemes	Automatic: for all citizens/ residents; or specifics groups of the population (e.g., the poor) defined by law/government regulation.	Non-contributory, typically universal or available for a specific population group or disease category defined by law (e.g., TB, HIV, oncology).	Compulsory: budget revenues (primary taxes).	National, subnational, or programmer level.
HF.1.2.1 Social Health Insurance	Mandatory: for all citizens/ residents; or specific groups of the population defined by law/ government regulation. In some cases, however, the enrollment requires actions to be taken by the eligible persons.	Contributory: based on payment by or on behalf of the insured person.	Compulsory: non-risk-related health insurance contribution. Insurance contributions may be paid by the government (from the state budget) on behalf of some non-contributing groups of the population, and the government may also provide general subsides to the scheme.	National, subnational, or by scheme with multiple funds, extent of pooling will depend on risk-equalization mechanisms across schemes.
HF.1.2.2 Compulsory Private Insurance	Mandatory: for all citizens/ residents; or specific groups of the population defined by law/ government regulation.	Contributory: based upon the purchase of an insurance policy from a selected health insurance company (or other agency involved).	Compulsory health insurance premiums. Tax credits may also be involved.	National, subnational, or by scheme; with multiple funds, extent of pooling will depend on risk-equalization mechanisms across schemes. Also depends on the extent of regulation of premium, and standardization of benefits across schemes.
HF.1.3 Compulsory Medical Saving Accounts (CMSA)	Mandatory: for all citizens/ residents; or specific groups of the population defined by law/ government regulation.	Contributory: based upon the purchase of MSAs; persons having MSAs can, however, only use the money saved, regardless of whether the saving covers the costs of the care necessary.	Compulsory, defined by law (e.g., as percent share of income).	No interpersonal (except perhaps family members).
HF.2.1 Voluntary Health Insurance Schemes	Voluntary	Contributory: based upon the purchse of voluntary health insurance policy (usually on the basis of a contract).	Usually non-income-related premium (often directly or indirectly risk-related). Government may directly or indirectly (e.g., tax credits) subsidise.	Scheme level.
HF.2.2 Non-profit Institution Financing Schemes	Voluntary	Non-contributory, discretionary.	Donations from the general public, governments (budget of national government or foreign aid), or corporations.	Varies across programs, but typically program level.
HF.2.3 Enterprise Financing Schemes (other than employer-based insurance)	Voluntary choice of particular corporation, with coverage based on employment at such a firm (e.g., complusory occupational health care).	Non-contributory, discretionary with regard to the type of services, though may sometimes be specified by law.	Voluntary: choice of the firm to use its revenues for this purpose.	At an individual enterprise level.
HF.3 Household Out-of-Pocket Expenditure	Voluntary: willingness to pay of the household.	Contributory: service provided if individual pays.	Voluntary: household disposable income and saving.	No interpersonal pooling.
HF.4 RoW Financing Schemes	Compulsory or voluntary.	Criteria set by foreign entities.	Grants and other voluntary transfers by foreign entities.	Varies across programs.

Sources: IHAT for SHA 2011.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
M-2: Resource Mobilization
M-3: Pooling
M-4: Benefits Specification
M-5: Purchasing Health Services
M-6: Public Financial Management
Inputs
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

TABLE OF CONTENTS

MODULE 4

Benefits Specification

AUTHORS

Olena Doroshenko, Denizhan Duran, Catalina Gutiérrez, and Thomas Wilkinson

START



INTRODUCTION

Given that resources are limited, countries need to make choices about which benefits are funded and which are not. Even if decisions are not made explicitly, funding is ultimately directed to some services and not to other services. Allocative efficiency requires that spending goes toward the services that produce the largest welfare gains to a given population; in other words, allocative efficiency is about spending on the "right things."

Inefficient benefit specification can result in important losses for health. For example, Fraser-Hurt, Hou, et al. (2021) conducted an allocative efficiency analysis of benefits funded in three countries and found that reallocating expenditure to cost-effective essential services and service delivery platforms could generate gains of 31,000 Disability Adjusted Life Years (DALY) in Armenia, 2 million DALY in Côte D'Ivoire, and 938,000 DALY in Zimbabwe—without increasing expenditure.

A benefits package is a designated set of health care services, funded from public resources, to which the population or its specific groups are entitled.[1] Benefits can be explicit, meaning that a benefits package covers an explicit list of health care services that is adhered to, and services that are not on the list are not covered. Benefits can also be implicit, with no explicit list of entitlements.[2]

Explicit benefits packages can enhance allocative efficiency by prioritizing spending on health care services for a medical condition that yield the greatest health gain. They also create explicit

1 A health benefits package defines what the government can deliver—and what citizens can demand—given budget realities.
2 See https://www.cgdev.org/sites/default/files/whats-in-whats-out-designing-benefits-final.pdf for a more detailed discussion on a health benefits package definition.

entitlements for patients whose access to services might otherwise be largely determined by provider and geographic variability and availability, with the consequent potential for arbitrary variations in access (Glassman, Giedion, and Smith 2017). This might be particularly disadvantageous for vulnerable groups and those living in remote and sparsely populated areas. By defining benefits explicitly, beneficiaries are empowered to claim their entitlements, which they might otherwise be unaware of. Additionally, explicit benefits improve equity by allowing for better monitoring of service delivery and addressing undue variations in access between population groups. They can also serve as a basis for planning, to align guaranteed services with service provision, ensuring that the human resources, medicines and medical devices, and infrastructure and equipment needed to deliver the services are available.

Explicit benefits packages are not the only tool that governments have at their disposal to improve allocative efficiency. Payment mechanisms, which are discussed in the module on Purchasing Health Services, essential medicines list, pharmaceutical formularies, clinical guidelines, and monitoring of quality and service provision are other tools for directing spending to priority services. Since resources are limited, when there are no explicit rules for prioritizing expenditure, prioritization can happen implicitly through patient waiting times and dilution of services, and the resulting allocation might not be aligned with health system goals.

Implicit rationing can also happen when copayments are set too high, by excluding certain population groups from accessing covered benefits. Such exclusion leads to inequity and inefficiency, particularly if the services are cost effective.

PER authors exploring the equity and allocative efficiency of benefit specifications should assess whether publicly funded benefits and their governance arrangements prioritize services that provide the largest welfare gains for a given level of resources and do so equitably. This involves examining whether the country has a policy for prioritizing benefits, the criteria align with system goals and population welfare, and the prioritization policies effectively allocate expenditures according to these goals.

Health System Context
Health Financing
M-2: Resource Mobilization
M-3: Pooling
M-4: Benefits Specification
M-5: Purchasing Health Services
M-6: Public Financial Management
Inputs
Service Delivery
Outcomes
List of Acronyms

Because de jure service coverage does not guarantee the facto coverage, it is important to understand whether the de jure coverage translates into effective coverage; PER authors can refer to the Service Coverage module and the Universal Health Coverage module, which look at effective access, and financial protection.

This module is organized into three sections. The first section, on efficiency, explores the priority-setting policies, what services are funded with public resources, as well as the criteria used to define them. In countries with a health benefits package (HBP), the actual scope of and expenditures on health services can be broader than those within the HBP, so it is important to define the share of government and of household financing that is channeled to the HBP. The second section, on equity, provides guidance on investigating whether differences in the breadth of benefits or depth of coverage (with formal or informal cost-sharing mechanisms) among population groups compound existing inequalities. The last section considers whether the governance of benefits definition and monitoring promotes allocative efficiency and equitable access to care. The following box presents definitions of terms used in the module.



BOX 1. DEFINITIONS OF TERMS

EXPLICIT BENEFIT PACKAGES

Explicit benefits packages can be expressed as a positive list, which specifies what services are covered by public funds, or as a negative list of services that are not covered. The granularity of service lists can vary from details of all the services, medicines, and equipment covered to general functional categories, such as "primary level services" or "promotion and prevention services." A middle ground that avoids undue complexity but still allows for clarity and effective prioritization is best (Glassman, Giedion, and Smith 2017).

ESSENTIAL SERVICES

There is no single list or definition of essential services, but in general, they refer to cost-effective services that every person who needs them should have access to, regardless of their economic or social conditions. Some academic and policy-oriented definitions of essential health services emphasize that individuals have a reasonable claim to receive these services based on agreed societal values, economic capacity, and the health needs of the population. These definitions often stress the importance of fairness and equity in providing health services that are deemed essential. PER authors may wish to refer to Disease Control Priorities DCP3 for examples of essential packages of health services.

IMPLICIT RATIONING

There is no universal agreed-upon definition of rationing. In economics, it refers to allocating scarce goods or services through price or non-price mechanisms when demand exceeds supply. In health care, rationing involves withholding potentially beneficial treatments based on non-clinical factors. The health technology assessment literature focuses on rationing on the grounds of insufficient budgetary resources. But rationing can also occur due to limited inputs, even when financial resources are available. For instance, heart transplants may be limited by donor availability, or cancer treatment access may be restricted by a shortage of oncologists. Implicit rationing is the allocation of resources without clear and explicit criteria, and it is often, though not always, determined at the point of care.

HEATH TECHNOLOGY ASSESSMENT

This assessment is a systematic and multidisciplinary evaluation of the properties (effectiveness, benefits, costs, budgetary impact, and so on) of health technologies and interventions that projects both their direct and indirect consequences. It determines the value (costs and effects) of a health technology (medicine, procedure, intervention, and so on) and informs guidance on how these technologies can be used in health systems (see the World Health Organization website's multimedia section on health technology assessments). The evaluation also provides evidence for decision making, particularly on price and coverage in public health systems.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
M-2: Resource Mobilization
M-3: Pooling
M-4: Benefits Specification
M-5: Purchasing Health Services
M-6: Public Financial Management
Inputs
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

BOX 2. RECOMMENDED READING

Glassman, Amanda, Ursula Giedion, and Peter C. Smith, eds. 2017. "About This Book," In *What's In, What's Out: Designing Benefits for Universal Health Coverage:* xv–xix. Washington, DC: Brookings Institution Press. http://www.jstor.org/stable/10.7864/j.ctt21kk0p0.6.

World Bank Group. 2022. *Making Explicit Choices on the Path to UHC: The JLN Health Benefits Package Revision Guide*. Joint Learning Network for Universal Health Coverage, International Decision Support Initiative (iDSI). Washington, DC: World Bank Group. https://www.jointlearningnetwork.org/wp-content/uploads/2022/12/Making-Explicit-choices.v4.pdf.



EFFICIENCY

Aggregate Spending

KEY QUESTIONS

- **Are benefits defined implicitly or explicitly?**
- **What criteria are used to define the benefits? Are criteria aligned with system goals?**
- **What is the mix of interventions covered by the system with public resources and does it promote an efficient allocation of resources?**
- **What other policy tools are used to align the provision of services with system goals?**

When conducting a Public Expenditure Review, PER authors should try to determine whether the benefits funded with public resources are aligned with the health system goals. This includes addressing the most important causes of disease burden, using resources rationally, and promoting sustainability, equity, and financial protection (covered later in the module).

A first step is to understand whether benefits offered in a health system are explicit or implicit and what criteria and process are used to define or revise the HBP, if there is one. Countries can combine explicit packages to prioritize some services (for example, maternal and child services, communicable diseases or noncommunicable diseases (NCDs)), and implicit benefits for other services (for example, defined annual number of high-cost and limited effectiveness treatments), so it is also important to understand what share of spending is channeled to the explicit HBP.

If benefits are implicit, PER authors should explore whether other policy tools are used to prioritize services, such as payment mechanisms, clinical guidelines, monitoring of service delivery, or others, and how such policies and tools prioritize (or do not) services.

An efficient allocation prioritizes essential and cost-effective benefits over less essential ones, so authors should try to qualitatively gage whether the mix of services covered prioritizes essential services. Evidence of widespread spending on services with low cost-effectiveness, or unproven effectiveness, can also indicate allocative inefficiencies, for example, experimental treatments, treatments used for conditions for which they are not approved, or high-cost specialized medicines with limited clinical benefit. There are no readily available indicators to assess allocative efficiency of a HBP, but interviews with key informants, academic studies, or official reports give insight on the efficiency and effectiveness of processes and criteria used to define and prioritize benefits in the country. The package devised by the Disease Control Priorities initiative (DCP3)[3] is widely accepted as a cost-effective package of services, so the degree to which the package is aligned with the DCP3 package is a helpful starting point for the analysis.

3 https://www.dcp-3.org/.

Key indicators	Sources
Which of the following mechanisms is used to define benefits (a country might use a combination)? **There is an explicit list of services that are not covered (negative list) (Yes/No)** **There is an explicit list of services that are covered (positive list) (Yes/No)** **There is no explicit definition of benefits (Yes/No)**	• Policy document review • KIIs
What share of expenditure is channeled to services included in the explicit benefit package(s)?	• Policy document review • KIIs • Budget execution reports • Health insurance agencies reports • Claims systems
Guaranteed health services in the country and degree of alignment with DCP3 list of services (descriptive)	• Policy documents review • KIIs

Note: KII = key informant interview.

Key indicators	Sources
Essential services included in the HBP	• Policy document review • KIIs
Non-essential services included in the HBP	
Prevention interventions included in the HBP	
Health promotion interventions included in the HBP	
Essential medicines (outpatient and inpatient) included in the HBP	
Are copayments hindering access to any of the covered cost-effective services? (Yes/No)	
Are experimental treatments, high-cost drugs, drugs for unapproved uses, non-essential cosmetic surgeries, or other treatments that might provide low value for money financed from public funds? (Yes/No)	

Note: HBP = health benefits package; KII = key informant interview.

PER authors can provide a descriptive overview of guaranteed health services in the country and specify how these benefits are defined or revised and whether they are codified for paying providers or for monitoring service provision or spending. The indicators in the table above may help shape the narrative. Authors can either list all the services included in the HBP for each category, or identify whether there is an explicit list or not .

As part of the descriptive overview, PER authors can explain how interventions and services delivered at the different levels of care (for example, primary and community care, first-level hospital care, or tertiary or specialist-level care) are guaranteed, noting availability and associated formal or informal copayments. If applicable, authors can also review how certain services—such as preventive services, including immunization and screening; and other services, such as outpatient medicines and diagnostic or clinical interventions—are guaranteed. If the benefits package(s) is(are) explicitly defined, the interventions can be included in an annex.

To evaluate the mix of services, PER authors can conduct a qualitative assessment of essential versus less essential services included in the benefits package. When defining what is and what is not essential, authors can refer to the national guidance, if it exists, or use the definition provided by the *Disease Control Priorities* (third edition)[4] or *World Health Organization* (WHO).[5] Additionally, they can assess how much of curative versus prevention and promotion

4 See "Universal Health Coverage and Essential Packages of Care," Volume 9, Disease Control Priorities: http://dcp-3.org/chapter/2551/essential-universal-health-coverage.

5 See the WHO UHC Compendium: https://www.who.int/universal-health-coverage/compendium.

interventions are explicitly included in the HBP. This can be tackled by diagnosis, disease, or more broadly for NCDs and communicable diseases, depending on the country context. Finally, PER authors can check for the inclusion of essential or nonessential medicines in the benefits package. Overall, authors should discuss whether some services are better defined and better covered than others and how benefits covered affect efficient health service use (for example, in many post-communist countries in Europe and Central Asia, medicines are covered as part of the hospital service but not offered as part of outpatient service, so patients delay using services at the outpatient level until their condition becomes acute, and then use inpatient care with better coverage).

Having explicit criteria to define what is covered can improve transparency and allocative efficiency. The table on the right explores criteria that are frequently considered when specifying or revising benefits that are aligned with system goals.

Using the key indicators above as a guide, PER authors can provide a description of the criteria used in the definition of the HBP. In conjunction with the descriptive analysis, authors can assess whether criteria used promote efficiency and/or sustainability and determine the process of applying these criteria. For instance, the use of health technology assessments in-country can be discussed in this section. PER authors can also explore whether the criteria are explicitly measured and assessed or are incorporated in more informal ways (for example, through expert discussions).

Key indicators	Sources
Is burden of disease considered? (Yes/No)	• Policy documents review • Technical reports review • KIIs • MoH normative and regulatory documents on benefits covered or paid
Are financial risks to households considered? (Yes/No)	
Is equity in UHC outcomes considered? (Yes/No)	
Is access and service delivery capacity considered? (Yes/No)	
Are costs of interventions considered? (Yes/No)	
Is evidence-based effectiveness of interventions considered? (Yes/No)	
Is cost-effectiveness considered? (Yes/No)	
Is budget impact considered? (Yes/No)	
What mechanisms are in place to include, revise, or rationalize among new drugs and technologies?	

Note: KII = key informant interview; MoH = Ministry of Health; UHC = universal health coverage.

OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
Health Financing
M-2: Resource Mobilization
M-3: Pooling
M-4: Benefits Specification
M-5: Purchasing Health Services
M-6: Public Financial Management
Inputs
Service Delivery
Outcomes
List of Acronyms
4 SECTION 4 Additional Guidance

GOVERNANCE

KEY QUESTIONS

- **Are the benefits costed and does the costing translate into adequate funding?**
- **Are there explicit and formal processes and methods for defining inclusions and exclusions of benefits?**
- **Are there grievance mechanisms for claiming the benefits?**
- **Are entitlements backed by legal provisions?**

Governance involves how decisions are made and institutionalized into continuous, stable, and transparent processes. Good governance features clear rules, processes, and defined roles and responsibilities.

Key principles for defining benefits and setting priorities include:

- Transparency, which limits special interest influence and improves legitimacy, is about ensuring that decision processes and reasons are public.
- Consistent, stable, and coherent decision rules with clear responsibilities provide clarity to beneficiaries, payers, and providers.
- Stakeholder participation ensures legitimacy and improves prioritization by aligning benefits with population preferences and needs.

PER authors interested in exploring the governance of benefits packages further can refer to the "Recommended Reading" box above. When conducting a PER, authors can focus on assessing whether governance arrangements for benefit definition align with efficiency and support equitable health care access. The indicators below provide guiding questions for this assessment.

Key Indicators	Sources
Are the criteria and methods by which the inclusion or exclusion of benefits are made public? (Yes/No)	• Policy documents review • Technical reports review • MoH regulatory documents • KIIs
Are the roles and responsibilities among institutions for establishing and updating the benefits clearly defined? (Yes/No)	• KIIs • MoH regulatory documents
Is there a routine process for revision of benefits/inclusion/exclusion of services? (Yes/No, describe)	• KIIs • MoH regulatory documents
Are benefits packages costed? If yes, what was the costing approach (top-down, bottom-up, or mixed); did it cover all services included in the HBP; when was the latest costing conducted?	• Policy documents review • KIIs • MoH regulatory documents
Are there grievance and complaints reporting mechanisms for guaranteed benefits? (Yes/No)	• Usually available from the MoH or the relevant purchasing agencies/insurance funds
Are contracts with providers clearly defining the requirement of providing services per guaranteed benefits? (Yes/No)	• KIIs • MoH or HIF documents and contracts with providers
Are entitlements backed by legal provision? (Yes/No)	• Policy documents review • KIIs

Note: HIF = Health Insurance Fund; KII = key informant interview; MoH = Ministry of Health.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
M-2: Resource Mobilization
M-3: Pooling
M-4: Benefits Specification
M-5: Purchasing Health Services
M-6: Public Financial Management
Inputs
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

Lack of coherence between the cost of the package and available resources results in implicit rationing and undermines prioritization of benefits. Adequate recurrent costing of benefits is crucial. PER authors should use key informant interviews and budget execution documents to assess whether available funding is sufficient to cover benefits.

PER authors can also investigate through interviews and regulatory documents whether the benefits definition process follows the principles mentioned above, such as criteria and methods that are public and accessible.

Providers may not have full information about the scope of services they are obliged to provide with the public financing they receive. Therefore, it is important to check whether contracts with providers specify their obligations and breach of compliance procedures.

To ensure beneficiaries can claim benefits, they need legal entitlements and grievance redress mechanisms. PER authors should describe grievance redress setup (for example, platforms for complaints, response procedures) and communication to the public (for example, dissemination of the “who, what, where, when, and how”). If relevant, authors should also evaluate the nature of complaints and identify frequently reported topics (for example, financial protection, access, quality, or other aspects of health service delivery).



OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
M-2: Resource Mobilization
M-3: Pooling
M-4: Benefits Specification
M-5: Purchasing Health Services
M-6: Public Financial Management
Inputs
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

EQUITY AND FINANCIAL PROTECTION COVERAGE

KEY QUESTIONS

- **Are there differences across financing schemes in terms of depth and breadth of services covered? How do guaranteed benefits vary across population groups?**
- **Are there differences across beneficiaries or financing schemes in use of services and financial protection; for example, are there groups that are exempt from paying premiums or user fees at point of service?**
- **How is eligibility of beneficiaries defined? What is the identification/targeting mechanism and is it efficient?**
- **Are beneficiaries aware of their entitlements?**

This section helps establish whether the existing benefits provide adequate financial protection to beneficiaries, especially for different income groups. It also reviews the determination of beneficiaries, and their awareness of their entitlements.

For each benefit, PER authors should indicate who is covered (all population groups versus some groups) and whether there are copayments (and whether copayments are explicitly indicated). They should also indicate whether copayments differ for different groups. If the list is comprehensive, this information can be placed in an annex, with a descriptive analysis of any differences in benefits provided in the main text.

Key indicators	Sources
Are benefits different across population groups? (Yes/No) **Provide a narrative description of any differential coverage across population groups. For groups with similar coverage, do vulnerable groups have the same level of access and utilization of services? Include a discussion of any copayments that might be hindering access to socioeconomically disadvantaged groups.**	• Review of financial and technical documentation • KIIs
% of cost covered by type of benefit/entitlement	• Review of financial and technical documentation • Population or household surveys
% of population reporting membership in a health insurance scheme (for countries with insurance schemes)	• Typically captured in household surveys • There may be variation in how these questions are asked in the survey, so the indicators can be adjusted accordingly.
% of households/population aware of benefit entitlements	

Note: KII = key informant interview.

This qualitative analysis can be linked to the Financial Risk Protection module. PER authors can describe whether the eligibility criteria lead to the exclusion of certain population groups (for example, undocumented people—homeless persons, undocumented migrants, refugees). A description of whether there is a difference in access to benefits across different groups by income or social status (unemployed, people with disabilities, and so on) should be included. And authors can describe whether people are using any private insurance schemes (for example, whether they are complementary, supplementary, or parallel) and the shares of people using these schemes.

PER authors can benchmark across regions of the country, types of settlements, and population groups to understand any disparities in awareness of benefits. To provide additional context, authors can also describe the mechanisms for communicating entitlements employed by the country and systems of reporting illegal copayment schemes within publicly financed guarantees.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
M-2: Resource Mobilization
M-3: Pooling
M-4: Benefits Specification
M-5: Purchasing Health Services
M-6: Public Financial Management
Inputs
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

References

Fraser-Hurt, Nicole, Xiaohui Hou, Thomas Wilkinson, Denizhan Duran, Gerard J. Abou Jaoude, Jolene Skordis, et al. 2021. "Using allocative efficiency analysis to inform health benefits package design for progressing towards Universal Health Coverage: Proof-of-concept studies in countries seeking decision support." PLOS ONE 16 (11): e0260247. https://doi.org/ 10.1371/journal.pone.0260247.

Glassman, Amanda, Ursula Giedion, and Peter C. Smith, eds. 2017. "About This Book," in *What's In, What's Out: Designing Benefits for Universal Health Coverage*: xv–xix. Washington, DC: Brookings Institution Press. http://www.jstor.org/stable/10.7864/j.ctt21kk0p0.6.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
M-2: Resource Mobilization
M-3: Pooling
M-4: Benefits Specification
M-5: Purchasing Health Services
M-6: Public Financial Management
Inputs
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

TABLE OF CONTENTS

MODULE 5

Purchasing Health Services

AUTHORS

Xiaohui Hou, Alexandra Michele Beith, Riku Elovainio, and Priyanka Saksena

START



OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
M-2: Resource Mobilization
M-3: Pooling
M-4: Benefits Specification
M-5: Purchasing Health Services
M-6: Public Financial Management
Inputs
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

INTRODUCTION

Purchasing is a fundamental function of health financing and critical for ensuring efficient and equitable progress toward meeting health goals. It specifies which services should be purchased, from whom, and how these services should be paid for. But purchasing and related instruments help accomplish far more than simply the transfer of funds. Indeed, the rules and processes that govern purchasing influence provider as well as patient behavior and can influence how health care resources are allocated and services are delivered.

This module focuses primarily on instruments for contracting and paying providers and excludes the broader governance aspects of purchasing, such as the effectiveness of a purchaser-provider split. Provider payment methods refer to how funds are transferred between purchasers and health service providers. Contracting is a tool that formalizes arrangements between purchasers and health service providers. These instruments are complementary and central to implementing purchasing efficiently and equitably.

Payment methods create powerful financial incentives for service providers. These incentives shape provider behaviors with both desirable and undesirable consequences for health system performance, including efficiency and equity. Therefore, provider payment methods are chosen with different goals in mind. Some methods seek to promote cost control, others to decrease or increase specific health-service provision; some seek to improve care quality, while others aim to overcome service or treatment delays. Payment methods are increasingly blended to try to incentivize some combination of these behaviors and improve efficiency.

The objective of contracting is to formalize the relationship between health service providers and purchasers. Contracting establishes the nature and mechanisms of collaboration between purchasers and providers, including elements like specifying the services that will be delivered and payments that will be made. Contracting can be critical to providing confidence and clarity, making desired outcomes explicit, enhancing accountability, controlling fraud, and facilitating dispute resolution. Contracting is increasingly used in countries transitioning from input-based financing to output-based financing, for example, when public providers are given increased autonomy or when service coverage is extended through contracting private providers, including nongovernmental organizations (NGOs).

OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
Health Financing
M-2: Resource Mobilization
M-3: Pooling
M-4: Benefits Specification
M-5: Purchasing Health Services
M-6: Public Financial Management
Inputs
Service Delivery
Outcomes
List of Acronyms
4 SECTION 4 Additional Guidance

BOX 1. DEFINITIONS OF TERMS

CONTRACTING

Contracting is an instrument that formalizes arrangements. Relationships between purchasers and providers can be defined by regulations and contractual arrangements. In contexts where regulations are weak, contracting can help clarify the purchaser-provider relationship. Indeed, contracting between purchasers and health service providers specifies aspects such as type and volume of services, rules of access to services for beneficiaries, performance objectives, quality targets, data sharing, and reporting requirements as well as payment mechanisms, prices of services, and invoicing protocols. Contracting can be essential for ensuring accountability and potential legal recourse, if needed, for both purchasers and providers. However, contracts in the health sector tend to be relational contracts—the purchaser-provider contractual relationship is often focused on renegotiation and adjustments rather than enforcement through litigation.

HEALTH SERVICE PROVIDER

Health service providers deliver health services to people. Important health service provider attributes include the type of health services they provide—primary care, secondary care, tertiary care, or long-term care—as well as provider structure and ownership. Examples of how providers can operate include a for-profit solo practice with only one health worker offering limited health services or a large not-for-profit government health facility with many health workers and services.

HEALTH CARE PURCHASER

The purchaser is the organization that pays health providers. It is also the fundholding organization. It negotiates or sets rates for provider services, processes provider claims for service, and pays provider claims using collected premiums or tax revenues. Examples include social health insurance funds, commercial health insurance plans, third-party health insurance plan administrators, and government institutions, such as the Ministry of Health (MoH), as well as local governments at the subnational level.

Box 1 continues on the following page

BOX 1. DEFINITIONS OF TERMS *(continued)*

PROVIDER PAYMENT METHOD

Payment methods are the specific mechanisms through which providers are paid. These include line-item budget, capitation, global budget, case-based payments like diagnosis-related groups (DRGs), per diems, and fee-for-service. There are often discussions about input-based payments as compared with output-based payments for health services. The former pay directly for inputs used to produce health services, for example, for human resources through salaries of health workers, while the latter pay for the health services themselves, for example, a payment made to a health provider for each outpatient visit. All payment methods create incentives for specific types of provider behaviors, for example, certain provider payments like fee-for-service may incentivize overproduction of services. PER authors should also keep in mind that different provider payments place different levels of risk (that is, uncertainty of revenue) on providers relative to payers.

PURCHASING

Refers to the allocation of public funds to health service providers for the delivery of services to the population. To move from passive payments to strategically purchasing health services, payments are linked to information on population health needs and provider performance and behavior. Key questions governing purchasing arrangements are what services to buy to respond to the needs of the population, from whom to buy to effectively deliver these services, and how to buy services in terms of the agreements between the purchaser and provider on payments and accountability.

This module specifically examines whether purchasing arrangements in a country promote the efficient delivery of health services, cost control, and payment accountability. It also examines whether purchasing arrangements promote equitable service delivery. The module does not consider budgeting principles and resource allocation formulas, which will govern payments to providers in some contexts. PER authors can refer to the Public Financial Management module for more information on these topics. Interested PER authors can refer to the publications recommended in the following box.

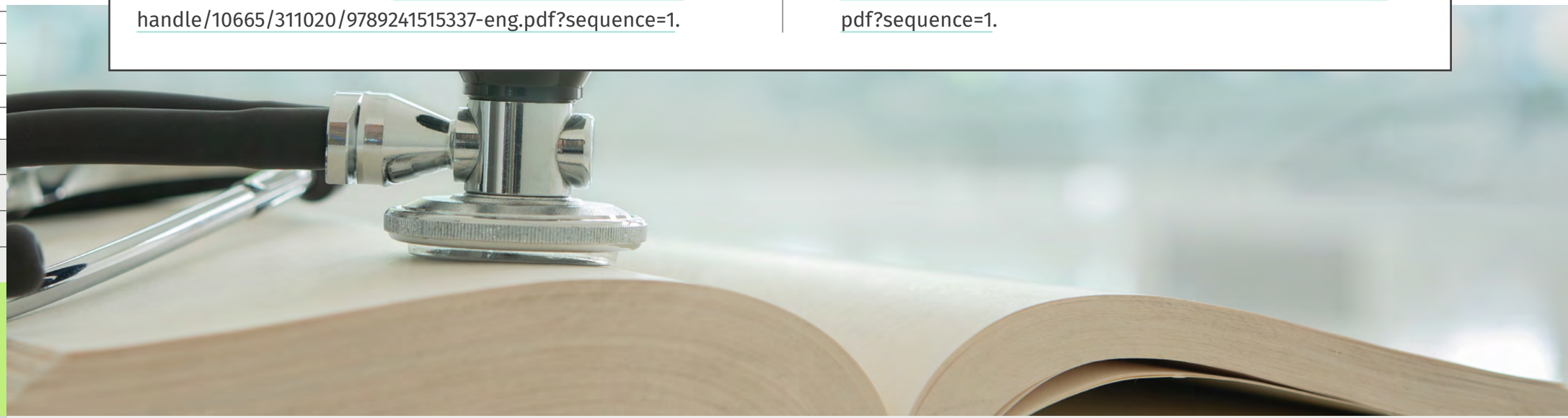
BOX 2. RECOMMENDED READING

Langenbrunner, John C., Sheila O'Dougherty, and Cheryl S. Cashin. 2009. *Designing and Implementing Health Care Provider Payment Systems*. Washington, DC: World Bank. https://elibrary.worldbank.org/doi/abs/10.1596/978-0-8213-7815-1.

Mathauer, I., and F. Dkhimi. 2018. *Analytical Guide to Assess a Mixed Provider Payment System*. Guidance Document WHO/UHC/HGF/Guidance/19.5. Geneva: World Health Organization, Department of Health Systems Governance and Financing. https://iris.who.int/bitstream/handle/10665/311020/9789241515337-eng.pdf?sequence=1.

Preker, Alexander S., and John C. Langenbrunner, eds. 2005. *Spending Wisely: Buying Health Services for the Poor.* Washington, DC: World Bank. https://documents1.worldbank.org/curated/ru/845591468137396770/pdf/344250PAPER0Sp101Official0use0only1.pdf.

World Health Organization. 2019. "Purchasing Health Services for Universal Health Coverage: How to Make It More Strategic?" Policy Paper. World Health Organization, Geneva. https://iris.who.int/bitstream/handle/10665/311387/WHO-UCH-HGF-PolicyBrief-19.6-eng.pdf?sequence=1.



OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
Health Financing
M-2: Resource Mobilization
M-3: Pooling
M-4: Benefits Specification
M-5: Purchasing Health Services
M-6: Public Financial Management
Inputs
Service Delivery
Outcomes
List of Acronyms
4 SECTION 4 Additional Guidance

THE LANDSCAPE
PURCHASERS, PROVIDERS, AND PURCHASING ARRANGEMENTS

KEY QUESTIONS

- **What types of purchasers, providers, and provider payment methods exist?**
- **What are the contracting arrangements in place between purchasers and providers?**
- **What share of government health expenditure is allocated to private and public health service providers through contracting?**

Identification of main purchasers, providers, and provider payment methods is critical to understanding purchasing arrangements, provider payments, and contracting in a country.

PER authors can use a matrix like the one suggested on the following page to map purchasers, providers, and provider payment methods, including shares of provider revenue. Authors should try to group types of providers across two dimensions—the provider's characteristics, such as its ownership, and the services it is being paid to provide, for example, primary care—as much as possible into homogenous categories.

Many situations in such a landscape mapping could signal overall efficiency issues. For example, having many purchasers paying one provider using different provider payment methods can create inefficiencies. If provider payment methods are not aligned, contradictory incentives could be created. For example, a global budget without any supplemental funding places all financial risk

on the provider. This could be a good strategy for cost control from the Ministry of Health (MoH), for example, but may be undermined if another purchaser, like the national health insurance fund, pays through fee-for-service. Specific efficiency issues related to choices of provider payment methods for different types of services are explored later in this module.

Provider and Payer Matrix[1]

	PAYER (ALL MAJOR PURCHASERS)				
Type of provider *(grouped into types of services/ provider characteristics)*	**Ministry of Health**	**National Health Insurance Fund**	**Government Employee Insurance Fund**	**Private Insurance Funds**	**Payments from People**
Public primary care facilities	• Line-item budget – ***40% of revenue*** • Results-based financing – ***10% of revenue***	Capitation – ***30% of revenue***	Fee-for-service – ***20% of revenue***		
Private primary care facilities			Fee-for-service – ***50% of revenue***	Fee-for-service – ***10% of revenue***	Out-of-pocket payments – ***40% of revenue***
Public secondary care facilities	• Line-item budget – ***40% of revenue*** • Results-based financing – ***10% of revenue***	Case-based payments – ***20% of revenue***	Per diem – ***20% of revenue***	Case-based payments – ***10% of revenue***	
Private secondary care facilities		Case-based payments – ***30% of revenue***	Per diem – ***50% of revenue***	Case-based payments – ***10% of revenue***	Out-of-pocket payments – ***10% of revenue***
Public tertiary care facilities	• Line-item budget – ***40% of revenue*** • Results-based financing – ***20% of revenue***	Case-based payments – ***20% of revenue***	Case-based payments – ***20% of revenue***		

How contracting should be conducted and what contracts should include can vary. However, having some basic regulatory instruments for contracting can facilitate its implementation.

For example, in some countries, regulation defines framework contracts as to be used between purchasers and a group of providers, while in others, individual purchasers have more freedom in negotiating with providers (or, usually, provider organizations). Framework contracts and collective contracting can reduce transaction costs but also sometimes add rigidity in purchaser-provider relationships, thus hampering efficient funding allocation. So-called "market entry contracts" enable providers that meet certain market entry criteria (in many contexts, set by licensing criteria) to be automatically enrolled by purchasers. Knowing which type of arrangements are available in a country can help PER authors understand how easily contracts can be used in the health sector.

Key Indicators	Sources
Contracting arrangements (for systems with a purchaser-provider split)	
Are there legal and regulatory instruments defining contracting?	• Documentation (policy, legal), KIIs
Market entry contracting (Yes/No)	• Documentation (policy, legal), KIIs
Collective contracting (Yes/No)	• Documentation (policy, legal), KIIs
Does the country have a specific contracting policy for the health sector (standalone or a specific section in a national health strategy/plan)? (Yes/No)	• National health planning documentation
Share of prepaid pooled health expenditure allocated to private providers through contracting **Share of prepaid pooled health expenditure allocated to public providers through contracting (not passive-budget transfers)**	• National Health Accounts data • Health insurance data • MoH data • Budget data

Note: KII = key informant interview; MoH = Ministry of Health. Using national health accounts data, the share allocated through contracting would be determined by looking at the cross-classification from health financing schemes (HF) to health providers (HP).

PER authors should also note that some countries have specific contracting policies for the health sector, while others draw from contracting policies set at the whole-of-government level. The latter often raises the question of the suitability of these policies for the health sector and for the health care market.

PER authors should also understand the overall volume of funds, which can be subject to improvements in purchasing. In many countries, only government expenditure through contractual agreements between a public or quasi-public purchaser and a private health service provider can be modified to enhance purchasing, as other government spending is governed by rigid civil service or public provision regulations. As such, knowing the share of government funds flowing through contracting to private providers can be important. However, authors should note that evidence on contracting with the private sector is mixed in terms of coverage, efficiency, equity, and quality gains—results and impact are highly context-specific and require in-depth analysis (Loevinsohn and Harding 2005; Patouillard et al. 2007).

In some countries, contracting can also occur between different public or quasi-public entities, for example, between a local government and an autonomous health facility, or between a quasi-public health insurance purchaser and a public health facility. The goals of these public-public contractual arrangements are usually well aligned with the objectives of purchasing—often they aim to increase transparency of resource allocation and strengthen efficiency of spending, for example, by defining objectives for output and for quality. Thus, in some contexts, PER authors could usefully look at the share of government funding allocated within the public sector through purchaser-provider contracts (instead of passive budget transfers).



OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
Health Financing
M-2: Resource Mobilization
M-3: Pooling
M-4: Benefits Specification
M-5: Purchasing Health Services
M-6: Public Financial Management
Inputs
Service Delivery
Outcomes
List of Acronyms
4 SECTION 4 Additional Guidance

EFFICIENCY

KEY QUESTIONS

- **Are purchasing arrangements in place encouraging the provision of appropriate health services?**
- **Do provider payment modalities ensure incentives for providers in terms of over- or underprovision of services?**
- **Do purchasing arrangements incentivize service provision at the appropriate level of care?**
- **Are there high administrative costs for purchasing?**
- **Do provider purchasing arrangements ensure incentives for cost control?**
- **Are there high administrative costs for purchasing?**

A primary objective of purchasing, from the public perspective, is the delivery of appropriate health services in a cost-minimizing manner. So, looking at the interaction of purchasing arrangements and the provision of health services can reveal potential causes of inefficiency.

PER authors can begin to understand their country's purchasing efficiency by examining the types of payments between providers and purchasers (as described in the landscape mapping earlier): do they incentivize under- or overprovision of services, or do they incentivize providing care at the appropriate service delivery level? To identify inefficiency, authors should look for payment methods that incentivize higher production of cost-ineffective interventions or disincentivize production of cost-effective interventions, such as preventive health services.

Paying hospital admissions through fee-for-service, breaking down each intervention received during the stay, for example, or per-diem payments, may incentivize overproduction, while paying preventive health services such as vaccinations through line-item budgeting may not incentivize high coverage. Similarly, authors should assess whether purchasing arrangements are in place that aim to incentivize service provision at the appropriate level of care. For example, exclusion of primary facilities from contracting or provider payments that encourage more service provision are not uncommon, as these facilities are often only financed through input-based payments. While they cannot be solely attributed to purchasing arrangements, trends in the following indicators may provide information on the needs for purchasing or provider payment reforms.

PER authors should also note that often payment methods lack incentives for quality improvement: providers are paid for the quantity of care that they deliver or the number of individuals enrolled, and usually not for the impact of their services on the health status of their patients (Tai, Kalanithi, and Milstein 2014). Results-based financing (RBF), performance-based financing (PBF), and pay-for-performance (P4P) models have become more popular as a way to incentivize quality service provision, as these models focus on creating incentives for specific provider behaviors, such as predefined disease-specific quality targets. RBF/PBF/P4P models can provide complementary funding to providers that meet specific criteria but typically involve only a small share of provider revenue. However, even marginal complementary funding tied to specific performance outcomes can be an important incentive to drive provider behavior.

Authors can also consult the modules on Benefits Specification, Hospitals, and Primary Care and Essential Public Health Functions and the additional guidance note on Quality of Health Services to better understand services offered and provision issues. Finally, PER authors should consider provider payment issues discussed here with an equity and access mindset in conjunction with the last section of this module.



Key Indicators	Sources
Essential, non-essential, promotive, preventive services and medicines in the health benefit package	• Policy documents review • KIIs
Quality-of-care criteria are explicitly used for provider payment/ contracting agreements	• Policy documents review • KIIs
Total number of outpatient visits or services per enrolled person	• National Health Services Survey • Official reports from insurers and governments
Total number of inpatient visits or services per enrolled person	• National Health Services Survey • Official reports from insurers and governments
Proportion of visits during which a costly service (defined by country) occurred	• National Health Services Survey • Official reports from insurers and governments
% of visits delivered at the primary care level	• National Health Services Survey
Number of (hospital) admissions per 1,000 population	• National Health Services Survey

Note: KII = key informant interview.



PER authors should also consider cost control issues more in depth, as they can be closely linked to efficiency. One proxy indicator for this is whether provider payment methods that naturally discourage aggregate cost escalation are used.

Additionally, authors can consider average payments over time, for different services and by different providers. This can be obtained easily in countries with social health insurance with a robust financial management information system database and a high-quality claims database. It can be benchmarked across geopolitical entities and over time. These can be further broken down by average cost by payment modality. In countries that rely on line-item budgeting for their provider payments, costing methods to estimate costs to the public purse for different types of providers and services can be used, or estimates from any previous costing studies. High administrative costs can also add to inefficiency in purchasing.

As administrative costs are often linked to institutional arrangements, this topic is covered more in the module on Pooling. In addition, purchasing arrangements such as framework contracting can also help reduce legal costs for purchasers as compared to costly negotiations of individual contracts with different providers. So, PER authors in countries with significant reliance on contracting can also consider the degree of use of framework contracting when considering administrative costs.

Key Indicators	Sources
Payment methods are in place that aim to control costs (i.e., capitation, global budgets, salaries)	• National facility-based surveys • KIIs
Average payment and its trends by type of provider, payment method, and service **Average cost and its trend by type of provider and service**	• Official reports from insurers and governments • Government budget documents • Previous costing studies
Number of contracts under framework contracts **Number of contracts that are individually negotiated contracts between purchasers and providers**	• Policy and legal documents review • KIIs

Note: KII = key informant interview.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
M-2: Resource Mobilization
M-3: Pooling
M-4: Benefits Specification
M-5: Purchasing Health Services
M-6: Public Financial Management
Inputs
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

GOVERNANCE

KEY QUESTIONS

- **How is the amount paid to providers for services established?**
- **Are payments to providers timely?**
- **Do purchasers have effective mechanisms to monitor providers and identify fraud?**

Accurately determining the amount to be paid to providers for services is important, as inappropriate payment levels can distort provider incentives. The process of setting payment rates, the pricing, is in most cases either a unilateral administrative process (regulations) or a collective negotiation.

Collective negotiation of prices is, like contracting, typically characterized by cooperation between parties and based on systematic information sharing and consultation processes to ensure that both purchasers and providers understand and accept the evidence base for pricing decisions. Unfortunately, however, provider payment methods and prices are often set by regulations without much data analytics.

Ideally, information underpinning the price-setting process includes cost data as well as estimates of the impact of rate changes on provider revenues and behaviors, purchasers' expenditures, and overall system sustainability. In many cases, price setting takes place within the constraints of expenditure ceilings.

PER authors can explore which type of criteria was used for price setting. Common options for price setting include using historical prices, recent spending patterns, time-based activity-based costing (which establishes unit costs by tracking the actual resource use and associated costs of care delivery for individual patients), and top-down costing (which allocates total facility costs downward to departments and then services, yielding average unit costs). Providers' sharing this type of cost data with purchasers and policymakers and academics can be an excellent tool for negotiations and cost control. This information can be collected from providers regularly or through specific exercises. Price setting that is not supported by data may be a signal of potential inefficiencies.

Key Indicators	Sources
Criteria used for price setting: Historical norms, spending patterns, time-based activity costing, top-down costing, normative costing	• Policy/document review • National facility-based surveys • KIIs
Data on provider costs available to purchasers (Yes/No) (by type of provider)	• Policy/document review • KIIs
Average time taken from claim filing to payment	• National facility-based surveys • KIIs
Average time taken from claim approval to payment	• National facility-based surveys • KIIs
Delays in health provider fund disbursement **Delays in health worker salary payments**	• Public financial management information systems • KIIs
Purchaser has a data analysis unit (Yes/No)	• Documentation • KIIs
% of contracted providers audited	• Purchaser reports
% of flagged provider claims audited	• Purchaser administrative data
% of flagged provision statements audited	• Purchaser administrative data

Note: KII = Key informant interview.

Overall, setting prices too low or too high is problematic from the perspective of providers and purchasers, respectively. When prices are set too low, the financial sustainability of providers suffers and often results in practices like nonprovision of services, implicit rationing of services, lower quality of delivered services and additional billing to patients. These problems are also prevalent in systems that rely on passive budget transfers to providers without much accountability for performance or outputs. Thus, setting prices too low in a way may eliminate some of the inherent benefits of purchasing as compared to passive transfers.

Conversely, when prices are set too high, the financial sustainability of purchasers becomes precarious, with a need for additional government subsidization. If prices are set too high relative to the purchasers' revenues but not relative to the provider's cost of production, mechanisms like additional budget transfers, for example, from the government budget to the national health insurance fund can be deployed. These are considered preferable as the monopsony (or monopsony-like) power of national health insurance fund still will theoretically result in better prices from providers, lower transaction costs, and thus more efficiency.

Usually, the time frame for reimbursement is specified in the contracts between purchasers and providers. Timely payment or reimbursement is important for providers to maintain a healthy cash flow, ensure financial predictability, and facilitate smooth health facility operations. PER authors should describe any policies/contracts that mandate a maximum amount of time by which provider claims must be paid (prompt payment laws) and explore whether this is respected in practice. After collecting this information, authors can also compare the average time taken across payers.

In systems with budgetary transfer to facilities, delays in disbursement of funds to facilities should be monitored. Delays can also be considered at different levels of fund disbursement, for example, between different levels of government as well as to subordinate health facilities (for example, disbursement to a smaller health facility that is administered by a larger facility). Finally, delays in receiving salaries could also be considered. PER authors can consult the Public Financial Management module for further guidance on this topic.

Lack of information systems is a major obstacle to effective purchasing and mitigating against issues like fraud. Indeed, a good information system is a crucial prerequisite for ensuring value for money for purchased health services. Accessing the information is, however, not enough; purchasers also need the capacity to regularly process the information and analyze data at the granular level to develop a long-term purchasing strategy.

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
M-2: Resource Mobilization
M-3: Pooling
M-4: Benefits Specification
M-5: Purchasing Health Services
M-6: Public Financial Management
Inputs
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

Provider fraud is a significant drain on public spending. Effective fraud detection hinges on monitoring, data verification (particularly claims data), and information exchange. Incorporating auditing and data mining into purchaser-provider contracts, contingent on the information system's capabilities, can enhance fraud prevention. These measures enforce data sharing, transparency, clear payment mechanisms, and provider oversight. But contracting in the health sector tends to be relational, and as a result, relationship-building between the purchaser and providers beyond the contract can also be an important tool to ensure accountability and to prevent fraud. PER authors should try to explore the degree to which information systems, relational contracting, and data use foster fraud control.



EQUITY

KEY QUESTIONS

- Does the selection of providers for contracting foster equitable access to health care?
- Do providers levy additional fees on patients?

Purchasing can also be an important driver of equity in a health system by ensuring health services correspond to needs, irrespective of socioeconomic status of people.

Provider payments can encourage provision of services in underserved areas and for at-risk populations. This can be done by making supplemental payments, for example, to health providers or health workers who operate in rural areas. Similarly, hospitals that serve higher risk populations are often allocated a higher budget. PER authors can examine whether such arrangements exist in their country.

Key Indicators	Sources
Provider payments encourage provision of services in underserved areas and for at-risk populations (Yes/No)	• Documentation • KIIs
The criteria used to select which providers to contract with discourage contracting with providers operating in underserved arears (Yes/No)	• Documentation • KIIs
Balance billing is permitted in contract	• Documentation • KIIs
% of claims where patients were also billed additionally	• National Health Services Survey • Official reports from insurers and governments
% of people reporting having made informal payments to providers, by type of provider	• National Health Services Survey

Note: KII = Key informant interview.

Another important driver of equity may simply be which providers can receive payments from purchasing arrangements. It is not uncommon for rural facilities, particularly rural government facilities, to simply be excluded from payments by national health insurance funds. This type of situation implies that these facilities may receive fewer funds as well as fewer funds that incentivize higher service provision as compared to private facilities in urban areas, generally frequented by wealthier patients. Similarly, if nurse- or midwife-led health consultations are excluded from purchasing arrangements and, at the same time, more likely to be frequented by poorer women, then the purchasing system is exacerbating existing inequities. In this context, PER authors should reconsider the landscape mapping exercise from an equity perspective.

PER authors can consider the criteria used by purchasers for contracting with providers systematically to understand whether they are likely to result in systematic bias toward certain catchment populations. A commonly used criterion is the provider's accreditation. Structural quality, which can be determined ex ante (for example, staff numbers and skills mix, service hours, and so on), is another example. Ideally, instead of excluding providers in underserved areas completely, purchasing arrangements can encourage a pathway for these facilities to improve their facilities and services. In some countries, for example, accredited health facilities receive more payments from health insurance funds than unaccredited facilities. In other countries, when entering a contract with specific unaccredited facilities, a time frame for the facility to become accredited is stipulated.

There are also overlaps with efficiency issues in some situations. Provider selection is sometimes based on the range of services a provider can offer. For example, the national health insurance in the Philippines, PhilHealth, contracts for a specialized-service package only with hospitals that have a certain level of readiness to provide a defined set of specialized care (Dayrit et al. 2018). The situation is more extreme in other settings where selection is based on price and involves two scenarios. High-end private clinics usually contract only with high-end voluntary health insurance schemes, which are limited in low-income countries and lower-middle-income countries. The high-end private clinics usually choose not to contract with public purchasers (if this is an option) or are excluded by public purchasers because of price. From a public spending perspective, some purchasers that can make a make-or-buy decision often face a choice between contracting for high-price services in the private sector or developing those services in-house. The efficiency of make-or-buy decisions is context specific and additionally may differ between a specific

government purchaser and whole health system. At the same time, the exclusion of high-end services can perpetuate existing inequalities and dual-track health systems.

The practice of providers levying additional payments on patients—either formally through balance billing policies or informally through demanding extra payments for services—is an important concern for equity. Where balance billing is permitted, patients can face substantial out-of-pocket payments at the risk of financial catastrophe or forgone care. This is also the case when informal payments to providers are common. As such, PER authors can examine indicators related to these issues.



OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
M-2: Resource Mobilization
M-3: Pooling
M-4: Benefits Specification
M-5: Purchasing Health Services
M-6: Public Financial Management
Inputs
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

References

Dayrit, M.M., L.P. Lagrada, O.F. Picazo, M.C. Pons, and M.C. Villaverde. 2018. "The Philippines Health System Review." Health Systems in Transition 8 (2). https://iris.who.int/handle/10665/274579.

Loevinsohn, Benjamin, and April Harding. 2005. "Buying Results? Contracting for Health Service Delivery in Developing Countries." The Lancet 366 (9486): 676–81. https://doi.org/10.1016/S01406736(05)67140-1.

Patouillard, Edith, Catherine A. Goodman, Kara G. Hanson, and Anne J. Mills. 2007. "Can Working with the Private For-Profit Sector Improve Utilization of Quality Health Services by the Poor? A Systematic Review of the Literature." *International Journal for Equity in Health* 6 (November): 17. https://doi.org/10.1186/1475-9276-6-17.

Tai, Waimei, Lucy Kalanithi, and Arnold Milstein. 2014. "What Can Be Achieved by Redesigning Stroke Care for a Value-Based World?" E*xpert Review of Pharmacoeconomics & Outcomes Research* 14 (5): 585–87. https://doi.org/10.1586/14737167.2014.946013.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
M-2: Resource Mobilization
M-3: Pooling
M-4: Benefits Specification
M-5: Purchasing Health Services
M-6: Public Financial Management
Inputs
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

TABLE OF CONTENTS

MODULE 6

Public Financial Management in Health

AUTHOR

Moritz Piatti-Fünfkirchen

START



OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context

Health Financing

M-2: Resource Mobilization

M-3: Pooling

M-4: Benefits Specification

M-5: Purchasing Health Services

M-6: Public Financial Management

Inputs

Service Delivery

Outcomes

List of Acronyms

4 SECTION 4
Additional Guidance

INTRODUCTION

Evidence that health outcomes are associated with better management of public finances is growing (Tapsoba et al. 2024; Piatti-Fünfkirchen and Smets 2019; Welham et al. 2017). A health public expenditure review (PER) should therefore comment on the adequacy of public financial management (PFM) systems for health.

This module offers practical lines of inquiry for a PFM chapter in a health PER. Before assessing the PFM context in the health sector, PER authors should check whether there is ongoing work from the Governance Global Practice or other partners.

The module consists of three sections:

1. The first section identifies some of the available diagnostic tools and online resources that are available to PER authors and offers some guidance on how to interpret and use them.
2. The second section offers ways to assess the flow of funds to identify areas for an in-depth analysis.
3. The third section provides guidance on priority topics that may be selected for a drill-down analysis, such as how PFM relates to the payment of the health workforce.

OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
Health Financing
M-2: Resource Mobilization
M-3: Pooling
M-4: Benefits Specification
M-5: Purchasing Health Services
M-6: Public Financial Management
Inputs
Service Delivery
Outcomes
List of Acronyms
4 SECTION 4 Additional Guidance

CONSULT KEY PFM DIAGNOSTIC ASSESSMENTS

A wide range of PFM diagnostics

The Public Expenditure and Financial Accountability (PEFA) secretariat offers an overview of available tools in *A Guide to PFM Diagnostic Tools* (PEFA 2018). A PEFA assessment evaluates a country's PFM system, reviewing key aspects of the budget cycle and systemwide shortcomings. PER authors may wish to check if a PEFA assessment was recently completed for their country and interpret results for the health sector.[1]

Tips on how to read a PEFA assessment

While a PEFA assessment is not sector specific, certain aspects are relevant for sectors like health (Box 1). A country's PEFA Annex 1 includes a performance indicator summary and shows progress made since the previous assessment. PEFA Annex 4 describes data used for scoring, including data for the health budget and health execution, to help assess budget execution performance. Authors may also wish to compare country performance with other countries, using a web-based tool[2] that allows for quick triangulation of data.

1 See https://www.pefa.org/assessments.

2 https://clever-albattani-34d259.netlify.app/.



BOX 1. KEY COMPONENTS OF PEFA ASSESSMENTS MOST RELEVANT FOR THE HEALTH SECTOR

1 Budget Credibility

Relevance: The health sector requires reliable funding to provide services. PEFA evaluates whether actual expenditures align with approved budgets

Impact on health: If the health budget allocations are not executed as planned, health services may suffer from funding shortfalls, affecting quality and access to care.

2 Comprehensiveness and Transparency

Relevance: The clarity of health sector budgets, the comprehensiveness of reporting, and the availability of health-specific data in budget documents show how well health needs are understood and funded.

Impact on health: Transparent allocation allows stakeholders to track health spending, ensuring funds are appropriately directed toward health priorities like hospitals, medicines, or preventive care.

3 Policy-Based Fiscal Strategy and Budgeting

Relevance: Health sector budgets should be aligned with national health policies or other long-term strategies.

Impact on health: Linking the health budget to policy objectives should ensure that government spending targets critical areas, such as immunization, maternal health, or disease prevention.

4 Predictability and Control in Budget Execution

Relevance: Predictable fund flows and robust control mechanisms are vital for the efficient functioning of health systems.

Impact on health: Timely disbursement of funds ensures that health programs continue uninterrupted, while controls (like audits and expenditure tracking) prevent misuse or inefficiency in health spending.

5 Accounting, Recording, and Reporting

Relevance: Accurate and timely financial records are essential for monitoring health sector expenditures and evaluating the impact of health investments.

Impact on health: Regular and reliable reporting supports better decision making in the health sector, enabling midyear adjustments to address emerging health priorities or crises.

6 External Scrutiny and Audit

Relevance: External audits and legislative oversight help ensure accountability in health spending and program implementation.

Impact on health: Audits of health programs can uncover inefficiencies, corruption, or underperformance, ensuring that health resources are used optimally to improve service delivery.

Recent International Monetary Fund (IMF) Article IV report. PER authors can search the report for references to the health sector. Authors may also use the fiscal table in Annex 1 to refer to gross domestic product (GDP), government expenditure, and fiscal deficit trends for the PER.

World Bank documents. The fiduciary assessment in Program for Results (PforR) project appraisal documents or in the recent Development Policy Financing (DPF) identifies the main concerns (for example, whether funds allocated to a program will also be spent on it). General government public finance reviews or public expenditure reviews led by the Macroeconomics, Trade and Investment (MTI) Global Practice or the Governance Global Practice often have a PFM section to consult, as well as health PERs with PFM chapters, such as the *Namibia Health Sector Public Expenditure Review* (Schneider et al. 2019) and the *Zambia Health Sector Public Expenditure Review* (Chansa et al. 2018).

Documents with health–sector-specific PFM tools. A more recent mapping (World Health Organization 2023) provides information about key PFM tools for assessing challenges in budget formulation, execution, and monitoring within the health sector. It illustrates why and when each tool can be used, giving examples of how tools were applied in particular countries. The World Health Organization (WHO) Montreux Collaborative offers a repository for health-specific PFM work.[3] The following tools are noteworthy:

- The Governance Global Practice developed the FinHealth tool (World Bank Group 2019), which describes the entire budget cycle to guide PER authors through a problem-driven approach. Unlike the PEFA assessment, the FinHealth tool has no scoring or benchmarking system.
- The WHO health financing progress matrix assessment[4] lists PFM–in–health-related questions that can be relevant for health PERs.
- The UNICEF public finance toolkit (UNICEF 2021) can be used for a problem-driven approach to PFM challenges in health service delivery, with an emphasis on the wellbeing of children.

3 https://www.pfm4health.net/.

4 https://www.who.int/PER authors/health-financing-and-economics/health-financing/diagnostics/health-financing-progress-matrix.

- The Health, Nutrition, and Population Global Practice's PBF mainstreaming tool (Piatti-Fünfkirchen et al. 2021) provides a methodology for assessing whether PFM systems offer core functions needed to pay for primary health care (PHC) (whether PFM enables PHC provider autonomy and whether there is a unified payment system with sufficient capacity that is output oriented).

PER authors would benefit from reviewing whether any of these assessments has already been completed for the country of interest. They can summarize their findings and recommendations in the health PER and discuss how the recommendations have been implemented. If no prior assessment has been conducted or there is a need to complement the previous analysis (or to complement a previous assessment), the authors may wish to map the flow of funds and transactions profile in government, identify areas of concern, and then conduct an in-depth review of specific areas. These steps are discussed in the following sections.



MAP THE TRANSACTION PROFILE AND FLOW OF FUNDS WITHIN THE GOVERNMENT BUDGET TO IDENTIFY PFM BOTTLENECKS IN THE HEALTH SECTOR

This section guides PER authors through identifying PFM bottlenecks in the health sector. The first step is to collect the relevant data for the task. A PER should use expenditure data (not budget data) from the country's government. Second, authors should develop a transaction profile and discuss in the PER the flow of funds. Finally, they can identify PFM bottlenecks in health using the insights generated during the previous steps.

Collect the Relevant Data

Global Health Expenditure Database.[5] PER authors should only use this database for cross-country comparisons of relevant indicators, such as government health expenditures in percent of GDP.

PER authors can visit the country's Ministry of Finance (MoF) website for the published budget, revised budget, and budget execution reports. For example, the Ministry of Finance and Economic Planning (MINECOFIN) in Rwanda periodically publishes on its website[6] its budget speech, budgets, budget execution reports, and various laws, strategies, guidelines, and data. MoF expenditure data from the MoF's Financial Management Information System (FMIS) are usually available through the World Bank country economist.

5 Accessible through World Health Organization Global Health Expenditure Database (https://apps.who.int/nha/database) and the World Bank World Development Indicators (WDI) database (https://databank.worldbank.org/source/world-development-indicators).

6 https://www.minecofin.gov.rw/1/publications/report.

The Budget Enquirer tool[7] from the Collaborative Africa Budget Reform Initiative (CABRI) is a valuable resource designed to give quick access to public documents, including published budget and expenditure reports.

The Governance BOOST initiative uses FMIS data and puts the data into a user-friendly format. PER authors should consult with the country economist and check the BOOST Open Budget Portal website[8] for recent BOOST datasets relevant for the health sector. If a National Health Accounts (NHA) exercise was conducted using the FMIS, the findings should be reported in the health PER. Authors should cross-check FMIS expenditure data with the NHA.

If more detailed health expenditure information is needed, PER authors should contact the MoF's FMIS department for a set of comprehensive data for the health sector. They should make sure the data will be structured in the tabular format shown in Table 1. In almost all instances, the FMIS can support this data request. Exports in pdf should be avoided, as this format makes it difficult to analyze the data and may require timely and error-prone transcription. If data are shared in MS Excel, the file size may be big; therefore, PER authors should be prepared with a USB drive in case the file is too large to share as an email attachment.

7 https://www.cabri-sbo.org/en/budgets-in-africa/budget-enquirer.

8 https://www.worldbank.org/en/programs/boost-portal/about-boost.

TABLE 1
RECOMMENDED FORMAT TO EXPORT HEALTH SECTOR BUDGET AND EXPENDITURE DATA FROM FMIS BY YEAR (WITH EXAMPLES)

Admin code (1-3) vote	MoH		Local government	Teaching hospital
Project	Recurrent	Capital (e.g., building labs, procuring an ICT scanner, etc.)		Capital (e.g., investing in a CT scanner)
Program and subprogram	PHC program			
Output	Number of persons reached			
Target	X % of population in need			
Activity	Outreach services			
Econ 1-3	Allowance			
Source	Govt. budget	DP project		
GFS code	16-digit code			
Budget	100			
Revised budget	85			
Actual	90			

Note: DP = development partner; MoH = Ministry of Health; PHC = primary health care.

The government budget and the expenditure reports in the FMIS are structured according to the government's chart of accounts (COA). The following more detailed description of Table 1's categories may be helpful to PER authors when downloading FMIS data.

- **The admin code 1–3** (also often called "vote," "subvote," and "spending unit") represents the administrative structure by Ministry, Department and Spending Unit. Often large hospitals or insurance funds are at the vote level (treated like a ministry). The MoF is also at the vote level and may be relevant if subsidy payments are made directly to insurance funds.
- **The project code** shows whether spending relates to the recurrent budget or a dedicated project in the investment budget. It often includes on-budget development partners (including World Bank projects), even if the project finances recurrent expenditure items. The project code may include capital spending items, such as investment in labs, refurbishment of facilities, and procurement of large equipment (for example, a CT scanner or ICT equipment).
- **The program and subprogram** column lists the names of programs. These can be organized by level of care (for example, a PHC program or hospital care program) or in vertical programs (a Reproductive, Maternal, Newborn, and Child Health (RMNCH) program or a malaria or HIV program), which are often financed by development partners. The purpose of programs is to allocate resources toward priority areas. A program may cut across multiple departments in the administration (under the "admin code" category in the table). Allocating funds to programs while overseeing the daily workload can lead to a complex administrative arrangement that can become difficult to manage. It might mean, for example, that a primary care provider can access funds from a maternal and child health program, a malaria program, a public health program, and possibly others. The more direct the relationship between program structure and administrative entities, the easier a program is to manage.
- **Output and targets** are a set of indicators for programs to allocate resources to measurable results. Indicators should be attributable to activities or interventions under the program (for example, the number of children immunized under an immunization program).
- **Activities.** Each program is further divided into activities (often used in a costing analysis).

- **Economic classification** lists the line items to be funded to implement each activity, including, for example, salaries, allowances, fuel, cleaning supplies, grants, and so on. Grants may reflect transfers to other government entities (for example, a subsidy to an insurance fund) or a transfer to a nongovernmental health provider.
- **Financing sources** show where funds come from (for example, the general budget, internally generated funds, or development partners).
- **A unique GFS code** (usually 16 digits) is associated with each budget line to help with identification.
- **The original budget,** a revised budget, and actual spending show the relevant amounts for each activity during the reporting period in local currency.

PER authors should access data for the three to five most recent years to analyze trends. FMIS data will enable a detailed PER analysis of budget execution by program (for example, a primary care program) or activity (for example, outreach services) or line item (for example, salaries); will show the structure of the administration; and can be used for other analytic purposes (such as a nutrition expenditure analysis; see Piatti-Fünfkirchen et al. 2020) to inform the functioning of the health sector.

The usefulness of analysis from government expenditure data for a PER hinges on the quality of the underlying expenditure data. A PER based on partial government data that lack integrity may result in misleading information. It is therefore important to verify the data and identify limitations, when appropriate, before presenting the findings. For example, the health chapter in the Comoros PER health chapter (World Bank 2023) identifies substantial discrepancies between the spending data reported in the government's budget execution report and the Integrated Financial Management Information Systems (IFMIS) (see Table 14 in the Comoros PER). To assess the quality of expenditure reporting, PER authors should examine the data for (1) provenance and integrity; (2) comprehensiveness of reports; (3) usefulness; (4) consistency; and (5) stability. Box 2 explains these concepts in more detail.

BOX 2. CONSIDERATIONS FOR ASSESSING THE QUALITY OF GOVERNMENT EXPENDITURE DATA

1 Data Provenance and Integrity

There should be evidence of where data came from, who produced the data, where the data were stored, and whether the production of expenditure data is subject to appropriate controls to have integrity.

2 Comprehensiveness

Do expenditure data cover all health spending across the government? Beyond the MoH, data may include local government, insurance agencies, ministries of finance, and other agencies. Obtaining comprehensive data requires understanding the various institutions' mandate (for example, the MoF's payment to health care treatment overseas would be missed in a MoH budget review).

3 Usefulness

PER authors should assess data according to how the data are structured. For example, it can be difficult to estimate maternal and child health spending if the government has no means to make explicit budget provisions for such. This needs to be noted instead of making unrealistic assumptions about shares and time spent on such services. Instead, it can be more useful for authors to review the administrative structure (for example, how much is spent on various departments or programs) and then provide feedback on the services they offer.

4 Consistency

Consistency is needed to produce data that can interface across systems and over space and time to allow for meaningful analysis. For example, having different structures of expenditure data across levels of government or over time makes meaningful analysis difficult. Similarly, data structure should be consistent across systems so that, for example, the financial management information system can interface with the human resources information system, the health information system, or the procurement system.

5 Stability

Comparability over time is needed for analysis. If structures change too much, it becomes difficult to analyze data (for example, if the use of programs significantly changes year on year, it becomes difficult to understand the real differences in spending priorities). In Zimbabwe in 2021, for example, a program and four subprograms were added, and four subprograms were removed, resulting in 35 percent of the 2020 approved budget being allocated to programs that no longer existed in the 2021 budget.

These terms are explained in more depth in *The Government Analytics Handbook* expenditure chapter (Piatti-Fünfkirchen et al. 2023).

Map the Transaction Profile and Flow of Funds

The transaction profile in the health sector ranks all spending for a fiscal year from lowest to highest value transaction using data from the FMIS (Figure 1). From this, PER authors can tell whether the transaction profile is skewed toward high-value transactions and determine where the highest fiduciary risks lie. Hashim et al. (2019) show how to generate a transaction profile based on data from Cambodia and Pakistan. Generally, about 20 percent of transactions make up about 80 percent of total volume of spending. The *Tanzania Health Sector Public Expenditure Review* (Piatti-Fünfkirchen and Ally 2020) gives an example of a transaction profile (see Figure 19 in the PER). It shows the skewed nature of transactions: about 60,000 transactions make up only about 10 percent of total spending; far fewer transactions (about 8,000) make up about 90 percent of spending. High-value transactions tend to be the wage bill, intergovernmental transfers or subsidies, or large capital projects. PER authors' PER analysis should focus on high-value transactions.

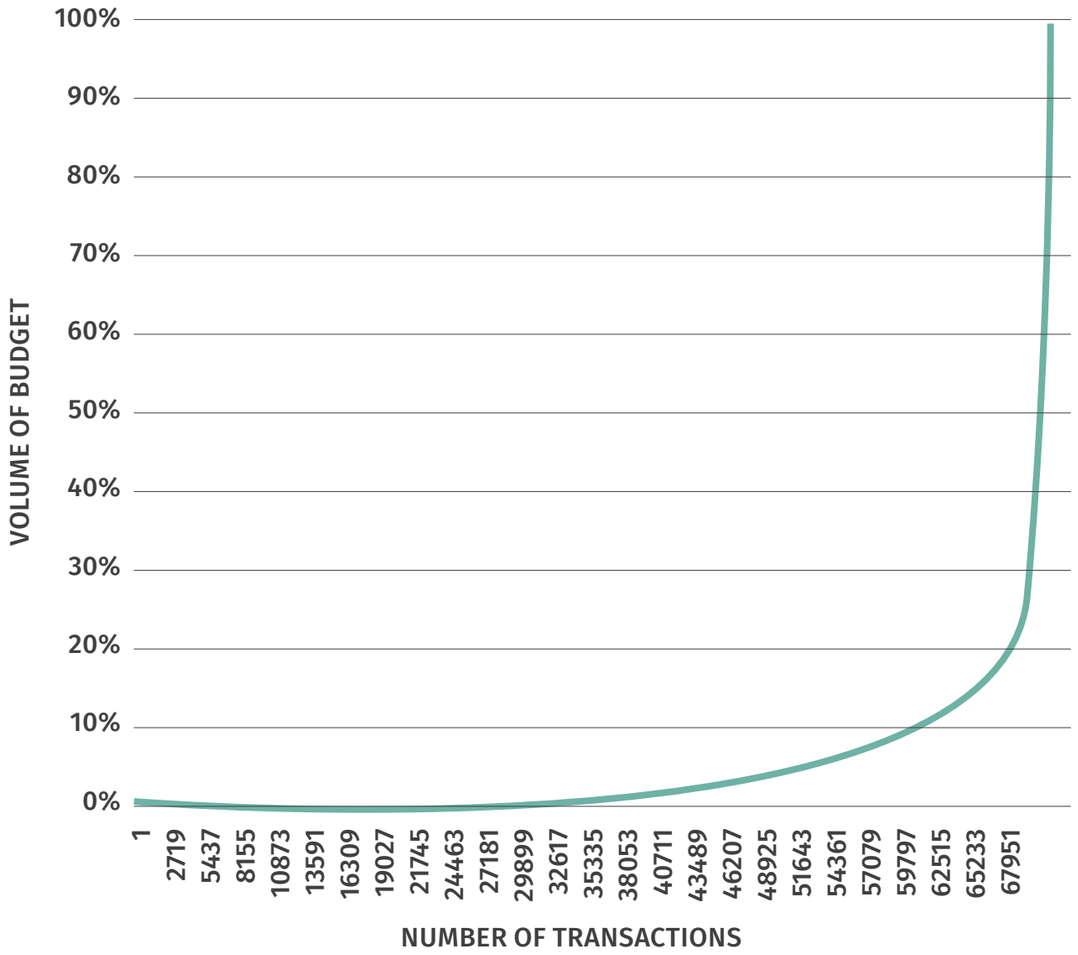
The PFM analysis in the PER can examine how these transactions are used and managed and whether the control protocols used by the government are appropriate for all types of transactions. Control protocols define how the budget line can be used. It may not be necessary to have the same type of controls in place for all transactions, regardless of their risk profile. Often the low-value transactions relate to frontline service provision. Authors could recommend in their PER risk-adjusted expenditure management, which ensures tight control for high-risk big transactions, such as the wage bill, and more flexibility at the point of health service provision (such as charging paper clips under cleaning products in rural health facilities).

A simple analysis to assess how controls are applied in the health sector compares the total spending reflected in the FMIS to the total expenditures from government financial statements. All spending in the FMIS goes through internal controls. Spending that is not in the FMIS but in published expenditure reports (government budget execution reports) is processed outside the FMIS and thus is not subject to those controls, as shown in the above-mentioned example from the Comoros PER.

The PFM assessment should be informed by the flow of funds in the health sector. The distribution (or flow) of funds shows where funds come from (government revenues, households, development partners), where they pass through (government, health insurance), and where they go (health providers and functions of care such as pharmaceuticals, inpatient care). The flow of funds can be shown by using the country's NHA matrixes or it can be visualized in a flow chart. The recent National Health Accounts Estimates for India (2018–19) (National Health Systems Resource Centre 2022) presents this distribution of funds in the report's Figure 1. The PFM analysis in the PER can assess what is most relevant based on the amount of spending. For example, the analysis may show that local governments manage a large share of total health spending, mostly on outpatient care. In this case, the PER analysis would therefore assess how well local government exercises its mandate.

As a next step, the PFM chapter may (1) assess bottlenecks in the budget cycle; and (2) conduct a deep dive into specific topics.

FIGURE 1
A TYPICAL TRANSACTION PROFILE FROM THE HEALTH SECTOR: FEW TRANSACTIONS MAKE UP THE MAJORITY OF THE BUDGET



Source: Tanzania PER, Figure 19 (Piatti-Fünfkirchen and Ally 2020).

Identify Key Bottlenecks in Each Stage of the Budget Cycle

Does the way the budget is organized make sense from a health policy and prioritization perspective? PER authors should assess how the budget is organized and whether the budgeting process includes the relevant core functions to finance government health objectives. For example, if the government objective is to expand PHC, does the budget structure allow for funding for primary care? Or is there an allocation for preventive and public health functions? If the government uses functional classifications in the chart of accounts (such as hospital services, outpatient services, public health services, medical products, and so on), as recommended by the Organisation for Economic Co-operation and Development (OECD) and Eurostat, authors could consider how meaningful underlying assumptions and corresponding reporting are (see *The Government Analytics Handbook*, Table 11.2, in Piatti-Fünfkirchen et al. 2023).

What is the budget execution rate (expenditure over original budget), and how sensitive are budget execution practices to health sector needs? The root causes for discrepancies between budgets and budget execution include budget structure and rules for budget allocation, regularity and predictability of funding flows, appropriateness and effectiveness of controls, and relevance and quality of monitoring and accountability systems. Issues in budget execution will affect a country's ability to achieve universal health care (UHC) goals. They should be assessed in the PER based on the criteria and approach used (see *Budget Execution in Health* (forthcoming)).

Is the budget assessed at the end of the fiscal year? PER authors should examine how compliance audits inform whether the budget has been spent against the original purpose or whether allocations to priority interventions have been diverted. Is there a performance audit in place, and is there a way to triangulate expenditure with output/outcome data to inform the subsequent budget allocation process?

OPTIONS FOR DETAILED ANALYSIS OF SPECIFIC TOPICS

Several PFM deep dives can be undertaken in a health PER, including, for example, PFM of the health workforce, effective procurement, decentralization, development partners, arrears management, retaining revenue at the provider level, and other topics. The relevance of the area will depend on the country's context. The topics should be selected based on a discussion with policymakers of the relevant policy issues.

PER authors can explore whether there are PFM bottlenecks impeding effective management of the health workforce. The health workforce tends to be the largest expenditure component for governments. Many governments allocate more than half of their health expenditures to health staff. If there are PFM issues, resolving them is likely to have a substantial impact on the health system. The Ethiopia health workforce study *Trained, but Not Gainfully Employed: An Assessment of Ethiopia's Health Labor Market* (World Bank 2023). This study includes examples of how to assess staff remuneration. PER authors can assess the following PFM issues in human resources management:

- **Wage payments.** These are wages paid on time and in full. Late and/or incomplete wage payments affect staff engagement and morale and could lead to moonlighting in the private health sector.
- **Payroll management.** The appropriate staff should be paid the appropriate amount. Only payroll amendments authorized by the MoF should be made, and payment should be timely.
- **Wage forecasting.** Estimates of the long-term fiscal impact of changes to workforce recruitment and salary decisions should be realistic.
- **Allowance payment.** Allowances can be critical for staff recruitment and retention. PER authors can assess the number and types of allowances; the total amount paid as allowances compared to salaries; whether allowances are transparent and fair and are paid on time and in full; and whether allowances should be eliminated and instead included in salaries.

- **Workforce modeling.** There are medium-term projections of the cost of the health workforce based on future trends in the population demographics, disease burden, and migration, and under different pay and recruitment assumptions.
- **Training cost and risk forecasting.** There are estimates of both the fiscal cost of human resources for health (HRH) training and the fiscal risk of student loans.

PER authors can analyze how PFM relates to human resources for health. Examples of PFM problems relating to human resources are numerous and include: the HRH budget is too low to fill the establishment list; there are fragmented allowance payments that lead to inefficiencies and inequities; there are regular delays and shortfalls in allowances; or there are large numbers of ghost workers, as the payroll is not maintained. Authors can identify whether there are PFM issues driving these problems, if any exists, and develop recommendations to resolve them. For example, cash management reform can help improve the ability of government to forecast and channel cash to budget priorities, and this should mitigate the problem where "wages are paid but there are regular delays and shortfall in allowances." The existence of ghost workers could be addressed through payroll cleansing and audits to remove these workers and periodic payroll integrity checks to ensure the payroll is robust.

PER authors can conduct payroll analysis to fulfill several objectives, such as:

- To understand the total government expenditures on staff payroll, including wages, salaries, allowances, overtime, and bonuses and benefits.
- To project future labor costs by tracking trends in budgeting and forecasting.
- To evaluate compliance, including whether legal requirements, such as tax regulations and wage laws, are adhered to, by reviewing all sources, such as donor financing.
- To identify payroll processing inefficiencies or errors, such as overpayments or incorrect deductions.
- To determine staffing levels based on payroll data, assess vacancy rates, and help management make informed decisions about workforce planning and optimization.

How effective is the procurement process? Procurement of drugs and medical supplies, vaccines, or technical equipment affects the availability and effectiveness of health service delivery. Assessing whether procurement practices are appropriate is therefore important. PER authors can determine whether the definition of roles in the procurement process and the division of roles between the MoF and MoH are clear. Also, authors could determine

whether framework agreements and multiyear contracts allow for the flexibility and responsiveness required for health facilities to procure essential medicines and commodities directly and achieve value for their money (Arney and Yadav 2014). The Zambia PER (Chansa et al. 2018) assessed whether the FMIS has the functionality to process multiyear commitments to avoid large contracts being processed outside the FMIS and procurement system and evade the necessary controls. PER authors could assess whether their country's health sector procurement personnel have the technical capacity for contract management and the ability to continually prepare, negotiate, manage, evaluate, and conduct performance reviews. This is especially important in countries where nongovernmental organization (NGO) providers are contracted by the MoH to provide services (and therefore becomes a PFM question) and in fragility, conflict, and violence (FCV)-affected countries where service delivery is outsourced to NGOs. Annex 7 of the Project Appraisal Document (PAD) for "Improving Healthcare Services in Somalia (Damal Caafimaad)" (World Bank 2021) provides excellent guidance on contract management arrangements. Loevinsohn (2008) offers a valuable toolkit on performance-based contracting.

Capital expenditures are the investment in long-term assets, such as hospitals, medical equipment, and technology infrastructure. Capital expenditures are essential for improving the quality of care, expanding access to services, and enhancing the efficiency of health care delivery. Good PFM practices are crucial for ensuring effective capital spending. Key practices include a complex set of aspects, including strategic planning, budgeting, forecasting, transparent procurement, cost-benefit analysis, risk management, and project monitoring and evaluation. Capital investments require running costs and a maintenance budget, which need to be considered and accommodated for in the budget.

A PER can explore how well the public finance systems cater to nutrition needs. To address nutrition needs, sufficient resources need to be allocated, and public financial management systems need to be responsive to nutrition needs. This includes ensuring that government can exercise a stewardship function over sectors, ensure collaboration and coordination, leverage the budget as an instrument for prioritization and monitor progress in implementation. The multisectoral nature of nutrition that involves a wide range of actors and implementors makes it challenging to cover in a public expenditure review. Wang et al. (2022) offer guidance on preparing nutrition PERs and Piatti-Fünfkirchen et al. (2023) on supporting a nutrition responsive PFM system.

PER authors could explore how primary health care is reflected in the budget and whether it is possible to make payments to PHC providers directly. Estimating primary care spending in a PER

can be difficult unless it is explicitly budgeted for. Making this point and recommending a budget structure reform to identify PHC expenditures is useful. Having primary care explicit in the budget allows for a prioritization process. Also, authors should clarify the role of local government in PHC management. Local governments frequently have the mandate for the delivery of primary care services, which needs to be analyzed in the context of the decentralization policy and recommendations on direct facility financing reform. Countries with a program budget structure can benefit from making primary care an explicit program (or subprogram) within that structure. If actual PHC spending data are not available, PER authors could identify the relevant spending unit (for example, a clinic) or appropriate budget lines in the local government budget as a proxy. It may not be constructive to recommend for earmarking PHC budget lines, as this leads to rigidities in the budget.

Authors should assess how fragmented financing at the provider level affects management and the provision of care. Health facilities often receive revenue from multiple sources, including the government budget, user fees, insurance payments, and development partners. This can lead to management challenges, as different sources can be subject to different rules and reporting requirements. The assessment could usefully explore whether this is the case and how the sources can be consolidated (see the 2020 Tanzania PER (Piatti-Fünfkirchen and Ally 2020) or the 2022 Zimbabwe PER (Lao Peña and Piatti-Fünfkirchen 2022).

Countries, such as Uganda, that make budgetary transfers directly to facilities need to ensure that these transfers are timely and executed in full. In such arrangements, the PFM system executes the transfer, which will appear as a line item in the economic classification of the COA (see discussion above). Once transfers are executed, they are recorded as spent. Facilities then treat these as revenue and should use funds according to a separate set of rules and good bookkeeping practices. This can help provide the necessary flexibility by allowing facilities to spend as needed and only report on spending on a line-item basis in their financial accounts.

How funds are allocated is part of the budget formulation process. PER authors can review whether resources that are allocated on a historical basis are becoming inefficient and inequitable over time or whether there is a formula in place to correct for need, poverty, and geographic inequities. This is the case in Tanzania, where budget allocation decisions are guided by an overarching formula that can reflect purchasing principles.

The role of development partners in many low-income countries is to finance the largest share of total health expenditures in the sector. Some development partners are committed to making use of government systems to the extent possible. It would imply the use of the PFM system, including partners' spending being on plan, on budget, on treasury, and on report. In their paper "Following the Government Playbook? Channeling Development Assistance for Health through Country Systems," Piatti-Fünfkirchen et al. (2021) identify questions on what aspects of a PFM system development partners are using. Beyond PFM, it is perhaps even more important to assess how partners finance health providers. This would require development partners to channel funds through existing service delivery structures in government (for example, through local government authorities) rather than create new ones (such as sending money directly to providers through, for example, performance-based financing).

Expenditure arrears in the health sector can lead to operations efficiency problems. Arrears are often not captured by the government's FMIS. PER authors can determine whether arrears are an issue in the health sector by studying audit reports. They can explore both stock and flow of arrears and what drives the flow of arrears. The 2019 Zambia PER (Chansa et al. 2019) and the 2019 Namibia PER (Schneider et al. 2019) give good examples of estimating arrears and discuss the implications on expenditure management. Findings can be triangulated with PEFA indicator PI-22.[9]

Can health providers retain their revenue from user fees? Some PFM systems require hospitals and health facilities to transfer any revenue from user fees to the general treasury. This may not be an efficient way to manage funds and may undermine provider autonomy. The Namibia PER explores this problem, showing that internally generated funds were significant for hospital management but overall were an insignificant amount to warrant treasury's concern about any efficiency losses from cash management considerations. If helpful to the PER country's government, a calculation can be made to estimate the cost to treasury of keeping funds in commercial bank accounts of hospitals/clinics: total amount in accounts*average interest rate of the year; the solution is equal to borrowing the same amount from the private sector. If the amount is not significant, it still could be worth occurring this cost to provide the necessary liquidity to health providers.

9 https://www.pefa.org/node/4603.

References

Arney, L., and P. Yadav. 2014. *Improving Procurement Practices in Developing Country Health Programs*. William Davidson Institute (WDI), University of Michigan. https://wdi.umich.edu/wp-content/uploads/WDI-_-Improving-Procurement-Practice-in-Developing-Country-Health-Programs_Final-Report_2.pdf.

Chansa, Collins, Netsanet Walelign Workie, Moritz Piatti-Fünfkirchen, Maria Alfons Otto, Clement Thulani, and Katelyn Jison Yoo. 2019. *Zambia Health Sector Public Expenditure Review (English)*. Washington, DC: World Bank. http://documents.worldbank.org/curated/en/756921559624225552/Zambia-Health-Sector-Public-Expenditure-Review.

Hashim, Ali, Moritz Piatti-Fünfkirchen, Maria Alfons Otto, Winston Percy Onipede Cole, Ammar Naqvi, Akmal Minallah, Maun Prathna, and Sok Bunthoeun So. "The Use of Data Analytics Techniques to Assess the Functioning of a Government's Financial Management Information System: An Application to Pakistan and Cambodia (English)." Policy Research Working Paper, WPS 8689. World Bank Group, Washington, DC. http://documents.worldbank.org/curated/en/226121546531748578/The-Use-of-Data-Analytics-Techniques-to-Assess-the-Functioning-of-a-Governments-Financial-Management-Information-System-An-Application-to-Pakistan-and-Cambodia.

Lao Peña, Christine, and Moritz Piatti-Fünfkirchen. 2022. *Zimbabwe Health Section Public Expenditure Review*. Washington, DC: World Bank. https://documents1.worldbank.org/curated/en/099730506292238494/pdf/P16556501fc556037089b80ca23e3977f6c.pdf.

Loevinsohn, Benjamin. 2008. *Performance-Based Contracting for Health Services in Developing Countries: A Toolkit*. Health, Nutrition, and Population Series. Washington, DC: World Bank. http://hdl.handle.net/10986.

National Health Systems Resource Centre. 2022. *National Health Accounts Estimates for India (2018-19)*. New Delhi: Ministry of Health and Family Welfare, Government of India.

Piatti-Fünfkirchen, Moritz, Ali Subandoro, Timothy Williamson, and Kyoko Okamura, Shibata. 2023. "Driving Nutrition Action Through the Budget: A Guide to Nutrition-Responsive Budgeting." World Bank, Washington, DC. http://hdl.handle.net/10986/39856.

Piatti-Fünfkirchen, Moritz, and Lodewijk Smets. 2019. *Public Financial Management, Health Financing and Under-Five Mortality: A Comparative Empirical Analysis*. Washington, DC: Inter-American Development (IDB). https://publications.iadb.org/en/public-financial-management-health-financing-and-under-five-mortality-comparative-empirical.

Piatti-Fünfkirchen, Moritz, and Mariam Ally. 2020. *Tanzania Health Sector Public Expenditure Review*. Washington, DC: World Bank. https://documents1.worldbank.org/curated/en/601271602042236487/pdf/Tanzania-Health-Sector-Public-Expenditure-Review-2020.pdf.

Piatti-Fünfkirchen, Moritz, Liying Liang, Jonathan Kweku Akuoku, and Patrice Mwitende. 2020. *Rwanda Nutrition Expenditure and Institutional Review* 2020. Washington, DC: World Bank. https://documents1.worldbank.org/curated/en/588131604469825169/pdf/Rwanda-Nutrition-Expenditure-and-Institutional-Review-2020.pdf.

Piatti-Fünfkirchen, Moritz, Sierd Hadley, and Benoit Mathivet. 2021. "Alignment of Performance-Based Financing in Health with the Government Budget: A Principle-Based Approach." Health, Nutrition, and Population (HNP) Discussion Paper. World Bank, Washington, DC. https://documents1.worldbank.org/curated/en/935821632462316181/pdf/Alignment-of-Performance-Based-Financing-in-Health-with-the-Government-Budget-A-Principle-Based-Approach.pdf.

Piatti-Fünfkirchen, Moritz, Maria Alfons Otto, Ali Hashim, Sarah Alkenbrack, and Gurazada Srinivas. 2021. "Following the Government Playbook? Channeling Development Assistance for Health through Country Systems (English)." World Bank, Washington, DC. http://documents.worldbank.org/curated/en/332531634794859261/Following-the-Government-Playbook-Channeling-Development-Assistance-for-Health-through-Country-Systems.

Piatti-Fünfkirchen, Moritz, James Brumby, and Ali Hashim. 2023. "Government Analytics Using Expenditure Data," Chapter 11 in Daniel Rogger and Christian Schuster, eds., *The Government Analytics Handbook: Leveraging Data to Strengthen Public Administration*. Washington, DC: World Bank. http://hdl.handle.net/10986/39857.Public Expenditure and Financial Accountability (PEFA). 2018. *A Guide to PFM Diagnostic Tools*. PEFA Secretariat. https://www.pefa.org/resources/guide-pfm-diagnostic-tools.

Schneider, Pia, Claire Jones, Liying (Annie) Liang, Thulani Matsebula, Fedja Pivodic, and Moritz Piatti-Fünfkirchen. 2019. *Namibia Health Sector Public Expenditure Review*. Washington, DC: World Bank. https://documents1.worldbank.org/curated/en/268141563376806867/pdf/Namibia-Health-Sector-Public-Expenditure-Review.pdf.

Tapsoba, Y., A. Silim, K.A. Frimpong, and H. Barroy. 2024. "Does Public Financial Management Save Life? Evidence from a Quantitative Review of PFM and Health Outcomes in Sub-Saharan African Countries." *Health Systems & Reform*, 10 (1). https://doi.org/10.1080/23288604.2023.2298190.

UNICEF. 2021. *The UNICEF Public Finance Toolkit*. New York: United Nations Children's Fund. https://www.unicef.org/documents/public-finance-toolkit.

Wang et al. 2022. *A Guiding Framework for Nutrition Public Expenditure Reviews*. Available at https://documents.worldbank.org/en/publication/documents-reports/documentdetail/870061642743645361/a-guiding-framework-for-nutrition-public-expenditure-reviews.

Welham, Bryn, Tom Hart, Shakira Mustapha, and Sierd Hadley. 2017. *Public financial management and health service delivery: Necessary, but not sufficient?* London: Overseas Development Institute. https://cdn.odi.org/media/documents/Public_financial_management_and_health_service_delivery_necessary_but_not_sufficient.pdf.

World Bank. 2021. "Improving Healthcare Services in Somalia (Damal Caafimaad) Project Appraisal Document." Health, Nutrition, and Population Global Practice, World Bank, Washington, DC. https://documents1.worldbank.org/curated/en/671481625191487648/pdf/Somalia-Improving-Healthcare-Services-in-Somalia-Damal-Caafimaad-Project.pdf.

World Bank. 2023. "Trained, but Not Gainfully Employed: An Assessment of Ethiopia's Health Labor Market." Health, Nutrition, and Population Global Practice, World Bank, Washington, DC. https://documents1.worldbank.org/curated/en/099112723152522987/pdf/P1796950ac3c1a0d09e830230f7b52be09.pdf?_gl=1*l7yn7c*_gcl_au*NzkzNzY2ODY3LjE3MjI1OTA4NDc.

World Bank Group. 2019. *FinHealth: PFM in Health Toolkit*. Washington, DC: World Bank Group. https://documents1.worldbank.org/curated/en/099191502152313348/pdf/P1551930f15bf400f09a0b0b954409dc97a.pdf.

World Bank Group. 2023. 2022 *Comoros Public Expenditure Review: Addressing Fiscal Challenges to Foster an Inclusive Growth*. Washington, DC: World Bank Group. https://openknowledge.worldbank.org/server/api/core/bitstreams/23a78f62-04b0-485d-a2cc-cd4cc637e1c0/content?_gl=1*uglqj*_gcl_au*NzkzNzY2ODY3LjE3MjI1OTA4NDc.

World Health Organization. 2023. *Mapping of public financial management tools for assessing bottlenecks in the health sector*. Geneva: World Health Organization. https://iris.who.int/bitstream/handle/10665/374019/9789240080096-eng.pdf?sequence=1.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

TABLE OF CONTENTS



SECTION 3

Inputs

This section offers guidance on assessing the efficiency and equity of spending on *human resources for health*, *infrastructure and equipment*, and *medicines and medical supplies*.

Medicines and human resources are often the largest items in government health budgets. A Public Expenditure Review (PER) should evaluate whether this spending is guaranteeing the availability and sustainability of quality health services and progress toward universal health coverage (UHC). Spending should ensure that equitable distribution of inputs across sociodemographic and geographic lines, and that inputs are used rationally, combined appropriately, and purchased at reasonable prices to avoid inefficiency. The PER must also examine whether processes, rules and institutional arrangements used to purchase and allocate inputs promote efficiency and their equitable deployment.

MODULE 7 HUMAN RESOURCES FOR HEALTH

MODULE 8 PHYSICAL INFRASTRUCTURE AND EQUIPMENT

MODULE 9 MEDICINES AND MEDICAL SUPPLIES

CONTINUE

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
M-7: Human Resources for Health
M-8: Infrastructure & Equipment
M-9: Medicines & Medical Supplies
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

TABLE OF CONTENTS

MODULE 7

Human Resources for Health

AUTHORS
Edson Correia Araujo, Bernardo D.P. Coelho, and Priyanka Saksena

START



INTRODUCTION

Human resources for health (HRH) are a key input of any health care system: health workers are essential to producing health services, and labor is by far the largest category of expense in most health systems. Overall, payments of salaries and benefits to the health workforce account for over one-third of total government expenditure (GGHE) on health globally and one-fifth of total health expenditure (THE), with the share varying across country income groups (Hernandez et al. 2013).

However, shortages of health workers are common, even in Organisation for Economic Co-operation and Development (OECD) countries. The world needs many millions of additional health workers to meet the Sustainable Development Goal (SDG) health targets: global estimates of current health worker shortages range from about 15 million to over 43 million, depending on the methodology used (Boniol, Kunjumen, et al. 2022; GBD 2019; Human Resources for Health Collaborators 2022). In addition to health worker shortages, countries face maldistribution challenges, inadequate training capacity, weak human resources management systems, skill-mix imbalances, and suboptimal combinations of financial and nonfinancial incentives (Jimba et al. 2010). These issues can result in inefficient and inequitable spending.

TABLE 1
HEALTH WORKERS' REMUNERATION, BY COUNTRY INCOME GROUP

	Share of THE	Share of GGHE
Country Income Group	**%**	**%**
High	18	31.2
Upper middle	23.4	38.2
Lower middle	18.7	34.7
Low	18.7	34.7
All	18.1	33.2

Source: Hernandez et al. (2013).
Note: GGHE = general government health expenditure; THE = *total health expenditure.*

HRH challenges have labor market roots, which are becoming increasingly complex. In most countries, health worker employment is not just governed by civil service regulations for public sector employees. Instead, health workers are often employed by the private sector, work independently, or work under a combination of public, private, and self-employed arrangements (Soucat, Scheffler, and Ghebreyesus 2013). Labor market conditions such as incentive structures and working conditions often result in health workers' making employment decisions that are not aligned with priority public health needs. For example, health workers may be attracted to positions that do not respond to such needs or choose to migrate in search of alternative employment opportunities (McPake, Scott, and Edoka 2014). Rigidity in human resources management, particularly in the public sector, also results in mismatches between supply and needs.

PER authors can examine inefficiency and inequity related to HRH through the following interconnected domains: (1) availability, which involves the supply of qualified health workers; (2) distribution and skill mix, which pertain to the recruitment and retention of health workers where they are needed most and with the necessary skills; and (3) performance, which relates to the productivity of health workers and the quality of care they provide.

Issues related to availability, distribution, and performance result in inefficiencies and inequities. Often problems are multifaceted, with complex and sometimes contradictory effects. For example, in Ghana, it was estimated that there were about 40,000 unemployed nurses in 2019, while the estimated shortage of health workers within the public health system alone was over 45,000 (Asamani et al. 2020; Asamani, Christmals, and Reitsma 2021). In addition to funding shortages, such imbalances are a result of changing needs for health care and service delivery models and varying degrees of regulation of different health worker education programs combined with economic cycles and poor planning (Asamani et al. 2020; Limpin and Artiaga 2023).

The aim of this module is to allow PER authors to rapidly assess the general efficiency in HRH spending by examining basic indicators of HRH related to aggregate spending and availability, input mix, productivity, governance and processes, as well as general equity considerations. Overall, an assessment of HRH should be made alongside an assessment of other health system characteristics. Authors should examine the size, distribution, and productivity of HRH in conjunction with other input and service delivery aspects, which are considered in other modules.

PER authors should also note that the guidance in this module is not a substitute for a more thorough analysis of the HRH situation in a country, which requires significant time and capacity. A health labor market analysis allows for a more in-depth look into HRH issues. This tool can comprehensively document different HRH challenges, including sources of inefficiencies and inequities, as well as potential solutions. PER authors interested in conducting such an analysis can consult guidance documents from the World Bank as well as the World Health Organization (WHO) on health labor market analyses (McPake, Scott, and Edoka 2014; World Health Organization 2021; Scheffler et al. 2016; Herbst, Liu, and Akala 2022). Also, additional guidance note 2 on Health Labor Market Analysis and Health Workforce Projections provides additional guidance.



BOX 1. DEFINITIONS OF TERMS

HEALTH WORKFORCE

Health workers are clinical and nonclinical personnel whose job is to protect and improve the health of people. Highly qualified and trained professionals such as physicians, pharmacists, nurses, and midwives usually constitute the largest part of the health workforce. They are supported by other professionals such as nurse assistants or personal support workers in health facilities. Community health workers, who provide health education and basic diagnosis, and care and referral in communities, are also an important component of the health workforce in many countries.

LABOR MARKET SUPPLY

Supply of health workers is the total number of individuals willing to work at a given wage (price). This is influenced by the wages as well as non-wage dimensions.

LABOR MARKET DEMAND

Demand for health workers is the number of workers that employers are willing to hire. This is influenced by factors such as availability of funding for employing health workers and consumer preferences about health services.

HEALTH WORKFORCE NEEDS

The need for health workers is not the same as the labor market demand. Rather it is the estimated number of health workers needed to deliver specific health services. It is usually estimated based on an analysis of current and future demographic and health profiles. Shortages of health workers are often based on estimating health workforce needs.

AVAILABILITY

The concept of availability is not tied to a classical economic supply-demand framework. Rather it refers to the number of workers who are employed or trained health workers who can be employed, while supply refers to all people who are willing to work at a given wage (price).

DISTRIBUTION OF HEALTH WORKERS

The distribution of health workers concerns the relative presence of health workers in different contexts. Health workers are unevenly distributed within countries, and this can be an important contributor to health inequities.

EFFICIENCY

Aggregate Spending and Availability

KEY QUESTIONS

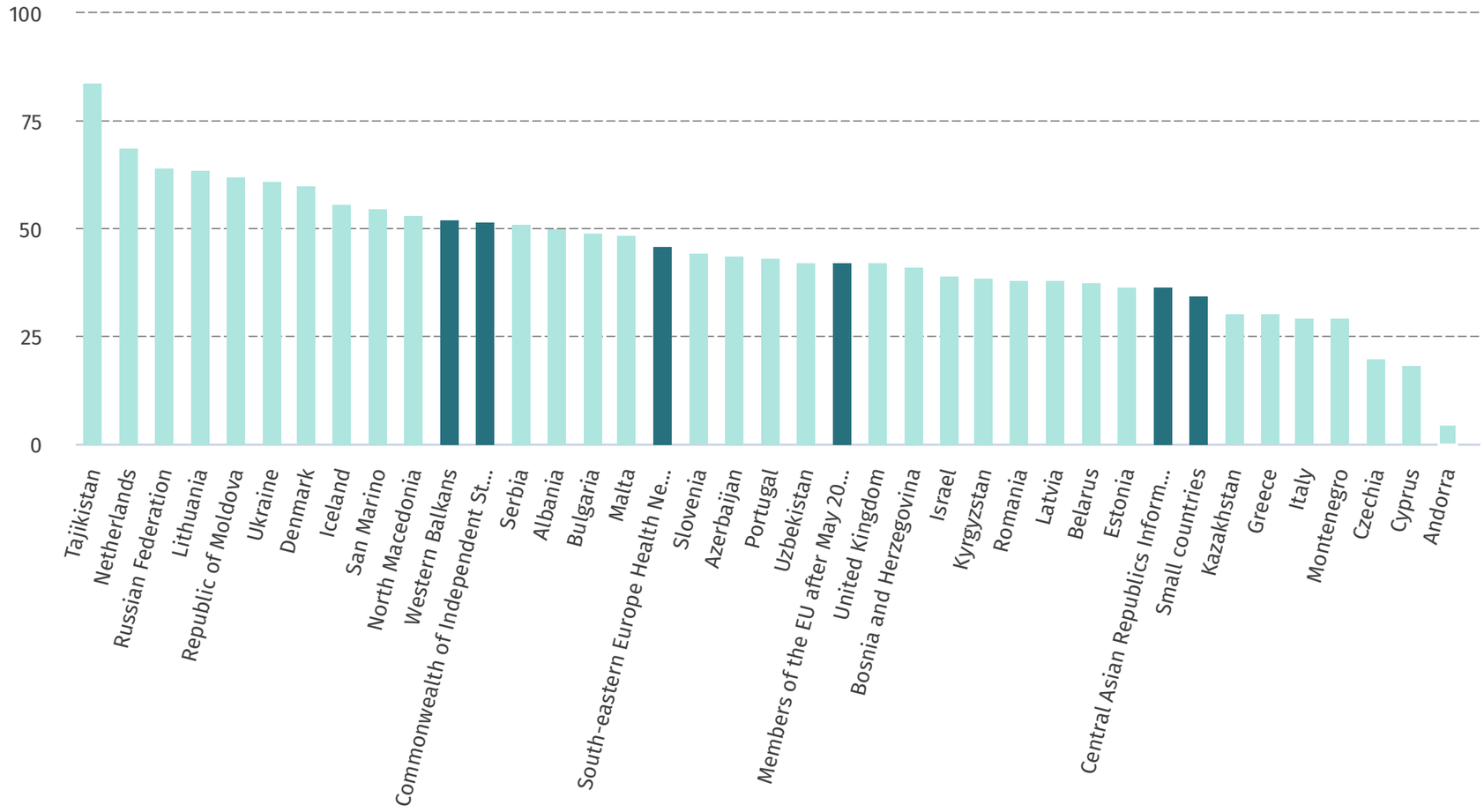
- **How much is spent on HRH and how has spending evolved?**
- **Are there sufficient numbers of human resources?**

Human resources represent an important expenditure category, as discussed earlier. For example, in Europe and Central Asia, salaries as a share of government health expenditure ranged from about 20 percent to 60 percent, with one outlier, as shown in Figure 1.

In fact, while expenditure on salaries and benefits for health workers constitutes the majority of health expenditure in most countries, spending is even higher in some settings. When spending on HRH reaches 70–80 percent, it could leave insufficient room for financing other essential inputs needed to deliver health care. PER authors should also note how spending on HRH as a share of expenditure has evolved. Increasing shares of spending on HRH, with stagnating overall general government health expenditure,[1] may signal a diminishing capacity of facilities to deliver quality care. Here all spending on HRH should be included, not only salary expenditure, as not all health workers are salaried employees.

1 PER authors should note that this module relies on indicators from the SHA 2011 framework for health accounts. In this framework, general government health expenditure includes budget spending as well as spending by poole prepaid compulsory financing schemes like social health insurance.

FIGURE 1
SALARIES AS PERCENT OF TOTAL PUBLIC HEALTH EXPENDITURE



Source: World Health Organization, "WHO European Health Information at Your Fingertips" (n.d.).

CASE EXAMPLE: TUNISIA

In Tunisia, public facilities remain important providers of health care. Spending on HRH in these facilities is extremely high—about 80 percent of the Ministry of Health's (MoH) budget. This leaves insufficient room for expenditure on other inputs required for delivering health care. Overall, about 15 percent of the GDP in Tunisia is on the public sector wage bill.

FIGURE 2.A
SPENDING ON HRH AND OTHER RECURRENT COSTS IN THE MINISTRY OF HEALTH'S BUDGET, 2010–19

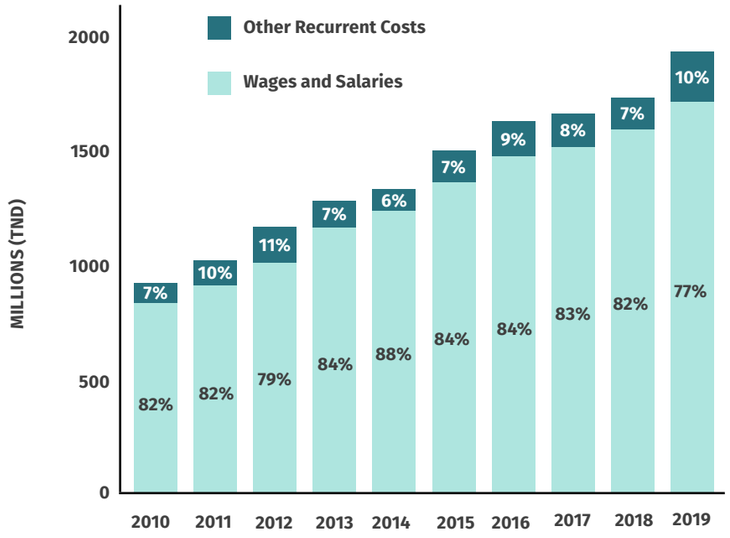
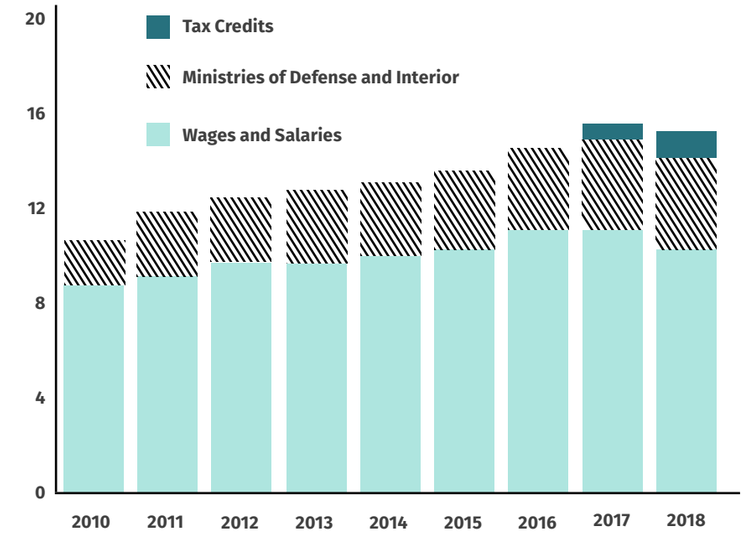


FIGURE 2.B
PUBLIC SECTOR WAGE BILL AS A SHARE OF GDP, 2010–18

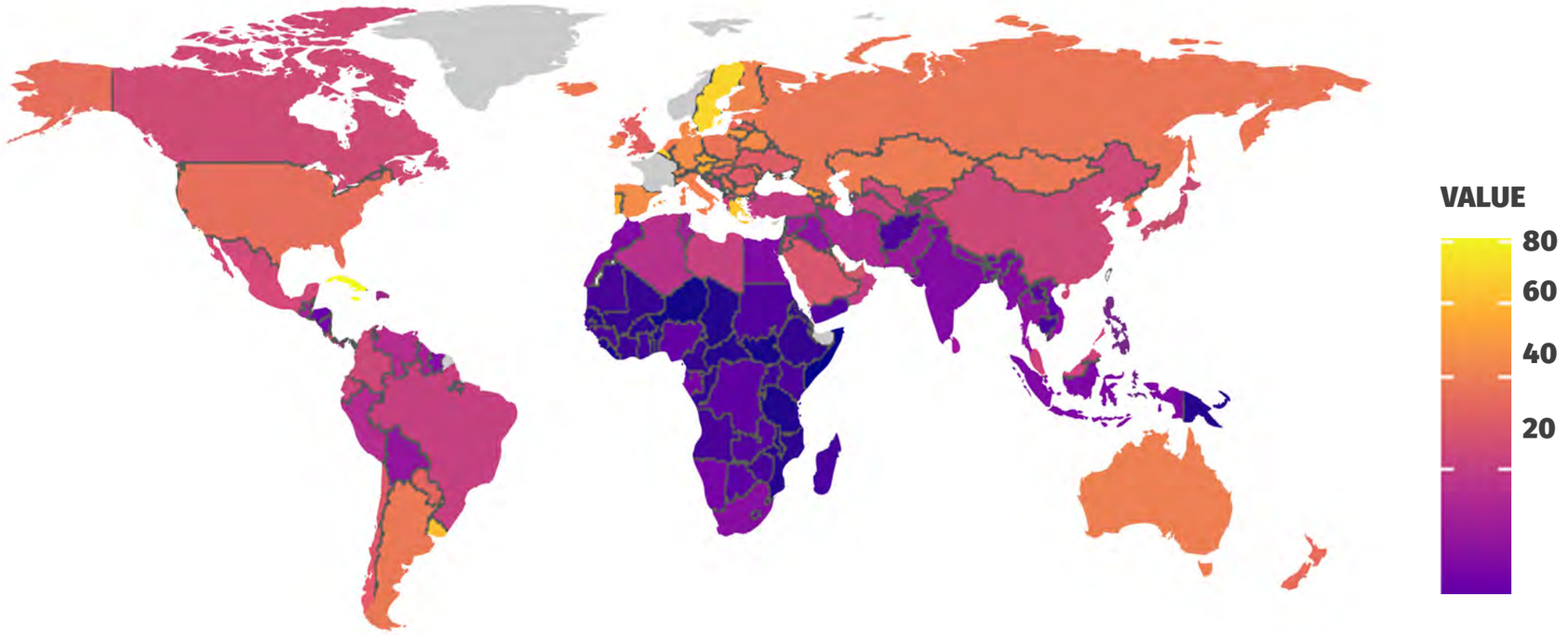


Sources: IMF. 2019. IMF Country Report No. 19/223. "Tunisia: Fifth Review Under the Extended Fund Facility, and Requests for Waivers of Nonobservance and Modification of Performance Criteria and for Rephasing of Access." International Monetary Fund, Middle East and Central Asia Department, Washington, DC. https://doi.org/10.5089/9781498325301.002.

Ministere des Finances, Tunisie. N.d. "Analyse Budgétaire: Santé, Période 2010–2021."

FIGURE 3
PHYSICIAN DENSITY PER 10,00 POPULATION (LATEST DATA AVAILABLE)

Source: World Health Organization.



PER authors can use basic indicators of the availability of HRH to screen for underlying efficiency problems. For example, too low an investment in HRH prevents scaling up health services, including services that require certain coverage thresholds to be optimal, such as vaccinations or epidemiological monitoring. Indeed, the density of health workers varies substantially across countries. For example, the density of physicians (Figure 3) ranges from more than eight per 1,000 population in Italy and Cuba to five per 100,000 population in Chad. The number of nurses and midwives also varies substantially, with densities ranging from over 17 per 1,000 population in Norway and Iceland to fewer than one per 1,000 population in many countries in Sub-Saharan Africa and South Asia.

Despite these vastly different numbers, shortages of health workers are found in almost all countries. When determining numbers of health workers, PER authors should try to identify comparator

countries with similar socioeconomic and geographical profiles and health systems, as well as countries that could serve as best practice cases. The additional guidance note on country comparisons, Benchmarking, provides guidance in this area. Comparisons with relevant countries could also reveal potential inefficiencies, for example, if there are widely differing numbers of specific types of workers.[1] PER authors should also analyze trends in HRH availability and composition. For example, an increasing trend might indicate progress in reducing availability gaps, while a decreasing trend, including for specific types of health workers, would merit further analysis. It would also be useful to identify the number of practicing health workers versus all licensed health workers, some of whom may not be working in the health sector. The MoH or professional councils or associations for different professions usually have this information. Trends also need to be analyzed in relation to spending to understand if increases in health spending are improving the number of HRH. If reliable data are available, spending on different types of health workers can be examined, including community health workers.

A minimum threshold of 44.5 health workers per 10,000 population is often cited. This is based on work by WHO to identify the minimum HRH requirements for countries associated with achieving at least the median score on 12 SDG health targets (World Health Organization 2018). Various other needs-based estimates for HRH have been made based on different criteria, and PER authors should check whether such estimates are available for their country.

The resources available to employ health workers frequently do not match the amount required to cover the level of services required to meet population health care needs.[2] Conversely, the number of health workers willing to work in the sector is not equal to the number of trained workers. Once health workers are trained, their employment decisions and the employment opportunities that influence these decisions are not necessarily aligned with population health care needs. For example, experienced health workers migrating to other countries is commonplace in many low- and middle-income countries. It is also common for trained health workers to instead be employed in other industries in some countries.

Mismatches between the supply and demand of health workers, as well as their skill mix, can also result in unfilled vacancies. Vacancies can be due to a variety of reasons, including low wages, which are

1 For international comparisons, PER authors can also refer to the International Standard Classification of Occupations if needed to ensure comparability of different types of health workers. The technical annex to this document contains further information related to this.

2 Health workforce demand is not the equivalent of health workforce needs. Both the need and demand for health workers derive from the need and demand for health services. Health workforce need is a normative and value-based concept that takes into consideration the workforce required to provide the health services corresponding to the health status of a population, without considering willingness and capacity to pay. There are several ways to estimate health workforce needs. Usually it requires information on population epidemiological and demographic profiles and/or some priority health service delivery objectives.

insufficient to attract health workers. It is possible that the vacancy rate differs by level of provider, with fewer unfilled positions in hospitals. Poor human resource management practices such as delays in recruitment and deployment can contribute to vacancies, and resolving these issues would be quick wins in terms of efficiency.

A high vacancy rate in conjunction with significant unemployment among health workers signals system-level efficiency issues reflecting mismatches between training programs and employer needs. If health worker education is provided through subsidized public universities or through training in subsidized hospitals, there is an additional inefficiency due to unproductive public investments, which do not result in returns for society. Labor market surveys or data from professional councils and associations (for example, licensing and registering bodies for medical doctors, dentists, and nurses and midwives) could be sources for information on unemployment. A recent Ethiopia health labor market analysis provides a good example on how to conduct analysis of the health workforce, including in relation to availability, recruitment, and needs as well as issues covered later in this module, such as remuneration and management of the health workforce.[3]

3 https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099112723152522987/p1796950ac3c1a0d09e830230f7b52be09.

Key indicators	Sources
Government spending (from all sources) on HRH as a percentage of current health expenditure **Government spending (from all sources) on HRH as a percentage of general government health expenditure**	• MoH expenditure data • National health accounts • Government budget document
Ratio of medical doctors, nurses and midwifes and other health workers per 10,000 population	• MoH reports • Human resource information system • National Health Workforce accounts • Professional councils and associations • WHO Global Health Workforce Statistics • OECD Health Statistics • World Bank Open Data
Vacancy rates by type of provider	• MoH reports • MoH administrative data • Labor force surveys • Professional councils and associations
Unemployment rate by type of trained health worker	• MoH reports • Labor force surveys • Professional councils and associations

Note: HRH = Human Resources for Health; MoH = Ministry of Health; OECD = Organisation for Economic Co-operation and Development; WHO = World Health Organization.

Input Mix

KEY QUESTIONS

- **What is the mix of health workers across cadres?**
- **How do different types of health workers work together?**

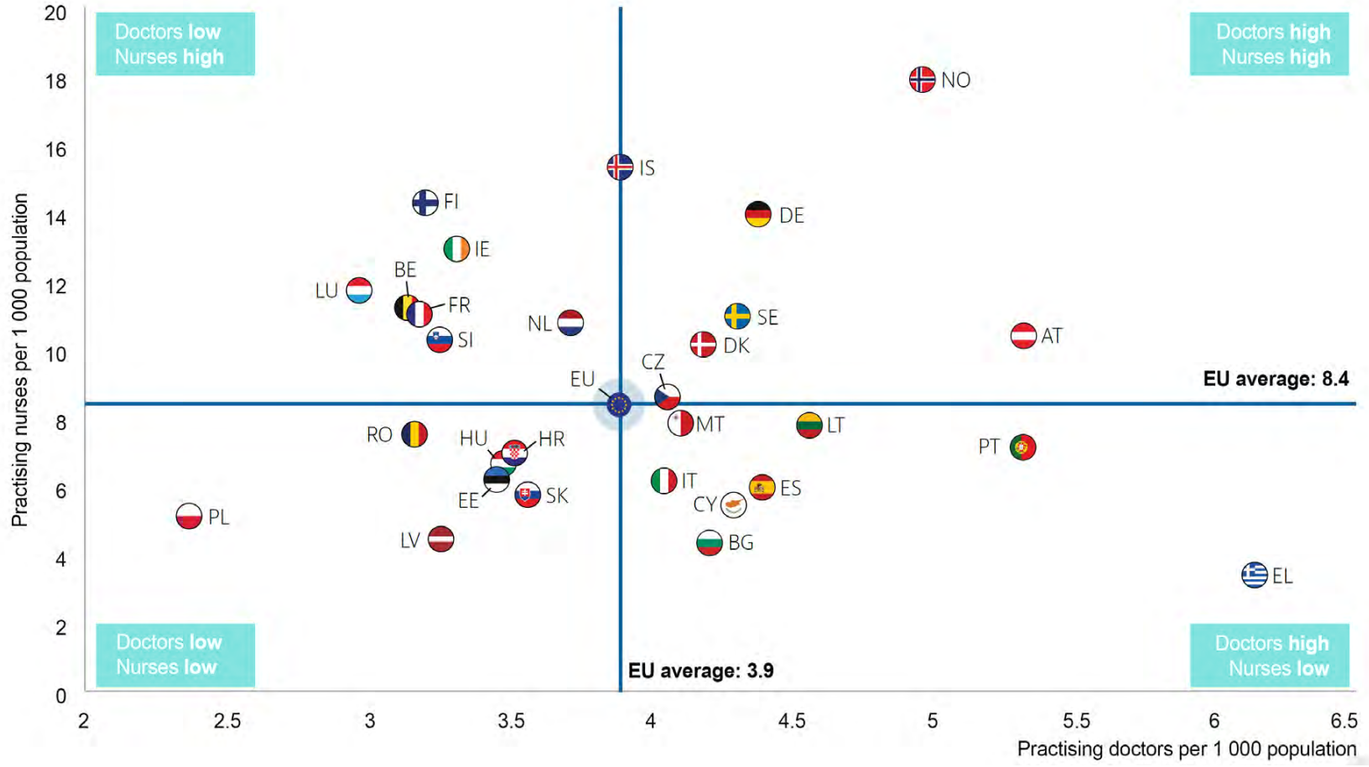
Health care is usually delivered through multidisciplinary PER authors of health workers. Even when a patient interacts with only one health worker, behind the scenes, other health workers are supporting the delivery of services. The mix of health workers is an important determinant of efficiency, for example, if specialist physicians are performing tasks that could be done by other health workers.

The ratio of nurses to physicians is often used to assess the appropriateness of the mix of health workers or the skill mix. While there is no global benchmark, a ratio closer to one physician to three nurses has been widely used, a number that reflects the ratio in OECD countries in 2013 (OECD Statistics). In the EU, the ratio is currently closer to one physician to two nurses.



FIGURE 4
RATIO OF NURSES TO DOCTORS IN THE EU, 2019

Source: State of Health in the EU: Companion Report 2021. https://health.ec.europa.eu/system/files/2022-02/2021_companion_en.pdf.



Of note, the roles different workers perform are not consistent across health systems in different countries. Unfortunately, this is often not just linked to qualifications but also due to outdated scopes of practices as well as interprofessional territoriality, leading to legal restrictions on what different types of health workers can do and do independently. As such, there is significant policy work regarding upscaling and redefining skills as well as responsibilities, particularly of nonphysician health workers, to support team-based health care delivery (Winkelmann et al. 2022).

CASE EXAMPLE: VIETNAM

In addition to the relatively low density of health workers, the ratio of nurses and midwives to physicians is very low in Vietnam. Some of this underinvestment has to do with historical legacy and an absence of regulatory structures for nursing before 1990. Since then, there has been progress in developing nursing competency standards and curricula, and the number of nursing schools doubled between 2005 and 2015. Midwifery education at the university level started in 2013, and national competency standards were developed in 2015. While the ratio of nurses and midwives to physicians has improved, it remains low.



References: Fujita, Noriko, Sadatoshi Matsuoka, Kyoko Koto-Shimada, Megumi Ikarashi, Indrajit Hazarika, and Anthony B. Zwi. 2019. "Regulation of Nursing Professionals in Cambodia and Vietnam: A Review of the Evolution and Key Influences." *Human Resources for Health* 17 (1): 48. https://doi.org/10.1186/s12960-019-0388-y.

World Health Organization. N.d. "WHO European Health Information at Your Fingertips." Accessed February 22, 2024. World Health Organization, Geneva. https://gateway.euro.who.int/en/indicators/hfa_582-6810-salaries-as-of-total-public-health-expenditure/.

Huynh, Hong T.P., and Carol Windsor. 2022. "The Concepts of Social Space and Social Value: An Interpretation of Clinical Nursing Practice in Vietnam Các Khái Niệm về Không Gian Xã Hội và Giá Trị Xã Hội: Diễn Giải về Thực Hành Điều Dưỡng Lâm Sàng ở Việt Nam." *Global Qualitative Nursing Research* 9 (March):23333936211070267. https://doi.org/10.1177/23333936211070267.

Le, Tung Thanh, Anh Tuan Truong, Thanh Van Vu, Ha Thi Viet Tran, Huong Thi Thanh Pham, Huong Thi Thanh Nguyen, and Anh Thi Lan Mai. 2024. "Vietnam National Competency Standards for Midwifery: A Delphi Study." F1000Research. https://doi.org/10.12688/f1000research.138350.2.

OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
Health Financing
Inputs
M-7: Human Resources for Health
M-8: Infrastructure & Equipment
M-9: Medicines & Medical Supplies
Service Delivery
Outcomes
List of Acronyms
4 SECTION 4 Additional Guidance

Productivity

KEY QUESTION • What are the performance and productivity of health workers?

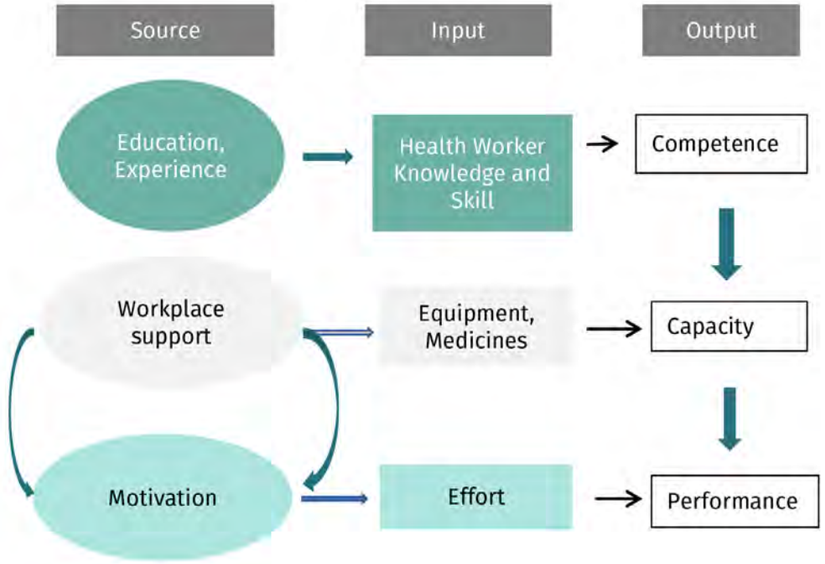
Low performance of health workers is an inherent cause of inefficiency and is influenced by a complex set of worker incentives. It can be caused by low motivation due to management practices and modes of remuneration, but also an absence of support systems (including inputs like medicines and equipment) as well as inadequate training and supportive supervision (Scheffler et al. 2016).

The World Bank offers a schematic model for health workforce performance (Figure 6), which considers performance to be a result of health workers' capacity and effort, which are determined by workers' education and experience as well as the workplace environment and policies (Leonard and Mæstad 2016; Herbst, Liu, and Akala 2022). Not all health workers have received good quality training (during their initial education or in-service training) to have skills and competencies to perform well. Even well-trained health workers with inadequate working conditions, for example, may perform poorly (low motivation). If working conditions are adequate, health workers are more likely to be motivated to perform well, but not always. The model allows observers to conclude that motivation is the main driver behind the transformation of capacity into performance. Levels of motivation can be assessed using questionnaires and other instruments. Indeed, in many contexts, the key question is how best to motivate health workers to improve effort and, consequently, performance—closing the gap between what health workers know how to do and what they do (the "know-do gap").

While information on the performance of health workers may be hard to gather in a measurable and monitorable way, PER authors can use some basic indicators of productivity to assess efficiency. Health workforce productivity is defined as the average rate of output produced per unit of labor input during a given period (Reinhardt 1972; Folland, Goodman, and Stano 2012). Ideally, productivity should be measured in terms of health gains of individual patients, but due to the difficulty to translate this to an operational measure and data availability, economists have opted to measure health labor productivity of measurable intermediate

outputs, such as visits (Reinhardt 1972; Hollingsworth 2008). Health labor input is defined as head counts (persons engaged) or hours worked. Hours worked is a better measurement of health workers' availability, as it is adjusted for part-time work, differences in working hours, absenteeism, and hours worked in the public and private sectors.

FIGURE 6
THREE SOURCES OF PERFORMANCE



Source: Herbst, Liu, and Akala 2022.

The number of consultations per day per doctor (and per nurse/midwife, depending on their roles in health care provision) is one measure of basic productivity. To understand efficiency issues better, PER authors can examine this indicator across different types of health facilities, for example, primary facilities versus secondary facilities, and across different parts of the country. Since productivity is heavily influenced by workplace environment, including supplies and equipment, authors should consider the readiness of health facilities to deliver services when inferring about health workers' productivity. Further information on this can be found in the additional guidance note Service Availability and Readiness.

Additionally, if possible, given the comprehensive nature of universal health coverage goals, PER authors can consider measuring health workers' productivity across a spectrum of priority interventions for different cadres of health workers.[4]

Another indicator of productivity that could inform efficiency concerns is absenteeism. The data on absenteeism are commonly available and sensitive enough to capture major performance issues in many countries. For example, a study involving unannounced visits to primary health facilities documents rates

4 The desired attributes of these priority interventions could be (1) policy relevance to inform specific policy interventions; (2) data availability to quantify the composite indicators; (3) simplicity to allow ease of comprehension, interpretation, and duplication; (4) comprehensiveness to capture efficiency across services; and (5) standardization to allow aggregation and comparison. The spectrum of priority interventions could be defined using different criteria, for example, the burden of disease of a country, the top 10 interventions related to maternal and child health, or the level of care (tertiary, secondary, and primary care).

Key Indicators	Sources
Number of consultations per day for full-time equivalent doctors, nurses/midwives	• Facility surveys • Administrative data from MoH/health insurance fund
% of days absent during a given period for different types of full-time equivalent health workers	• Facility surveys • Administrative data

Note: MoH = Ministry of Health.

of absenteeism of 35 percent in Bangladesh, 37 percent in Uganda, and 40 percent in India and Peru (Chaudhury et al. 2006). While unannounced visits may produce reliable data, PER authors should be aware that data collected on absenteeism from administrative sources may have significant biased or unbiased underreporting.

Overall, however, measurable and comparable indicators of performance and motivation of health workers on a national and international scale are limited, including in relation to efficiency concerns.

Also, authors should keep in mind that the productivity of a health worker is affected by the availability of equipment, infrastructure, and other health workers. Productivity is also influenced by the assignment of work, management practices, modes of remuneration, the motivation of workers, and regulation (Scheffler et al. 2016). In this context, health worker productivity and any efficiency concerns should be tempered by information about the availability of other inputs (see the modules on Medicines and Medical Supplies, and Infrastructure and Equipment). PER authors can also consult existing analyses of HRH such as health labor market analyses that may have documented reasons for low productivity more systematically.

EQUITY

Distribution

KEY QUESTION

- **What is the distribution of the available health workers between urban and rural/ remote areas?**

Worldwide, the geographic distribution of health workers is skewed toward urban and wealthier areas. This pattern is found in nearly every country in the world, regardless of the level of economic development and health system organization, including in OECD countries.

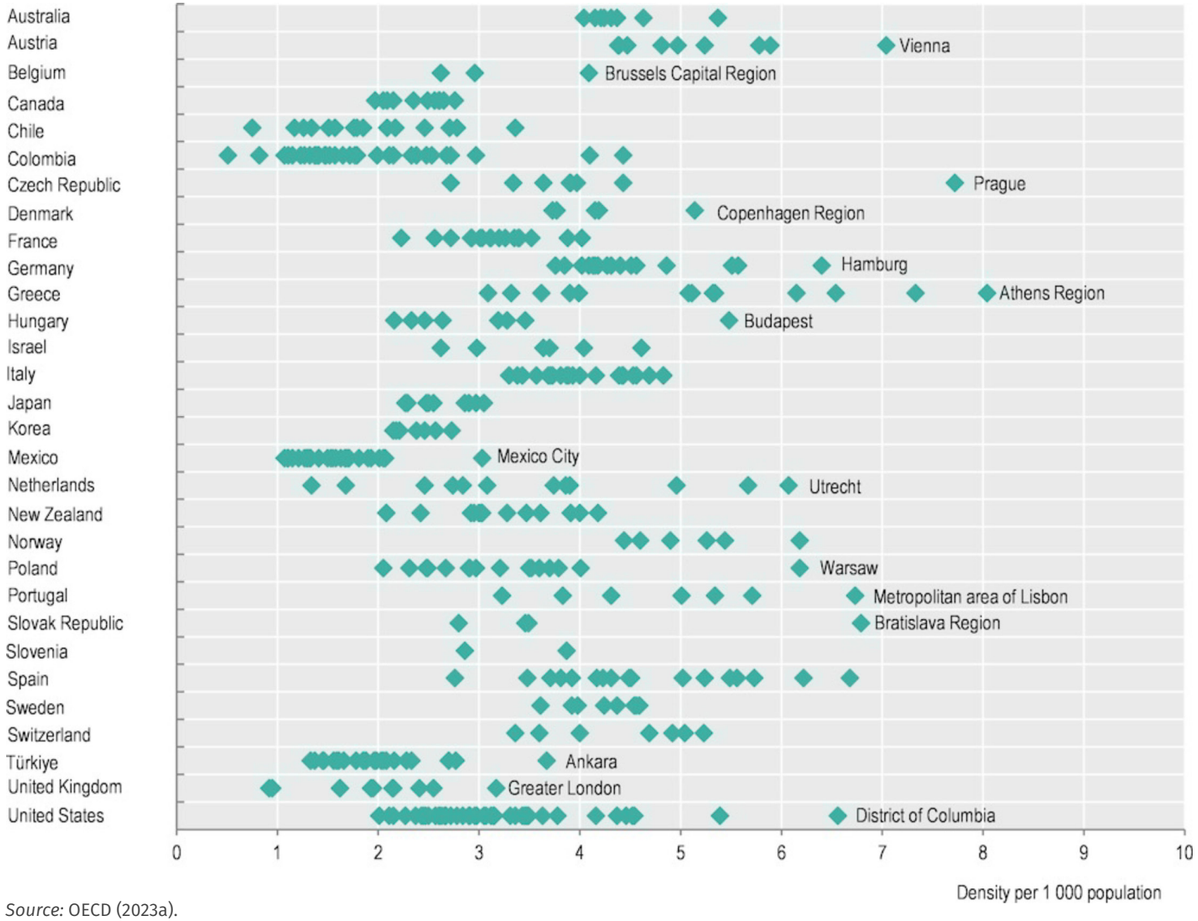
The problem is especially acute in developing countries. The geographic imbalances in the health workforce further exacerbate inequities in the health sector, as the services are not available where needs are higher and the impact greater, sometimes resulting in worse health outcomes. For example, in China, higher pediatrician density was associated with lower under-5 mortality rates (Zhang et al. 2021). Similarly, an analysis of nursing personnel in 58 countries found that the Gini coefficient of inequality was correlated with maternal mortality as well as life expectancy (Boniol, McCarthy, et al. 2022).

In this context, examining the distribution of the density of health workers across different parts of a country, particularly rural and remote areas in comparison to urban areas, provides useful information about equity. Overall, authors should conduct their analyses of these indicators across geopolitical entities in a country. Additionally, numbers of health workers employed

at different levels of providers should also be considered. Data on this should be easily available for government health facilities. This information can be compared against any staffing norms and guidelines for these facilities. PER authors should note that overstaffing can also be an issue. For example, a study of efficiency in general/acute-care public hospitals in the Portuguese National Health Service found that in general, almost half were overstaffed (Ferreira, Nunes, and Marques 2018).

There is substantial evidence on the factors that discourage health workers from choosing to work in rural and remote areas. Commonly reported factors, sometimes described as "pull" or "push" factors, include unsuitable preservice training for rural and remote areas practice, lack of opportunities for further training and career development, low salaries, poor work environments, limited availability of equipment and drugs, insufficient family support, and inadequate management and unsupportive supervision (Araujo and Maeda 2013).

FIGURE 7
PHYSICIAN DENSITY ACROSS DIFFERENT AREAS IN SELECTED COUNTRIES, 2021 (OR NEAREST YEAR)



Source: OECD (2023a).

Key indicators	Sources
Ratio of practicing medical doctors, nurses and midwifes and other health workers per 10,000 population across geopolitical entities in a country	• MoH reports • Human resource information system • National Health Workforce accounts • WHO Global Health Workforce Statistics • OECD Health Statistics • World Bank Open Data
Ratio of practicing medical doctors, nurses and midwifes and other health workers by level of provider	• MoH reports • Human resource information system • National Health Workforce accounts • Professional councils and associations

Note: MoH = Ministry of Health; OECD = Organisation for Economic Co-operation and Development; WHO = World Health Organization.

Low financial capacity to employ health workers in rural areas will also contribute to an inequitable distribution. Availability of private financing for health care through out-of-pocket payments or health insurance will be lower in remote and rural areas in low- and middle-income countries. When coupled with limited autonomy and financial means for rural facilities to hire and retain health workers, the distribution of health workers will be even more skewed toward richer densely populated urban areas. In this context, it will be important to identify workable solutions to address labor market demand issues such as increasing autonomy and finances available to rural health facilities (Herbst, Liu, and Akala 2022).

It should also be noted that there can also be interplay between inequity and inefficiency. While a more balanced distribution of health workers is desirable and, in many cases, necessary, PER authors should consider the efficiency issues related to maintaining the same health–worker-to-population ratio in a sparsely populated region as in an urban region more closely. In some cases, the low availability of health workers in rural areas can be circularly linked to the population's low use of health services and health care facilities' inability to maintain minimum caseloads to function efficiently, as people avoid local facilities and travel to more densely populated urban areas for care. For example, district hospitals in India have a relatively low bed occupancy rate, 57 percent, and only 86 percent and 60 percent of those hospitals meet national staffing norms for physicians and nurses, respectively (Sarwal, Kalal, and Iyer 2021). In this context, for certain types of health services, it may be more appropriate to introduce alternate models of service delivery. These can involve a different skill mix and organization of staff, for example greater use of telemedicine, outreach services, and community health workers, to make more efficient the use of the limited health workforce.

OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
Health Financing
Inputs
M-7: Human Resources for Health
M-8: Infrastructure & Equipment
M-9: Medicines & Medical Supplies
Service Delivery
Outcomes
List of Acronyms
4 SECTION 4 Additional Guidance

GOVERNANCE AND PROCESSES

Good HRH policy and management are essential for having adequately trained health professionals in the right numbers; effectively distributed across facilities, levels of health care provision, and regions; and sufficiently motivated to deliver quality services. While this area had been historically overlooked, in recent years, policymakers have recognized the importance of effective HRH policy and management, for example, through SDG health targets related to HRH.

Unfortunately, there is no one-size-fits-all human resources strategy that can guarantee success. Premature adoption of a specified set of HR policies is unlikely to realize positive organizational results. The same bundle of HR policies is not universally applicable to all health systems, as each system has unique needs and challenges. Further, HRH issues are often complex and interlinked with other aspects of a health system. Thus, as discussed in the introduction, it may be difficult for PER authors to gain an in-depth understanding of the challenges and solutions in this area through just the simple analysis proposed as part of a health sector PER. Interested authors can consider other instruments for conducting more in-depth analysis, such as health labor market analyses. This section aims, however, to point PER authors toward a few areas related to HRH policy and explains which can be considered.

Governance and Overall Policy

KEY QUESTION

• **Is there a comprehensive national HRH strategy?**

PER authors can begin to examine the governance of HRH by seeing whether there are recent policy and planning documents that outline the national HRH strategy/approach in a comprehensive and coordinated manner. Ideally, this HRH strategy should be detailed, costed, and have indicators for monitoring commitment toward its implementation, including through government financing. The alignment of the HRH strategy with national health policy/strategy should also be studied. In countries where the government is an important employer, alignment of the HRH strategy with civil service or public service planning will also be important. Authors can assess the quality of the documents and progress toward their implementation in this manner.

In addition to the presence of a HRH strategy/plan and policy, centralized data and evidence for HRH decision making are important. MoH human resources departments often lack the time, capacity, and tools for making strategic decisions and are occupied with human resources management issues such as ensuring timely payroll. Thus, some countries have created a department focused on strategic HRH issues, for example, human resources for health observatories. The presence of such an institution would be a good sign for HRH governance in a country. Previous health labor market analyses that had ownership from the MoH and other institutions responsible for health sector policy would also signal interest in strategic thinking and solving HRH issues.

Overall, an interest and capacity for HRH planning and development of strategy and policy based on good quality information will be a positive indicator of governance in this area. Unfortunately, this is found more rarely than would be expected, even in high-income countries.

Key indicators	Sources
Is there a national HRH policy/strategy? **Is there a unit/department looking at strategic data and evidence to support decision making for HRH?**	• MoH policy documents • KIIs

Note: KII = key informant interview; MoH = Ministry of Health.

OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
Health Financing
Inputs
M-7: Human Resources for Health
M-8: Infrastructure & Equipment
M-9: Medicines & Medical Supplies
Service Delivery
Outcomes
List of Acronyms
4 SECTION 4 Additional Guidance

Human Resource Management Practice

KEY QUESTIONS

- **Is there a sufficient degree of autonomy in human resource decision making?**
- **Are there adequate incentives for health workers?**

A robust human resource management approach integrates into a comprehensive management system what are frequently isolated functions in an organization: recruitment, hiring, retention, talent management, payroll, human resource information systems, supervision, and staff development.

While assessing human resource management is complex without in-depth analysis, common characteristics often identified as successful practices in this area include an emphasis on providing employment security, the use of self-managed PER authors, the decentralization of decision making, on-the-job training and supportive supervision, the selective hiring of new personnel, and some compensation linked to performance.

PER authors could consider closely examining the degree of autonomy for making HR decisions available to providers. This can be a source of inefficiency, for example, when unproductive workers cannot be fired. Policies and practices, however, vary significantly across different countries' health systems. For example, an OECD survey of health system characteristics found that in several OECD countries, hospital managers have autonomy over recruitment and remuneration levels of medical staff. However, in Canada and Türkiye, national or local governments make decisions regarding medical staff recruitment. Table 2 provides an overview of hospital recruitment and remuneration in selected OECD countries. Authors can consider similar areas of autonomy when exploring human resource decision making in their countries, also keeping in mind the capacity needed to make HR decisions.

TABLE 2
HOSPITAL STAFF RECRUITMENT AND REMUNERATION, SELECTED OECD COUNTRIES

Country	Recruitment of medical staff	Remuneration level of medical staff	Recruitment of other health professionals	Remuneration level of other health professionals
Australia*	Hospital managers have complete autonomy	Hospital managers have autonomy within state-level negotiated pay scales	Hospital managers have complete autonomy	Hospital managers have autonomy within state-level negotiated pay scales
Brazil*	Decentralized with State and Municipal Governments having autonomy		Decentralized with State and Municipal Governments having autonomy	
Canada	Hospitals must negotiate with local authorities	A pay scale is set or negotiated at the national level	Central or subnational government decides	A pay scale is set or negotiated at the national level
Türkiye	Central or subnational government decides	A pay scale is set or negotiated at the national level	Central or subnational government decides	A pay scale is set or negotiated at the national level
United Kingdom	Hospital managers have complete autonomy	A pay scale is set or negotiated at the national level	Hospital managers have complete autonomy	A pay scale is set or negotiated at the national level

Source: Paris, Devaux, and Wei (2010).

PER authors should also explore staff incentives—important levers that organizations can use to attract, retain, motivate, satisfy, and improve the performance of health workers. Incentives can be applied to individuals, groups of workers, PER authors, or organizations; they can also vary according to the type of employer. Incentives can be positive or negative, financial or nonfinancial, tangible or intangible (Global Health Workforce Alliance 2013). For example, hardship financial allowances in addition to salaries may be offered to health workers who work in remote areas. Indeed, in some countries these types of additional payments to health workers can be a large component of budgets. Authors can conduct quantitative and qualitative analysis to better understand health worker incentives and assess how satisfied health workers are with them. While such work is intensive in the context of a PER, health labor market analyses or existing research or reports on these factors can provide useful information.

Other HR management practices such as cumbersome recruitment or de-linkage of payroll and HR databases can result in significant inefficiency. For example, certain measures like long average times for recruitment could be indicative of problems. While the reasons for this could be varied, improving recruitment practices could be a quick win, as discussed earlier. However, overall, efficiency and equity implications related to HR management practices will be context dependent. Often the most wasteful practices are only discovered in audits or other detailed investigations—for example, payments to "ghost workers" have been documented in some countries (Kohler 2020).[5]

Generally, because there are no standard indicators for HR management, PER authors should rely on other sources to identify areas of focus. For example, any prior health labor market analyses may have identified concern. Additionally, the national HRH strategy/policy or the work of strategic units for HRH in the country may also point to the priorities for human resource management that might impact efficiency and equity.

5 "Ghost workers" are examples of payroll fraud where nonexistent or terminated employees continue to be paid.

References

Araujo, Edson, and Akiko Maeda. 2013. "How to Recruit and Retain Health Workers in Rural and Remote Areas in Developing Countries." https://documents1.worldbank.org/curated/en/273821468154769065/pdf/785060WP0HRHDC00Box377346B00PUBLIC0.pdf.

Asamani, James Avoka, Ninon P. Amertil, Hamza Ismaila, Francis Abande Akugri, and Juliet Nabyonga-Orem. 2020. "The Imperative of Evidence-Based Health Workforce Planning and Implementation: Lessons from Nurses and Midwives Unemployment Crisis in Ghana." *Human Resources for Health* 18 (1): 16. https://doi.org/10.1186/s12960-020-0462-5.

Asamani, James Avoka, Christmal Dela Christmals, and Gerda Marie Reitsma. 2021. "The Needs-Based Health Workforce Planning Method: A Systematic Scoping Review of Analytical Applications." *Health Policy and Planning* 36 (8): 1325–43. https://doi.org/10.1093/heapol/czab022.

Boniol, Mathieu, Teena Kunjumen, Tapas Sadasivan Nair, Amani Siyam, James Campbell, and Khassoum Diallo. 2022. "The Global Health Workforce Stock and Distribution in 2020 and 2030: A Threat to Equity and 'Universal' Health Coverage?" *BMJ Global Health* 7 (6): e009316. https://doi.org/10.1136/bmjgh-2022-009316.

Boniol, Mathieu, Carey McCarthy, Deen Lawani, Gilles Guillot, Michelle McIsaac, and Khassoum Diallo. 2022. "Inequal Distribution of Nursing Personnel: A Subnational Analysis of the Distribution of Nurses across 58 Countries." *Human Resources for Health* 20 (1): 22. https://doi.org/10.1186/s12960-022-00720-5.

Chaudhury, Nazmul, Jeffrey Hammer, Michael Kremer, Karthik Muralidharan, and F. Halsey Rogers. 2006. "Missing in Action: Teacher and Health Worker Absence in Developing Countries." *Journal of Economic Perspectives* 20 (1): 91–116. https://doi.org/10.1257/089533006776526058.

Folland, Sherman, Allen C. Goodman, and Miron Stano. 2012. *The Economics of Health and Health Care*. 7th edition. Bosten München: Routledge.

Global Health Workforce Alliance. 2013. "A Universal Truth: No Health without a Workforce." *World Health Organisation (WHO) Report* 2013:1–104.

Haakenstad, Annie, et al. 2019. "Measuring the Availability of Human Resources for Health and Its Relationship to Universal Health Coverage for 204 Countries and Territories from 1990 to 2019: A Systematic Analysis for the Global Burden of Disease Study 2019." 2022. *The Lancet* 399 (10341): 2129–54. https://doi.org/10.1016/S0140-6736(22)00532-3.

Herbst, Christopher H., Jenny X. Liu, and Francisca Ayodeji Akala. 2022. "Health Workforce in Low and Middle Income Countries: Concepts and Dynamics Unpacked." In *Making Health Systems Work in Low and Middle Income Countries: Textbook for Public Health Practitioners*, edited by Awad Mataria, Katherine D. Rouleau, Meesha Iqbal, and Sameen Siddiqi, 83–101. Cambridge: Cambridge University Press. https://doi.org/10.1017/9781009211086.007.

Hollingsworth, Bruce. 2008. "The Measurement of Efficiency and Productivity of Health Care Delivery." *Health Economics* 17 (10): 1107–28. https://doi.org/10.1002/hec.1391.

Jimba, Masamine, Giorgio Cometto, Tami Yamamoto, Laura Shiao, Luis Huicho, and Mubashar Sheik. 2010. "Health Workforce: The Critical Pathway to Universal Health Coverage." Background Paper for the Global Symposium on Health Systems Research. https://healthsystemsresearch.org/hsr2010/images/stories/10health_workforce.pdf.

Kohler, Jillian Clare. 2020. "Findings From a Rapid Review of Literature on Ghost Workers in the Health Sector: Towards Improving Detection and Prevention." https://tspace.library.utoronto.ca/handle/1807/107933.

Leonard, Kenneth, and Ottar Mæstad. 2016. "Measuring the Performance of Health Workers." In *Health Labor Market Analyses in Low- and Middle-Income Countries: An Evidence-Based Approach*, 163–95. Directions in Development—Human Development. World Bank, Washington, DC. https://doi.org/10.1596/978-1-4648-0931-6_ch7.

McPake, Barbara, Anthony Scott, and Ijeoma Edoka. 2014. *Analyzing Markets for Health Workers: Insights from Labor and Health Economics*. Directions in Development—Human Development. World Bank, Washington, DC. https://doi.org/10.1596/978-1-4648-0224-9.

Reinhardt, U. 1972. "A Production Function for Physician Services." *The Review of Economics and Statistics* 54 (1): 55–66. https://doi.org/10.2307/1927495.

Sarwal, R., S. Kalal, and V. Iyer. 2021. "Best Practices in the Performance of District Hospitals." *New Delhi: NITI Aayog*.

Scheffler, Richard M., Christopher H. Herbst, Christophe Lemiere, and Jim Campbell. 2016. *Health Labor Market Analyses in Low- and Middle-Income Countries: An Evidence-Based Approach*. Washington, DC: World Bank Publications.

Soucat, Agnes, Richard Scheffler, and Tedros Adhanom Ghebreyesus. 2013. *The Labor Market for Health Workers in Africa*. Directions in Development—Human Development. Washington, DC: World Bank. https://doi.org/10.1596/978-0-8213-9555-4.

Winkelmann, Juliane, Giada Scarpetti, Gemma A. Williams, and Claudia B. Maier. 2022. "How Can Skill-Mix Innovations Support the Implementation of Integrated Care for People with Chronic Conditions and Multimorbidity?" European Observatory on Health Systems and Policies. https://www.ncbi.nlm.nih.gov/books/NBK589251/.

World Health Organization. 2021. "Health Labour Market Analysis Guidebook." https://apps.who.int/iris/bitstream/handle/10665/348069/9789240035546-eng.pdf.

Zhang, Xi, Jian Wang, Li-Su Huang, Xin Zhou, Julian Little, Therese Hesketh, Yong-Jun Zhang, and Kun Sun. 2021. "Associations between Measures of Pediatric Human Resources and the Under-Five Mortality Rate: A Nationwide Study in China in 2014." *World Journal of Pediatrics* 17 (3): 317–25. https://doi.org/10.1007/s12519-021-00433-0.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
M-7: Human Resources for Health
M-8: Infrastructure & Equipment
M-9: Medicines & Medical Supplies
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

TABLE OF CONTENTS

MODULE 8

Physical Infrastructure and Equipment

AUTHORS

Dominic Haazen, with contributions from Andreas Seiter, Denise Silfverberg, and Catalina Gutiérrez

START



OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
M-7: Human Resources for Health
M-8: Infrastructure & Equipment
M-9: Medicines & Medical Supplies
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

INTRODUCTION

Physical infrastructure that functions effectively and efficiently and is optimally and equitably distributed is critical to providing high-quality health care and improving health outcomes. However, from a Public Expenditure Review (PER) perspective, ongoing spending for physical infrastructure (capital expenditures and operating expenditures for maintenance) typically is not one of the larger categories in the health sector.

Physical infrastructure includes health facility buildings, related medical and nonmedical vehicles, and nonmedical equipment. Nonmedical equipment includes such items as heating, ventilation, and air conditioning; water and sanitation; and information and communications equipment, including digital technology. Medical vehicles include ambulances and other specialized vehicles, such as blood transfusion vans, while nonmedical vehicles include general transport automobiles and trucks.

Capital health expenditure will typically capture both infrastructure and equipment. This module covers mainly physical infrastructure, given that data on equipment are harder to come by. Annex 1 to this module provides guidance on analyzing equipment expenditure. Whenever data are available, PER authors should assess the availability, distribution, and productivity of equipment. Facilities that are not adequately equipped or have nonfunctional equipment are unable to provide quality care, and this amounts to wasted resources (see Box 1 for a definition of "medical equipment").

To fully exploit available resources, countries need to optimize infrastructure use and space allocation and ensure that buildings are suitable for their specified purpose. This involves optimizing the geographic distribution of infrastructure according to the level of care needed in different areas and establishing an efficient referral system among facilities and services.

Having too few or undersourced primary care facilities can result in patients not receiving care or seeking care at a higher-level facility than needed. Hospital and emergency room overuse for

conditions that should be treated at a lower level of complexity is documented worldwide. This overuse not only makes care more expensive for patients, but also diverts scarce health professionals to providing care that does not require their advanced services.

Investments in infrastructure that is not properly purposed or sustained are the most evident form of waste.

Hospitals that are inappropriately sized and/or ineffectively positioned can also result in significant inefficiencies. Past literature has shown that considerable gains can be made by guiding the capacity of the hospital sector toward better geographic distribution, more economical scale, and better configuration of services across facilities (see, for example, La Forgia and Couttolenc 2008). Inadequate distribution of infrastructure exacerbates the ineffective allocation of financial resources, as recurrent government funding for services is frequently influenced by the distribution of infrastructure.



The geographic distribution of facilities is also important for equitable accress to care across the population. Often, infrastructure is concentrated in large cities and populated areas, out of reach of the most vulnerable people. PER authors should look at whether the country's infrastructure is sufficient for the size of the population and efficiently distributed according to the level of care in a given area and by population subgroup. Authors should also review whether all facilities are equipped with the basic amenities to provide a minimum level of quality care, whether there is under- or overuse of facilities, and whether optimal processes to plan and monitor infrastructure are in place. Additionally, an important element in the public expenditure analysis is the extent the level of ongoing spending on maintenance, replacement, and enhancement of physical infrastructure can ensure that the level of quality and efficiency of the provided health services can be maintained. Process and governance arrangements for planning, commissioning, maintaining, and using health infrastructure are a key determinant to guide efficient infrastructure spending.

Optimized infrastructure alone is not sufficient to provide efficient and equitable health services, as infrastructure is only one factor in service delivery. The availability of human resources (see the module on Human Resources) determines whether facilities can be adequately staffed. Additionally, PER authors may wish to look at the modules on service delivery (Hospitals Module and Primary Health Care and Essential Public Health Functions), which contain indicators on availability of equipment, supplies, and medicines to understand whether the facilities have the medical equipment necessary to provide the services.

The module is divided into three sections: efficiency, equity, and governance. Each section provides indicators that can be constructed from data most readily available in low- and middle-income countries. For PER authors wishing to dive deeper, Annex 1 provides additional indicators for laboratory and diagnostic facilities, digital health, and expenditure on utilities and equipment. Box 1 defines terms used in the module.

BOX 1. DEFINITIONS OF TERMS

HEALTH FACILITIES
Buildings or other structures where health care is provided. These include health posts, health centers, hospitals of different levels of complexity and size, outpatient care centers, pharmacies, laboratories, and specialized care centers, such as birthing centers and psychiatric care centers. For the purpose of this module, mobile clinics are excluded from the definition, as they are included under vehicles.

LEVEL OF CARE
The degree of complexity of the medical cases doctors and other health care professionals treat and the skills and specialties of the providers. Each country has its own categorization of facilities by level of care. Typically, health centers, health posts, and community outreach programs are considered providers of first-level care; outpatient clinics and small hospitals staffed by physicians trained in the basic specialties (gynecology, family medicine, internal medicine, pediatrics) are classified as secondary-care facilities; and larger hospitals staffed by specialists and subspecialists offering advanced medical services are classified as providers of tertiary-level care.

PRIMARY CARE
The Organisation for Economic Co-operation and Development (OECD) defines primary care as "the first level of contact for the population with the healthcare system, bringing healthcare as close as possible to where people live and work. It addresses the main health problems in the community, providing preventive, curative and rehabilitative services. Primary care goes beyond services provided by primary care physicians to encompass other health professionals such as nurses, pharmacists, auxiliaries, and community health workers."[1] Primary health care is a broader concept that encompasses a model of care, public health, and population health.

PRIMARY CARE FACILITIES
Facilities where primary care is provided.

NONMEDICAL EQUIPMENT
Such items as heating, ventilation, and air conditioning; water and sanitation; and information and communications equipment, including digital technology.

MEDICAL EQUIPMENT
Medical devices requiring calibration, maintenance, repair, user training, and decommissioning. They are used for the specific purposes of diagnosis and treatment of disease or rehabilitation following disease or injury and can be used either alone or in combination with any accessory, consumable, or other piece of medical equipment. Medical equipment excludes implantable, disposable, or single-use medical devices.[2]

1 https://www.oecd.org/health/primary-care.htm.
2 https://www.who.int/PER authors/health-product-policy-and-standards/assistive-and-medical-technology/medical-devices (accessed March 2022).

EFFICIENCY

Aggregate Spending

KEY QUESTIONS

- **What is the level of spending on infrastructure for health in the country?**
- **What is the overall supply of infrastructure in the country?**
  - *Is it sufficient?*
  - *Is there an over- or undersupply of infrastructure?*
  - *How has the overall supply of infrastructure evolved?*

PER authors should analyze the level of spending for infrastructure relative to the existing capital base (current investment in infrastructure) as well as relevant plans for upgrading and/or expansion. Countries with a large out-of-date capital base may require capital spending in order to repurpose existing facilities for providing modern health care services. The costs of such renovations are often greater than new "greenfield" construction, especially if potentially hazardous materials were used in the initial construction. However, many countries do not have a large capital base, and thus capital spending may be needed to bring the existing infrastructure up to national and/or international standards or norms.

Beyond the initial capital construction costs, ongoing funding is needed to ensure a continued high level of functionality. This is often an issue in countries with national health insurance systems where capital construction and/or equipment costs are provided by one entity, such as the Ministry of Health (MoH), while the costs of service provision are financed by a health insurance fund.

In this case, PER authors should drill down to determine whether the amounts paid for service provision include appropriate allowances for the use of capital in service provision. This could be an allocation for the use of capital assets over their useful life (depreciation) or the amounts needed to ensure that assets are kept in prime working condition (for example, through maintenance and minor repairs) to provide high-quality care. Regular maintenance, including preventive maintenance, is especially important for biomedical equipment, where the clinical efficacy of the equipment depends on the equipment working properly within the defined technical parameters. While depreciation is often considered strictly an accounting exercise, the funding of depreciation allows health care providers to accumulate funds for the eventual replacement of the capital stock once it has reached the end of its useful life. In the absence of a robust capital expenditure or replacement program in the MoH (or whichever entity funds the initial capital costs), this would be the only way to ensure that the capital stock provides high-quality care.

It is important for PER authors to examine the trend over time, as spending on infrastructure and equipment may be a one-time investment and may appear high in one year and low in another. If data are available, comparing public versus private expenditure on equipment over time may also provide additional insights into any changes in trends.

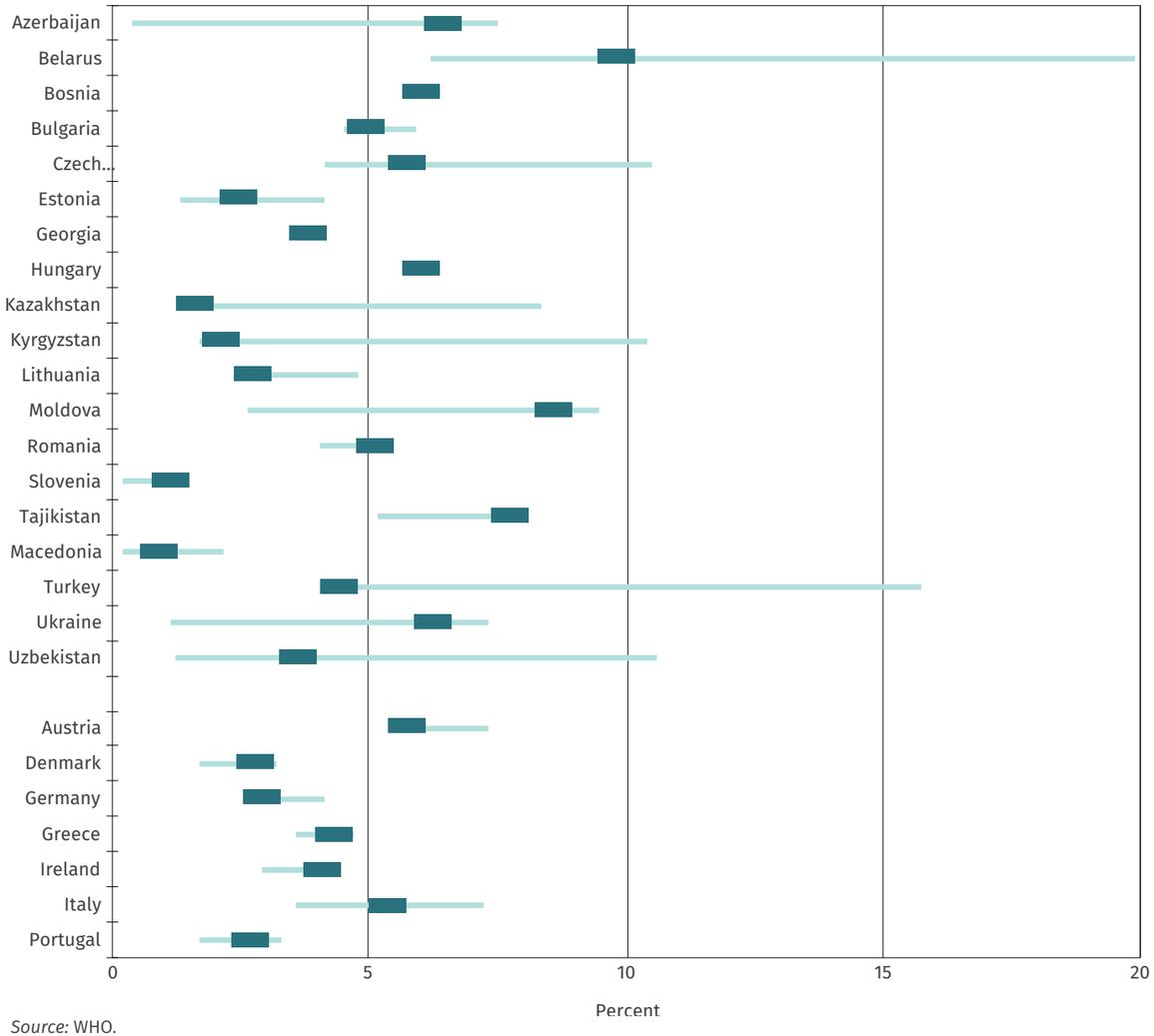
Key Indicators for Assessing Spending Levels	Sources
Level and trends of capital health expenditure as a percentage of total health expenditure (or GDP)	MoF, MoH, World Bank HNP HealthStats, WHO SEARO, WHO AFRO
Operating expenditure on maintenance of the capital stock (preventive maintenance, minor upgrading) as a percentage of total health expenditure, broken down by medical and nonmedical equipment if possible	MoF, MoH, health insurance funds

Note: GDP = gross domestic product; HNP = Health, Nutrition, and Population; MoF = Ministry of Finance; MoH = Ministry of Health; WHO = World Health Organization; regional offices: AFRO = Africa, SEARO = South-East Asia.

The available data can be benchmarked across similar countries and geopolitical entities (urban/rural; subnational entities). Capital health expenditure will typically capture both infrastructure and equipment. If disaggregation is not readily available, it can be analyzed together with equipment. When possible, PER authors should also distinguish between expenditure on new construction and on rehabilitation or the upgrade of existing facilities. This analysis can be linked to assessing efficiency, reviewing certification of the need for infrastructure.

Figure 1 shows a comparison of capital costs as a percent of total health expenditures among Europe and Central Asia (ECA) and EU countries, including the minimum, maximum, and latest values over the period 1990–2006 (Kutzin et al. 2010). These data show that despite the considerable variation, capital costs averaged around 5 percent across all of the countries included in the sample. While the variation in ECA countries was much greater, the average over time between those countries and those in the EU was the same (5.1 percent).

FIGURE 1
CAPITAL COSTS AS A PERCENT OF TOTAL HEALTH EXPENDITURES, SELECTED ECA AND EU COUNTRIES, 1990–2006



Source: WHO.
Note: ECA = Europe and Central Asia region.

Capital health expenditures should guarantee the adequate availability of infrastructure. Availability is the first step toward ensuring that the population has access to the necessary health infrastructure to achieve positive health outcomes. Without adequate physical access, patients need to travel farther to obtain health services, leading to increased patient costs and potentially poorer health outcomes, due to delays in receiving care. Conversely, an oversupply of infrastructure can lead to inefficiencies in the use of scarce health resources, including monetary and human resources.

Facility geographic density is a standard indicator for judging sufficiency. In addition to the aggregate availability of facilities, whenever possible, PER authors should understand the distribution of facilities across subnational governments. The distribution in urban and rural areas is addressed in the section on equity.

While computers, internet access, and communications are basic requirements, the delivery of modern medical care requires at least a minimal level of digital health infrastructure, including hardware and software. There are various approaches to assessing and improving digital health infrastructure. The Global Digital Health Monitor (GDHM) features a series of key indicators, spread across seven categories, to track progress and allows countries to benchmark against each other. For each indicator, the GDHM includes different development phases, and countries select the phase that best describes the status of their digital health infrastructure.[3]

Key Indicators on Availability	Sources
Health facility density per 10,000 population	• Can be estimated through SARA, SDI, SPA surveys • MoH for infrastructure maps, inventory of facilities, including geospatial mapping
Hospital beds (per 10,000 population)	• WHO regional observatories • WDI • MOH annual reports
Percentage of population living five kilometers or 30 minutes or one hour from a facility (PHC or specialized)	• DHS • Household surveys • In-country studies on access to care
Overall phase of digital health	• DGHM

Note: DGHM = Digital Global Health Monitor; DHS = Demographic and Health Surveys; PHC = primary health care; SARA = Service Availability and Readiness Assessment; SDI = Service Delivery Indicators; SPA = Service Provision Assessment; WDI = World Development Indicators; WHO = World Health Organization.

3 The Global Digital Health Monitor replaces the previous Global Digital Health Index.

Ideally, PER authors should also analyze trends and benchmark the indicators shown in the table across similar countries, and depending on the extent they are included in the regional WHO databases, this should be feasible in most cases. However, if these data are not readily available, PER authors could benchmark according to international benchmarks. The WHO SARA Reference Manual (2015) proposes the following standards: 25 beds per 10,000 and two facilities per 10,000 population. Depending on the country context, PER authors may wish to analyze the availability of maternity beds. SARA guidance proposes a benchmark of 10 beds per 1,000 pregnant women (see Annex 2 for guidance on how to estimate the number of pregnant women). This indicator does not take into account the size of the facilities—a major limitation of using the number of facilities to assess infrastructure availability and to benchmark results against similar countries or WHO SARA benchmarks. Authors should also consider country targets, if the country has established targets, to supplement the analysis.

As inclusions in total hospital beds may vary by country, it is important to clarify the definitions for the indicators presented, including when benchmarking across similar countries. The Organisation for Economic Co-operation and Development (OECD) definition of total hospital beds includes curative (or acute) care beds, rehabilitative care beds, long-term care beds, and other beds in hospitals. Depending on the country in question, PER authors may need to differentiate between available capacity and the proportion of that capacity that is actually in operation.

Combining bed and facility density with output measures, such as bed occupancy rates (see the following), should also help identify over- or undersupply of physical infrastructure. Lower-than-average density with high occupancy rates may signal undersupply, while higher-than-average density with low occupancy rates might be a sign of oversupply. A similar analysis can be performed for different geographic or subnational units. Significant differences in occupancy and density can signal an inefficient distribution of facilities or a problem with access and quality.

If data are available, PER authors can analyze the density of facilities other than primary care (PC) facilities and hospitals. These could include pharmacies, laboratories, and specialized care facilities, such as psychiatric hospitals (see Annex 1 🔗).

Infrastructure Mix

KEY QUESTION • **What is the facility distribution across different levels of care? Is it the right mix?**

Information on the availability and distribution of health facilities at various levels of care is vital for assessing efficiency. Accessible, adequately equipped and staffed primary care (PC) facilities should be able to treat most of a population's health care needs and prevent patients from unnecessarily seeking care in facilities offering more advanced care.

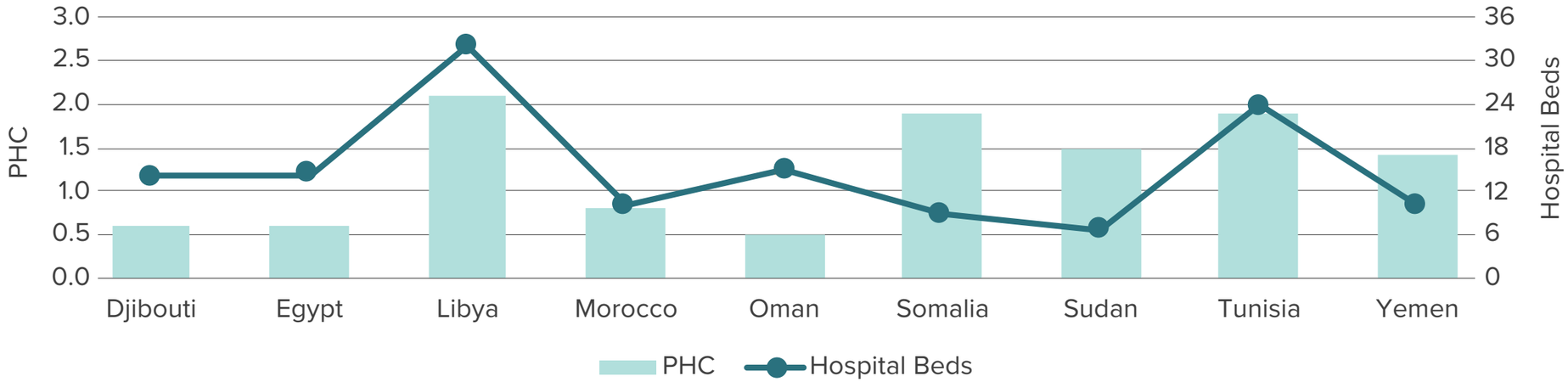
There is no global normative guidance on the optimal primary care facility density and distribution. Optimal allocation depends on demand, population density, health system organization—including availability of outreach services—and geography. However, looking at the percentage of the population that lives five kilometers or 30 minutes from a facility can show the adequacy and distribution of facilities as a first point of contact for people with health care needs. The availability of acute care beds, in contrast, indicates the capacity of a country to respond to more complex conditions; a standard of five beds per 10,000 people for acute care has been suggested (OECD).

Key indicators of Facility Mix	Sources
Number of PHC facilities per 100,000 population (disaggregated by level, such as community versus health center/dispensary)	MoH infrastructure maps, inventory of facilities, including geospatial mapping • WHO regional observatories (WHO EURO, WHO EMRO)
Total density per 100,000 population: Hospitals (may be further disaggregated by size in terms of number of beds)	• MoH infrastructure maps, inventory of facilities, including geospatial mapping • WHO regional observatories (WHO EURO, WHO AMRO/PAHO)
Number of total acute care hospital beds per 10,000 population	

Note: MoH = Ministry of Health; PHC = primary health care; WHO = World Health Organization; regional offices: AMRO/PAHO = Americas/Pan American Health Organization, EMRO = Eastern Mediterranean Health Observatory, EURO = Europe, SEARO = South-East Asia.

FIGURE 2

DENSITY OF HEALTH INFRASTRUCTURE PER 10,000 POPULATION, SELECTED COUNTRIES, 2020 OR LATEST YEAR



Source: World Bank staff calculations based on WHO EMRO Health Observatory Data Depository.
Note: PHC = primary health care.

MoH infrastructure maps and/or inventory of facilities, including geospatial mapping if available, should provide information on the number of facilities by type, and some regional WHO observatories also collect data on facilities by type. However, in many low- and lower-middle-income countries, facility maps and infrastructure inventories are not up to date. It is important for PER authors to frame such limitations upfront to show the extent these key data are available (or not) in their particular country and to indicate whether or how a lack of data has been addressed. There may be different types of PC facilities (for example, clinics, health centers) in the country. If so, PER authors should explain the differences between the facilities and disaggregate the indicator by facility type.[4] Figure 2 charts data on hospitals and PC facilities for selected WHO EMRO countries.[5] Authors should also consider the trends for such indicators.

4 See Weiss and Nelson et al. (2020) for an application of geospatial open-source tools to calculate global maps of travel time to health care facilities and for estimates of the percent of population living 10, 30, or more than 60 minutes from a health care facility, for 200 countries in 2019.

5 WHO EMRO Health Observatory Data Depository (https://rho.emro.who.int/by-name), accessed May 31, 2022.

Productivity

KEY QUESTIONS

- Are facilities equipped with basic amenities?
- Are health facilities appropriately sized?

While having physical infrastructure in place is important, it is equally or perhaps even more important to ensure that health facilities are equipped with basic amenities to provide an appropriate minimum level of quality care.

Investments in facilities that are not adequately maintained or equipped and are unable to provide care amount to a waste of resources. Amenities include utilities, such as power, water, and internet, as well as well-designed patient care areas and adequate sanitation and medical waste disposal facilities. Poor access to electricity, for example, is a significant barrier to providing high-quality health care. Without a stable electricity supply, the ability to use many diagnostic, therapeutic, and monitoring tools is extremely limited (Adhair-Rohani et al. 2013).

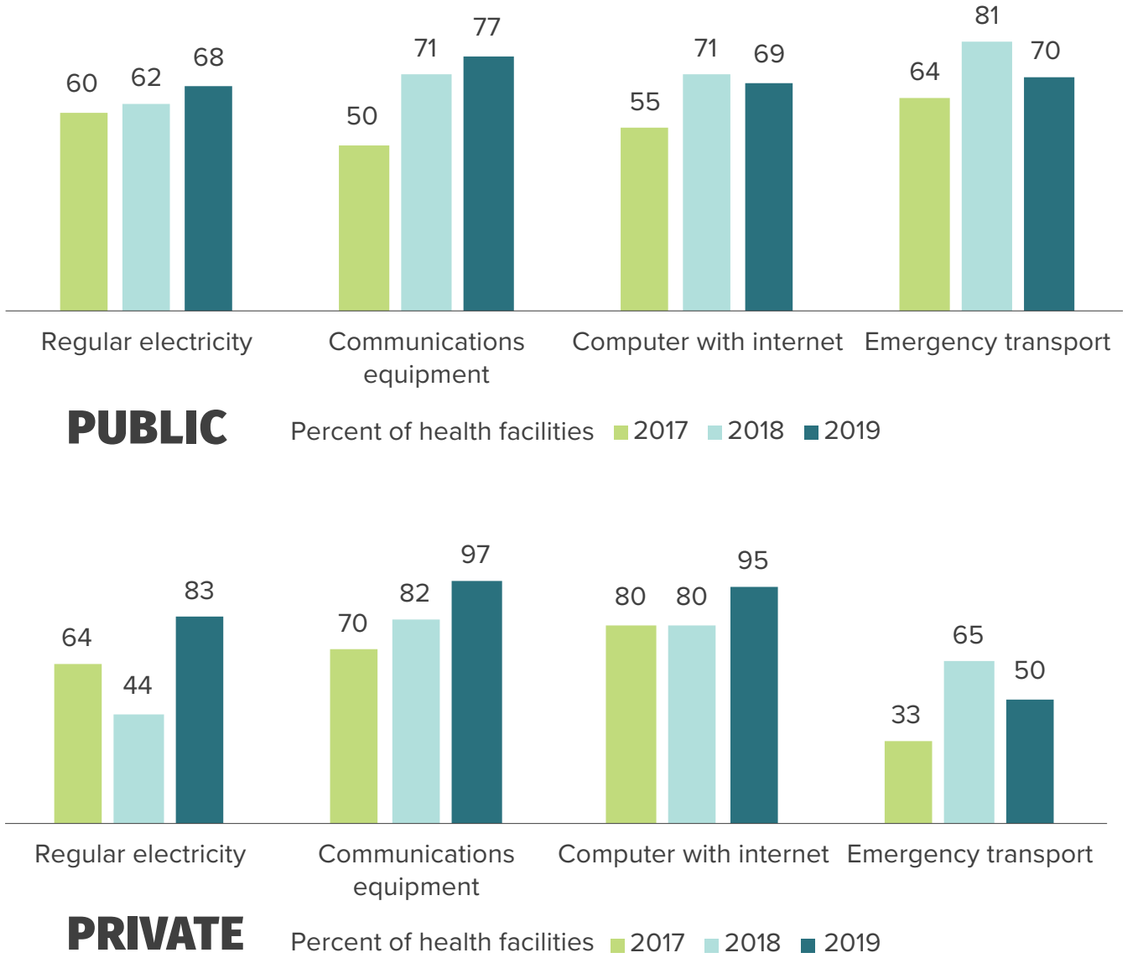
Productivity Key Indicators	Sources
% of facilities with power (I1)	Can be estimated using data from SARA
% of facilities with improved water source inside or within the ground of the facility (I2)	Can be estimated using SARA
% of facilities with room with auditory and visual privacy for patient consultations (I3)	Can be estimated using data from SARA
% of facilities with access to adequate sanitation facilities for clients (I4)	Can be estimated using data from SARA
% of facilities with communication equipment (I5)	Can be estimated using data from SARA
% of facilities with access to a computer with email and internet access (I6)	Can be estimated through SARA
% of facilities with emergency transportation (I7)	Can be estimated through SARA
Bed occupancy rate	WHO EURO, MoH

Note: MoH = Ministry of Health; SARA = Service Availability and Readiness Assessment; the indicator ID is included in parentheses; WHO EURO = World Health Organization Regional Office for Europe.

PER authors can use indicators from the Service Provision Assessment (SPA) or Service Delivery Indicators (SDI) surveys in the absence of the Service Availability and Readiness Assessment (SARA) indicators. The MoH might have its own indicators to track availability of basic equipment, including through national accreditation systems. Again, authors can benchmark across geopolitical entities (urban/rural; subnational entities) or between private and public facilities.

Figure 3 compares selected Senegalese public facilities' infrastructure indicators with those of private facilities in Senegal over time (ANSD and ICF 2020).

FIGURE 3
AVAILABILITY OF BASIC INFRASTRUCTURE IN PUBLIC VERSUS PRIVATE FACILITIES, SENEGAL, 2017–19



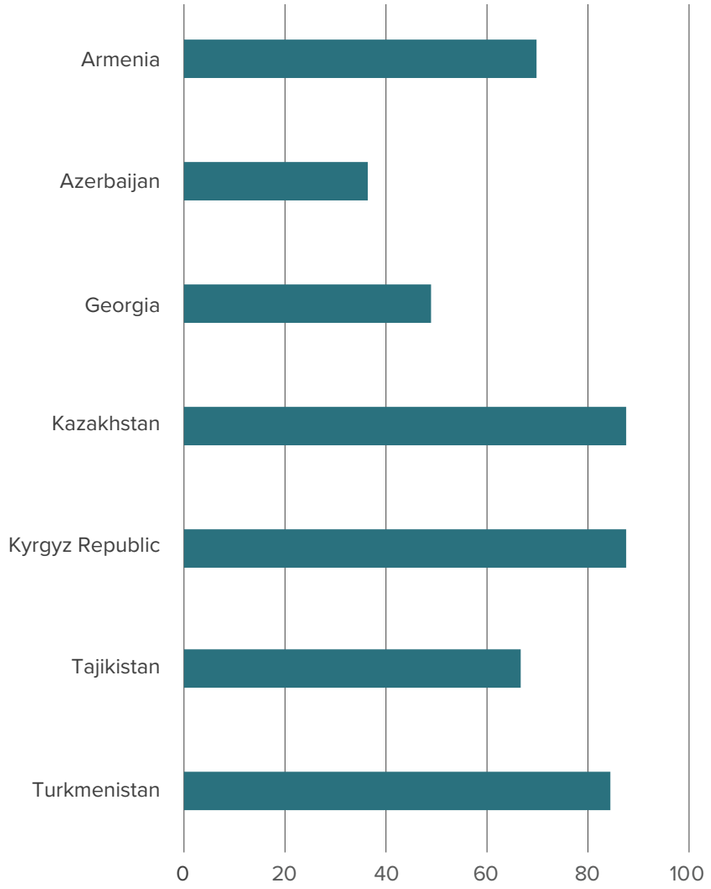
Source: 2015 Senegal Service Provision Assessment.

It is critical that health facilities be an appropriate size to ensure the efficient use of available public spending. Directing public funding to staff and maintain infrastructure that is not being used effectively leads to waste by diverting the limited funding from service delivery improvements that could lead to better health outcomes. Because of the high fixed costs inherent in operating hospitals, it is important that the number of beds per hospital be kept at an efficient level.

The analysis of the Bed Occupancy Rate (BOR) can be conducted jointly with the analysis of undersupply. Where data are available, PER authors can compare across countries; in most cases, data are available from the MoH for subnational comparisons. Facility size is assessed using the BOR. While there is no consensus on the optimal BOR, a study by the National Institute for Health and Care Excellence (NICE) suggests that a rate of 85 percent minimizes the chances of a patient who requires immediate admission not having a bed available (NICE 2018). In smaller cities and rural areas, lower bed occupancy targets may be set, recognizing that a minimum number of beds may be required per service (for example, medical, surgical, pediatrics, maternity) in order to administer a viable program in each area. Figure 4 presents BOR data for selected Commonwealth of Independent States countries in 2020.[6] Authors should assess the BOR in the context of average length of stay, given the other factors contributing to occupancy rates.

6 Bed occupancy rate (percent), acute care hospitals only. WHO European Health Information Gateway (who.int), accessed May 29, 2022.

FIGURE 4
BED OCCUPANCY RATE FOR ACUTE CARE HOSPITALS FOR SELECTED COUNTRIES, 2020



Source: World Bank staff calculations based on WHO European Health Information Gateway.
Note: When 2020 data were not available, data for the latest year available were used.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
M-7: Human Resources for Health
M-8: Infrastructure & Equipment
M-9: Medicines & Medical Supplies
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

EQUITY

KEY QUESTION • **What is the distribution of facilities across populations?**

While comparisons across countries are important for benchmarking, comparisons across administrative divisions within countries (districts or regions) are also relevant to public spending and health outcomes. Because the majority of health care delivery is facility based (either primary health care facilities or hospitals), public spending generally flows to the locations where facilities exist.

Such comparisons may indicate equity issues, common in many countries. For example, hospital beds may be concentrated in major cities, leading to problems of access in rural areas, especially for specialist services. When possible, PER authors should differentiate facilities by sector (public, private-for-profit, private-not-for-profit). This again may provide some indication of equity issues, because for-profit facilities may also tend to be more heavily concentrated in urban areas.

The distribution of facilities across subpopulations can be performed by differentiating by political subdivision or catchments area, poor versus nonpoor, or by quantile of income, ethnicity, or rural versus urban, depending on the dimensions where inequality is expressed in the country.



Key Indicators	Sources
Number of health facilities per 10,000 population (or subpopulation per health facility)	• Can be estimated through SARA, SDI, SPA surveys • Infrastructure maps/plans of countries, including geospatial mapping • World Bank HNP HealthStats, WHO AFRO, WHO AMRO/PAHO, WHO EMRO, WHO EURO, WHO SEARO
Hospital beds per 10,000 population (or subpopulation per health facility)	
Distribution of total acute care hospital beds per 1,000 subpopulation	

Note: HNP = Health, Nutrition, and Population; SARA = Service Availability and Readiness Assessment; SDI = Service Delivery Indicators; SPA = Service Provision Assessment; WHO = World Health Organization; regional offices: AFRO = Africa, AMRO/PAHO = Americas/Pan American Health Organization, EMRO = Eastern Mediterranean, EURO = European Region SEARO = South-East Asia.

When highlighting the distribution across geopolitical entities (urban/rural; subnational entities), PER authors could include relevant policy norms or standards, if available. Figure 5 on the following page compares distribution in Ethiopian cities and regions as of 2012/2013.

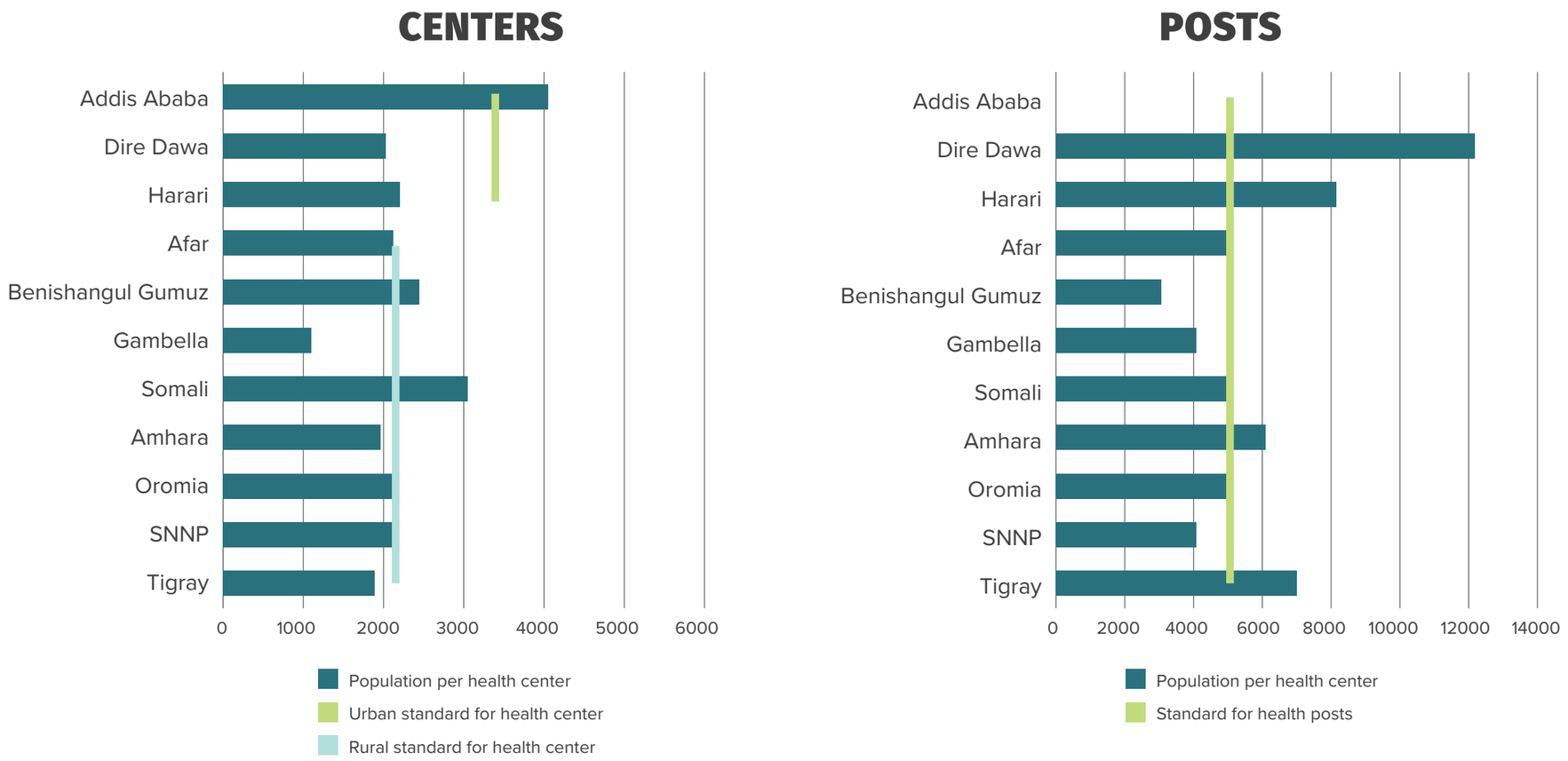
If the relevant subnational data are available, PER authors could use one of the following measures to assess the distribution of physical infrastructure across the population: (1) the concentration index; or (2) the concentration curves.[7] These measures are useful in analyzing the degree of socioeconomic inequality in the health system related to the distribution of such infrastructure.

Providing care in remote or sparsely populated areas to improve equitable distribution might have efficiency tradeoffs. These tradeoffs need to be acknowledged and accounted for.

7 For methods on how to calculate the concentration index and concentration curves, see O'Donnell and van Doorslaer et al. (2008).



FIGURE 5
NUMBER OF HEALTH CENTERS AND HEALTH POSTS AVAILABLE THROUGHOUT ETHIOPIA, 2012/2013



Source: Ethiopia Demographic and Health Survey 2012/2013.
Note: SNNP = Southern Nations, Nationalities, and Peoples' Region.

GOVERNANCE

Processes for the Management of Infrastructure

KEY QUESTION • **Is there an infrastructure plan?**

The "purchasing of inputs" in the context of physical infrastructure is both a capital-intensive and long-term decision. Because a new hospital or other health facility will likely last for 40 or more years, many countries develop an infrastructure master plan or a similar document for long-term decision making.

Key Indicators	Sources
Availability of infrastructure master plan (Y/N)	KIIs

Note: KII = key informant interview.

Considering the existence of such a plan, PER authors should describe whether the national or state health planning agency must approve major capital expenditures for certain health care facilities and whether this type of regulation aims to restrict duplicative services and ensure that new capital expenditures meet population needs. PER authors should also describe any fragmentation in infrastructure spending and what master planning processes are in place. For instance, the construction of new infrastructure, including health facilities, might fall under the management of other spending entities (for example, the planning ministry or the prime minister's office). The World Bank 2016 report *Support to Develop a Health System Strategy for Priority Disease Areas in Latvia* provides an example of the master planning process (used under a Reimbursable Advisory Services arrangement).

OVERVIEW

1 SECTION 1 What Is a Health PER?

2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3 Topic-Specific Analysis

Health System Context

Health Financing

Inputs

M-7: Human Resources for Health

M-8: Infrastructure & Equipment

M-9: Medicines & Medical Supplies

Service Delivery

Outcomes

List of Acronyms

4 SECTION 4 Additional Guidance

References

Adair-Rohani, H., K. Zukor, S. Bonjour, S. Wilburn, A.C. Kuesel, R. Hebert, and E.R. Fletcher. 2013. "Limited Electricity Access in Health Facilities of Sub-Saharan Africa: A Systematic Review of Data on Electricity Access, Sources, and Reliability." *Global Health Science and Practice* 1 (2): 249–61.

African Union. 2020. *The Digital Transformation Strategy for Africa* (2020–2030). Addis Ababa, Ethiopia: African Union.

Agence Nationale de la Statistique et de la Démographie (ANSD) and ICF. 2020. *Sénégal: Enquête Continue sur la Prestation des Services de Soins de Santé* (ECPSS) 2019. Dakar, Sénégal: ANSD; Rockville, MD, USA: ICF. Translated from the original French.

Haazen, D.S., A. Slote, N. Al-Shorbaji, and M. D'Adamo. 2015. "Measurement and Accountability for Results in Health," eHealth Technical Paper, World Bank Health Summit, June.

Habicht T., M. Reinap, K. Kasekamp, R. Sikkut, L. Aaben, and E. van Ginneken. 2018. "Estonia: Health System Review." *Health Systems in Transition* 20 (1): 1–193.

Myles, P.S., and G. Haller. 2010. "Global Distribution of Access to Surgical Services." The Lancet, Vol. 376, No. 9746: 1027–28.

Kutzin, J., C. Cashin, and M. Jakab, eds. 2010. "Implementing Health Financing Reform: Lessons from Countries in Transition," chapter 8, in *Financing Capital Costs and Reducing the Fixed Costs of Health Systems*. World Health Organization Regional Office for Europe. https://apps.who.int/iris/handle/10665/326420.

La Forgia, G.M., and B.F. Couttolenc. 2008. *Hospital Performance in Brazil: The Search for Excellence*. Washington, DC: World Bank. http://hdl.handle.net/10986/6516.

National Institute for Health and Care Excellence (NICE). 2018. "Bed Occupancy: Emergency and Acute Medical Care in Over 16s: Service Delivery and Organisation," chapter 39, page 18, in *NICE Guideline* 94. https://www.nice.org.uk/guidance/ng94/evidence/39.bed-occupancy-pdf-172397464704.

O'Donnell, O., E. van Doorslaer, A. Wagstaff, and M. Lindelow. 2008. *Analyzing Health Equity Using Household Survey Data: A Guide to Techniques and Their Implementation*. Washington, DC: World Bank. http://hdl.handle.net/10986/6896.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
M-7: Human Resources for Health
M-8: Infrastructure & Equipment
M-9: Medicines & Medical Supplies
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

Organisation for Economic Co-operation and Development. 2017. *Tackling Wasteful Spending on Health*. Paris: OECD Publishing.

Weiss, D.J., A. Nelson, C.A. Vargas-Ruiz, et al. 2020. "Global Maps of Travel Time to Healthcare Facilities." *Nature Medicine* 26, 1835–38. https://doi.org/10.1038/s41591-020-1059-1.

World Bank. 2013. *Mauritius Policy Notes: Building Analytical Capacity to Raise Public Sector Efficiency*. Washington, DC: World Bank.

World Bank. 2016. *Ethiopia Public Expenditure Review 2015*. Washington, DC: World Bank Group.

World Bank. 2016. *Support to Develop a Health System Strategy for Priority Disease Areas in Latvia*. Washington, DC: World Bank. https://www.vmnvd.gov.lv/lv/media/1373/download.

World Health Organization. 2015. *Service Availability and Readiness Assessment (SARA) Reference Manual*. Geneva: World Health Organization.

World Health Organization and International Telecommunication Union. 2012. *National eHealth Strategy Toolkit*. Geneva: World Health Organization, International Telecommunication Union. https://apps.who.int/iris/handle/10665/75211.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
M-7: Human Resources for Health
M-8: Infrastructure & Equipment
M-9: Medicines & Medical Supplies
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance



ANNEX 1: DEEP DIVES

Availability of Other Types Facilities

KEY QUESTION • What is the availability of other types of facilities?

If data are available, PER authors can analyze the distribution of facilities other than primary care (PC) and hospitals. These could include pharmacies, laboratories, and specialized care facilities, such as psychiatric hospitals.

Key Indicators	Sources
Number of laboratories per 100,000 population	• Can be estimated through SARA, SDI, SPA surveys • Infrastructure maps/plans of countries, including geospatial mapping • World Bank WDI
Number of pharmacies per 100,000 population	
Number of specialized care facilities per 100,000 population	

Note: SARA = Service Availability and Readiness Assessment; SDI = Service Delivery Indicators; SPA = Service Provision Assessments; WDI = World Development Indicators.

State of Digital Infrastructure

KEY QUESTION • **What is the state of digital health infrastructure?**

While computers, internet access, and communications are basic requirements, the delivery of modern medical care requires at least a minimal level of digital health infrastructure, including hardware and software.

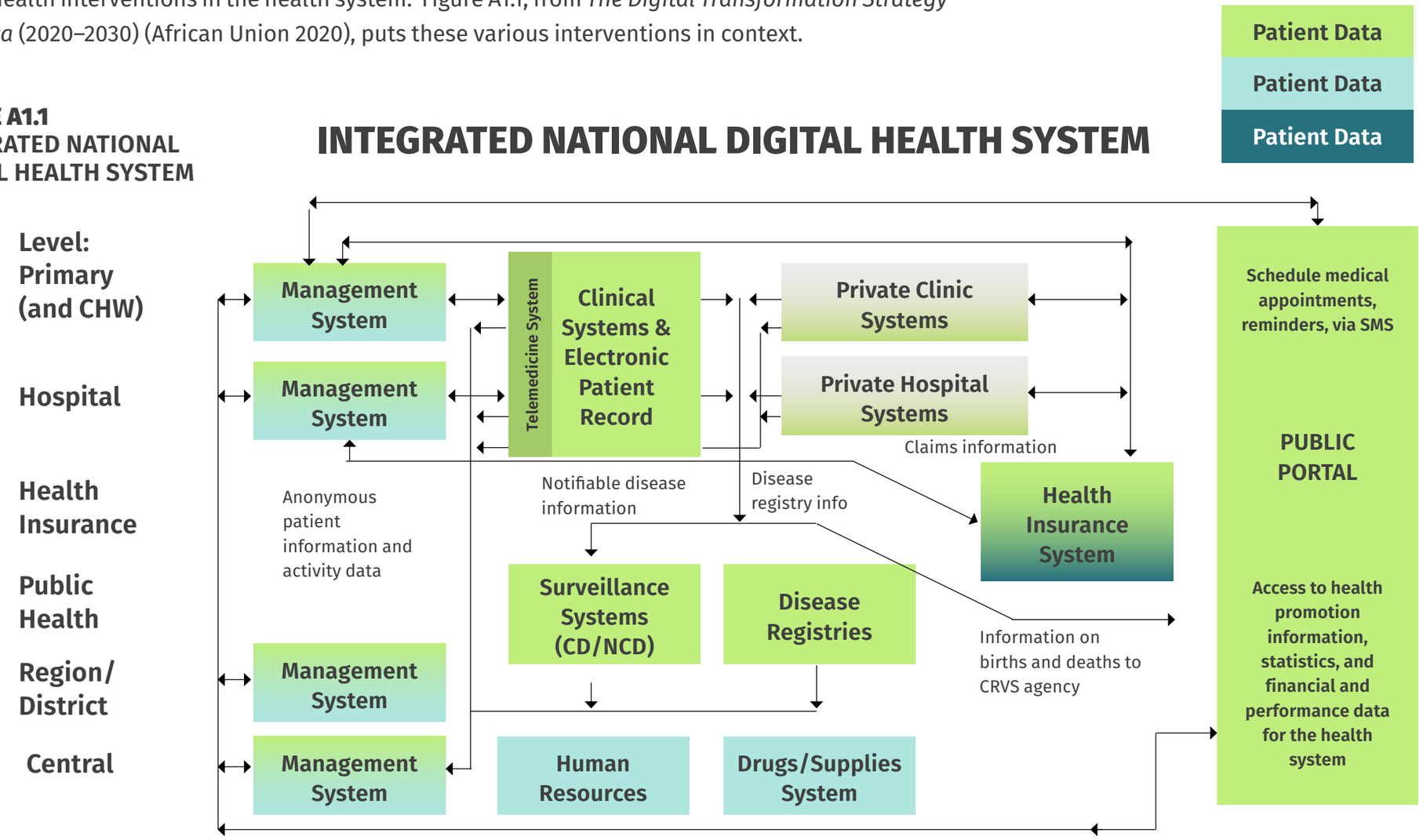
According to a technical paper prepared for the Measurement and Accountability for Results in Health Summit in June 2015, digital health "strategies have the potential to improve the quality of health services, reduce costs, improve equity of access, and empower citizens in a person-centered healthcare system. As such, they can be critical to maximizing performance monitoring and accountability at all levels of the health system, from citizens to front-line health workers to facility managers and to the highest political levels" (Haazen et al. 2015).

Various approaches exist for assessing the current state of digital health infrastructure and for planning improvements to such infrastructure. Perhaps the most prevalent is the *National eHealth Strategy Toolkit* (WHO and ITU 2012). More recently, the Global Digital Health Monitor[8] (GDHM) was created; the monitor "is an interactive web-based resource that aims to track, monitor, and assess the enabling environment for digital health throughout the world." The GDHM includes a series of key indicators (23 main indicators plus eight subindicators), spread across seven categories, to track progress and allows countries to benchmark against each other. For each indicator, the GDHM describes various phases of development, and countries are required to indicate the phase that most closely describes their current situation. The following table highlights the categories and indicators included in the monitor. To date, about 25 countries have input their data on the GDHM website. Another useful resource is the Digital Health Atlas, which "is a WHO global technology registry platform aiming to strengthen the value and impact of digital health investments, improve coordination, and facilitate institutionalization and scale."

8 Global Digital Health Monitor (https://monitor.digitalhealthmonitor.org/).

In assessing and planning for digital health infrastructure, PER authors should consider the full range of digital health interventions in the health system. Figure A1.1, from *The Digital Transformation Strategy for Africa* (2020–2030) (African Union 2020), puts these various interventions in context.

FIGURE A1.1
INTEGRATED NATIONAL DIGITAL HEALTH SYSTEM



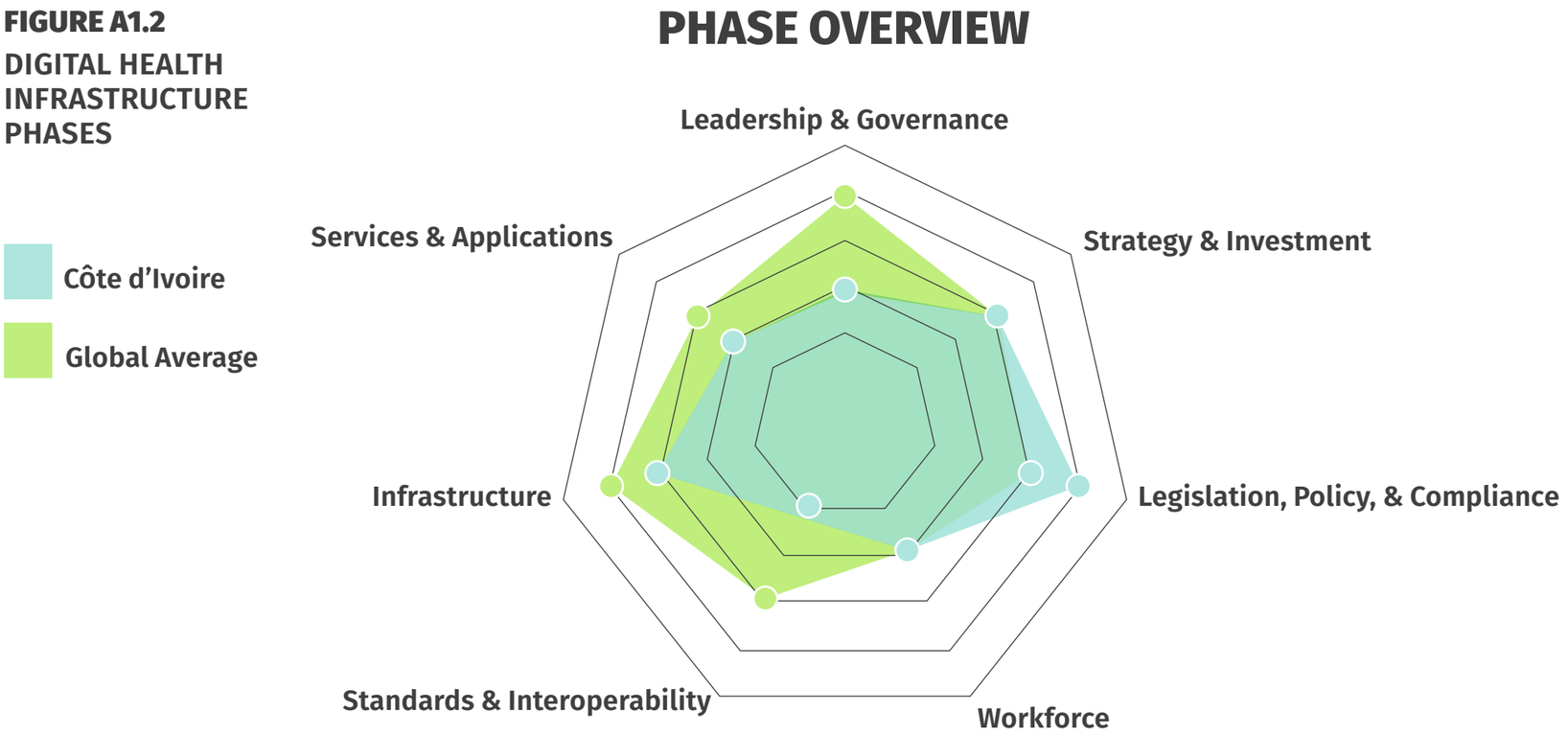
Source: African Union, Addis Ababa, Ethiopia.

Key Indicators	Sources
LEADERSHIP & GOVERNANCE **Indicator 1 -** Digital health prioritized at the national level through dedicated bodies/ mechanisms for governance **Indicator 2 -** Digital health prioritized at the national level through planning **Indicator 2a -**Health prioritized in national digital transformation and data governance policies **Indicator 3 -** Readiness for emerging technologies adoption and governance **Indicator 4 -** Diversity, equity, and human rights analysis, planning, and monitoring included in national digital health strategies and plans **Indicator 4a -** Gender considerations accounted for in digital health strategies and digital health governance **STRATEGY & INVESTMENT** **Indicator 5 -** National eHealth/Digital Health Strategy or Framework **Indicator 5a -** National digital strategy alignment with Universal Health Coverage (UHC) Core Components **Indicator 6 -** Public funding for digital health **Indicator 6a -** Private sector participation and investments in digital health **LEGISLATION, POLICY, & COMPLIANCE** **Indicator 7 -** Legal Framework for Data Protection (Security/Cybersecurity) **Indicator 8 -** Laws or regulations for privacy, consent, confidentiality, and access to health information (privacy) **Indicator 9 -** Protocol for regulating or certifying devices and/or health services, including provisions for AI and algorithms (at higher stages of maturity) **Indicator 9a -** Protocol for regulating and certifying AI within health services **Indicator 10 -** Cross-border data security and sharing **WORKFORCE** **Indicator 11 -** Digital health integrated in health and related professional pre-service training (prior to deployment) **Indicator 12 -** Digital health integrated in health and related professional in-service training (after deployment) **Indicator 13 -** Training of digital health workforce **Indicator 14 -** Maturity of public sector digital health professional careers **STANDARDS & INTEROPERABILITY** **Indicator 15 -** National digital health architecture and/or health information exchange **Indicator 16 -** Health information standards **INFRASTRUCTURE** **Indicator 17 -** Network readiness **Indicator 18 -** Planning and support for ongoing digital health infrastructure maintenance **SERVICES & APPLICATIONS** **Indicator 19 -** Nationally scaled digital health systems **Indicator 20 -** Digital identity management of service providers, administrators, and facilities for digital health, including location data for GIS mapping **Indicator 21 -** Digital identity management of individuals for health **Indicator 21a -** Digital identity management of individuals for health – master patient index **Indicator 21b -** Digital identity management of individuals for health – birth registry **Indicator 21c -** Digital identity management of individuals for health – death registry **Indicator 22 -** Secure Patient Feedback Systems **Indicator 23 -** Population health management contribution of digital health	GDHM

Note: GDHM= Global Digital Health Monitor; GIS = geographic information system.

Figure A1.2 shows an example of the output from the GDHM for the country of Côte d'Ivoire for 2023, with data for each of the seven categories. As shown, these data also include a comparison to the world average, but the website allows comparisons to other regions as well. Detailed data are also available for each of the indicators, showing the phase attributable to each indicator.

FIGURE A1.2
DIGITAL HEALTH INFRASTRUCTURE PHASES



Source: GDHM database (accessed May 25, 2024).

Recurrent Spending on Utility Bills

KEY QUESTION • How much of the recurrent health care budget is spent on utility bills?

Excessive spending on utilities and related overhead costs diminish the financial resources available to provide high-quality care and may indicate that there are opportunities for improving the efficiency of the physical plant.

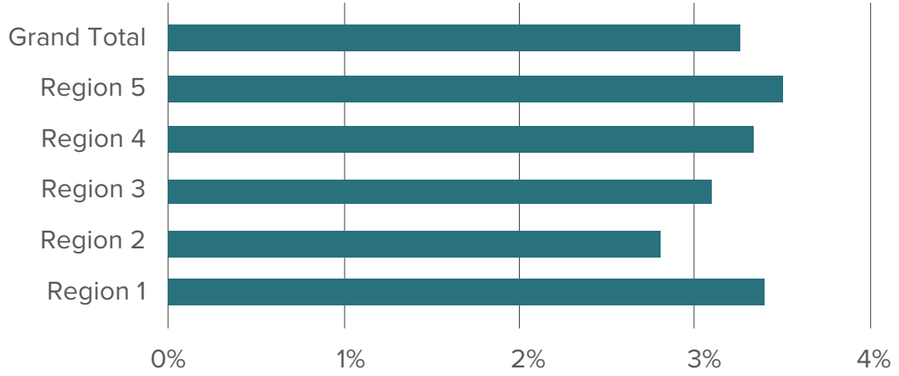
A general guideline is that hospitals should not spend more than 5–10 percent of their recurrent budget on utilities (Health Financing System Assessment—HFSA). There are limited available data for cross-country comparisons; even within-country comparisons would require a suitable level of detail in the charts of accounts of health facilities.

PER authors may wish to use the World Bank BOOST database to extract such information if it exists. Figure A1.3 on utilities spending was extracted from BOOST for the 2013 *Mauritius Public Expenditure Review* (World Bank 2013).[9]

Key Indicators	Sources
Percentage of facility recurrent budget spent on utilities	MoF, MoH

Note: MoF = Ministry of Finance; MoH = Ministry of Health.

FIGURE A1.3
UTILITIES SPENDING AS A PERCENT OF RECURRING EXPENDITURE, MAURITIUS, 2013



Source: World Bank staff calculations based on database used for 2013 *Mauritius Public Expenditure Review.*

9 BOOST is a World Bank program aimed at collecting and providing access to budget data and can be accessed through the BOOST Open Budget Portal: https://www.worldbank.org/en/programs/boost-portal.

Availability, Distribution, and Productivity of Equipment

KEY QUESTIONS

- **What is the availability of equipment in the country?**
- **What is the distribution of equipment across geopolitical entities?**
- **What is the availability of functional equipment?**

Availability of equipment in general is critical to ensuring patients' access to necessary health services and procedures required for the health system to achieve positive outcomes. It is also important to look at the availability of specific types of equipment, depending on the country context (such as basic surgical equipment necessary for conducting procedures safely and diagnostic equipment for different types of diseases).

When assessing availability of equipment, PER authors should focus first on equipment that is most relevant for the country context. In low-income countries, for example, elemental equipment necessary to perform basic surgery may be the most relevant. In the *Lancet* study on global distribution of access to surgical services (Myles and Haller 2010), availability of pulse oximeters in operating theaters was an indicator of anesthetic and surgical resources. The Primary Health Care Performance Initiative (PHCPI) also defines a list of basic equipment essential for delivering services at the primary care facility level, including scales, measuring tape, thermometers, blood pressure apparatus, and stethoscopes. The disease burden and consideration of other health outcomes can also be used to determine the choice of equipment to assess. WHO publishes a list of essential medical devices for management of various medical

conditions and for different levels of care.[10] For instance, sonography scanners may be important in countries where maternal and child health indicators are lagging, while x-ray machines and molecular testing diagnostic equipment may be relevant for countries with a high incidence of tuberculosis. Other examples of advanced equipment include MRIs, CT scanners, PET scanners, and ventilators. The following table lists additional indicators of both basic equipment and more specialized medical equipment. When data on equipment are not available, PER authors should use patients' waiting times for diagnostic tests as an indicator for availability of medical equipment. This indicator may need to be assessed in conjunction with human resources for health (HRH), as the availability of appropriate health workers may influence patients' waiting times.

If data are available, PER authors should benchmark the availability of equipment indicators against similar countries to see how the reviewed country compares, as well as across geopolitical entities (subnational; urban/rural). Income group is an important criterion to consider when conducting country comparisons. Authors should also assess the availability of equipment across types of health facilities when assessing the equity of distribution of equipment. The figure shows an example of the availability of different medical equipment in selected countries in various years.[11]

Key Indicators	Sources
Minimum equipment, any child or adult scale (%)	SARA, SDI, SPA
Minimum equipment, refrigerator (%)	SARA, SDI, SPA
Minimum equipment, sphygmomanometer (%)	SARA, SDI, SPA
Minimum equipment, sterilizing equipment (%)	SARA, SDI, SPA
Minimum equipment, stethoscope (%)	SARA, SDI, SPA
Minimum equipment, thermometer (%)	SARA, SDI, SPA
Mammography units per 100,000 population	WHO EURO, WHO AFRO

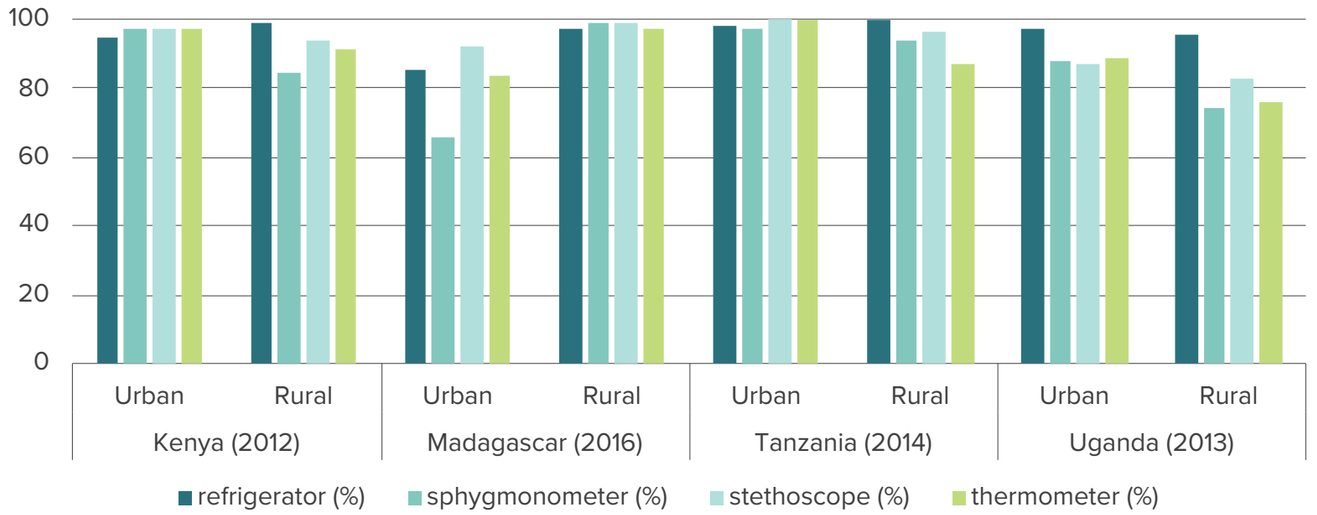
Note: SARA = Service Availability and Readiness Assessment; SDI = Service Delivery Indicators; SPA = Service Provision Assessments; WHO = World Health Organization; WHO regional offices AFRO = Africa, EURO = Europe.

10 https://www.who.int/activities/prioritizing-medical-devices.

11 https://databank.worldbank.org/source/service-delivery-indicators# (accessed May 28, 2022).

FIGURE A1.4
AVAILABILITY OF MEDICAL EQUIPMENT (PERCENT OF FACILITIES)—SERVICE DELIVERY INDICATORS (VARIOUS YEARS)

Source: Service Delivery Indicators database, World Bank.



In addition to equipment being available, it also needs to be functional to deliver health services or procedures effectively. Spending on nonfunctional equipment is inefficient and causes waste, as such equipment cannot produce outputs necessary for optimum health outcomes. PER authors should also consider equity, as nonfunctional equipment may be more prevalent in facilities serving disadvantaged population groups. Data on the percentage of functional equipment are not readily available. However, ministries of health may have inventories of equipment by facility and may record whether the equipment is functional or not. If data are not available, interviews with key informants may be able to show whether maintenance and functionality of equipment is hampering service provision or wasting resources.

Key Indicators	Sources
Domain score for readiness of basic equipment	• SARA
Percentage of functional essential equipment at a health facility	• PHCPI vital indicators data • KIIs • MoH inventory of equipment • National studies

Note: KII = key informant interview; MoH = Ministry of Health; PHCPI = Primary Health Care Performance Initiative; SARA = Service Availability and Readiness Assessment.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
M-7: Human Resources for Health
M-8: Infrastructure & Equipment
M-9: Medicines & Medical Supplies
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance



ANNEX 2

Estimating the Number of Pregnant Women in a Given Period

The following is the recommendation from the SARA reference manual on how to estimate the number of pregnant women, deriving it from the crude birth rate (CBR) for the country of interest and the following equations:

1. Estimated number of live births = (CBR per 1,000 * total population)
2. Estimated live births expected per month = (a / 12)
3. Estimated number of pregnancies ending in stillbirths or miscarriages = (a * 0.15)
4. Estimated pregnancies expected in the year = (a + c)
5. Estimated number of women pregnant in a given month = (0.70 * d)
6. Estimated percent of total population who are pregnant in a given period = (e / total population * 100)



OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
M-7: Human Resources for Health
M-8: Infrastructure & Equipment
M-9: Medicines & Medical Supplies
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

TABLE OF CONTENTS

MODULE 9

Medicines & Medical Supplies

AUTHORS

Ana Mercado, Andreas Seiter, and Catalina Gutiérrez, with contributions from Thomas Wilkinson and Olena Doroshenko

START



INTRODUCTION

From a public expenditure perspective, medicines are typically one of the biggest spending categories in the health sector—between 20 and 30 percent of health budgets—and, therefore, constitute an area where there is potential to achieve cost savings and make significant efficiency gains.

Medicine expenditure is also one of the fastest growing expenditure items in some countries. For example, inpatient pharmaceutical expenditure increased on average 4.5 percent per year in real terms for 14 Organisation for Economic Co-operation and Development (OECD) countries during 2010–19 (OECD 2021), and in Latin America and the Caribbean, spending on medicine grew about 12 percent per year from 2013 to 2017 (IDB 2018).
The literature cites significant inefficiencies in pharmaceutical expenditure (OECD 2017; Garcia-Goñi 2022). It shows that eliminating waste not only would reap savings but could also improve health outcomes.

Purchasing medicines with high prices and/or low cost-effectiveness, or brand medicines instead of generics, is an inefficiency that results in greater spending yet no or little clinical benefit. Estimates for five European countries and the United States suggest that savings from using generics and biosimilars reached an estimated EUR 50 billion in 2020 (OECD 2017). A study by the Center for Global Development (Bonnifield 2019) found that purchasers in low- and middle-income countries pay as much as 20 to 30 times a minimum international reference price for basic generic medicines. Some high-cost medicines have limited or uncertain effectiveness, and better health outcomes could be achieved if resources were redirected to improve access and close gaps in essential health services (Gutiérrez 2023).

Underuse or unavailability of cost-effective medicines can result in higher health costs due to hospitalizations and complications and can lead to lower health outcomes (see, for example, Cutler et al. 2009; Buxbaum et al. 2020). Inequitable access to life-saving medicines can increase the already large disparities in outcomes that result from the vast discrepancies in the social determinants of health. In addition, pharmaceutical spending is one of the highest household expenditures, accounting for more than 60 percent of out-of-pocket spending[1] in several countries, including Brazil, Mexico, Poland, and the Slovak Republic (OECD 2023).

Inefficiencies in supply chains, for example, and in purchasing and procurement of medicines result in paying higher prices, unnecessary transactional costs, and stockouts. The Mexican health system overcame such challenges by centralizing procurement, and saved the country $28 billion between 2007 and 2010 (OECD 2017).

Another inefficiency is the overprescription of medicines—wasteful as well as harmful to patients. Overuse of antibiotics in particular can diminish their effectiveness; this has become a global public health challenge. Increased antimicrobial resistance is the cause of severe infections, complications, longer hospital stays, and increased mortality (Llor and Bjerrun 2014). Worldwide, some 1.27 million deaths in 2019 were attributed to antimicrobial resistance (Antimicrobial Resistance Collaborators 2022).

In the public expenditure review, the PER authors should explore:

1. The growth, level, and share of spending on pharmaceuticals;
2. Prices at which pharmaceuticals are being procured;
3. The mix of pharmaceutical spending; and
4. The efficiency of policies and institutional arrangements governing pharmaceutical regulation, procurement, prescription, and coverage.

To explore more, PER authors could evaluate the effectiveness of supply chain management in preventing expiration, damage, and stockouts, and unnecessary administrative costs. In countries where stockouts of essential medicines are an issue, the authors should try to understand its causes.

1 In 2021 or the nearest year.

For countries that fund high-cost specialized pharmaceuticals, exploring expenditure on high-cost drugs might reveal important inefficiencies. In countries where counterfeit medicines or low-quality pharmaceuticals is a recognized issue, measuring and quantifying expenditure in counterfeit medicines and understanding the causes might illuminate significant waste and help identify policies to address them. Data on overconsumption of antibiotics are becoming readily available for an increasing number of countries, and PER authors may wish to explore data availability for the country under study.[2,3]

Analyzing pharmaceutical spending requires data that are often not readily available in low- and middle-income countries. For this reason, the body of this module prioritizes an abbreviated set of indicators that can most easily be constructed with data available in multicountry datasets and local administrative data, and that can reveal inefficiencies in pharmaceutical spending. Annex 1 lists additional indicators for PER authors wishing to dive deeper into other areas: supply chain management, overuse of antibiotics, and coverage of high-cost drugs.

The module is divided into two sections: efficiency and pricing and procurement processes/policies. A case study at the end of the module illustrates the use of the indicators to analyze pharmaceutical spending. Authors may also wish to refer to IDB (2018) and OECD (2017) for further reference on measuring the efficiency of pharmaceutical expenditure. Box 1 on the following page presents definitions of terms used in this module.

2 Although overprescription or inadequate prescription and adherence to treatment may be significant sources of inefficiency, with the exception of overprescription of antibiotics, there are seldom data in low- and in middle-income countries to assess these sources. Expenditure on high-cost drugs can result in significant inefficiencies, but its analysis requires complex methods and data, which are outside the scope of a traditional PER. For some middle-income countries, this is an important issue. PER authors wishing to dive deeper into inefficient spending on high-cost drugs can refer to Gutiérrez, Palacio, et al. op. cit.

3 Inequities in access to pharmaceuticals have been reported in academic literature by income level, by geographic location, and for marginalized populations, and medicines are often the largest item in out-of-pocket spending on health (OECD op. cit). Incidence of out-of-pocket spending are often higher for low-income, rural, and marginalized populations. However, there are no readily available data to track inequities in access to pharmaceutical products. This module does not address equity, but some household and health surveys track pharmaceutical access and spending. These surveys can be used to understand the distribution of pharmaceutical spending among geographic areas and socioeconomic groups. Alternatively, PER authors can search for available academic studies that refer to the country under study.

BOX 1. DEFINITIONS OF TERMS

MEDICINE
Any dosage form containing a substance approved by a regulatory agency for the prevention and treatment of disease. The terms "pharmaceutical product" and "drug" can be used interchangeably with "medicine." However, "pharmaceutical" can refer to the "active ingredient," while "medicine" refers to pharmaceutical substances that have a defined dosing and presentation (pill, syrup, and so on).

ACTIVE INGREDIENT
The chemical contained in a drug that achieves the desired effect on the target tissue.

PHARMACEUTICAL PRODUCT
See "Medicine."

INNOVATIVE PRODUCT
The first brand of the active ingredient to receive marketing approval. The patent may be on-patent (exclusive) or off-patent (open, because the original patent has expired). For the purposes of this module, the first product to hit the market is considered "innovative."

PATENT
A patent grants the holder the exclusive right to use and exploit an invention, and it prevents others from using the invention without the holder's consent. When a company develops an active ingredient, it can apply for a patent that grants it exclusivity for 20 years.

GENERIC DRUGS
These drugs are pharmaceuticals, usually intended to be interchangeable with original brand drugs, that are manufactured and marketed without a license from the original manufacturer after the expiry of the patent or other exclusivity rights (Sargel and Isadore 2013). In developed countries, the regulation of medicines requires that the efficacy of generics must be demonstrated by a bioequivalence assessment (the two drugs release the active ingredient in the same amount and rate and have the same quality). A generic drug is made up of the same active ingredient as its innovative drug. It can be marketed using the international nonproprietary name, in which case it is an unbranded generic, or under a proprietary brand, in which case it is a branded generic. Branded generics are generally more expensive than their unbranded equivalents.

EX-MANUFACTURER, WHOLESALE, AND RETAIL PRICE
Prices for pharmaceuticals are typically measured at three points in the distribution chain: the ex-manufacturer price, the ex-wholesale price, and the retail price. Manufacturers typically sell their products to wholesalers for a price that is usually

Box 1 continues on the following page.

BOX 1. DEFINITIONS OF TERMS *(continued)*

referred to as "ex-factory," "ex-manufacturer," or "wholesale acquisition." Wholesalers apply a markup before selling these products to pharmacies, and this is usually referred to as the "ex-wholesale" or "wholesale price." Pharmacies apply a markup over this price before selling to final consumers on the retail market at the "'retail price." In several countries, this price includes a value-added tax.

OVER-THE-COUNTER MEDICINES
OTC medicines can be purchased in retail pharmacies by final consumers without a physician's prescription.

ESSENTIAL MEDICINES
These medicines are on the World Health Organization (WHO) Essential Medicines List (EML). The list includes the most effective, safe, and cost-effective drugs for treating high-priority illnesses and running a functioning health care system.

TRACER MEDICINES
These comprise a subset of essential medicines that countries use as a proxy to monitor availability of essential medicines.

COUNTERFEIT MEDICINES
WHO defines counterfeit medicines as those whose identity and/or source are deliberately and fraudulently mislabeled.

SUBSTANDARD MEDICINES
Medicines that do not meet the quality standard or specifications defined in national regulations. Source: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4137817/.

REFERENCE PRICE
This is used as a benchmark to inform the purchase of medicines. The reference price is usually calculated based on public available data for several countries.

DEFINED DAILY DOSE (DDD)
The DDD is the assumed average maintenance dose per day for a drug used for its main indication in adults. It is calculated by WHO as a unit of measurement for the volume of consumption of a particular medicine. Not all medicines have a DDD.

STOCKOUT
A stockout occurs when a medicine required by a patient or patients is not available. Stockouts can occur at the facility, local, or national level.

EFFICIENCY

Aggregate Spending

KEY QUESTIONS

- **What is the level of spending on medicines in the country?**
- **What percent of the budget is absorbed by pharmaceutical spending?**
- **How has pharmaceutical spending increased relative to total health spending?**

The share of the budget spent and the level of per capita spending on pharmaceuticals can reveal inefficiencies. When they are substantially higher than countries with a similar level of income, this might indicate that the country is paying higher prices. It can also indicate unnecessary prescription or larger consumption of high-cost medicines. However, higher share and level of spending can also indicate better access to medicines, so drawing a conclusion might also entail looking at coverage (PER authors may want to refer to the Service Coverage module).

If possible, authors should focus on government pharmaceutical spending as a share of total government spending on health.

When comparing pharmaceutical spending between countries, it's important to differentiate between outpatient and inpatient information and determine whether the data include over-the-counter (OTC) medicines, prescription drugs, or both. GHED data follow the National Health Accounts methodology and capture expenditure on prescription medicines purchased in outpatient and retail (OTC) settings.[4] Spending in hospital (inpatient) settings is aggregated with hospital spending and can add another 20 percent or more to pharmaceutical spending.

PER authors should also analyze the growth in pharmaceutical spending relative to the growth of total health spending to identify whether the share of pharmaceuticals is increasing. A rising share of pharmaceutical spending in a country with a low baseline of spending on medicines (relative to similar countries) might be a sign of improved access. A rising share of pharmaceuticals in a country that is already spending more than similar countries might signal an inefficient procurement process that leads to higher prices and should raise concerns about the sustainability of such growth.

4 Account HC.5 corresponds to Domestic General Government Expenditure on Medical Goods not differentiated by function; it aggregates medical devices and medicines. Some countries further disaggregate between medicines and medical devices.

Key Indicators	Sources for Local Data	Data for Benchmarking
The share of total pharmaceutical expenditure in total health expenditure	• GHED • National Health Accounts • OECD Statistics on health have data for a few middle-income countries. • MoH budgets or expenditure reports • National expenditure tracking information systems • For population data, WDI	• GHED
Domestic government spending on pharmaceuticals as a percentage of general government health expenditure, level and trends		
Total pharmaceutical spending per capita, level and trends		

Note: GHED = Global Health Expenditure Database; MoH = Ministry of Health; OECD = Organisation for Economic Co-operation and Development; WDI = World Development Indicators.

Prices

KEY QUESTION • Is the country paying high prices for medicines?

Paying high prices for medicines can be a major source of inefficiency, and low- and middle-income countries often pay higher prices for medicines than high-income countries (UNAIDS 2023). The use of brand name drugs when generic drugs are available is another example of inefficiency, as generics provide the same clinical benefit at a lower cost.

There are two approaches that can be used to identify inefficiencies in the purchase of pharmaceuticals: (1) compare unit prices for tracer medicines between countries and determine generic uptake; and (2) study pricing policies and procurement practices. This section looks at price comparisons; generic uptake is addressed in the section that analyzes the mix of pharmaceuticals. The section on governance covers pricing policies and procurement practices.

The unit prices paid for key medicines should be compared with an international reference price. PER authors can choose to focus on core essential medicines and additional priority

Key Indicators	Sources for Local Data	Data for Benchmarking
Unit price paid for key medicines: • Antiretrovirals • Antimalarials • Vaccines • Insulin • Other selected medications according to burden of disease	• Procurement information systems • Reports from MoH, or health insurance agency • Pharmacy information systems	• Prices published by pooled procurement agencies such as UNICEF and PAHO • Academic research • WHO medicine price information sources

Note: MoH = Ministry of Health; PAHO = Pan American Health Organization; UNICEF = United Nations Children's Fund; WHO = World Health Organization.

medicines according to the burden of disease, depending on the country context. PER authors can pick a number of medicines (the selection may vary depending on the international reference price list used) and benchmark their prices against the prices of the same medicines in similar countries. This will enable authors to ascertain the amount the country may be overpaying for certain medicines—one of the main sources of inefficiency, according to evidence in the literature. WHO hosts a site with links to pricing agencies around the world. Academic literature can also provide sources for benchmarking. For example, using a standard WHO measurement methodology, Ewen, Joosse, et al. (2018) evaluate insulin prices for 15 low- and middle-income countries.

Another approach to comparing prices is to select some tracer medicines that can be purchased through pooled procurement arrangements with multilateral organizations and use these prices as benchmarks. UNICEF[5] for example, publishes the prices at which it purchases vaccines, antiretrovirals, and antimalarial medication, and the Pan American Health Organization (PAHO)[6] publishes reference prices for some medicines in 12 therapeutic areas, including cardiovascular disease.

PER authors should ensure that the same or equivalent formulations and pack sizes are used for comparison. They should also compare equivalent prices at a point in the supply chain, for example, the ex-manufacturer price is typically the price the manufacturer charges a wholesaler or government depot, whereas the pharmacy or retail price likely includes the pharmacy's markup and dispensing fees, wholesaler and supply chain fees, and any value-added tax (see definitions in Box 1).

When analyzing prices, PER authors should flag certain caveats, such as potential statutory discounts or the implementation of special confidential agreements between manufacturers and sellers (for example, simple, price-volume, or outcome-based discounts). These can be established by interviewing key informants.

Authors should attempt to identify any dynamic reasons for pricing variability, including low volumes of sales, a complex or long regulatory environment or limited competition, and the time taken to pay for the delivery of medicines, as prices are typically higher in contexts where payment to manufacturers is delayed or uncertain.

5 For more information, visit UNICEF Price Data Overview database: https://www.unicef.org/supply/pricing-data.

6 For more information, visit PAHO Strategic Fund: https://www.paho.org/en/paho-strategic-fund#q2.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
M-7: Human Resources for Health
M-8: Infrastructure & Equipment
M-9: Medicines & Medical Supplies
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

Input Mix

KEY QUESTION • Is the country buying the right mix of medicines?

There is no one formula that can indicate whether a country is purchasing the right mix of medicines, but an efficient allocation should address the largest causes of disease burden, include most of the medicines in the WHO Essential Medicines List (EML),[7] avoid medicines that have uncertain effectiveness or low cost-effectiveness, and purchase generics and biosimilars for off-patent medicines. This section provides some indicators to aid understanding of the mix of medicines.

AVAILABILITY OF ESSENTIAL MEDICINES

Availability is a precondition for ensuring that the population has access to the essential medicines needed to achieve positive health outcomes. Information on their availability at various key points of contact (such as health facilities, pharmacies, and drug outlets) is vital for assessing equity and efficiency, as is the availability of specific groups of medicine. WHO defines "essential medicines" as "those that satisfy the priority health care needs of a population; [and] are selected with due regard to disease prevalence and public health relevance, evidence of efficacy and safety, and comparative cost-effectiveness. They are intended to be available in functioning health systems at all times, in appropriate dosage forms, of assured quality and at prices [that] individuals and health systems can afford." The latest version of the EML, updated every two years, includes 502 medicines, including vaccines. Countries that prioritize medicines in the EML to define coverage tend to have a more efficient mix. When assessing the availability of medicines, PER authors should focus first on core essential medicines, using the EML as a reference.

7 https://list.essentialmeds.org/.

Data on the availability of medicines are usually collected through facility-based surveys, which use a standardized methodology; other possible sources are MoH inventories of public facilities and supply chain management information systems. PER authors have the option to include additional medicines for specific conditions if relevant to the country context and if data are available. For instance, the country context might warrant a focus on essential noncommunicable disease medicines, priority medicines for women and children, or antiretroviral drugs.

When there is an explicit benefit package or a formulary, one way of assessing efficiency is to see whether it includes the essential medicines list and review the criteria for defining the package. Explicit benefit packages that consider the burden of disease and cost-effectiveness criteria to define coverage tend to be more efficient than those that do not. The module on Benefits Specification addresses the process and criteria used to define which medicines are covered by public funds.

GENERIC DRUGS

The use of generics can significantly reduce the cost of medicines for purchasers. Underuse of generics is a major source of inefficiency in pharmaceutical spending. Measuring the share of generics in volume and in value can illustrate whether the country has a low penetration of generics. In 2021, the average share of generics in pharmaceutical spending for 13 OECD countries was 22 percent, and the average share in volume was 51 percent. The country with the highest pharmaceutical volume share was Canada, with 78 percent, and the country with the highest share in value was Türkiye, with 30 percent (OECD Statistics).

The World Health Organization's Global Health Observatory[8] collects data on the proportion of health facilities that have a core set of relevant essential medicines available and affordable on a sustainable basis (Indicator 3.b.3), which is a composite construction of availability of a core set of medicines, their price, and a measure of quality. The most recent data are for 2016. If the country carries out its own survey of facilities with a locally defined list of medicines, PER authors are encouraged to use the local indicator contingent on data quality.

8 https://www.who.int/data/gho.

When looking at the market for generics, PER authors should make explicit whether the data are for the total pharmaceutical market, the market paid by third parties (insurance schemes or government budgets), or the retail market and ensure comparability if benchmarking against other countries. A low share of generics in the value of pharmaceutical sales might reflect low prices of generic medicines rather than low volume. If data are available, PER authors should also look at the volume of pharmaceutical sales, which is usually measured by the number of defined daily doses, but this information is harder to come by.

Key Indicators	Sources for Local Data	Data for Benchmarking
Does the country's formulary or benefit package follow/use/consult/include the EML for reimbursement/coverage/payment? (Y/N)	• KIIs	
Percentage of facilities with a core set of essential medicines	• National facility-based surveys • KIIs • Ministries of Health inventories of public facilities • Reports from national purchasing or distribution agencies	• The percentage of facilities with availability of essential medicines in high-income countries is above 90%.[9] • PER authors can also use national targets.
Share of generics in the volume of sales **Share of sales of generic medicines in the value of total pharmaceutical sales**	• Procurement information systems • Reports from the MoH, or health insurance agency • OECD Statistics • Pharmaceutical market • Grey or published literature, studies on pharmaceutical markets	• PER authors can use the share of generics in the value of sales in OECD countries. For example, for 2021, Canada had the highest share of generics in the total volume of pharmaceutical sales, 78.1%, with the lowest values among the countries included in the dataset being around 30%.

Note: EML = Essential Medicines List; KII = key informant interview; MoH = Ministry of Health; OECD = Organisation for Economic Co-operation and Development; WHO = World Health Organization.

9 https://www.who.int/data/gho.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
M-7: Human Resources for Health
M-8: Infrastructure & Equipment
M-9: Medicines & Medical Supplies
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

GOVERNANCE

Policies and institutional arrangements for pharmaceutical prices, procurement, prescription, and coverage

Adequate policies and institutional arrangements can improve the efficiency of pharmaceutical spending. This section presents a reduced number of indicators, which can be obtained through key informant interviews and regulatory documents. Most of the indicators query whether certain policies, which are thought or known to improve the efficiency of pharmaceutical spending, are in place (yes/no questions). Still, PER authors should discuss whether there are mechanisms in place to enforce any existing policies and whether informants perceive that the policies achieve the intended outcomes.



OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
M-7: Human Resources for Health
M-8: Infrastructure & Equipment
M-9: Medicines & Medical Supplies
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

Prices

KEY QUESTION • **Are policies and regulations in place to secure lower prices of medicines?**

Price regulations establish a range or maximum price for which a medicine can be sold in the country or purchased by the public sector. The most common practice is to use the prices paid by other countries as reference to set the national price around or below the median price observed in the reference list.

Purchasing pharmaceuticals through centralized mechanisms, rather than allowing each provider or pharmacy to independently purchase medicines, strengthens the negotiation capacity of the buyer and results in lower prices. Pooled procurement mechanisms, where several countries purchase medicines through one buyer, also results in lower prices. In the tendering process, when there are several products for the same active ingredient, countries can purchase medicines only from the bidder offering the lowest price. Monitoring prices will help governments assess whether they are overpaying for inputs.

Key Indicators	Sources
Is there a system for tracking and measuring the unit cost of drugs and medical supplies periodically? (Y/N)	• KIIs • Policy documents
Are prices regulated? (Y/N) If so, how are prices regulated?	
Are all or some medicines procured centrally? (Y/N)	

Note: KII = key informant interview; INN = international nonproprietary names; WHO = World Health Organization; OECD = Organisation for Economic Co-operation and Development.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
M-7: Human Resources for Health
M-8: Infrastructure & Equipment
M-9: Medicines & Medical Supplies
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

Mix

KEY QUESTIONS

- **Are there policies in place to track expenditure on and prescription of generics?**
- **Are there policies in place to promote the uptake of generic medicines?**

The uptake of generics can be improved if prescribers and dispensers are required to use the international nonproprietary name instead of the brand name, or if the pharmacist is allowed to substitute the brand name for the generic alternative.

Alternatively, consumers can purchase the brand version but pay the price difference (copayment). The availability of generics can be promoted through simplified market entry processes and/or lower import tariffs. A precondition for promoting the use of generics, particularly unbranded generics, is the existence of a regulatory agency that can establish the quality and interchangeability of the generic with the originator medicine, using agreed international standards.

Key Indicators	Sources
Is there an appropriately equipped and qualified national entity that establishes the interchangeability of generics with the originator brand using WHO internationally agreed standards? (Y/N)	• KIIs • Policy documents
Is there an information system in place that can track prescribing and dispensing generics? (Y/N)	
Is there legislation in place on prescription and/or dispensing by INN)? (Y/N)	
Is there a copayment in place for proprietary medicines when generic equivalents are available? (Y/N)	
Does the country offer incentives to encourage generics to enter the market (tendering for market exclusivity, no import tariffs, low fees, and expedited approval process)? (Y/N) If so, list these policies.	

Note: KII = key informant interview; INN = international nonproprietary names; WHO = World Health Organization.

Quality

KEY QUESTION • **Are there policies and regulations to guarantee the adequate quality of medicines?**

The government, through regulatory authorities, should establish and enforce the rules, law, and policies that guarantee that medicines are safe, effective, and adhere to the quality specifications stated by the manufacturer.

WHO has set international standards and guidelines for establishing these agencies and their processes. Low quality and ineffective medicines waste patient and health system resources. Strong regulatory and enforcement capacity translate into better health outcomes, lower availability of substandard and counterfeit medicines, and more efficient spending.

Key Indicators	Sources
Is there an appropriately equipped and qualified national entity able to control the quality of medicines and perform testing? (Y/N)	• KIIs • Policy documents
Are there mechanisms in place to carry out frequent controls or sampling? (Y/N)	
Is there a way to track counterfeit drugs? (Y/N) If so, what is the value of counterfeit drugs seized in the country?	• Studies or reports on counterfeit medicines • OECD database • Pharmaceutical Security Institute database • WHO • Customs

Note: KII = key informant interview; OECD = Organisation for Economic Co-operation and Development; WHO = World Health Organization.

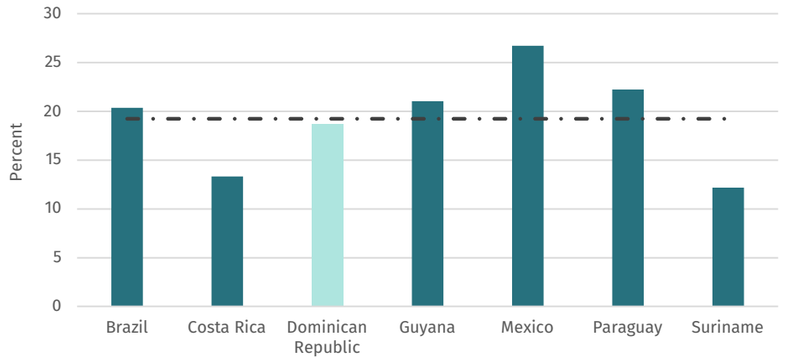
CASE STUDY:

IMPROVING THE EFFICIENCY OF PHARMACEUTICAL SPENDING IN THE DOMINICAN REPUBLIC

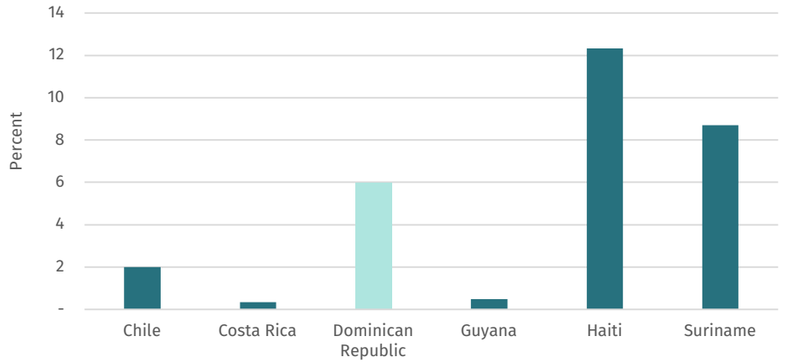
The Dominican Republic spent about $700 million on medical devices and medicines in 2019. The share of spending on medical devices and medicines is about 18 percent of total current health expenditure, on par with similar upper-middle-income countries in the region, and has remained stable for the past five years. A large share of pharmaceutical outpatient and retail spending (80 percent) is paid for by the private sector. Data on out-of-pocket (OOP) payment spending indicate that households assume about 30 percent of current health expenditure, and a study by Azael Lorenxo and Penson (2018)[10] found that medicines account for the highest share of OOP spending (46 percent).

The two health financing schemes in the country have different purchasing mechanisms for pharmaceuticals, although both cover the list of medicines included in the Seguro Familiar de Salud. Beneficiaries of the subsidized scheme receive 100 percent coverage of ambulatory medicines, which they get in the public pharmacies (*farmacias del pueblo*). Beneficiaries in the contributive scheme receive coverage of 80 percent up to an annual maximum and purchase their medicines in retail pharmacies. While the subsidized scheme purchases medicines through competitive bidding, each of the 14 insurance agencies in the contributive scheme (*administradoras de riesgos de salud, ARS*) has its own purchasing processes. Further, the subsidized regime is able to procure medicines at low prices due to the competitive bidding, while the purchases by the contributory regime can reach double those prices.

Spending on medical devices and medicines as a share of current health expenditure, 2019



Government spending on medical devices and medicines as a share of total government spending on health, 2019



Source: World Bank staff calculations based on GHED data.

10 Azael Lorenzo, G., and E. Penson. 2018. "Análisis del gasto de bolsillo en salud de los hogares en República Dominicana a partir de datos de la ENIGH del 2018." Technical Report. Oficina Nacional de Estadística, Gobierno de la República Dominicana.

CASE STUDY:

IMPROVING THE EFFICIENCY OF PHARMACEUTICAL SPENDING IN THE DOMINICAN REPUBLIC

PRICES, PRICE REGULATION, AND PROCUREMENT

This table compares prices of six drugs.[11] Insulin glargine and ertapenem are drugs recommended for second line treatment of diabetes and infections, respectively. Amoxicillin and paracetamol are widely used as an antibacterial and a pain reliever, respectively. Losartan is a statin for the treatment of high blood pressure, and levothyroxine treats hypothyroidism. All these drugs treat prevalent conditions in Latin America and the Caribbean. The table presents the ratio of the median price observed in the retail market in the Dominican Republic to the average price for other countries in the region. The results indicate that most medicines are purchased at equal or higher prices than similar countries in the region. The price of losartan is 9.4 times higher than the average for the countries in the study.

High prices in the retail market may be explained by the absence of regulations in the margins at different points in the distribution chain. The country does not regulate prices either.

Medicine	Unit of Measurement	Year of Comparison	Ratio of Median Retail Price in DR to Average Price in the Region
Insulin glargine	Daily dose	2017	0.6
Ertapenem	Daily dose	2017	1
Amoxicillin	Presentation 500 mg x 15 tablets	2021	0.37
Paracetamol	Presentation 500 mg x 20 tablets	2021	1.63
Losartan	Presentation 100 mg x 50 tablets	2021	9.4
Levotiroxin	Presentation 100 mg x 50 tablets	2021	1.2

Sources: For insulin glargine, World Bank staff calculation using IDB (2018). For other medicines, World Bank staff calculations using Gómez and Oglietti 2021.[12] The table is an illustrative example only.
Note: DR = Dominican Republic.

11 The table is presented for illustrative analysis and should not be used as a reference. The ratio corresponds to the median price in the retail market to the average price reported for the countries in the studies.

12 Gómez, Gerardo. E., and Guillermo Ogliett. 2021. "Informe sobre los precios de medicamentos en América Latina." Technical Report. Laboratorio de Precios CELAG. https://www.celag.org/informe-sobre-los-precios-de-medicamentos-en-america-latina/.

CASE STUDY:
IMPROVING THE EFFICIENCY OF PHARMACEUTICAL SPENDING IN THE DOMINICAN REPUBLIC

MIX OF MEDICINE

Although there are no systems to track the use of generic medicines, a study by Atal et al. (2023)[13] finds that unbranded generics are, on average, 3.5 times more expensive than their branded alternatives (branded generics or innovator drugs). Although generic medicines account for 77 percent of the value of sales, only 7 percent are unbranded generics (the rest are branded generics or innovators). The study authors estimate that switching to unbranded alternatives could reduce outpatient pharmaceutical spending by 14 percent in the contributive regime. The study authors also find that 48 percent of pharmaceutical sales are for active ingredients where substitution is not possible, because there are no unbranded alternatives despite the innovators having lost patent protection.

Prescriptions in the Dominican Republic use the international nonproprietary name of the drug. The Dominican Republic also approved regulation to ensure that generics and biosimilars are interchangeable, but it has not been fully implemented and there seems to be low confidence in generic medicines. This may help explain why consumers do not buy generics, despite their lower prices. The country has a regularly updated list of essential medicines that follows WHO guidance.

AVAILABILITY AND SUPPLY CHAIN MANAGEMENT

The country tracks the availability of medicines through the supply chain, and many improvements have been implemented during the past decade. In 2022 and 2023, the central warehouse met the minimum availability in months of stock for tracer medicines in primary-level care (Servicio Nacional de Salud 2023).[14] However, in December 2023, there were stockout alerts for antiretroviral, tuberculosis, and family planning pharmaceuticals in the central warehouse (though not in regional warehouses) (op. cit). No information was available on the frequency of expired medicines.

13 Atal, Juan Pablo, Ursula Giedion, Catalina Gutiérrez, and Natalia Jorgensen. 2023. *¿Cuál es el costo de oportunidad de financiar medicamentos de marca? El caso de República Dominicana*. Washington, DC: Inter-American Development Bank.
14 *Servicio Nacional de Salud*. 2023. *Boletín Nacional de Información Estratégica del SUGEMI*. https://sns.gob.do/sugemi/#391-1510-wpfd-2023-boletines-trimestrales.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
M-7: Human Resources for Health
M-8: Infrastructure & Equipment
M-9: Medicines & Medical Supplies
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

CASE STUDY:
IMPROVING THE EFFICIENCY OF PHARMACEUTICAL SPENDING IN THE DOMINICAN REPUBLIC

CONCLUSIONS

The review suggests that the Dominican Republican can improve the efficiency of its pharmaceutical spending by improving generic uptake, implementing regulation on the interchangeability of medicines, strengthening the regulatory agency, and promoting the entry of generics. Introducing price regulation and referencing in the retail market and continuing to strengthen supply chain management might also yield efficiency gains. OOP spending still represents a challenge for Dominican Republic households, and medicines comprise the highest share of this spending. Reducing prices and improving generic update can reduce OOP spending and generate savings for the contributory regime.



References

Antimicrobial Resistance Collaborators. 2022. "Global Burden of Bacterial Antimicrobial Resistance in 2019: A Systematic Analysis." *The Lancet* 399 (10325): 629–59. https://doi.org/10.1016/S0140-6736(21)02724-0.

Bonnifield, Rachel Silverman, Janeen Madan Keller, Amanda Glassman, and Kalipso Chalkidou. 2019. *Tackling the Triple Transition in Global Health Procurement*. Washington, DC: Center for Global Development.

Buxbaum, Jason D., Michael E. Chernew, A. Mark Fendrick, and David M. Cutler. 2020. "Contributions of Public Health, Pharmaceuticals, and Other Medical Care to US Life Expectancy Changes, 1990–2015." *Health Affairs* 39 (9). https://doi.org/10.1377/hlthaff.2020.00284.

Cutler, David M., Genia Long, Ernst R. Rernt, Jimmy Royer, Andrée-Anne Fournier, Alicier Sasser, and Pierce Cremiaux. "The Value of Antihyperintensive Drugs: A Perspective on Medical Innovation." *Health Affairs* 26 (1). https://doi.org/10.1377/hlthaff.26.1.97.

Ewen, Margaret, Huibert-Jan Joosse, David Beran, and Richard Laing. 2019. "Insulin Prices, Availability and Affordability in 13 Low-Income and Middle-Income Countries." *BMJ Global Health,* 4 (3): e001410.

Garcia-Goñi, Manuel. 2022. "Rationalizing Pharmacological Spending." IMF Working Paper WP/22/190. International Monetary Fund, Washington, DC.

Gutiérrez, Catalina. 2023. *The Hidden Trade-Offs of High-Cost Drugs: The Case of Colombia*. Washington, DC: Inter-American Development Bank.

IDB. 2018. *Better Spending for Better Lives: How Latin America and the Caribbean Can Do More for Less*. Washington, DC: Inter-American Development Bank.

Llor, Carl, and Lars Bjerrum. 2014. "Antimicrobial Resistance: Risk Associated with Antibiotic Overuse and Initiatives to Reduce the Problem." *Therapeutic Advances in Drug Safety,* 5 (6): 229–41.

References

OECD (Organisation for Economic Co-operation and Development). 2017. *Tackling Wasteful Spending on Health—Highlights* (revised). Paris: OECD Publishing.

OECD (Organisation for Economic Co-operation and Development). 2021. *Health at a Glance 2021: OECD Indicators*. Paris: OECD Publishing. http://doi.org/10.1787/ae3016b9-en.

OECD (Organisation for Economic Co-operation and Development). 2023. *Health at a Glance 2023: OECD Indicators*. Paris: OECD Publishing. http://doi.org/10.1787/7a7afb35-en.

Shargel, Leon, and Isadore Kanfer, eds. *Generic drug product development: solid oral dosage forms*. CRC Press, 2013.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
M-7: Human Resources for Health
M-8: Infrastructure & Equipment
M-9: Medicines & Medical Supplies
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

ANNEXES

Annex 1: Deep Dives

PER authors wishing to dive deeper into the efficiency of pharmaceutical spending can study indicators of supply chain management and antibiotic overuse.



CONTINUED

Supply Chain Management

KEY QUESTION

• Are supply chains and storage facilities effective?

Ineffective supply chains and storage facilities not only reduce the supply of medicines in the system but are also a major source of inefficiency caused by wasteful expired drugs and delayed provision of services, leading to poorer health outcomes. Improving a country's supply chain can help reduce stockouts at the local and facility levels, whereas national stockouts are an indication of a limited or zero supply of a particular medicine within the country, which can represent a serious threat to public health.

Key Indicators	Sources
Supply chain	
Number of stockouts of key medicines	• Facility surveys • MoH reports • Facility inventory control reports
Storage facilities	
Number or percentage of expired drugs	• Facility surveys • Facility inventory control reports
Governance	
Is there a mechanism to track medicines through the supply chain, particularly an electronic system that allows real-time access to data on stocks, shelf life (expiration), and other types of information? (Y/N)	• KIIs
Does the country regulate minimal standards on the storage of facilities? (Y/N) Are these enforced? (Y/N)	• KIIs

Note: KII = key informant interview; MoH = Ministry of Health.



Overuse of Antibiotics

KEY QUESTION • **Is there evidence of overuse of antibiotics?**

The Global Antimicrobial Resistance and Surveillance System (GLASS) tracks antimicrobial consumption per thousand inhabitants per day by class of antimicrobial, including antibiotics, for system use. PER authors can benchmark this indicator against other countries in the dataset with similar epidemiological profiles (incidence of infectious disease) or level of income.

Key Indicators	Sources
Consumption of antibiotics for systemic use expressed as DDD per 1,000 inhabitants per day	• WHO GLASS-AMR database[1]

1 https://worldhealthorg.shinyapps.io/glass-dashboard/wf3af945c/#!/amc.

Note: DDD = daily defined dose; WHO GLASS-AMR = World Health Organization Global Antimicrobial Resistance and Surveillance System-Antimicrobial Resistance.

Annex 2: Indicators. Definitions, Measurement, and Sources

Indicators	Definitions	Numerators	Denominators	Sources
Total pharmaceutical spending as a percentage of current health expenditure		Expenditure, by health function: HC.5. Medical goods (nonspecified, by function) (LCU million), GHED (Total of Current, Domestic general government, External, Domestic private health expenditure, by health care function)	Current health expenditure	• GHED (2022) • Medical goods (nonspecified by function) • Pharmaceutical and other medical durable goods (prescribed medicines, OTC medicines, other medical nondurable goods) • OECD Statistics • Pharmaceutical spending
Government spending on pharmaceuticals as a percentage of current government health expenditure		HC.5 (G). General government Expenditure on medical goods—pharmaceuticals and other medical durable goods	HC. General government Health expenditure, by health function	• GHED • National Health Accounts
Pharmaceutical spending per capita		HC.5. Medical goods (nonspecified, by function) (LCU million), GHED	Total population	• GHED • WDI for population

Annex 2 continues on the following page.

Annex 2: Indicators, Definitions, Measurement, and Sources *(continued)*

Indicators	Definitions	Numerators	Denominators	Sources
Unit price of key medicines	Median or weighted average price of medicines with the same active ingredient The price can be for a particular presentation, i.e., concentration and number of units in the presentation (e.g., amoxicillin 500 mg x 30 capsules). Alternatively, the price per tablet, capsule, defined daily dose, or milliliter can be used. If the unit price is not available, the implicit unit price in all the presentations available in the market needs to be estimated.	For comparison purposes, the ratio of the domestic price to the reference price can be used. Domestic price in international currency For comparisons with other countries, the price has to be measured at the same point in the distribution chain (ex-manufacturer, wholesaler, or retail). Market exchange rates can be used to convert to the same currency.	For comparison purposes, the ratio of the domestic price to the reference price can be used. Reference price in international currency; average price for reference countries, in international currency For comparisons with other countries, the price has to be measured at the same point in the distribution chain (ex-manufacturer, wholesaler, or retail). Market exchange rates can be used to convert to the same currency.	• Local prices can be obtained from national procurement agencies, national observatories of prices, or a sample of pharmacies in selected cities. • Reference prices can be obtained from reports by international or regional pooled procurement agencies (for example, PAHO), regional price observatories, published literature, or monitoring reports by procurement agencies in a set of selected countries. WHO has a list of local sources for prices: Medicine price information sources.

Annex 2 continues on the following page.

Annex 2: Indicators. Definitions, Measurement, and Sources *(continued)*

Indicators	Definitions	Numerators	Denominators	Sources
Proportion of health facilities that have a core set of relevant essential medicines available and affordable on a sustainable basis (latest 2019, 17 countries) Alternatively, PER authors can use local measures of medicines' availability. In some countries, months of stock of tracer medicines is used and compared against a target.	Proportion of health facilities that have a core set of relevant essential medicines available and affordable on a sustainable basis. The indicator is a multidimensional index reported as a proportion (%) of health facilities that have a defined core set of quality-assured medicines that are available and affordable relative to the total number of surveyed health facilities at the national level.	Facilities with available and affordable basket of medicines	Surveyed facilities	• WHO GHO • National purchasing or distribution agencies' reports on availability and levels of stocks of tracer medicines
Share of generics in the value of sales		Value of sales of generic medicines in local currency	Total value of pharmaceutical sales in local currency	• Reports from the MoH, or health insurance agency • National procurement agencies • OECD Statistics • Studies on pharmaceutical markets in grey or published literature

Annex 2: Indicators. Definitions, Measurement, and Sources *(continued)*

Indicators	Definitions	Numerators	Denominators	Sources
Proportion of health facilities that have a core set of relevant essential medicines available and affordable on a sustainable basis (latest 2019, 17 countries) Alternatively, PER authors can use local measures of medicines' availability. In some countries, months of stock of tracer medicines is used and compared against a target.	Proportion of health facilities that have a core set of relevant essential medicines available and affordable on a sustainable basis. The indicator is a multidimensional index reported as a proportion (%) of health facilities that have a defined core set of quality-assured medicines that are available and affordable relative to the total number of surveyed health facilities at the national level.	Facilities with available and affordable basket of medicines	Surveyed facilities	• WHO GHO • National purchasing or distribution agencies' reports on availability and levels of stocks of tracer medicines
Share of generics in the value of sales		Value of sales of generic medicines in local currency	Total value of pharmaceutical sales in local currency	• Claims data • National procurement agencies • OECD Statistics • Studies on pharmaceutical markets in grey or published literature

GHED = Global Health Expenditure Data; MoH = Ministry of Health; OECD = Organisation for Economic Co-operation and Development; PAHO = Pan American Health Organization; WDI = World Development Indicators; WHO GHO = World Health Organization Global Health Observatory.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance



SECTION 3

Service Delivery

This section provides guidance on assessing the efficiency of health service delivery and evaluating equitable access.

It also offers guidance to understand whether the rules and processes governing the organization and delivery of care contribute to improved efficiency and equity. Hospitals account for a significant portion of health care expenditure. By improving efficiency, hospitals can increase their capacity to treat more patients with existing resources. Equitably distributed services can help counter socioeconomic inequalities. An efficient and effective primary care system—one that is patient centered and well coordinated across levels of care—should meet most health needs in a cost-effective way. This approach reduces unnecessary hospital use and helps prevent complications that affect quality of life.

MODULE 10 HOSPITALS

MODULE 11 PRIMARY CARE AND ESSENTIAL PUBLIC HEALTH

CONTINUE

TABLE OF CONTENTS

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
Service Delivery
M-10: Hospitals
M-11: Primary Care & Public Health
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

TABLE OF CONTENTS

MODULE 10

Hospitals

AUTHORS

Priyanka Saksena, Catalina Gutiérrez, and Christoph Kurowski, with contributions from Christophe Lemiere

START



INTRODUCTION

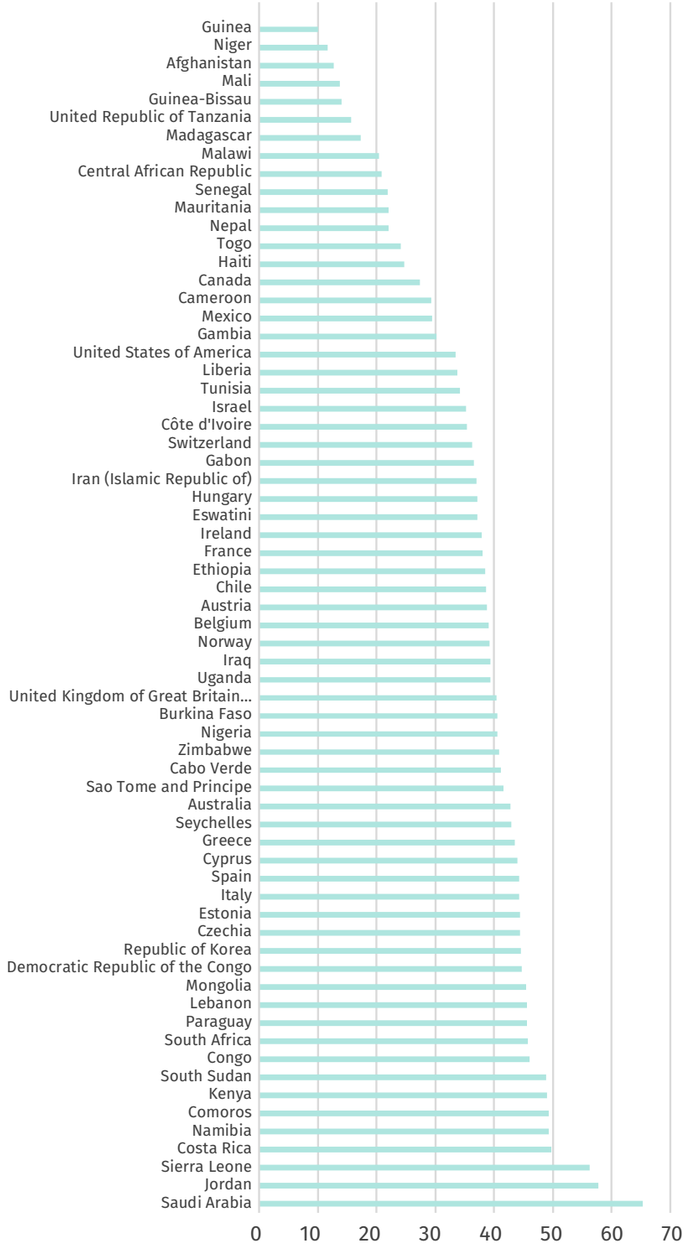
Given the large share of health spending on hospitals, inefficiencies can have important impacts on the health system. On average, hospital expenditures represented more than 35 percent of current health expenditure in 2019, with wide variation across countries (Figure 1). The variation is mostly explained by the degree of reliance on hospitals to provide health care.

Countries face various hospital-related issues, such as having numerous small hospitals with poor-quality care due to inadequate capacity, which nevertheless shifts focus to curative care. Conversely, some areas have too few hospitals, causing equity issues or overutilization of higher-quality hospitals.

These scenarios all result in inefficiency. Major sources of inefficiency in hospitals also stem from unnecessary use overall. Specific examples include excessive emergency room visits or hospitalizations that adequate primary care could prevent and inefficient hospital processes that can result in, for instance, overly long hospital stays (OECD 2017).

Health facilities are generally categorized by levels: primary, secondary, and tertiary. Hospitals are typically categorized as secondary or tertiary level, with tertiary hospitals providing more specialized and technologically advanced services. However, the classification can vary, and some countries have additional levels based on infrastructure and clinical capacity. Terminology for these facilities differs by country. The key difference between hospitals from other facilities is their capacity to provide 24/7 care and supervision of patients, including in relation to emergency care as well as high technology and skill-intensive services. Additionally, some hospitals specialize in areas like maternity care, infectious diseases, or cancer. When someone is admitted to a hospital for an overnight stay, this is considered inpatient care. Hospitals also provide outpatient services, like consultations with specialist physicians for emergencies and accidents, or radiology examinations like CT scans. A hospital's outpatient services sometimes includes even more complex care, such as certain surgeries.

FIGURE 1 EXPENDITURE ON HOSPITALS AS A SHARE OF CURRENT HEALTH EXPENDITURE, 2019



Source: World Health Organization Global Health Expenditure Database. Accessed May 3, 2023. https://apps.who.int/nha/database/ViewData/Indicators/en.

This module considers different aspects of hospital efficiency and explains how PER authors can assess them during a PER. These aspects include the spending on hospitals and spending trends, hospital infrastructure and capacity, types of hospitals and expenditure within hospitals. The module also explores productivity, quality, integration of services, and processes/governance to help authors determine whether resources are being used efficiently. Finally, the module discusses equity dimensions related to hospitals. PER authors can also refer to the "Recommended Readings" in the box on the following page.

Some indicators discussed in the section on productivity, quality, and integration of services can vary based on subtle clinical differences; these may be difficult to understand, especially for nonspecialists. Further, without a culture focused on patient safety and quality improvement, clinicians and their managers may be reluctant to discuss clinical choices. Thus, as noted in many places in this module, PER authors should rely on existing reports and studies rather than conduct novel analysis based on primary data.

In some countries, hospital performance assessment frameworks exist, and their data are available in a centralized location. The aim of these frameworks is to measure and improve a hospital's functioning, including by identifying and collecting standardized indicators of performance from different

facilities. Included indicators might be related to clinical effectiveness, patient-centeredness, safety, responsive governance, staff orientation, timeliness, equity, and utilization as well as efficiency.[1] These data, if available, could be an excellent resource for this module.

PER authors should also note that formalized frameworks for studying comparative hospital efficiency have been developed. While these are not considered in this module, authors can refer to Annex 1: Considerations in Hospital Efficiency Measurement, and Annex 2: How to conduct a Data Envelopment Analysis (DEA) for Hospitals for more information. Box 3 at the end of this section explores common approaches to hospital efficiency analysis and offers guidance on avoiding common pitfalls when applying them.

1 Different frameworks for assessing hospital performance have been developed and use different standardized indicators of performance. Some frameworks use indicators that focus on high-income countries, like the US-oriented Major Hospital Quality Measurement Sets and the UK's NHS Outcomes Framework, while others, such as the World Health Organization's European Path and balanced scorecard approaches, have a broader scope (Groene, Skau, and Frølich 2008; "Major Hospital Quality Measurement Sets," n.d.; "NHS Outcomes Framework (NHS OF)," n.d.; Veillard et al. 2005; Carini et al. 2020).

BOX 1. RECOMMENDED READING

James, C., C. Berchet, and T. Muir. 2017. "Addressing Operational Waste by Better Targeting the Use of Hospital Care," in *Tackling Wasteful Spending on Health*. Paris: OECD Publishing. https://doi.org/10.1787/9789264266414-8-en.

La Forgia, Jerry, and Bernard Couttolenc. 2008. *Hospital Performance in Brazil: The Search for Excellence*. Washington, DC: World Bank. https://openknowledge.worldbank.org/entities/publication/6d5af25a-424b-5fd5-ba07-72d045ba16d4.

Preker, Alexander S., and April Harding. 2003. *Innovations in Health Service Delivery: The Corporatization of Public Hospitals*. Washington, DC: World Bank. https://documents1.worldbank.org/curated/en/286701468150875482/pdf/261000REVISED00ing0Preker020030book.pdf.

Veillard, J., F. Champagne, N. Klazinga, V. Kazandjian, O.A. Arah, and A.-L. Guisset. 2005. "A Performance Assessment Framework for Hospitals: The WHO Regional Office for Europe PATH Project." *International Journal for Quality in Health Care* 17 (6): 487–96. https://doi.org/10.1093/intqhc/mzi072.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
Service Delivery
M-10: Hospitals
M-11: Primary Care & Public Health
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

INEFFICIENCY

Spending, Infrastructure, and Capacity

KEY QUESTIONS

- **How much is spent on hospitals? How has this spending evolved?**
- **What hospital infrastructure and capacity exist in the country?**

PER authors should look at hospital expenditure as a share of current health expenditure,[2] expenditure on hospitals as a share of government spending, and the expenditure on public hospitals as a share of the Ministry of Health (MoH) budget, particularly for countries with public provision.

This information is readily available in country documents including MoH budgets. When doing country comparisons, authors should take care to understand whether data on expenditure includes the procurement of medicines, which is sometimes accounted separately and can make up an important share of expenditure.

The share of spending on hospitals depends on the characteristics of the health and health financing system in a country, and there are no international benchmarks in this area. For example, hospital

2 This is an indicator calculated in the National Health Accounts (NHA), using the breakdown of expenditure by providers. Specifically, NHA are calculated using the System of Health Accounts 2011, or SHA 2011, which is an international accounting framework for systematically tracking health spending. Most countries have conducted this exercise and many conduct it regularly, with an aim to guide future policies and investments to make health systems more responsive to people's needs. However, detail and quality of data may vary significantly from country to country depending on the level of institutionalization of National Health Accounts.

Also of note, current health expenditure under SHA 2011 includes expenditure on maintenance but excludes capital expenditure, or, more specifically, gross fixed capital formation, which is separated in capital expenditure. Current health expenditure is now the standard denominator for international reporting. However, many countries also report in their national publications the total health expenditure, which includes capital expenditure.

Key Indicators	Sources
Hospital expenditure as a percentage of current health expenditure **Hospital expenditure as a percentage of government health expenditure (including both public and private hospitals)** **Public sector hospital expenditure as a percentage of government health expenditure**	• MoH • National Health Accounts • National budget documents • WHO GHED • OECD Statistics
Number of hospitals per 100,000 population	• MoH • WHO GHO
Hospital beds per 10,000 population	• MoH • WHO GHO

Note: MoH = Ministry of Health; OECD = Organisation for Economic Co-operation and Development; WHO = World Health Organization; WHO GHED = Global Health Expenditure Database; WHO GHO = Global Health Observatory.

expenditure as a share of current health expenditure was 39 percent, on average, in Organisation for Economic Co-operation and Development (OECD) countries in 2019, ranging from 27.4 percent in Canada to 51.4 percent in Türkiye (OECD Statistics).

However, a large budgetary allocation of government funds to hospitals could result in lower overall efficiency in the system if such funding undermines other essential health facilities and services, like promotive or preventive care, which usually makes cost-effective investments (Jamison 2018). Additionally, it would be useful for PER authors to examine trends in expenditure on different levels of hospitals and expenditure over time within a country.

To understand whether there is adequate availability of hospital services, PER authors can investigate the overall hospital infrastructure and capacity in a country by identifying the number of hospitals per 100,000 population and density of hospital beds per 10,000 population. Overall, there is significant variation in hospital infrastructure and capacity across countries, with some countries simply without enough facilities, resulting in higher mortality.

OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
Health Financing
Inputs
Service Delivery
M-10: Hospitals
M-11: Primary Care & Public Health
Outcomes
List of Acronyms
4 SECTION 4 Additional Guidance

CASE EXAMPLE: VIET NAM

Hospitals in Viet Nam are often overcrowded. It is not unusual to have two or even four patients per bed. And this overcrowding is indeed reflected by high Bed Occupancy Rates (BOR), which have reached 129 percent recently. For some policymakers, these are clear signs that additional investments in hospital capacities are needed. But is it ?

Other indicators strongly suggest that this overcrowding is not due to undersized hospitals but rather to an over-utilization of hospitals.

First, bed density (number of hospital beds per 10,000 people in the population) in Viet Nam is in line with the OECD average and with other countries in East Asia and Pacific. Viet Nam is actually slightly better equipped with inpatient beds than aspirational peers such as Thailand, Singapore, and Malaysia.

Second, Viet Nam's hospitalization rate is somewhat high. The latest MOH estimates (2020) show that Viet Nam had 166 hospital discharges from public hospitals for every 1,000 inhabitants. These discharge rates are higher than the OECD average and than many comparator countries in the region, including China, Japan, Malaysia, and Thailand.

Third, a large part of hospitalizations is avoidable. In 2020, a World Bank study found that over 30 percent of all inpatient episodes paid by the health insurance fund were for ambulatory care sensitive conditions (ACSC). ACSCs are conditions that, if effectively dealt with in primary health care (PHC) or ambulatory care, could avoid hospitalization.

Fourth—and above all—, 45 percent of current health expenditures (CHE) are absorbed by inpatient care expenditures. This is one of the highest levels in Asia. Even globally, among lower middle-income countries, the average is 24 percent, while among upper-middle-income countries, it is 30 percent.

Source: World Bank, forthcoming, "Why is Vietnam spending so many resources in its hospital sector? And what can be done about it?"

Box continues on the following page.

CASE EXAMPLE: VIET NAM *(continued)*

FIGURE 1 INTERNATIONAL COMPARISON OF DISCHARGE RATES, 2020 OR LATEST YEAR

Discharges per 1,000 inhabitants

Source: OECD Health – Figure 5.12. Hospital discharges per 1 000 population, latest year available. Version 1-Last updated: 25 November 2022. Viet Nam 2020 figure from MOH.

Note: H-high income; UM-upper middle income; LM/L-lower middle and lower income

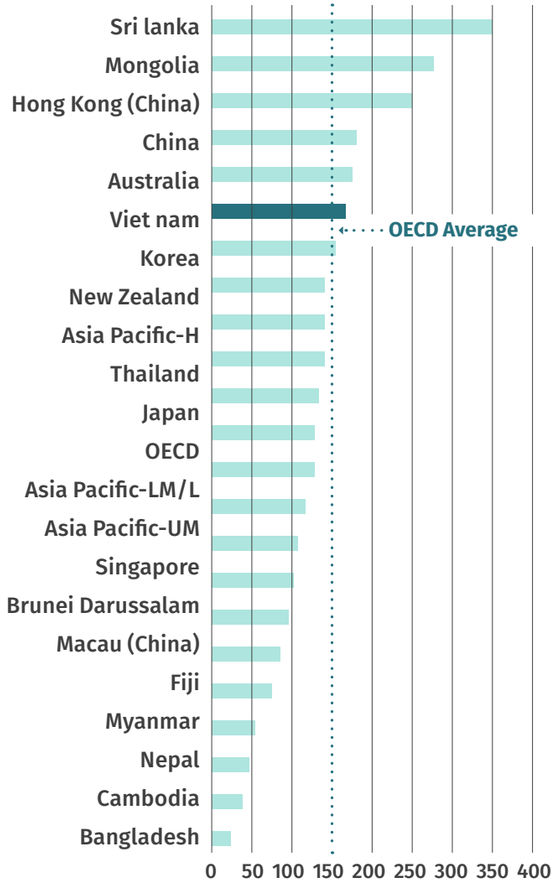
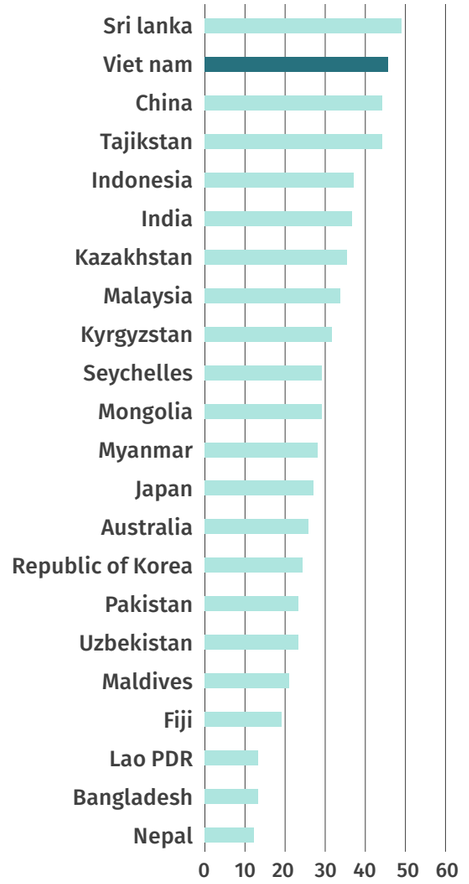


FIGURE 2 INTERNATIONAL COMPARISON OF INPATIENT CARE EXPENDITURE SHARE OF CHE, LATEST YEAR

Inpatient share (%) of CHE

Source: WHO latest year. Viet Nam 2019.



For example, maternal mortality is associated with a lower number of and farther distance from hospitals. Countries lacking sufficient and well-distributed emergency obstetric services have higher maternal deaths, almost all of which are preventable—there were nearly 15 million deaths due to maternal hemorrhage in 2019 worldwide (Vos et al. 2020; Hanson et al. 2015; Tian and Pan 2021). WHO, the United Nations Children's Fund (UNICEF), and the United Nations Population Fund (UNFPA) recommend that at least one facility provide emergency obstetric care per 100,000 population (World Health Organization et al. 2009). Other estimates suggest that over 50 percent of annual deaths in low-middle-income countries could be averted by the implementation of quality emergency care systems (Hirner et al. 2023). Ensuring that at least 80 of the population lives within two hours of essential surgical services has also been proposed as a benchmark (Meara et al. 2015).

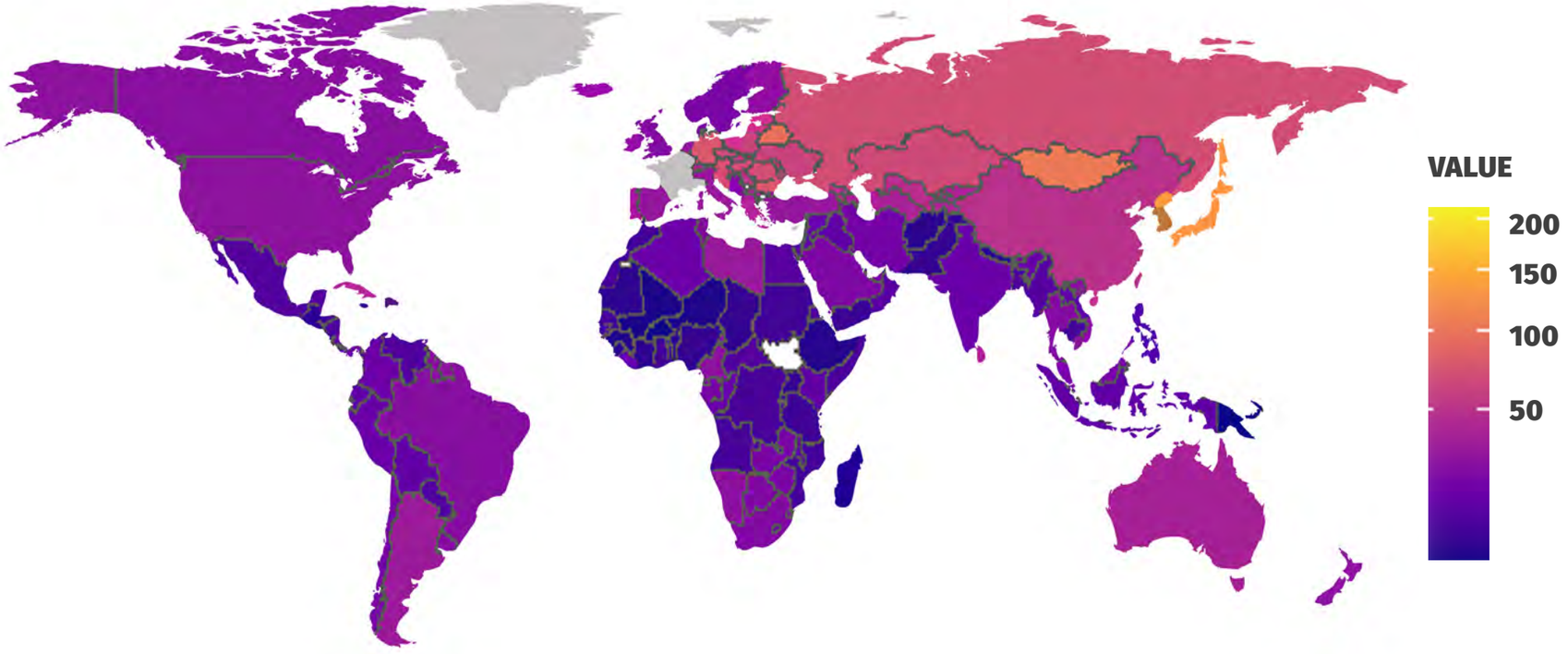
Conversely, other settings have an abundance of hospital capacity, at the risk of being inefficiently used or underused, and political economic factors often favor investment in hospitals. For example, in the Middle East and North Africa region, Ravaghi et al. (2019) identified excess hospital workforce, excess beds, and inappropriate hospital sizes as the main sources of inefficiency in the health system.

PER authors can benchmark hospital density and hospital bed density against other countries in the region as well as countries with similar socioeconomic and health system characteristics. The additional guidance note on country comparisons, Benchmarking, provides guidance in this area. Also, Sustainable Development Goal (SDG) indicator 3.8.1, on universal health coverage, has a threshold of 18 beds per 10,000 population, which is considered full coverage.[3]

Authors who want to explore infrastructure and service availability issues in more detail can also consult the module on Physical Infrastructure and Equipment and the additional guidance note on Service Availability and Readiness.

3 The threshold of 18 beds per 10,000 population for full coverage was based on the average number of beds in OECD countries in 2015.

FIGURE 3
HOSPITAL BEDS PER 10,000 POPULATION, LATEST AVAILABLE YEAR



Source: World Health Organization Global Health Observatory.

Input Mix

KEY QUESTIONS

- How many types of hospitals are in the country?
- How much is spent on human resources and maintenance in hospitals?

Exploring the evolution of the numbers, types, and expenditures across hospitals in a country can be useful in examining efficiency. For example, even though, in general, there should be far fewer tertiary hospitals than secondary hospitals, there has been a rapid increase in tertiary hospitals in some countries. Having too many tertiary hospitals compared to secondary hospitals can result in care being delivered at higher levels of complexity than needed. The numbers of specialized hospitals (that is, single specialty such as cancer or tuberculosis) as compared to general hospitals would also be useful to monitor. A large share of specialized hospitals (and beds in specialized hospitals) may unnecessarily disperse staff and technology if there are not enough patients with specialized needs, and limits care possibilities for patients with multiple health problems.

Key Indicators	Sources
Number, density of hospitals and expenditure by type of hospital	• MoH • National Health Accounts data
HRH expenditure as % of total expenditure in hospitals	• MoH • National Health Accounts data
Capital expenditure + maintenance expenditure as % of total expenditure in hospitals	• MoH • National Health Accounts data
Number of magnetic resonance imaging units per 1,000,000 population **Number of computed tomography scanners per 1,000,000 population**	• MoH • WHO GHO

Note: MoH = Ministry of Health; WHO GHO = World Health Organization Global Health Observatory.

In some countries, hospitals that exclusively serve one population group also exist, for example, tertiary hospitals run by large contributory insurance funds for their beneficiaries. Different hospitals run by different levels of government can also be found in the same location. Having these types of facilities can signal inefficiency, especially if coupled with low productivity and duplication across facilities.

To explore other potential inefficiencies, PER authors should consider the input mix within hospitals. Indicators like ratios of nurses and physicians to patients have been linked to hospital mortality rates in many studies (Dall'Ora et al. 2023). While no general benchmarks exist, the relative number of physicians, nurses, and other health workers can be important for productivity, based on more efficient distribution of tasks (see the Human Resources for Health module for more information). PER authors should also compare the numbers of different health workers in hospitals with any specific country norms if they exist. Since hospitals also need to spend on medicines, equipment, and regular maintenance to remain operational, authors should assess whether a disproportionate share of hospital budgets is allocated to human resources to the detriment of other inputs. Very high relative spending on human resources in hospital budgets may indicate that these facilities in fact serve a function closer to patient supervision or hotel services—since they may not have enough resources to spend on other essential components of good quality medical care, or that the burden of paying for these components falls on patients. For example, in many countries, people have to purchase medicines for their hospitalized family members from external pharmacies through out-of-pocket payments.

Certain high-tech equipment typically used in hospitals can also be considered, for example, magnetic resonance imaging (MRI) machines and computed tomography (CT) scanners. While their availability remains low in many countries, these costly technologies are overused in other settings, which in turn leads to even more demand for them. Both issues are worth looking into for a PER. For example, the number of CT and MRI exams have more than doubled in some OECD countries in the past 10 years (OECD 2023).

Productivity

KEY QUESTIONS

- **Are hospitals being used efficiently?**
- **Is hospital productivity adequate?**

There are many standard indicators that PER authors can use for a general evaluation of hospital productivity. These should be used primarily for comparisons across hospitals within a country but can also be used to make comparisons with other countries. For countries with national hospital performance assessment frameworks or similar approaches, PER authors easily can study variations in hospital productivity within a country, including variation among hospital groups of different types, and geographic region. At the national level, the OECD collects data on some of the indicators discussed here, which could be a useful source of relatively standardized information for international benchmarking.[4]

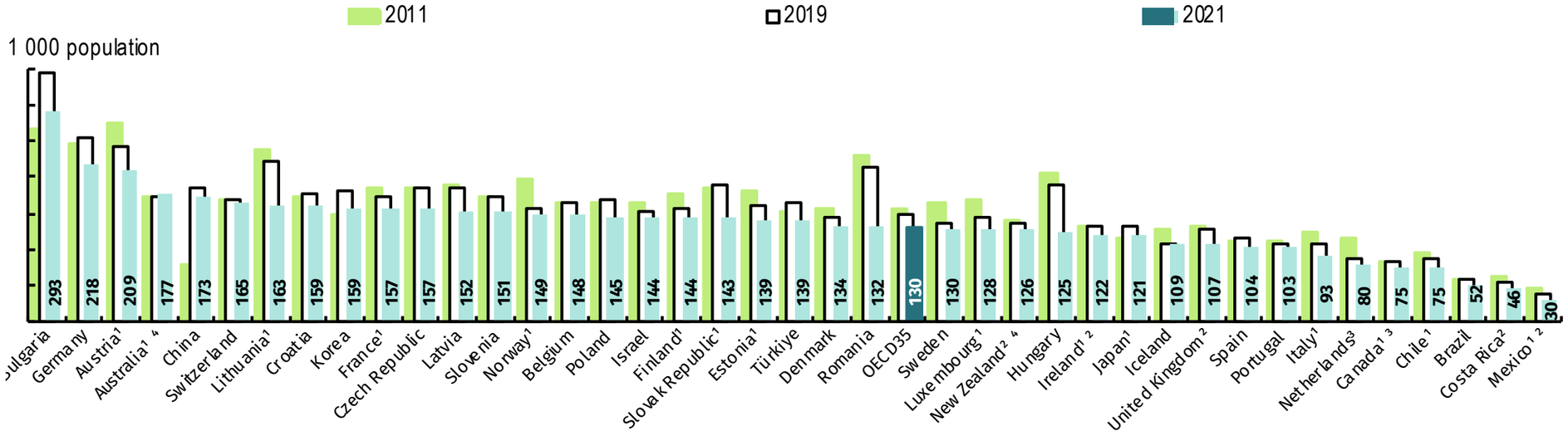
4 https://stats.oecd.org/.

Key Indicators	Sources
Number of inpatient admissions per 100,000 population	• MoH • National health insurance fund • Hospital performance assessment framework data
Case mix index	• National health insurance fund
Bed occupancy rate	• MoH • National health insurance fund • Hospital performance assessment framework data
Procedures per equipment	• MoH • Hospital performance assessment framework data
Intensity of surgical theater use	• MoH • Hospital performance assessment framework data
Length of stay for selected services	• MoH • National health insurance fund • Hospital performance assessment framework data
Outpatient visits per 100,000 population in hospitals	• MoH • National health insurance fund • Hospital performance assessment framework data
Day surgery for tracer services	• MoH • National health insurance fund • Hospital performance assessment framework data

Note: MoH = Ministry of Health.

The number of hospital admissions per 100,000 population, or the hospitalization rate, is a commonly available indicator that shows the number of hospital admissions relative to the population in a given year (Figure 4). In some countries, the information is presented as the hospital discharge rate instead. While hospitalization rates vary substantially across countries, as shown in Figure 4, an increasing rate within a country could signal inefficiency from overreliance on hospitals.

FIGURE 4
HOSPITALIZATION RATE PER 1,000 POPULATION, 41 SELECTED COUNTRIES, 2011–21



Source: OECD Health Statistics 2023, https://www.oecd-ilibrary.org/sites/7a7afb35-en/1/3/5/8/index.html?itemId=/content/publication/7a7afb35-en&_csp_=6cf33e24b6584414b81774026d82a571&itemIGO=oecd&itemContentType=book.

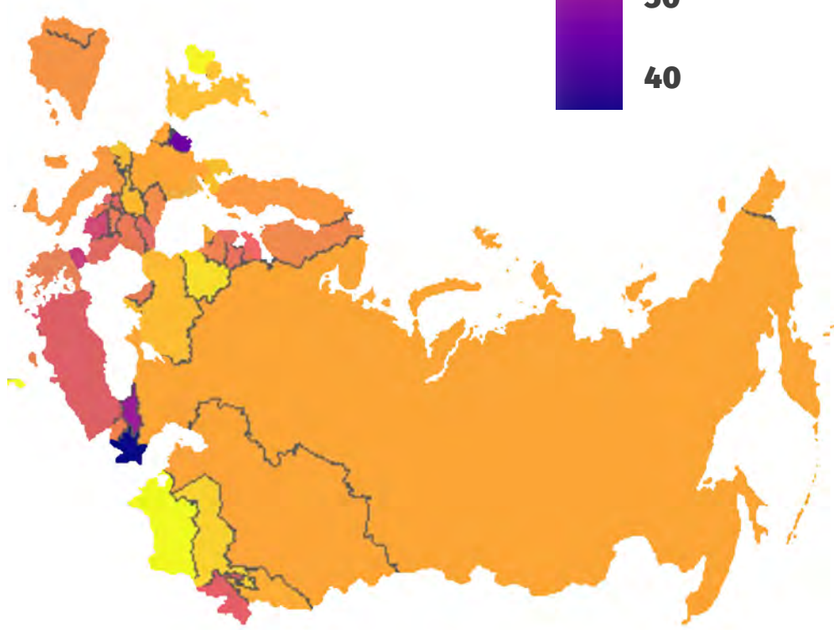
The number of hospitalizations can be further broken down by regions and hospital catchment population for comparison between different facilities in a country.[5] When comparing hospitalization numbers within a country, PER authors should note that the case load can vary between different types of hospitals. A case mix index can summarize information on the types of hospitalizations more comprehensively, including information on specialty related to the admission as well as other characteristics. For example, some hospitals may deal with more complex cases, which require longer stays.

The case mix index for different facilities can be used to adjust or qualify other metrics of hospital productivity and quality to make comparisons across hospitals more valid. In countries that use case-based payments for hospitals (for example diagnosis-related groups, or DRGs), the case mix index can be calculated by averaging the case weights for admissions in each facility.[6]

A hospital's bed occupancy rate is defined as the number of days a bed is occupied in one year. It is a standard metric that is collected in almost all hospitals. Figure 5 shows bed occupancy rates for acute care hospitals in Europe and parts of Asia; the rates ranged from 36 percent in Azerbaijan to 93 percent in Ireland, on average.

FIGURE 5
BED OCCUPANCY RATE, ACUTE CARE BEDS, LATEST AVAILABLE YEAR

Source: World Health Organization Global Health Observatory.



5 The catchment area of a hospital is the population that a hospital is supposed to serve. This can be the population of the neighborhood or the city where the hospital is located or the number of beneficiaries of the program that a facility exclusively serves. To determine the hospitalization rate by catchment population, the number of hospitalizations can be divided by the catchment population instead of 100,000.

6 The World Bank has recently conducted a cross-country analysis of case-mix in hospitals that PER authors can refer to for more information (Doroshenko et al. 2023). However, given its complexity, authors should rely on existing work in this area as much as possible rather than conduct novel analysis.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
Service Delivery
M-10: Hospitals
M-11: Primary Care & Public Health
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

Bed occupancy should never reach 100 percent. While an 85 percent target occupancy rate is often cited, there are risks of overcrowding at this threshold (Proudlove 2020). In some low- and middle-income countries, practices such as bed sharing during peak occupancy greatly impact quality of care. However, occupancy rates of 50–60 percent are too low to be efficient. PER authors should examine trends in bed occupancy rates over time, compare different hospitals within a country, and benchmark against countries with better-performing health systems.

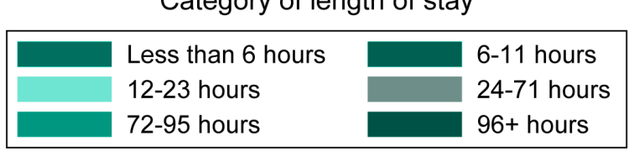
Other indicators related to the use of physical resources, such as the intensity of surgical theater use (which shows the time surgical facilities are used for clinical care) and the number of procedures per equipment, may also be available. These can indicate an underutilization of resources, signaling too few human resources to provide continuous care or too many health workers for a low overall utilization of hospitals, for example, due to an oversupply of hospitals. PER authors can also consider whether national staffing norms for hospitals could lead to less productivity. For example, perhaps too few radiological technicians are allotted to each secondary hospital in the national staffing norms to efficiently use existing imaging equipment.

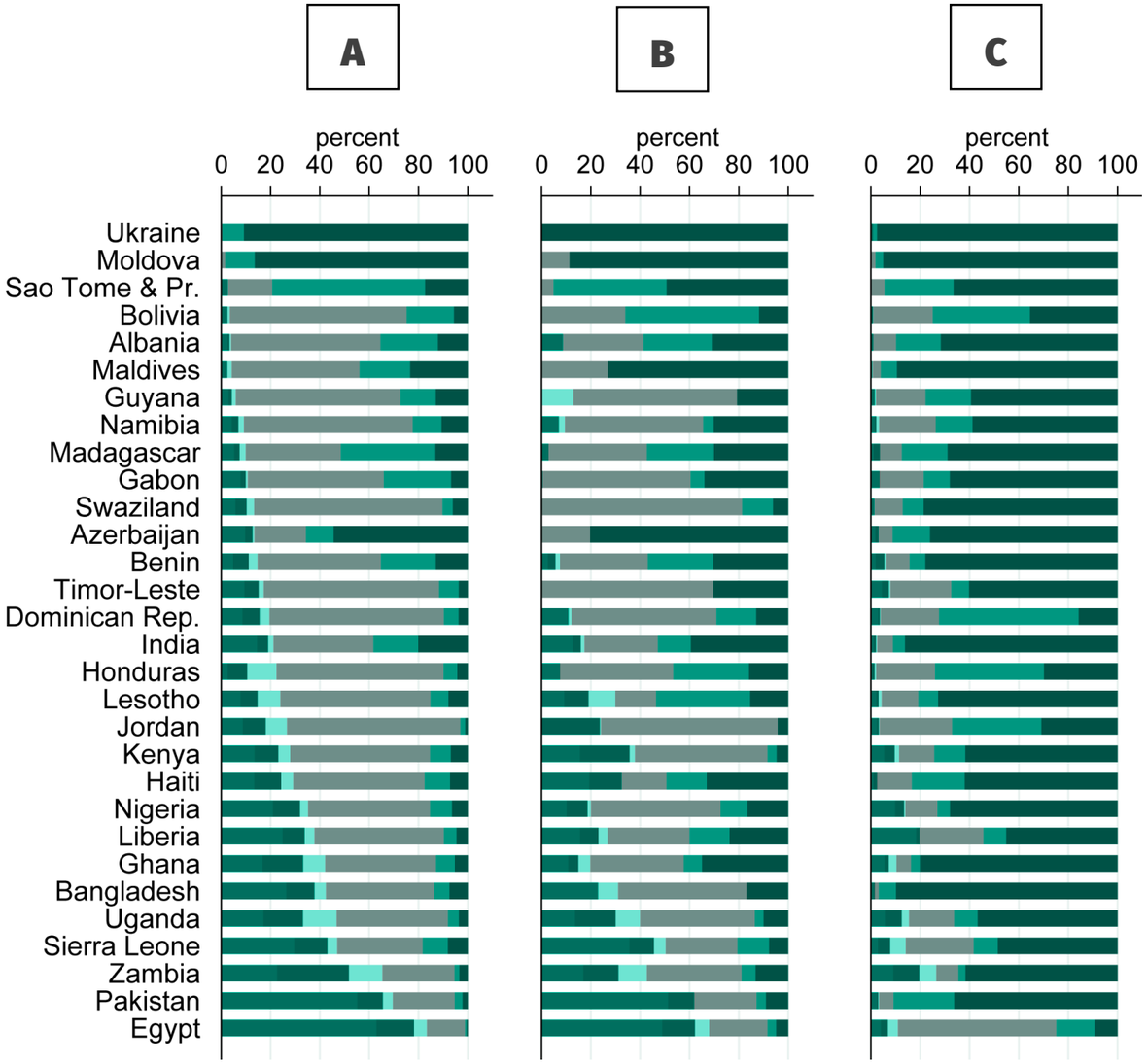
Ensuring appropriate lengths of stay decreases wasteful use of resources and improves quality of care for patients. PER authors can compare the average length of stay for selected health conditions with national clinical guidelines and practices. Longer stays may indicate poor facility organization and/or poor incentives for timely discharge, while shorter stays may flag a shortage of beds, staff, medicines, or supplies or a financial burden on patients. In some countries, inadequate investment in primary care, long-term care facilities, and hospice care can be an important source of inappropriate admission and length of stay.

For example, evidence-based guidelines for childbirth usually suggest a length of stay of about 24–48 hours after delivery and then significant follow-up care for the next six weeks (World Health Organization 2022; Zhao et al. 2020). However, the actual length of stay varies greatly, as shown in an international study (Campbell et al. 2016). Figure 6 presents strong evidence of both excessive length of stay after delivery as well as patients discharged too early. In some contexts, trends could be explained partially by differing practices and national guidelines, as well as a lower reliability of post-discharge follow-up care.

FIGURE 6
PROPORTION OF DELIVERY TYPE BY LENGTH OF STAY, 30 SELECTED COUNTRIES (PERCENT), VARIOUS YEARS

Proportion of vaginal singleton, vaginal multiple, and cesarean deliveries by category of length of stay, for 30 countries with DHS data. (A) cesarean deliveries; (B) vaginal multiple deliveries; (C) vaginal singleton deliveries.





Source: Campbell et al. 2016.

Hospitals also provide outpatient services, such as consultations and diagnostics, without the need for an inpatient stay. To monitor the productivity of a hospital, the volume of outpatient visits per 100,000 population can also be considered through the number of outpatient visits adjusted for the catchment population. In some contexts, the number of outpatient visits and inpatient stays in a hospital in one year are combined to present an aggregate estimate of overall productivity by facility. This aggregated "adjusted admissions" can be made based on the relative average revenues or costs of an outpatient visit as compared to an inpatient stay or another formula. These types of metrics can be useful for PER authors in comparing the productivity of different hospitals.

However, relying on hospitals for primary care is inefficient. Quality health services can be delivered cost-effectively at the community level and by primary facilities. These services include the majority of preventive, protective, preventative, curative, rehabilitative, and palliative services (Jamison 2018; Laxminarayan et al. 2006). So, PER authors should also assess whether large volumes of outpatient visits can be explained by the inappropriate use of hospitals for care that should be delivered in lower-level facilities instead.

In contrast with ordinary outpatient services, some more complex procedures can be completed without an inpatient stay, for example, laparoscopic surgeries. Depending on the national clinical guidelines and practices, PER authors may be able to find useful information on "day surgeries" versus inpatient admissions, or inpatient admissions for procedures that do not require a hospital stay.[7] Because choices to perform procedures as outpatient services are clinically sensitive, authors should rely on existing studies and reports whenever possible rather than collect and analyze primary data.

7 Guidance on the expansion of day surgeries by the National Health Service in England, which contains information on useful considerations as well as potential procedures that can be further considered for day surgeries (National Health Service England 2020). This could be a useful reference for PER authors interested in learning more about this area.

Quality

KEY QUESTION • Are services of appropriate quality that prevents waste of resources?

There are also indicators related to efficiency that are closely linked to effectiveness and quality. Patient safety information, such as data on hospital-acquired infections, is one such area. Data may exist on specific types of hospital-acquired infections, for example, urinary tract infections associated with catheters. Alternatively, PER authors could consider process indicators related to infection prevention in hospitals such as domain scores for standard precautions.

Readmissions are another useful indicator that straddles common spaces between effectiveness, quality, and integration of care as well as efficiency, where high rates signal substandard care during hospitalization or after discharge. Some countries use general readmission rates, while others look

Key Indicators	Sources
Readmission rates	• MoH • National health insurance fund • Hospital performance assessment framework data
Hospital-acquired infection rates	• MoH • National health insurance fund • Hospital performance assessment framework data
Hospital mortality rate	• MoH • Hospital performance assessment framework data
Are volume thresholds established to maintain quality and safety of select hospital interventions?	• MoH • Hospital performance assessment framework data

Note: MoH = Ministry of Health.

at readmission rates for specific conditions or procedures, for example, readmission to a hospital after a heart attack (Barrenho et al. 2022).

In some countries, PER authors may wish to examine intrahospital mortality, particularly if other information is not available. More sophisticated versions of this information are used in many settings to monitor hospital performance. For example, standardized hospital mortality rates—which control for patient characteristics or mortality rates for specific tracer conditions, such as stroke or heart attack or related to perinatality—or specific procedures can be used. Authors should exercise caution when interpreting these data, as they may be driven by subtle clinical and socioeconomic differences.

There is also significant evidence that quality of care is correlated with the volume of hospitals' outputs of certain types of services, including surgeries (Scharfe et al. 2023; Bauer and Honselmann 2017; Chou, Hwang, and Tung 2021). Some studies hypothesize that this relationship results from repeatedly performing and perfecting these services, as well as quality-improvement processes likely to exist more systematically in hospitals with high volume. Based on this, certain countries have defined minimum volume standards for hospitals receiving public financing for specific procedures care such as deliveries, cardiac interventions, and cancer treatments (Morche et al. 2018). As PER authors explore the quality-efficiency connection through indicators like specific readmission and mortality rates, they can also consider the volume of those procedures performed in hospitals. In this case, authors should keep in mind that patient preferences may sometimes undermine any planned volume objectives.

PER Authors interested in exploring quality issues in more detail can consult the additional guidance note on Quality of Health Services.

Integration of Services

KEY QUESTIONS

- **What are the trends in emergency room visits?**
- **How many hospitalizations are for "ambulatory care sensitive conditions?"**

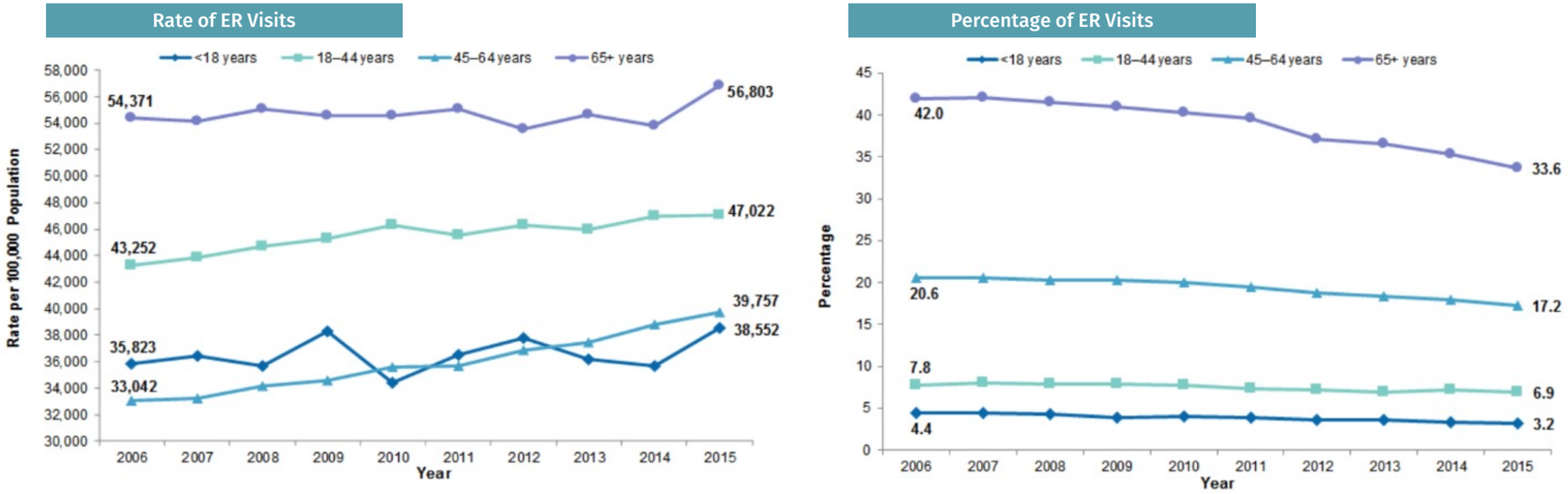
Integration of health services is an approach to strengthening the comprehensive delivery of quality health services. This is done through a coordinated multidisciplinary team of providers working across settings and levels of care (World Health Organization Regional Office for the European Region 2016). This type of care model improves health outcomes and minimizes the use of inappropriate health services.

An absence of integrated health services results in services delivered in an uncoordinated manner or at an inappropriate level. For example, people who do not receive follow-up care from their primary care providers after a hospital stay for diverse reasons are more likely to be readmitted to the hospital (Moneme et al. 2023; Saxena et al. 2022). Similarly, people without a regular primary care provider are more likely to seek care at hospital emergency rooms (Fung et al. 2015). Overall, a lack of integration of services can be a major source of inefficiency. This section focuses on integration and efficiency issues that can be assessed by analyzing hospital data. In complement, the Primary Care and Essential Public Health Services module considers integration in that setting.

Key Indicators	Sources
Emergency room visits per 1,000 population	• MoH • National health insurance fund • Hospital performance assessment framework data • Household surveys with health service utilization information (e.g., DHS)
Avoidable admissions as a proportion of total admissions Avoidable admissions for selected conditions such as diabetes, COPD, mental health disorders, etc.	• MoH • National health insurance fund • Hospital performance assessment framework data

Note: DHS = Demographic and Health Surveys; MoH = Ministry of Health.

FIGURE 7
EMERGENCY ROOM VISITS PER 100,000 POPULATION AND PERCENTAGE OF ADMISSIONS THEREIN, 2006–15



Source: Sun, Karaca, and Wong 2006.

Data on the number of visits to hospital emergency rooms and related trends are readily available and can indicate efficiency issues. For example, a high (or increasing) number of visits may signify care-seeking at an inappropriate level. Figure 7 shows the number of emergency room visits per 100,000 population (left) and the percentage of hospital admissions among these visits (right) in the US from 2006 to 2015. While the number of visits increased over this period, the rate of admission decreased, suggesting that patients may have been able to receive adequate care outside of a hospital setting (Sun, Karaca, and Wong 2006).

Examining hospitalization rates for conditions that typically should not require hospitalization if properly managed in primary health care settings can reveal efficiency problems related to service integration. For example, hospitalizations caused by diabetes complications usually indicate poor management of the disease by patients and lower-level health providers. Another example is respiratory illnesses like adult asthma. These hospitalizations for "ambulatory care sensitive conditions" (ACSC)[8] indicate situations where effective and accessible primary care could have prevented the need for hospitalization.

8 "Ambulatory care sensitive conditions" (ACSC) are conditions for which care delivered at the primary level could potentially prevent the need for hospitalization. While there are some differences in which conditions are considered ACSC, hospitalization for diabetes, chronic obstructive pulmonary disease, asthma, hypertension, and congestive heart failure feature in many countries' monitoring of avoidable admissions.

CASE EXAMPLE: ESTONIA

A study by the Estonian Health Insurance Fund and the World Bank found that over 17.5 percent of hospital admissions in the country in 2013 were avoidable (Table 1). In lower-level hospitals, over 22 percent of hospitalizations were for ambulatory care sensitive conditions (Estonian Health Insurance Fund 2015).

Overall, the study noted a tendency toward acute inpatient care with extended hospital stays, many of them avoidable, as well as weaknesses in pre- and post-acute coordination, including the absence of adequate follow-up care at the primary level.

TABLE 1
AVOIDABLE HOSPITALIZATIONS, BY HOSPITAL TYPE, ESTONIA, 2013

Provider Type	Total Admissions (2013) Respiratory, Endocrine, and Circulatory	% Avoidable
Regional	22,903	14.69%
Central	20,612	18.58%
General	18,144	22.33%
Non HNDP Providers	10,138	14.01%
All Providers	71,797	17.64%

Source: Estonian Health Insurance Fund, 2015.
Note: Referrals and transfers to other facilities were excluded from the analysis.

Admissions for these types of conditions are used to reveal care integration problems in contexts where reliable data are available. However, because hospital data do not always include underlying causes of diagnoses, this analysis requires some technical choices, and PER authors should rely on existing analyses. Similarly, cross-country analyses can be tricky, as there is significant variation in the definition of ACSC (Organisation for Economic Co-operation and Development 2017). Data on admissions for mental health disorders could be useful here, as many countries rely too heavily on hospitalization in this area. Annex 3, Costs Associated with Hospital Admissions for Ambulatory Care Sensitive Conditions, includes details for PER authors' deeper exploration.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
Service Delivery
M-10: Hospitals
M-11: Primary Care & Public Health
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

WHICH APPROACH FOR HOSPITAL EFFICIENCY ANALYSIS?

A Data Envelopment Analysis (DEA) is always considered preferable to various alternative approaches, such as bed occupancy rate (BOR) or Pabon-Lasso analyses. DEA has its limitations (see Annex 1), but remains a much more accurate starting point for efficiency analyses.

BED OCCUPANCY RATE

As hospitals are fixed-cost businesses, one could think that the BOR is a good indicator for efficiency. BOR is certainly an important parameter to consider, but it needs to be adjusted and handled with extra care.

First, at least two component variables of BOR are prone to measurement issues.

- Regarding the number of beds, PER authors may face several definitions, sometimes in the same hospital. By "Bed capacity" can mean (1) the officially approved number of beds; or (2) the number of physical beds; or (3) the number of staffed beds; or (4) the number of acute beds and so on.
- As for the number of bed days (inpatient days), not all countries endorse the international OECD definition of "inpatient care." For instance, some countries (for example, Sri Lanka and Viet Nam) will declare an admission after a patient has stayed for a minimum number of hours in a hospital bed, which could lead to counting multiple bed days on the same calendar day.

Second, and more importantly, there are major scale effects with BOR. In other words, the maximum BOR that a hospital can achieve heavily depends on its bed capacity. The biggest source of the scale effect results from patient flow variability. For instance, using an Erlang-B formula, De Bruin (2007) finds that small hospitals will have to keep a rather low BOR so as to keep a (bed) capacity buffer and thus not have to refuse admission for too many patients. This is why the 85 percent benchmark for BOR is rather misleading (see Proudlove 2019).

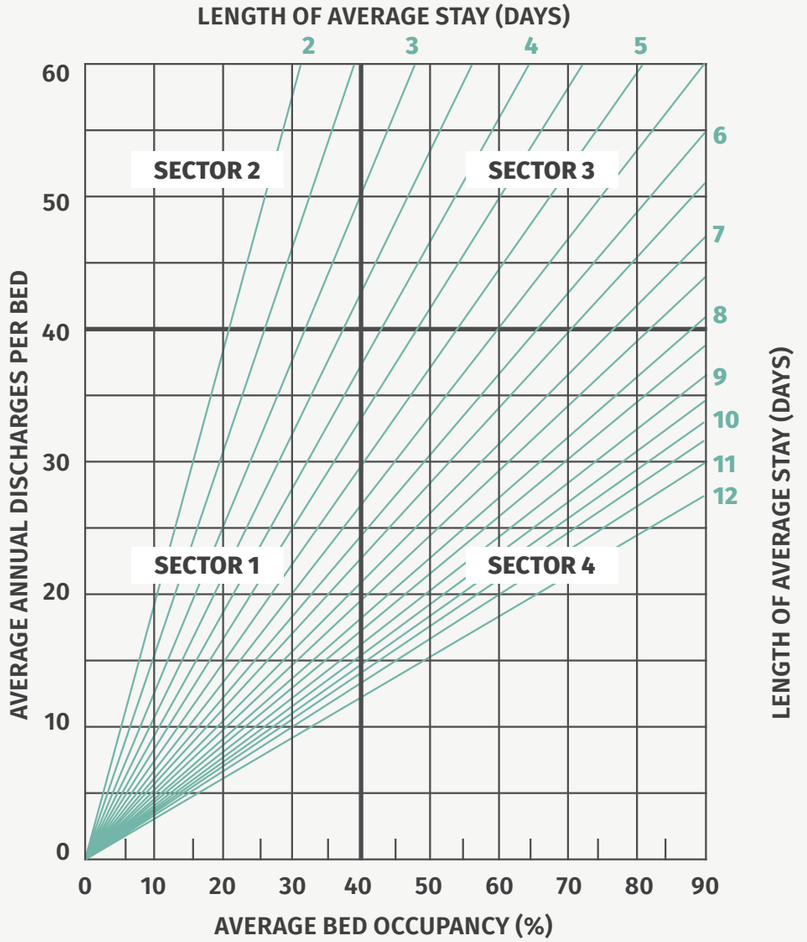
WHICH APPROACH FOR HOSPITAL EFFICIENCY ANALYSIS? *(continued)*

PABON-LASSO APPROACH (PL)

Pabon-Lasso (1986) presents his approach as comparing hospitals along three dimensions: bed turnover (BTR), bed occupancy rate (BOR) and length of stay (LOS). This is illustrated in the figure on the right.

A first concern with the PL approach is that these indicators are in fact inherently related to each other. Indeed, one can easily see that BOR can be expressed as BTR adjusted with average length of stay (ALOS). No wonder then that, in many PL analyses, BTR and BOR are highly correlated.

Second, the PL approach is based on two fragile or even biased indicators. We have seen earlier that BOR is a tricky indicator for hospital efficiency. Similarly, even when adjusted on case-mix index (CMI) data, LOS cannot really be used as an indicator for efficiency.



Source: Pabon-Lasso 1986

WHICH APPROACH FOR HOSPITAL EFFICIENCY ANALYSIS? *(continued)*

Third, and more fundamentally, the PL approach is based on a wrong economic model of hospitals. The PL approach totally ignores the fact that hospitals are multi-product entities. Another flaw in the PL approach is that it assumes that the hospitals' main asset is their bed capacity, while staff number and skill-mix better reflect capacity to handle patients.

DATA ENVELOPMENT APPROACH (DEA)

Overall, PL analyses should be avoided. A DEA approach will allow addressing many of the issues mentioned before. In particular, a DEA will include several outputs (usually inpatients and outpatients) and several inputs (usually beds and staff). The Annex 1 provides some guidance on how to conduct DEAs with hospitals.

Reference De Bruin et al. 2007. "Modeling the emergency cardiac in-patient flow: an application of queuing theory", Health Care Management Science 10: 125–37

OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
Health Financing
Inputs
Service Delivery
M-10: Hospitals
M-11: Primary Care & Public Health
Outcomes
List of Acronyms
4 SECTION 4 Additional Guidance

EQUITY

KEY QUESTIONS

- **What is the distribution of hospital services across the country?**
- **Are hospitalization-related outcomes equitable?**

Geographic imbalance in the distribution of hospitals and its intersectionality with socioeconomic inequities make hospital access inequitable. This is not only the case in low- and middle-income countries but even in high-income countries.

For example, analysis of admissions for ambulatory care sensitive conditions and preventable mortality across Canada shows the worst performance in northern communities, particularly in remote areas where populations are among the most disadvantaged in the country (Figure 8) (Young et al. 2019).

Hospitalization rates across population groups are a simple indicator of equity and are available in household surveys with data on health service utilization. Generally, lower access to technologically intensive and more expensive care for poorer and disadvantaged populations is widely documented in low- and middle-income countries. For example, in 2018 in Indonesia, people in the poorest wealth quintile had an almost 75 percent lower probability of using hospital services as compared with the richest quintile. The difference between uninsured and insured populations was even more staggering, with a nearly 88 percent lag for the poorest quintile (Wulandari et al. 2022). PER authors can also examine the distribution of hospitals, hospital beds, and specific types of health workers per bed across different parts of the country. When the number of health workers, particularly specialist physicians, is low in rural settings, there is a lack of equity of access to hospital services.

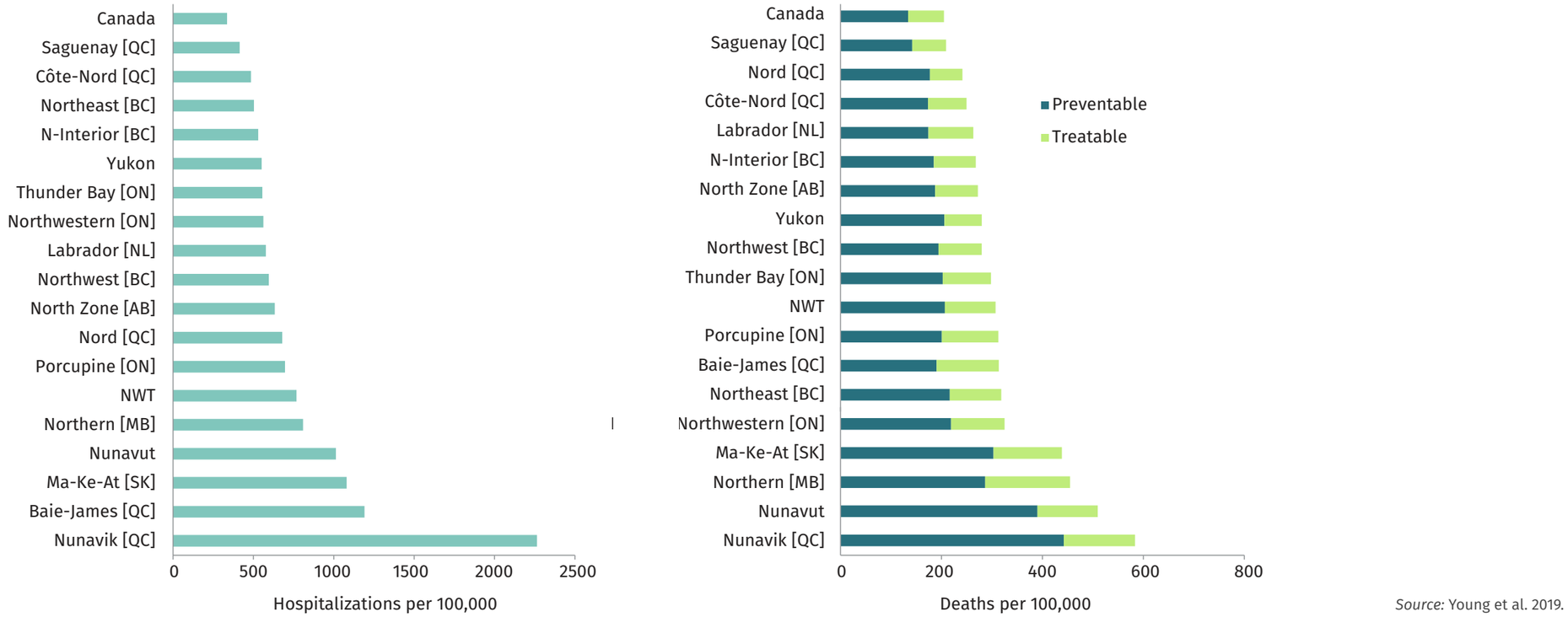
Many other indicators discussed previously can also be used to analyze equity. For example, indicators related to quality and integration of care, such as readmission rates and hospital mortality rates, may be quite different in large wealthier areas as compared with poorer areas. PER authors can consider these types of indicators if there are quality data disaggregated by geographic and socioeconomic dimensions or existing analyses in this area.

For example, during the COVID-19 pandemic, there was significant evidence of differing hospital mortality rates among disadvantaged populations in many high-income countries, including racialized populations in the UK, even after controlling for clinical and socioeconomic factors (Aldridge et al. 2020; Perkin et al. 2020). Data from Brazil point to the same types of trends in hospital mortality outcomes (Baqui et al. 2020). The results of these analyses are troubling: fundamentally, they point to the existence of underlying structural biases in hospitals and health systems—exacerbating social inequities instead of decreasing them.

Key Indicators	Sources
Hospital admissions per 100,000 by socioeconomic status	• MoH • National health insurance fund • Hospital performance assessment framework data • Household surveys with health service utilization information (e.g., DHS)
Number, density of hospitals, type of hospital by region	• MoH
Hospital beds per 10,000 population by region	• MoH
Specialist physicians per hospital bed by region	• MoH
Outcomes for hospitalized patients by socioeconomic status	• MoH • National health insurance fund • Hospital performance assessment framework data
Information on responsiveness and patient experience in hospitals by socioeconomic status	• MoH • Hospital performance assessment framework data • Existing studies

Note: DHS = Demographic and Health Surveys; MoH = Ministry of Health.

FIGURE 8
RATES OF HOSPITALIZATION AND PREVENTABLE MORTALITY, REGIONS OF NORTHERN CANADA, 2011–14



Source: Young et al. 2019.

Thus, it could be useful for PER authorsto consider the intersection of diversity and inclusion issues in addition to equity dimensions. Further, authors could leverage existing quantitative and qualitative data on responsiveness and patient experience in hospitals; this would add considerable depth to PER authors' analysis.

Access to hospitals is also correlated with indicators such as maternal and neonatal mortality rates, which may be available across different parts of a country, as well as possibly across different socioeconomic groups. PER authors can consult the module on Health Status and Health Risks for more information.

PROCESSES AND GOVERNANCE

KEY QUESTIONS

- Is there a good hospital sector strategy in the country?
- Do hospitals have the autonomy to make decisions and respond to financial incentives?

Hospital governance and related processes impact inefficiency and inequity (La Forgia 2023). Hospital governance can be assessed at the national policy level and at the individual hospital level.

At the national level, PER authors can start by checking the existence and quality of a national hospital sector strategy or policy for the country. While this may not be a single or standalone document, authors can assess whether hospital-related

Key Indicators	Sources
Is there a comprehensive and coherent hospital sector strategy/plan? (Yes/No) **Considerations for PER authors to assess comprehensiveness and coherence:** • **Is the role of hospitals as part of an integrated network of health facilities defined?** • **Are referral networks across different hospitals and lower-level providers clearly specified?** • **Do current hospital infrastructure and capacity correspond with these roles and networks?** • **Are mechanisms for improving quality and patient safety specified?** • **Are data for monitoring hospital performance routinely collected?**	• KIIs • MoH hospital sector documents
Stock of arrear hospitals payments, by type of facility	• KIIs • MoH hospital sector strategy documents • Budget documents

Note: KII = key informant interview; MoH = Ministry of Health.

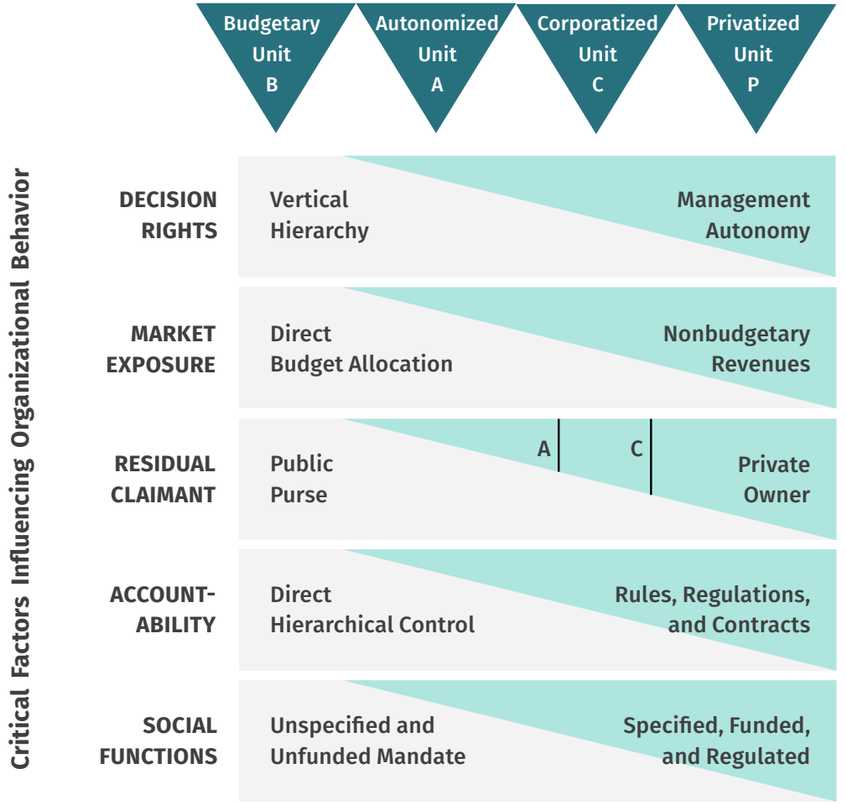
issues have recently been considered holistically in the country, for example, as part of the national health policy or strategy.

Importantly, hospitals' role should be defined as part of an integrated network of care alongside other levels of care, with clearly defined regional and referral networks among facilities that consider the physical distribution of hospital infrastructure and capacity. Additionally, person-centered care,[9] patient safety, and quality improvement must be sufficiently and coherently addressed, including through instruments like structures and incentives for accreditation as well as monitoring and evaluation. For the latter, routine data collection from hospitals, including through hospital performance assessment frameworks, is important. PER authors can refer to technical documents from WHO for elements to consider in a comprehensive hospital strategy/policy (WHO 2018; WHO EMRO n.d.).

At the individual hospital level, a framework of hospital governance such as the one presented below can be used for the analysis (Preker and Harding 2003). This framework considers the dimensions of (1) decision rights or autonomy; (2) market exposure, including competitiveness; (3) residual claimants (who have the claim over the net proceeds); (4) accountability; and (5) performance of social functions.

9 Person-centered care emphasizes the holistic needs of people. To attain this, care must be delivered in a way that is more respectful and responsive to the needs of people and their communities. See the Primary Care and Essential Public Health Services module for more information.

FIGURE 9
FRAMEWORKS FOR HOSPITAL CHARACTERISTICS AND REFORMS



Source: Preker and Harding 2003.

Hospitals that have greater autonomy can respond better to incentives. For example, to respond to output-based financing, hospitals need autonomy over their inputs and revenue. Conversely, just changing provider payment methods for hospitals that function like a budgetary unit may not yield any meaningful impact, as they do not have enough scope or incentive to change behaviors. However, autonomy without accountability can prove disastrous (Lemiere, Turbat, and Puret 2012). Thus it is important to ensure that hospitals are accountable to payers, regulators, as well as patients and communities. PER authors can consider this framework to thoroughly assess hospital functioning through these different dimensions of governance.

Alternatively, authors can focus just on issues related to autonomy and hospital financing because of their magnified importance for performance and efficiency. Overall, as individual providers, hospitals should be professionally managed by trained administrators who have the tools and resources to ensure good performance and productivity. There can be significant efficiency gains in paying hospitals according to their outputs, rather than based on inputs. Case-based payment systems can also make it easier to provide more funding for hospitals, which deal with more complex cases.[10] Authors can refer to other modules in the series, including Purchasing Health Services, for more information.

The existence of deficits and arrears—when the financial liabilities of a facility exceed revenue—also signals problems of governance, either at the level of individual facilities or in the hospital sector as a whole. Persistent deficits can indicate insufficient funding for hospitals; examples include low budgetary allocations or misalignments in provider payments; poor accountability, such as weak incentives for managers to control expenditures or financial leakages; and high production costs due to wastage or excess capacity. As a result, health workers' salaries or payments to vendors for medicines and other inputs can be severely delayed. Sometimes just a handful of hospitals are responsible for a large share of arrears in the sector. However, depending on the legal arrangements, legal liability for the arrears may not actually fall with the facility. As such, examining the volume of payments in arrears for hospitals and its trend over time can be a useful indicator of governance issues.

10 A case-based payment system pays hospitals for each discharged inpatient at rates that are prospectively established for groups of cases with similar clinical profiles and resource requirements.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
Service Delivery
M-10: Hospitals
M-11: Primary Care & Public Health
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

Acknowledgments

This module builds on the concepts and content of the other modules and additional guidance notes in the series, including the additional guidance on Service Availability and Readiness and Quality of Health Services. We would like to acknowledge the work and contribution of the authors of these documents.



ANNEXES

Annex 1: Considerations in Hospital Efficiency Measurement

Hospital efficiency is an area of study that has garnered significant interest in the economics literature. Measurement of hospital technical efficiency using quantitative models, such as data envelopment analysis or stochastic frontier analysis, has been studied extensively in many settings. A recent narrative review by Andrews and Emvalomatis (2024) provides a good overview of the methodologies and their historical development.

Overall, results vary. Studies have demonstrated differing levels of outputs with the same level of inputs across different hospitals as well as different countries (Nabyonga-Orem et al. n.d.; Nepomuceno et al. 2022). For example, a study of Organisation for Economic Co-operation and Development (OECD) countries found that, on a scale of zero to one, mean technical efficiency ranged from 0.27 to 1.00 across the countries, depending on the specification of the model (Varabyova and Schreyögg 2013). Factors that were correlated with efficiency in the study included higher health expenditure per capita, higher hospital density and lower length of stay, alongside broader socioeconomic factors such as lower income inequality and higher employment (Varabyova and Schreyögg 2013).

Illustrative of the subtlety in understanding hospital efficiency, factors that contribute to efficiency in one setting—for example, increasing health expenditure per capita in contexts where expenditure is low—could conversely hamper efficiency in other contexts. The performance and efficiency of specific hospitals are products of the broader socioeconomic context, the health profile of patients, hospital management, as well as the health system in which they operate. For example, hospitals with patients who are poorer and have worse health may seem to "underperform" compared with hospitals operating in wealthier regions (Barnett, Hsu, and McWilliams 2015; Cournane et al. 2015; Löfqvist et al. 2014). Given this complexity, PER authors are advised not to apply a simplistic quantitative approach to examining hospital efficiency and performance.

OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
Health Financing
Inputs
Service Delivery
M-10: Hospitals
M-11: Primary Care & Public Health
Outcomes
List of Acronyms
4 SECTION 4 Additional Guidance

ANNEXES

Annex 2: How to Conduct a Data Envelopment Analysis (DEA) for Hospitals

This annex (1) looks at the best practices in designing a DEA (2) then explores approaches for decomposing DEA findings and ends with (3) some thoughts on DEA limitations and (4) a checklist summarizing the key points. This text is not an introduction to DEA and assumes very basic knowledge of the DEA approach. Cooper (2007) remains the standard textbook and is highly readable. Other useful introductions are Huguenin (2012), Pascoe (2003) or Toloo (2014). There are many open-source software packages for DEA. A very user-friendly one is OSDEA. It can be downloaded at https://opensourcedea.org/. A more powerful package is DeaR (for Rstudio).

What are the main features of a sound DEA ?

While one may want to include many outputs and inputs in a DEA, there are some limitations in doing this. A usual rule of thumb is the one recommended by Bowlin (1998): the number of data points (that is, the number of hospitals) should be at least three times the combined numbers of input and output variables. When this rule is ignored, the small size of the sample (especially for some hospital types) will not allow a DEA algorithm to identify the most efficient facilities. The price to pay with this constraint is that the DEA may not fully take into account heterogeneities across hospitals when analyzing them collectively, rather than segregating them by types of hospital.

Outputs selected for a DEA should reflect the complexity of hospital production. A DEA should at least include (1) the number of outpatient

visits (OP) and (2) the number of inpatient cases (IP). Ideally, the IP number should be adjusted by the case-mix index (CMI). If no CMI data are available, IP could be disaggregated in three categories (medicine, obstetrics-gynecology, and surgery).[1] The three options are summarized in Table 1.

Inputs selected for DEA should reflect the main hospital cost items. The number of beds is an obvious proxy for capital costs. Staff numbers are also crucial. Ideally, the number of staff should be disaggregated by specialist doctors, non-specialist doctors, nurses, and other staff (clinical and non-clinical). Finally, a few DEA researchers include an input reflecting non-labor operating costs or drug costs.

A Variable Return to Scale (VRS) approach should be preferred, when possible, to a Constant Return to Scale (CRS). A DEA researcher will have to choose a scale assumption. There are basically two possible assumptions.

- One considers that returns to scale are constant. In other words, doubling the quantity of inputs will always lead to doubling the quantity of outputs. This is the CRS assumption. It is used by the Charnes-Cooper-Rhodes, or CCR, DEA model. Unfortunately, for hospitals, this CRS assumption is very unlikely to be true (see, for instance, Giancotti (2017) for a review of scale effects in hospitals).

TABLE 1
TYPES OF HOSPITAL OUTPUTS TO BE INCLUDED IN A DEA

Ideal case	• OP • IP (CMI-adjusted)
Second-best case	• OP • IPs disaggregated by: - medicine, - obstetrics-gynecology - surgery
Minimal case	• OP • IP

Note: [ital] CMI = case-mix index; IP = input; OP = output.

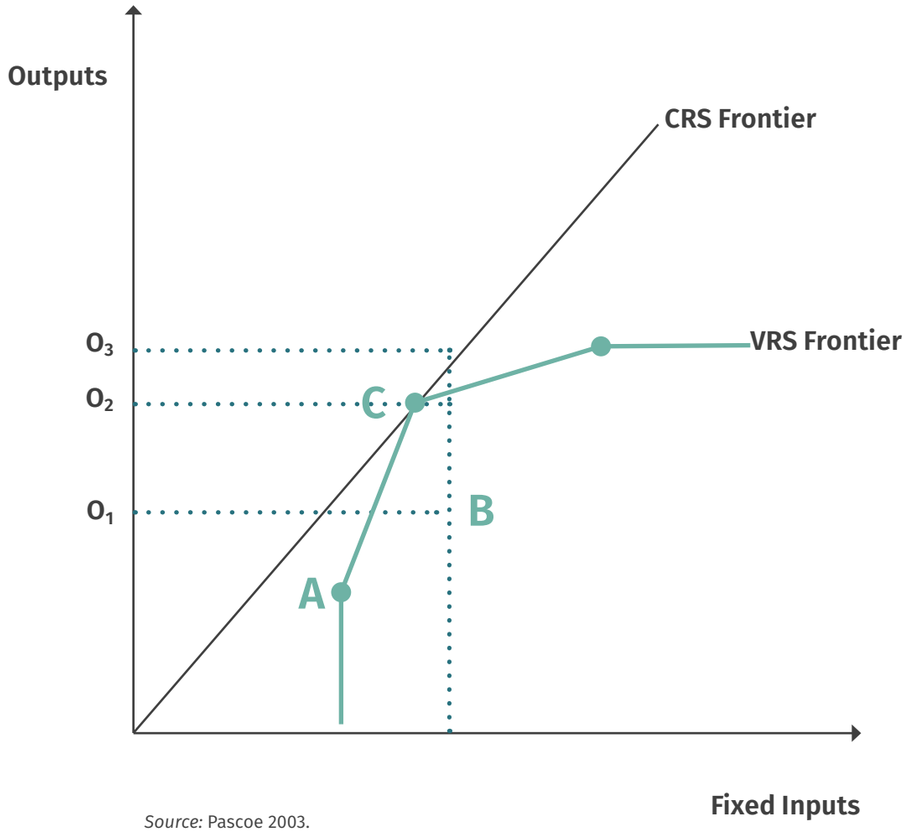
1 A hospital focusing on surgical production is likely to be more productive than a general hospital combining medical and surgical cases.

- The alternative is to assume that returns to scale are variable (that is, they can decrease or increase). This is the VRS assumption (used by the Banker-Charnes-Cooper, or BCC, model) and should be preferred when conducting a DEA with hospitals.[2]

Figure 1 illustrates the point. The selected DEA approach should be the output-oriented approach (instead of input-oriented), although this choice may not have a significant impact on DEA findings. One can assume that hospitals can more easily maximize their outputs than reducing their inputs (which are mostly fixed). That means that the DEA will be more realistic if the output-oriented feature is selected. Anyway, the two approaches (output-oriented versus input-oriented) tend to produce similar results.

2 A caveat with VRS: By construction, the efficiency frontier of a VRS DEA will better envelop data points. As a result, if scale effects are weak, "small and large units will tend to be over-rated in the efficiency assessment" (Dyson 2001).

FIGURE 1
VARIABLE RETURN TO SCALE



Source: Pascoe 2003.

How to decompose DEA efficiency values?

The overall efficiency score may not be very helpful for policymakers. A DEA allows for further disaggregation of findings. Two possible decompositions are important and are presented here.

DECOMPOSING INEFFICIENCIES BETWEEN PURE TECHNICAL EFFICIENCY AND SCALE EFFICIENCY

To identify whether a hospital is operating at scale, let us first define two concepts (Cooper 2007).

- A first concept is Overall Technical Efficiency (OTE). It is equal to the efficiency score produced by a CCR DEA model, as the CCR model assumes Constant Return to Scale (CRS).
- The second concept is Pure Technical Efficiency (PTE) and is equal to the efficiency score produced by a BCC DEA model.

Following Cooper, one can express Scale Efficiency as the ratio of OTE to PTE. A hospital operates at scale if SE = 1 (or equivalently if OTE = PTE). If SE is lower than 1, a hospital will be in a situation of decreasing or increasing returns to scale. Returns to scale can then be further decomposed in Decreasing Returns to Scale (DRS) and Increasing Returns to Scale (IRS).[3] Table 2 (from Mogha 2018) illustrates this very simple analysis.

3 DeaR produces this indicator. OSDEA does not.

TABLE 2
SCALE EFFICIENCY AND RETURNS TO SCALE OF HOSPITALS, INDIA, 2009-10

Code	OTE	PTE	SE	RTS
H1	.566	.596	.950	DRS
H2	.620	.647	.959	DRS
H3	.906	.925	.980	DRS
H4	1	1	1	-
H5	.734	.807	.910	DRS
H6	.634	.658	.964	DRS
H7	1	1	1	-
H8	.759	.761	.986	DRS
H9	1	1	1	-
H10	.452	.458	.986	DRS
H11	.735	.787	.934	IRS
H12	.600	.616	.974	IRS
H13	1	1	1	-
H14	1	1	1	-
H15	.655	.662	.990	DRS
H16	.701	.753	.931	DRS
H17	.538	.544	.988	IRS

Source: Mogha 2018. H1-H17 = hospital units.
Note: OTE = Overall Technical Efficiency; PTE = Pure Technical. Efficiency; RTS = Returns to Scale; SE = Scale Efficiency.

DECOMPOSING INEFFICIENCIES BY INPUTS AND OUTPUTS

All DEA packages include data on projections, that is to say, data on how much each input should be reduced (for input-oriented DEA) or on how much each output should be increased (for output-oriented DEA) to improve efficiency. For instance, in a DEA applied to hospitals in Saudi Arabia, Almiman (2018) finds that, to become efficient, Medinah hospital (see Table 3) should reduce its number of beds, doctors, and nurses by 18 percent, 22 percent, and 20 percent respectively (while maintaining its current level of output).

TABLE 3

SLACKS: 2010			
	Possible Reduction		
Regions	BED (%)	DOC (%)	NUR (%)
Riyadh	0.0	0	0
Makkah	24.8	26	25
Jeddah	34.9	33	25
Taif	32.7	24	35
Medinah	18.0	22	20

Source: Almiman 2018.

Some limitations of DEA approaches

A first limitation is that DEA does not include any statistical noise. This is an issue inherent to the non-parametric approach, but it can be addressed rather easily. One simple (but partial) solution is proposed by Mogha (2016). It is based on the idea that the more peers an efficient DMU has, the more reliable its efficiency estimate. In practice, one has simply to look at the number of peers per efficient hospital. The main limitation of this approach is that it works only for the group of efficient hospitals (and thus not for the other hospitals). A second and more powerful approach is to estimate confidence intervals with bootstrapping (see Simar and Wilson 1998 for the overall approach and Staat 2007 for a hospital DEA example).

DEAs are very sensitive to extreme values. A DEA assumes that the set of DMU is roughly homogenous. As a consequence, a single outlier can considerably distort the efficiency frontier. This is the homogeneity assumption. This limitation is not easy to address, mostly because homogeneity is not a very clear concept. At a minimum, before starting a DEA, PER authors should make sure that (1) hospitals have been clustered by ownership and size; (2) the sample includes only acute care

hospitals (that is, no mental health or subacute hospitals, no TB hospitals, and so forth) and (3) all included hospitals have both inpatient and outpatient production and preferably have both medical and surgical activities.[4] Another, more rigorous approach, is to conduct a cluster analysis before starting the DEA (see Zarrin 2022).

DEA projection estimates may sometimes be unrealistic. It is not unusual that DEA projection estimates suggest dramatic increases of outputs (when output-oriented) or decreases of inputs (when input-oriented) (Chen 2005). For instance, in his analysis of German hospitals, despite careful clustering of data, Zarrin (2022) found that one hospital should increase its surgical output by almost 900 percent. Similarly, some studies would suggest that inputs (staff, for instance) of a given hospital should be reduced by 40 percent to achieve efficiency. None of these suggestions is realistic. Therefore, a DEA can only be considered as a starting point for further efficiency analysis.

4 In case a hospital has a mostly surgical production, PER authors can add the number of surgeries in the list of DEA outputs.

A checklist for conducting a DEA with hospitals

Before designing the DEA

- Performing cluster analysis of hospital data

Defining key parameters for DEA

- Selecting outputs and inputs (with the above-mentioned rule of thumb)
- Selecting input or output oriented approaches
- Selecting VRS
- Running the DEA

Further analyzing the DEA findings

- Assessing robustness of findings
- Decomposing efficiency score
  - A. By Pure Technical Efficiency (PTE) and Scale Efficiency (SE)
  - B. By inputs and outputs

Some studies would suggest that inputs (staff for instance) of a given hospital should be reduced by 40 percent to achieve efficiency. None of these suggestions is realistic. Therefore, DEA can only be considered as a starting point for further efficiency analysis.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
Service Delivery
M-10: Hospitals
M-11: Primary Care & Public Health
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

References

Almiman, M.A. 2018. "Measuring the efficiency of public hospitals in Saudi Arabia using the data envelopment analysis approach." *International Journal of Business and Management* 13 (12): 111.

Andrews, Antony, and Grigorios Emvalomatis. 2024. "Efficiency Measurement in Healthcare: The Foundations, Variables, and Models—A Narrative Literature Review." *Economics*. 18 (1). http://doi.org/10.1515/econ-2022-0062.

Aldridge, Robert W., Dan Lewer, Srinivasa Vittal Katikireddi, Rohini Mathur, Neha Pathak, Rachel Burns, Ellen B. Fragaszy, et al. 2020. "Black, Asian and Minority Ethnic Groups in England Are at Increased Risk of Death from COVID-19: Indirect Standardisation of NHS Mortality Data." *Wellcome Open Research* 5 (June): 88. https://doi.org/10.12688/wellcomeopenres.15922.2.

Baqui, Pedro, Ioana Bica, Valerio Marra, Ari Ercole, and Mihaela van der Schaar. 2020. "Ethnic and Regional Variations in Hospital Mortality from COVID-19 in Brazil: A Cross-Sectional Observational Study." *The Lancet Global Health 8* (8): e1018–26. https://doi.org/10.1016/S2214-109X(20)30285-0.

Barnett, Michael L., John Hsu, and J. Michael McWilliams. 2015. "Patient Characteristics and Differences in Hospital Readmission Rates." *JAMA Internal Medicine 175* (11): 1803–12. https://doi.org/10.1001/jamainternmed.2015.4660.

Barrenho, Eliana, Philip Haywood, Candan Kendir, and Nicolaas S. Klazinga. 2022. "International Comparisons of the Quality and Outcomes of Integrated Care: Findings of the OECD Pilot on Stroke and Chronic Heart Failure." Paris: Organisation for Economic Co-operation and Development. https://doi.org/10.1787/480cf8a0-en.

Bauer, Hartwig, and Kim C. Honselmann. 2017. "Minimum Volume Standards in Surgery—Are We There Yet." *Visceral Medicine 33* (2): 106–16. https://pubmed.ncbi.nlm.nih.gov/28560225/.

Bowlin, W.F. 1998. "Measuring Performance: An Introduction to Data Envelopment Analysis (DEA)." *The Journal of Cost Analysis* 15 (2), 3–27. https://doi.org/10.1080/08823871.1998.10462318.

Campbell, Oona, M.R., Luca Cegolon, David Macleod, and Lenka Benova. 2016. "Length of Stay After Childbirth in 92 Countries and Associated Factors in 30 Low- and Middle-Income Countries: Compilation of Reported Data and a Cross-Sectional Analysis from Nationally Representative Surveys." Edited by Jenny E. Myers. *PLOS Medicine 13* (3): e1001972. https://doi.org/10.1371/journal.pmed.1001972.

Chen, A., Y. Hwang, and B. Shao. 2005. "Measurement and sources of overall and input inefficiencies: Evidences and implications in hospital services." *Eur J Oper Res* 161 (2): 447–68.

Chou, Ying-Yi, Juey-Jen Hwang, and Yu-Chi Tung. 2021. "Optimal Surgeon and Hospital Volume Thresholds to Reduce Mortality and Length of Stay for CABG." *PLOS ONE 16* (4): e0249750. https://doi.org/10.1371/journal.pone.0249750.

Cooper, W.W., L.M. Seiford, and K. Tone. 2007. *Data envelopment analysis: a comprehensive text with models, applications, references and DEA-solver software.* Vol. 2: 489. New York: Springer.

Cournane, Seán, Declan Byrne, Richard Conway, Deirdre O'Riordan, Seamus Coveney, and Bernard Silke. 2015. "Social Deprivation and Hospital Admission Rates, Length of Stay and Readmissions in Emergency Medical Admissions." *European Journal of Internal Medicine 26* (10): 766–71. https://doi.org/10.1016/j.ejim.2015.09.019.

Dall'Ora, Chiara, Bruna Rubbo, Christina Saville, Lesley Turner, Jane Ball, Cheska Ball, and Peter Griffiths. 2023. "The Association between Multi-Disciplinary Staffing Levels and Mortality in Acute Hospitals: A Systematic Review." *Human Resources for Health 21* (1): 30. https://doi.org/10.1186/s12960-023-00817-5.

Doroshenko, Olena, Marta Kuzmyn, Kristiina Kahur, Sarah Bales, and Solomiya Kasyanchuk. 2023. "Cross-Country Analysis of Case-Mix in Selected Hospitals." Discussion Paper, World Bank Group-Korea World Bank. https://openknowledge.worldbank.org/server/api/core/bitstreams/03c17144-168c-44b2-b1ae-ee7b17cd9a43/content.

Dyson, R.G., R. Allen, A.S. Camanho, V.V. Podinovski, C.S. Sarrico, and E.A Shale. 2001. "Pitfalls and protocols in DEA." *European Journal of operational research 132* (2): 245–59.

Fung, Colman S.C., Carlos K.H. Wong, Daniel Y.T. Fong, Albert Lee, and Cindy L.K. Lam. 2015. "Having a Family Doctor Was Associated with Lower Utilization of Hospital-Based Health Services." *BMC Health Services Research* 15 (1): 42. https://doi.org/10.1186/s12913-015-0705-7.

García, Jesús Rodríguez. 2012. "Serie sobre hospitalizaciones evitables y fortalecimiento de la atención primaria en salud: El caso de Colombia." *IDB Publications*, December. https://publications.iadb.org/es/publicacion/15309/serie-sobre-hospitalizaciones-evitables-y-fortalecimiento-de-la-atencion-primaria.

Gutiérrez, Catalina, Santiago Palacio, Úrsula Giedion, and Marcela Distrutti. 2023. "¿En que gastan los países sus recursos en salud?: el caso de Colombia." *IDB Publications*, September. https://doi.org/10.18235/0005157.

Hanson, Claudia, Jonathan Cox, Godfrey Mbaruku, Fatuma Manzi, Sabine Gabrysch, David Schellenberg, Marcel Tanner, Carine Ronsmans, and Joanna Schellenberg. 2015. "Maternal Mortality and Distance to Facility-Based Obstetric Care in Rural Southern Tanzania: A Secondary Analysis of Cross-Sectional Census Data in 226 000 Households." *The Lancet Global Health* 3 (7): e387–95. https://doi.org/10.1016/S2214-109X(15)00048-0.

Hirner, Sarah, Jyotshila Dhakal, Morgan Carol Broccoli, Madeline Ross, Emilie J Calvello Hynes, and Corey B Bills. 2023. "Defining Measures of Emergency Care Access in Low-Income and Middle-Income Countries: A Scoping Review." *BMJ Open* 13 (4): e067884. https://doi.org/10.1136/bmjopen-2022-067884.

Huguenin, J.M. 2012. "Data envelopment analysis (DEA). A pedagogical guide for decision makers in the public sector." Swiss Graduate School of Public Administration, Lausanne.

Jamison, Dean T. 2018. "Disease Control Priorities, 3rd Edition: Improving Health and Reducing Poverty." *The Lancet* 391 (10125): e11–14. https://doi.org/10.1016/S0140-6736(15)60097-6.

La Forgia, Jerry. 2023. "What Matters? Improving Key Dimensions of Hospital Efficiency and Performance." October 3. https://events.iadb.org/events/handler/geteventdocument.ashx?AFCF784DCD0CBF43BE2C6862BF334401E225B5973D9346DDB05CBECA7D248D3620D71CADF8E621ECA9460FD2A7EA1568CD08F452BE594F5B551873F9CF7AB0CD7D149080B4DFF02B.

Laxminarayan, Ramanan, Anne J. Mills, Joel G. Breman, Anthony R. Measham, George Alleyne, Mariam Claeson, Prabhat Jha, et al. 2006. "Advancement of Global Health: Key Messages from the Disease Control Priorities Project." *The Lancet* 367 (9517): 1193–1208. https://doi.org/10.1016/S0140-6736(06)68440-7.

Lemiere, Christophe, Vincent Turbat, and Juliette Puret. 2012. "A Tale of Excessive Hospital Autonomy? An Evaluation of the Hospital Reform in Senegal." World Bank Publications—Reports May. https://ideas.repec.org//p/wbk/wboper/11880.html.

Löfqvist, Therese, Bo Burström, Anders Walander, and Rickard Ljung. 2014. "Inequalities in Avoidable Hospitalisation by Area Income and the Role of Individual Characteristics: A Population-Based Register Study in Stockholm County, Sweden." *BMJ Quality & Safety* 23 (3): 206–14. https://doi.org/10.1136/bmjqs-2012-001715.

Meara, John G., Andrew J.M. Leather, Lars Hagander, Blake C. Alkire, Nivaldo Alonso, Emmanuel A. Ameh, Stephen W. Bickler, et al. 2015. "Global Surgery 2030: Evidence and Solutions for Achieving Health, Welfare, and Economic Development." *The Lancet* 386 (9993): 569–624. https://doi.org/10.1016/S0140-6736(15)60160-X.

Ministry of Health, Malaysia. 2021. *Malaysia National Health Accounts Health Expenditure Report 1997-2021.* https://www.moh.gov.my/moh/resources/Penerbitan/Penerbitan%20Utama/MNHA/MNHA_Health_Expenditure_Report_1997-2019_02092021.pdf.

Mogha, S.K., S.P. Yadav, and S.P. Singh. 2016. "Estimating technical efficiency of public sector hospitals of Uttarakhand (India)." *International Journal of Operational Research* 25 (3): 371–99.

Mogha, S.K., S.P. Yadav, and S.P. Singh. 2018. "Performance Evaluation of Indian Private Hospitals Using DEA Approach With Sensitivity Analysis." *International Journal of Advances in Management and Economics*, April.

Moneme, Adora N., Christopher J. Wirtalla, Sanford E. Roberts, Luke J. Keele, and Rachel R. Kelz. 2023. "Primary Care Physician Follow-Up and 30-Day Readmission After Emergency General Surgery Admissions." *JAMA Surgery* 158 (12): 1293–1301. https://doi.org/10.1001/jamasurg.2023.4534.

Morche, Johannes, Daniela Renner, Barbara Pietsch, Laura Kaiser, Jan Brönneke, Sabine Gruber, and Katja Matthias. 2018. "International Comparison of Minimum Volume Standards for Hospitals." *Health Policy* 122 (11): 1165–76. https://doi.org/10.1016/j.healthpol.2018.08.016.

National Health Service England. 2020. "National Day Surgery Delivery Pack." https://www.gettingitrightfirsttime.co.uk/wp-content/uploads/2020/10/National-Day-Surgery-Delivery-Pack_Sept2020_final.pdf.

OECD. 2017. *Tackling Wasteful Spending on Health*. Paris: Organisation for Economic Co-operation and Development. https://www.oecd-ilibrary.org/social-issues-migration-health/tackling-wasteful-spending-on-health_9789264266414-en.

OECD. 2023. *Health at a Glance 2023*: *OECD Indicators*. OECD Publishing, Paris. https://doi.org/10.1787/7a7afb35-en.

"OECD Statistics." n.d. Accessed February 20, 2024. https://stats.oecd.org/Index.aspx?ThemeTreeId=9.

Pai, D.R., F. Pakdil, and N. Azadeh-Fard. 2024. "Applications of data envelopment analysis in acute care hospitals: a systematic literature review, 1984-2022." *Health Care Management Science.* Science 27 (2): 284–312. June.

Pascoe, S., J.E. Kirkley, D. Gréboval. C.J. Morrison-Paul. 2003. "Measuring and assessing capacity in fisheries. 2. Issues and methods." FAO Fisheries Technical Paper No. 433/2. Rome, Food and Agriculture Organization of the United Nations.

Perkin, Michael Richard, Sarah Heap, Agatha Crerar-Gilbert, Wendy Albuquerque, Serena Haywood, Zoe Avila, Richard Hartopp, Jonathan Ball, Kate Hutt, and Nigel Kennea. 2020. "Deaths in People from Black, Asian and Minority Ethnic Communities from Both COVID-19 and Non-COVID Causes in the First Weeks of the Pandemic in London: A Hospital Case Note Review." *BMJ Open* 10 (10): e040638. https://doi.org/10.1136/bmjopen-2020-040638.

Piran, F.S., D.P. Lacerda, and L.F.R. Camargo. 2020. "Data Envelopment Analysis (DEA)." In *Analysis and Management of Productivity and Efficiency in Production Systems for Goods and Services,* (pp. 49-87). CRC Press.

Preker, Alexander S., and April Harding. 2003. *Innovations in Health Service Delivery: The Corporatization of Public Hospitals*. Washington, DC: World Bank Publications.

Saxena, Farah E., Arlene S. Bierman, Richard H. Glazier, Xuesong Wang, Jun Guan, Douglas S. Lee, and Therese A. Stukel. 2022. "Association of Early Physician Follow-up With Readmission Among Patients Hospitalized for Acute Myocardial Infarction, Congestive Heart Failure, or Chronic Obstructive Pulmonary Disease." *JAMA Network Open* 5 (7): e2222056. https://doi.org/10.1001/jamanetworkopen.2022.22056.

Scharfe, Julia, Stefanie Pfisterer-Heise, Charlotte Mareike Kugler, Eni Shehu, Tobias Wolf, Tim Mathes, and Dawid Pieper. 2023. "The Effect of Minimum Volume Standards in Hospitals (MIVOS)—Protocol of a Systematic Review." *Systematic Reviews* 12 (1): 11. https://doi.org/10.1186/s13643-022-02160-7.

Simar, L., and P.W. Wilson. 1998. "Sensitivity Analysis of Efficiency Scores: How to Bootstrap in Nonparametric Frontier Models." Management Science 44 (1): 49–61.

Staat, M. 2006. "Efficiency of hospitals in Germany: a DEA-bootstrap approach." *Applied Economics*, 38 (19): 2255–63. https://doi.org/10.1080/00036840500427502.

Sun, Ruirui, Zeynal Karaca, and Herbert S. Wong. 2006. "Trends in Hospital Emergency Department Visits by Age and Payer, 2006–2015." In Healthcare Cost and Utilization Project (HCUP) Statistical Briefs. Rockville (MD): *Agency for Healthcare Research and Quality* (US). http://www.ncbi.nlm.nih.gov/books/NBK513766/.

Tian, Fan, and Jay Pan. 2021. "Hospital Bed Supply and Inequality as Determinants of Maternal Mortality in China between 2004 and 2016." *International Journal for Equity in Health* 20 (1): 51. https://doi.org/10.1186/s12939-021-01391-9.

Toloo, M. 2014. *Data envelopment analysis with selected models and applications.* Series on Advanced Economic Issues, Vol. 30. Czechia: VŠB-TU Ostrava.

Varabyova, Yauheniya, and Jonas Schreyögg. 2013. "International Comparisons of the Technical Efficiency of the Hospital Sector: Panel Data Analysis of OECD Countries Using Parametric and Non-Parametric Approaches." *Health Policy (Amsterdam, Netherlands)* 112 (1–2): 70–79. https://doi.org/10.1016/j.healthpol.2013.03.003.

Vos, Theo, Stephen S. Lim, Cristiana Abbafati, Kaja M. Abbas, Mohammad Abbasi, Mitra Abbasifard, Mohsen Abbasi-Kangevari, et al. 2020. "Global Burden of 369 Diseases and Injuries in 204 Countries and Territories, 1990–2019: A Systematic Analysis for the Global Burden of Disease Study 2019." *The Lancet* 396 (10258): 1204–22. https://doi.org/10.1016/S0140-6736(20)30925-9.

World Health Organization. 2018. "The Transformative Role of Hospitals in the Future of Primary Health Care". https://www.who.int/docs/default-source/primary-health-care-conference/hospitals.pdf. World Health Organization, Geneva.

World Health Organization. 2022. *WHO Recommendations on Maternal and Newborn Care for a Positive Postnatal Experience*. World Health Organization. https://books.google.ca/books?hl=en&lr=&id=N3RyEAAAQBAJ&oi=fnd&pg=PR4&dq=WHO+recommendations+on+maternal+and+newborn+care+for+a+positive+postnatal+experience&ots=RXf3q5Ndks&sig=7rKuvNGLx9gA8zRkslPmzw7q9-s. Geneva: World Health Organization.

World Health Organization Regional Office for the European Region. 2016. "Integrated Care Models: An Overview."

World Health Organization Regional Office for the Eastern Mediterranean. n.d. "Introducing the Framework for Action for the Hospital Sector in the Eastern Mediterranean Region." Accessed February 27, 2024. https://applications.emro.who.int/docs/RC_Technical_Papers_2019_5_en.pdf.

World Health Organization, United Nations Population Fund, Mailman School of Public Health Averting Maternal Death and isability, and United Nations Children's Fund (UNICEF). 2009. *Monitoring Emergency Obstetric Care : A Handbook.* https://iris.who.int/handle/10665/44121. Geneva: World Health Organization.

Wulandari, Ratna Dwi, Agung Dwi Laksono, Zainul Khaqiqi Nantabah, Nikmatur Rohmah, and Zuardin Zuardin. 2022. "Hospital Utilization in Indonesia in 2018: Do Urban–Rural Disparities Exist?" *BMC Health Services Research* 22 (1): 491. https://doi.org/10.1186/s12913-022-07896-5.

Young, T. Kue, Susan Chatwood, Carmina Ng, Robin W. Young, and Gregory P. Marchildon. 2019. "The North Is Not All the Same: Comparing Health System Performance in 18 Northern Regions of Canada." *International Journal of Circumpolar Health* 78 (1): 1697474. https://doi.org/10.1080/22423982.2019.1697474.

Zarrin, M., J. Schoenfelder, and J.O. Brunner. 2022. "Homogeneity and Best Practice Analyses in Hospital Performance Management: An Analytical Framework." *Health Care Management Science 25* (3) (September): 406–25.

Zhao, Y., H. Lu, Y. Zang, and X. Li. 2020. "A Systematic Review of Clinical Practice Guidelines on Uncomplicated Birth." *BJOG: An International Journal of Obstetrics & Gynaecology* 127 (7): 789–97. https://doi.org/10.1111/1471-0528.16073.

ANNEXES

Annex 3: Costs Associated with Hospital Admissions for Ambulatory Care Sensitive Conditions

Ambulatory care sensitive conditions (ACSCs) are conditions for which required care delivered at the primary level could potentially prevent hospitalization. For example, hospitalization related to serious complications from diabetes should largely be preventable, as treatment in ambulatory settings should control the progression of the disease. As such, hospital admissions where the primary diagnosis is diabetes related could be considered an ACSC and thus indicate wasteful use of hospital resources and poor integration of care, signaling inefficiency.

When considering the costs associated with ACSCs, PER authors should keep in mind that this type of analysis requires time and is data intensive. Therefore, authors should rely on the country's existing recent studies on the number of ACSC admissions and their costs In the absence of existing studies, PER authors can calculate the costs associated with ACSC admissions in three steps: (1) define a list of conditions that should be considered ACSCs for the country; (2) analyze data sources to estimate the number of ACSC admissions; and (3) estimate costs associated with these hospital admissions.

The second step may be the most challenging for PER authors, as quality of admission data can vary considerably, including how primary and secondary diagnoses are coded in health records. For example, while hospital admissions related to diabetes are largely preventable in all settings, how reliably information on diabetes-related hospitalizations can be extracted from admission data sources varies widely among countries. Because this type of information is clinical in nature, it might be difficult for non-clinicians to fully understand. PER authors should consult existing studies on preventable or overall admissions, including studies that don't delve into costs, to better understand the feasibility of any new analysis.

If it is feasible to conduct a new ACSC analysis, PER authors should establish the list of conditions that will be considered ACSCs. First, authors can check whether the causes of preventable admissions have been previously elaborated for the country or comparator countries. If not, they can consider using the lists of the Organisation for Economic Co-operation and Development (OECD), the US Agency for Healthcare Research and Quality, or the Canadian Institute for Health Information, which cover conditions like diabetes, chronic obstructive pulmonary disease, asthma, hypertension, and congestive heart failure. The lists can be modified based on the country epidemiology and context. Pinto et al. (2020) provides further information on how to select ACSCs.

Subsequently, information on the number of admissions that are related to ACSC conditions must be extracted from hospital admission information systems/databases, which typically use International Classification of Disease (ICD) coding. Costs associated with these ACSC admissions can then be estimated. Because PER authors will be undertaking this analysis in the context of a public expenditure review, only costs for the public system should be considered. In countries with only output-based payments to hospitals, such as diagnosis-related groups, the payment made to hospitals by the purchaser for these ACSC admissions can be calculated by looking at their and negotiated price from claims databases. Using systems with other payments for hospitals, such as input-based payments, PER authors can explore other methods to evaluate the costs associated with ACSC admissions, such as activity-based costing based on cost centers. Overall, authors should keep in mind the data, time, and effort needed to derive reliable costing data from the different approaches. Alternatively, PER authors can try to use existing hospital admissions costing studies from their countries if they think these studies can estimate ASCS costs sufficiently.

OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
Health Financing
Inputs
Service Delivery
M-10: Hospitals
M-11: Primary Care & Public Health
Outcomes
List of Acronyms
4 SECTION 4 Additional Guidance

CASE EXAMPLE: COSTS OF ACSC FOR THE SUBSIDIZED AND CONTRIBUTORY REGIMES IN COLOMBIA

A 2023 study by the Inter-American Development Bank (IDB) presented information on the costs of ACSC in Colombia (Gutiérrez et al. 2023). The study analyzed data from insurance claims for hospitalization in the two main public coverage regimes in Colombia: the subsidized regime and the contributory regime, each of which finances hospitals.

The study relied on a list of ACSCs developed in a 2012 study (García 2012) on avoidable admissions and strengthening primary care. The study defined these ACSCs based on a Brazilian 2009 study, which was validated by the Colombian health authorities. The 2012 list identified 20 ACSCs using ICD-10 coding. It included conditions like anemia, malnutrition, and diseases preventable through immunization, as well as cardiovascular diseases like diabetes, asthma, and congestive heart failure. Of note, this is an expanded list of conditions compared with the OECD and other ACSC lists mentioned earlier, and it reflects country context and priorities.

Based on this list of ACSCs, the 2023 IDB study estimated the payment to providers in the subsidized regime and the contributory regime. It found that 17 percent of hospitalization expenditure under these regimes was for ACSCs, with a higher share in the subsidized regime. Overall, this represented 1.7 billion pesos, or 3 percent of government health expenditure in Colombia.

Among ASCSs, cardiovascular diseases absorb 30 percent of the costs in both regimes, followed by respiratory system diseases (26 percent); genitourinary system diseases, including kidney disease (12 percent); and endocrine, nutritional, and metabolic conditions (9 percent), mainly diabetes.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
Service Delivery
M-10: Hospitals
M-11: Primary Care & Public Health
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

TABLE OF CONTENTS

MODULE 11

Primary Care and Essential Public Health Functions

AUTHORS

Priyanka Saksena and Catalina Gutiérrez

START



INTRODUCTION

Ensuring adequate investment in primary health care (PHC) is a major policy concern (Pan American Health Organization/WHO 2023). Spending on promotive and preventive care is highly cost-effective and returns on investments in interventions are often multiples of their costs.

Increased investments in this area are expected to avert more than 60 million deaths by 2030 and reduce the use of hospital care as well as overall health costs (WHO 2018a; Hanson et al. 2022; OECD 2020). Additionally, the majority of curative, rehabilitative, and palliative health services can be delivered at the primary or community level rather than through hospitals, resulting in cost savings (Laxminarayan et al. 2006). Primary health care has resulted in reduced socioeconomic inequality and improved outcomes for populations with lower socioeconomic status (Rajan et al. 2024).

PHC encompasses three interrelated components: (1) integrating health services to meet people's health needs throughout their lives; (2) addressing the broader determinants of health through multisectoral policy and action; and (3) empowering people and communities to take charge of their own health.

FIGURE 1
THREE COMPONENTS OF PRIMARY HEALTH CARE



Source: Rajan et al. (2024).

PHC integrates population- and individual-level health interventions and moves away from a focus on illness toward a more holistic approach to health. A PHC-oriented health system aims to take a comprehensive approach to health needs and determinants and maximize equity and solidarity. As such, having PHC-oriented health system is a major objective of many countries' health policies. The public-facing health services component of PHC is often considered the most important aspect—it is referred to as "primary care." (The box "What Is Primary Health Care?" explains these concepts further).

Primary care aims to deliver health services close to where people live and work. Inputs like primary care workers are critical for this and directly impact efficiency and equity. Work by Starfield and colleagues from the US, for example, shows that an increase of one primary care physician per 10,000 population would lead to an average mortality decline of 5.3 percent, or 49 deaths per 100,000 population, per year (Macinko, Starfield, and Shi 2007). Similar work has been done in other countries, such as Brazil, where an increase of one primary care physician per 10,000 population is associated with a decrease in the infant mortality rate (IMR) of over 7 per 10,000 live births (Russo et al. 2019). The data for other primary health workers, such as nurses and midwives, show similarly improved health outcomes.

As the COVID-19 pandemic has shown, health systems can quickly crumble in emergencies. Investment in public health services, including population-level health services, is essential for ensuring the capacity to respond quickly to health threats, continue providing health services during crises, and build resilient health systems. Essential public health functions, for example, surveillance and emergency preparedness, have often been neglected until there is a health emergency.

Overall, expenditure on primary care and essential public health functions is not always commensurate with their importance. In many countries, the hospital sector observes a high share of expenditure, while spending on public health, promotive, preventive, and other first-level care remains low. This higher expenditure on hospitals could be due to more severe health needs, some of which were not tackled upstream or due to care being delivered at a higher level than needed. Increased investment in primary care and towards a PHC-oriented health system is thus likely to improve health outcomes as well as equity for the same level of resources.

This module advises PER authors conducting public expenditure reviews (PERs) for the health sector on how to assess the efficiency and equity of primary care and essential public health functions, the key service delivery components of PHC. This includes the amounts, trend and share of expenditure, capital and human resources, productivity, quality, integration of services, and processes and governance dimensions for these aspects. The module focuses on PHC-aligned health services offered outside of hospitals, described in the following box. A separate module in this series focuses on efficiency and equity aspects of Hospitals. Together these two modules enable PER authors to examine efficiency and equity of health services in a country. In complement, there are also a module on Human Resources for Health and additional guidance notes on Service Availability and Readiness and Quality of Health Services.

BOX 2. WHAT IS PRIMARY HEALTH CARE?

The concept of "primary health care" is inspired by the Alma Ata Declaration of 1978 and significant academic and policy work since then. PHC has been a major driver of health system thinking.

Strengthening primary care and greater investment in promotive, protective, preventive care is a core component of PHC advocacy, alongside designing effective referral systems to deliver integrated health services. In fact, strong primary care—primary level and community health services—is the bedrock of the PHC approach, as these are often closer to people, more equitable, and more person centered. But services delivered in secondary and tertiary facilities—that is, hospitals—can all be a part of the concept of PHC if they are integrated with primary care.

PHC is equally concerned with public health capacities and services—population health services like the surveillance of emerging threats. Many of these are also directly linked to the delivery of primary care, such as disease prevention. Key public health capacities and services are referred to as "essential public health functions."

In addition to strengthening health services, PHC aims to empower people and communities to take ownership of their own health and tackle determinants of health through multisectoral policy and action, including by using a "Health in All" approach, whereby health considerations are considered in all policymaking. While these are important and useful to keep in mind conceptually, they are not covered in depth in this module. Rather, this module focuses on efficiency and equity issues related to primary care and essential public health functions, or health services not offered by hospitals.

BOX 1. DEFINITIONS OF TERMS

PRIMARY HEALTH CARE

Primary health care (PHC) is an overall approach to strengthening health systems to respond to people's health needs effectively. A PHC approach focuses on (1) integrated health services to meet people's health needs throughout their lives; (2) addressing the broader determinants of health through multisectoral policy and action; and (3) empowering individuals, families, and communities to take charge of their own health.

PRIMARY CARE

Primary care refers to the personal health service delivery component of PHC, specifically, the first level of contact for the population with the health care system, aiming to bring care as close as possible to where people live and work. This includes services provided by primary care health workers, such as physicians and nurses, as well as services provided in the community, including by community health workers. Primary care can be offered in facilities like health outposts, primary care centers, doctors' offices, polyclinics, community health centers, and mobile clinics or through outreach activities in people's homes and communities. PHC-oriented primary care aims to support first-contact, accessible, continued, comprehensive, coordinated person-centered care.

ESSENTIAL PUBLIC HEALTH FUNCTIONS

Public health aims to protect, promote, and restore health through collective actions, with the goals of reducing disease, premature death, and disability. Essential public health functions (EPHF) operationalize a core list of roles to ensure effective public health action in countries. The World Health Organization (WHO) defined a list of EPHFs in 2021, and some countries have defined their EPHFs at the national level. Public health service-oriented functions—public health emergency management, including preparedness, health protection, health promotion disease prevention and detection, and cross-cutting functions of surveillance and monitoring—are particularly synergized with primary care.

PER authors interested in learning more about the broader PHC concept can refer to literature by WHO on this topic, including the 2024 publication *Implementing the Primary Health Care Approach: A Primer* (Rajan et al. 2024).

Sources: WHO 2022a; WHO 2018b; Rajan et al. 2024.

BOX 3. RECOMMENDED READING

Hanson, Kara, Nouria Brikci, Darius Erlangga, Abebe Alebachew, Manuela De Allegri, Dina Balabanova, Mark Blecher, et al. 2022. "The Lancet Global Health Commission on Financing Primary Health Care: Putting People at the Centre." *Lancet Global Health* 10 (5): e715–72. https://doi.org/10.1016/S2214-109X(22)00005-5.

OECD. 2020. *Realising the Potential of Primary Health Care*. Paris: OECD Publishing. Organisation for Economic Co-operation and Development. https://www.oecd-ilibrary.org/social-issues-migration-health/realising-the-potential-of-primary-health-care_a92adee4-en.

Rajan, Dheepa, Katherine Rouleau, Juliane Winkelmann, Dionne Kringos, Melitta Jakab, and Faraz Khalid, eds. 2024. *Implementing the Primary Health Care Approach: A Primer.* Geneva: World Health Organization European Observatory on Health Systems and Policies. https://eurohealthobservatory.who.int/publications/i/implementing-the-primary-health-care-approach-a-primer.

WHO and UNICEF. 2022. *Primary Health Care Measurement Framework and Indicators: Monitoring Health Systems through a Primary Health Care Lens*. Geneva: World Health Organization; New York: United Nations Children's Fund. https://iris.who.int/bitstream/handle/10665/352205/9789240044210-eng.pdf?sequence=1.

OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
Health Financing
Inputs
Service Delivery
M-10: Hospitals
M-11: Primary Care & Public Health
Outcomes
List of Acronyms
4 SECTION 4 Additional Guidance

EFFICIENCY AND SPENDING ON PHC

Efficiency can be assessed by examining input-output ratios, comparing outcomes across countries that have similar spending and income levels, or identifying indicators of potential waste. While the guide employs a combination of these approaches, this module relies on benchmarking outcomes across countries with comparable spending and income levels, as well as identifying indicators of waste.

PHC spending per capita or as a share of total health expenditure, along with the proportion allocated to preventive care, serve as indicators of efficiency due to the high cost-effectiveness of PHC. A similar logic applies to the utilization, availability, and effectiveness of primary health care services. Indicators of inefficiency, such as poor-quality primary care, lack of essential medicines, and avoidable hospitalizations, are also valuable for assessing both the efficiency of PHC spending and efficiency of the overall allocation of health resources.



Spending

KEY QUESTIONS

- **How much is spent on primary health care? How has this spending evolved?**
- **How much is spent on preventive care and essential public health functions?**

Total health expenditure on primary health care (financed by all sources) gives a useful starting point for examining efficiency. However, as discussed earlier, the concept of primary health care is broad, and this is reflected in some different approaches to its measurement, which interested PER authors can explore further.[1]

PER authors should use the methodology of the WHO Global Health Expenditure Database (GHED), which relies on the standardized National Health Accounts (NHA)[2] data. Primary health care expenditure as a share of current health expenditure is reported under the breakdown of expenditure by health care functions (WHO 2021a). Alternatively, authors can use or conduct a government budget and expenditure analysis as presented in the Public Financial Management module.

Using the NHA data, most countries for which comparable data are available spent between 30 percent and 80 percent of their current health expenditure on primary health care based on this methodology (Figure 1). This is quite a wide range and reflects the difference in priority attributed to primary health care and the state of health systems.

1 What to include and exclude in primary health care expenditure has been discussed in literature and different exercises documenting primary health care expenditure. For example, the definition of expenditure on primary health care by the National Health Accounts/WHO also includes a substantial share of administrative expenditure being attributed to primary health care. Other authors have modified this definition to limit administrative expenditure but include certain types of hospital expenditure. PER authors interested in the different methodological approaches can refer to literature on this topic, particularly from the Lancet Commission on financing primary health care and WHO (Hanson et al. 2022; Van de Maele et al. 2019).

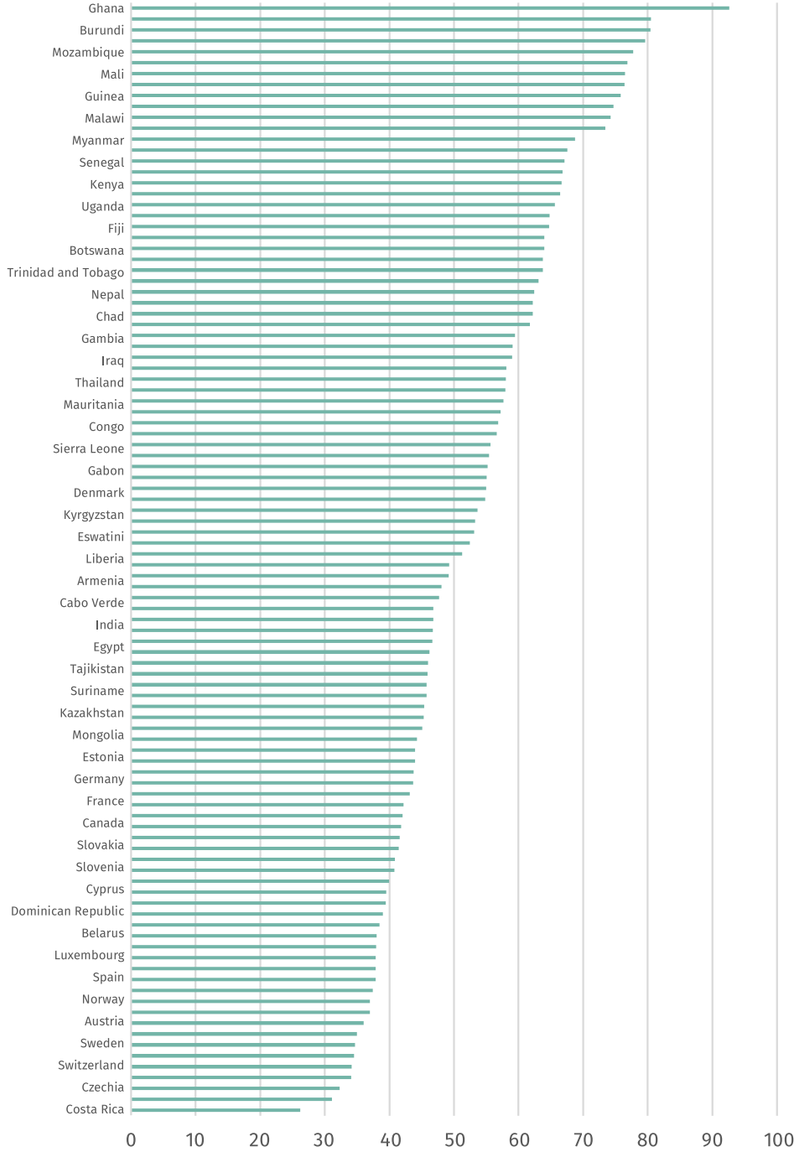
2 NHA and, more specifically, the System of Health Accounts 2011, or SHA 2011, is an international accounting framework for systematically tracking health spending. Most countries have conducted this exercise and many do so regularly to guide future policies and investments that make health systems more responsive to people's needs. However, detail and quality of data may vary significantly from country to country, depending on the level of institutionalization of NHA.
Also of note, current health expenditure under SHA 2011 includes expenditure on maintenance but excludes capital expenditure, or, more precisely, gross fixed capital formation, which is separated in capital expenditure. Current health expenditure is now the standard denominator for international reporting. However, many countries also report total health expenditure in their national publications, and that includes capital expenditure.

Key Indicators	Sources
Expenditure on primary health care (or primary level care) as a percentage of current health expenditure	• National Health Account reports/MoH • National budget documents • WHO GHED • OECD Statistics
Government expenditure on primary health care (or primary level care) as a percentage of government health expenditure	• National Health Accounts reports/MoH • National budget documents • WHO GHED • OECD Statistics
Out-of-pocket expenditure as a share of total PHC spending	• National Health Accounts reports/MoH • National budget documents • WHO GHED • OECD Statistics
Government expenditure on preventive care as a percentage of current health expenditure	• National Health Accounts reports/MoH • National budget documents • WHO GHED • OECD Statistics
Government expenditure on early disease detection, healthy condition monitoring, epidemiological surveillance and risk and disease control programs, preparing for disaster and emergency response programs as a percentage of current health expenditure	• National Health Accounts reports/MoH • National budget documents • WHO GHED • OECD Statistics

Note: MoH = Ministry of Health; OECD = Organisation for Economic Co-operation and Development; PHC = primary health care; WHO GHED = World Health Organization Global Health Expenditure Database.

FIGURE 2 TOTAL EXPENDITURE ON PRIMARY HEALTH CARE AS A SHARE OF CURRENT TOTAL HEALTH EXPENDITURE, SELECTED COUNTRIES, 2018

Source: WHO GHED.



PER authors should note that there is no accepted benchmark for spending on primary health care and it is generally considered more cost-effective than most hospital care. International empirical analysis has suggested that higher government spending on primary health care results in better universal health coverage (UHC) service coverage. However, countries spending $50 or less per capita display a wide range of UHC service coverage outcomes (Hanson et al. 2022).

PER authors can also examine expenditure on primary health care as a share of government spending or as a share of the Ministry of Health (MoH) budget, as well as expenditure on primary level providers (refer to the module on Public Financial Management). Information related to the MoH budget may be available at the country level in the health budget or through national health accounting data (refer to the module on Public Financial Management).

Internationally, about 50 percent of PHC expenditure was made through out-of-pocket payments (OOP) in low- and middle-income countries, while the share of OOP for non-PHC expenditure was substantially lower in 2018, suggesting government inefficiencies in purchasing and

paying for these health services (Hanson et al. 2022). As such, PER authors should monitor the trend of OOP as a share of total PHC expenditure in a country over time to assess whether the costs of PHC services are being borne by the public purse.

Countries should evaluate whether they are investing adequately in preventive care—especially in essential public health activities, which are crucial for maintaining health security and resilience against health threats, including pandemics like COVID-19 and other events like natural disasters. These activities include public health surveillance, disease prevention, early detection programs, and emergency planning (WHO 2022a). They are implemented through various platforms such as reference laboratories, national and regional public health bodies, and cross-sectoral collaborations.

The WHO GHED based on SHA 2011 presents information on preventive care.[3] Preventive care includes expenditure on immunization, health promotion and the essential public health functions of early disease detection, healthy condition monitoring, epidemiological surveillance and risk, and disease control programs. For assessment purposes, PER authors should examine spending on all preventive care and spending on the four essential public health functions listed above. If reliable data on the levels and trends in subcategories of prevention expenditure are available in country NHA reports, they could be used to understand the amount of funding dedicated to these types of essential services—for example, immunization services or epidemiological surveillance programs. There are estimates of costs for ensuring preparedness against future health threats at the international level as well as in some countries (Clarke et al. 2022), and these estimates can provide some benchmarks to assess country spending. Estimates have largely relied on frameworks for assessing the capacity of countries to respond to health threats that pre-date the COVID-19 pandemic. Eaneff et al. (2022) found that, on average, about $16 per capita over five years would be required globally for all countries to reach a satisfactory level of preparedness based on the criteria of the Joint External Evaluation of WHO[4] (Table 1). While the spending reported in explicit SHA 2011 categories on essential public health functions does not cover all areas of preparedness, any available country data on expenditure on preparedness could be assessed against these types of estimates[5].

3 Preventive expenditure can be found under the Classification of Health Care Functions in SHA 2011, specifically HC.6.

4 The Joint External Evaluation is an assessment of country-specific status and progress in developing the capacity to prevent, detect, and rapidly respond to public health threats, whether naturally occurring, deliberate, or accidental. The first external evaluation establishes a baseline measurement of the country's capacity and capabilities, and subsequent evaluations identify progress made and sustainability of improvements. It is a tool related to the International Health Regulations (IHR).

5 The catchment area of a primary care facility is the population that the facility is supposed to serve. This can be the population of the neighborhood or the town where the facility is located or the number of beneficiaries registered to be served at the facility.

OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
Health Financing
Inputs
Service Delivery
M-10: Hospitals
M-11: Primary Care & Public Health
Outcomes
List of Acronyms
4 SECTION 4 Additional Guidance

TABLE 1
AVOIDABLE HOSPITALIZATIONS, BY HOSPITAL TYPE, ESTONIA, 2013

World Bank Income	Total per capita cost (over 5 years)	Total per capita cost (over 5 years)
Low income	$66.84	$45.9 billion
Lower middle income	$17.79	$52.5 billion
Upper middle & high income	$6.19	$25.5 billion
TOTAL	**$15.98**	**$123.8 billion**

Source: Eaneff et al. 2022.

CASE EXAMPLE: MALAYSIA

Malaysia regularly conducts NHA exercises. The latest National Health Account report tracks expenditure from 1997 to 2019. This report presents expenditure on primary health care, which was 22 percent of total health expenditure as well as 22 percent of MoH health expenditure in 2019. Spending on public health services, including promotive and preventive care, was 7 percent of total health expenditure.

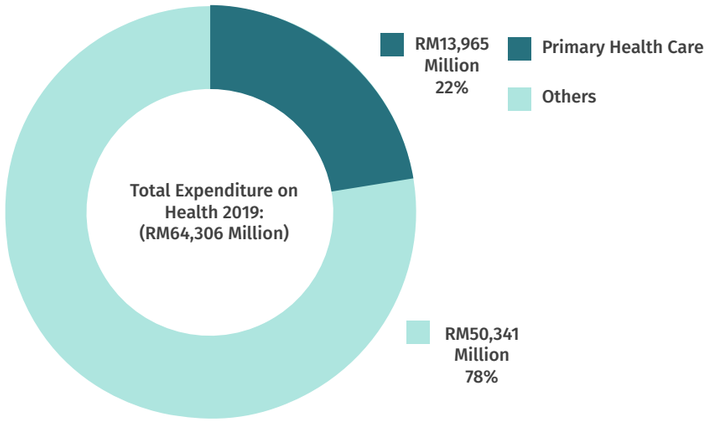
The report also presents expenditure by level of provider, consistent with the low spending on PHC. Expenditure on providers of ambulatory care ranged from 16 percent to 25 percent of total health expenditure, with spending generally about 21 percent in recent years. This is much lower than spending on hospitals, which ranged from 46 percent to 55 percent of total health expenditure. In 2019, out-of-pocket payments represented the biggest source of financing to ambulatory care providers at over 45 percent (Ministry of Health, Malaysia 2021).

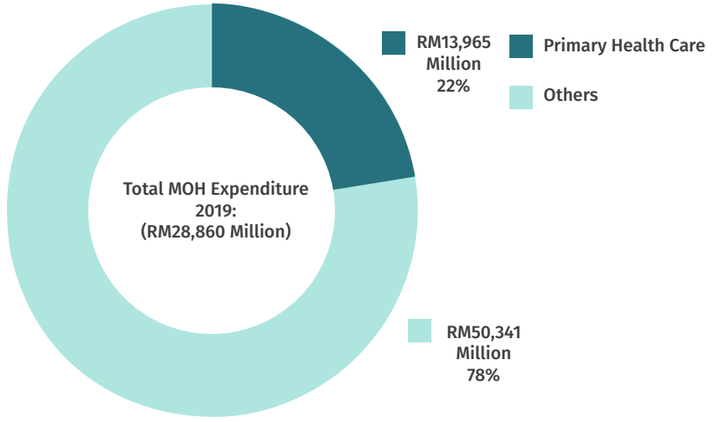
Box continues on the following page.

CASE EXAMPLE: MALAYSIA *(continued)*

While the public primary care system is heavily subsidized and payments to the private primary care system are regulated, the overall priority of primary health care remains low in terms of expenditure. However, there is recognition for the need to move away from a hospital-centric acute care model. Some progress has been made in this area, for example, through government financing for a new noncommunicable disease program targeted at low-income groups (WHO 2023).

FIGURE 1
PRIMARY HEALTH CARE EXPENDITURE AS PERCENTAGE OF TOTAL EXPENDITURE ON HEALTH, 2019





Source: Malaysia National Health Accounts Health Expenditure Report 1997–2019.

Box continues on the following page.

CASE EXAMPLE: MALAYSIA *(continued)*

FIGURE 2
TOTAL EXPENDITURE ON HEALTH TO PROVIDERS OF HEALTH CARE, 2019

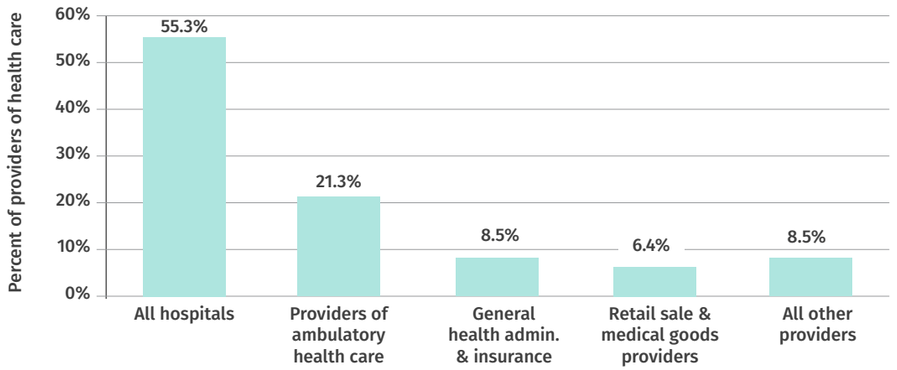
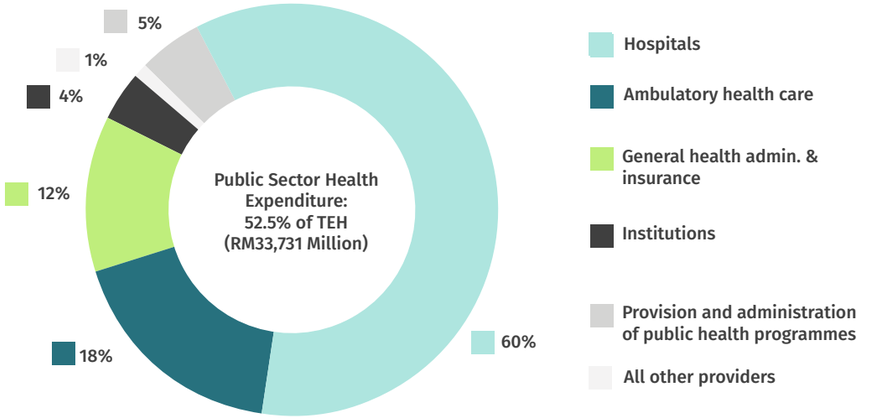


FIGURE 3
PUBLIC SECTOR HEALTH EXPENDITURE TO PROVIDERS OF HEALTH CARE, 2019



Source: Malaysia National Health Accounts Health Expenditure Report 1997–2019.

Infrastructure and Inputs

KEY QUESTIONS

- What primary care infrastructure exists in the country?
- What are the numbers of key health workers for primary care?
- What is the availability of medicines and other health products in primary facilities?

Key Indicators	Sources
Number of primary care health facilities **Density of primary care health facilities (number of facilities per 100,000)**	• Health facility surveys (WB SDI, WHO SARA, DHS SPA, HHFA) • MoH infrastructure maps, inventory of facilities
Number of primary care health workers by type (generalist, nurse, midwife, community) per 10,000 population	• MoH • Human resource information system • Professional councils and associations • Reports on HRH (will typically have the latest available numbers) • OECD
Share of primary care health workers as a percentage of total health workers, by cadre	• MoH • Human resource information system • Professional councils and associations • Reports on HRH (will typically have the latest available numbers) • OECD
Percentage of primary care health facilities where essential medicines are available	• MoH • Health facility surveys (WB SDI, WHO SARA, DHS SPA, HHFA)

Note: DHS SPA = Demographic and Health Surveys Service Provision Assessment; HHFA = Harmonized Health Facility Assessment; HRH = human resources for health; MoH = Ministry of Health; OECD = Organisation for Economic Co-operation and Development; WB SDI = World Bank Service Delivery Indicators; WHO SARA = World Health Organization Service Availability and Readiness Assessment.

In contrast to hospital services, there are different ways of delivering primary care to populations. These methods include facility-based services but also other models, such as outreach services or community care. In this context, the availability of health workers is a primary determinant of efficient primary care. Additionally, not having sufficient equipment and supplies is not uncommon and can result in underproductive health workers and underused infrastructure, resulting in inefficiencies.

This section covers some basic indicators of primary care infrastructure and inputs for PER authors to evaluate its sufficiency and mix. Authors can consult the module Human Resources for Health and the additional guidance note Service Availability and Readiness for more details.

A useful starting point can be assessing the availability of the overall physical infrastructure for primary care by determining the number of primary care facilities per 100,000 population in the country and their breakdown by type of facility. PER authors should rely on the national classifications of primary care facilities, which typically consist of multiple levels and often include the simplest kind of hospitals (facilities with inpatient services) as part of the primary care system. While these can be analyzed as well, information on them should be separated from facilities with only outpatient services.

As mentioned earlier, the density of the availability of health workers often plays a more important role for primary care as service delivery than physical infrastructure. PER authors should examine the numbers of generalist physicians (including physicians who have trained in the specialties of family medicine or primary care in countries where these exist), nurses and midwives, as well as community health workers and professions such as nurse practitioners (in countries where they exist) and their evolution over time. The share of these health workers can also be compared to their overall cadre, for example, generalist physicians as a share of all physicians, to assess whether sufficient policy and societal importance has been given to ensure the availability of human resources for primary care. The share has been declining in many countries, with physicians not attracted to careers in primary care due to several factors, such as a lower financial prospects and perceived poorer working conditions (OECD 2020). Overall, decreasing numbers and densities of primary care workers is likely to signal less efficient use of financial and human resources in improving the population's health status.

Data on the availability of other critical inputs, such as essential medicines and diagnostics at primary care facilities, can also provide important information on the capacity to deliver quality services. Data on the overall availability of essential medicines in health facilities are collected in health facility surveys and are also

part of the means of implementation targets for Sustainable Development Goal (SDG) 3 (WHO and UNICEF 2022). The same health facility surveys also document the availability of medicine and other commodities for specific health services. Thus, PER authors can further examine the capacity to deliver specific high-priority health services, the choice of which can be tailored according to the population of and the disease priorities in each given context. The additional guidance note Service Availability and Readiness provides more information.



Use of primary care

KEY QUESTIONS

- How much are primary care services used?
- What is the coverage of key primary care services?
- Are primary care services effectively organized?

Key Indicators	Sources
Number of visits to primary care providers per capita per year, by area	• Health utilization surveys • MoH • National health insurance fund
Outpatient visits per capita per year, by area	• Health utilization surveys • MoH • National health insurance fund
Coverage of immunization services, by area	• Health utilization surveys • MoH • National health insurance fund
Screening for cervical cancer, by area	• Health utilization surveys • MoH • National health insurance fund
Percent of children under 5 with diarrhea who received zinc and oral rehydration services	• Demographic and health surveys • UNICEF Data

Table continues on the following page.

Key Indicators	Sources
Unmet need for health services, by area	• Health utilization surveys • MoH • National health insurance fund
Percentage of population with a regular primary care provider, by area	• Health utilization surveys • MoH • National health insurance fund
Information on waiting times for a primary care consultation, by area	• Health utilization surveys • MoH • National health insurance fund
Information on gatekeeping/referrals by primary care providers, by area	• Health utilization surveys • MoH • National health insurance fund

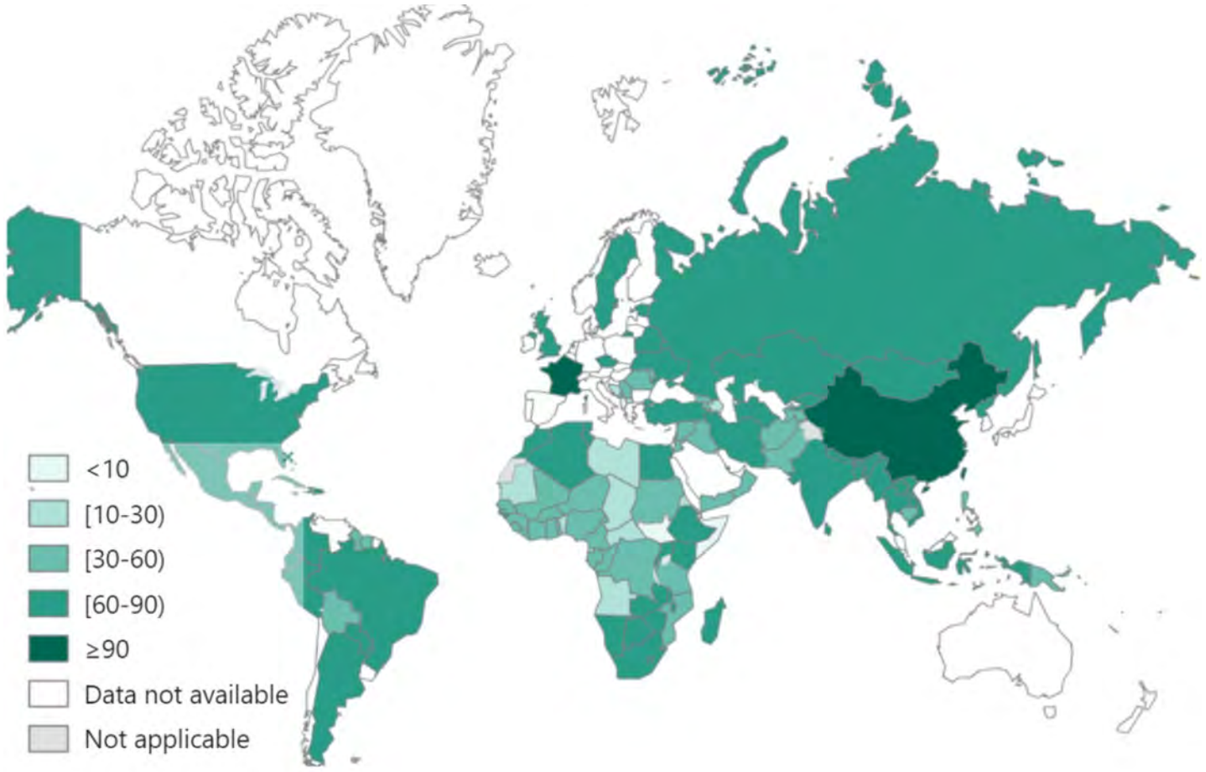
Note: MoH = Ministry of Health.

Effective primary care reduces the unnecessary use of more expensive hospital services and improves health outcomes in a cost-effective way. Indeed, use of primary care services, particularly for first-contact care, is a major policy goal for countries looking to improve the efficiency and equity of their overall health spending. As such, basic indicators on the use and quality of primary care services can be used to assess efficiency, as explained in the introduction to this section. This relies on the premise that primary care services are cost-effective in a similar manner across settings. The number of visits to primary care providers per capita per year is collected in health service utilization surveys. These surveys and administrative data sources also have more basic information on the number of outpatient visits per capita, which include visits to hospital outpatient departments. The number of visits can be further broken down by the provider's catchment population for comparison between different providers.[6]

6 The catchment area of a primary care facility is the population that the facility is supposed to serve. This can be the population of the neighborhood or the town where the facility is located or the number of beneficiaries registered to be served at the facility.

Unmet need for health services is an indicator that is routinely collected in health surveys such as the Demographic and Health Survey and used to measure the effectiveness of PHC. High unmet need is strongly associated with weak primary care systems and multiple dimensions of inequity and their intersectionality. For example, unmet need for family planning services/contraceptives can be used as an indicator of effective primary care but varies considerably across countries as well as within countries, with less educated, rural poor women having the highest unmet need. It may also indicate inefficiency in overall allocation of resources given its high cost-effectiveness as well as its contribution to reduced mortality. Globally, it is estimated that addressing 90 percent of the unmet need for contraceptive services would reduce maternal deaths by 22 percent, stillbirths by 22 percent, and child deaths by 8 percent (Black et al. 2016).

FIGURE 2
PERCENTAGE OF WOMEN AGES 15–49 WITH FAMILY PLANNING NEEDS SATISFIED BY MODERN METHODS



Source: World Health Organization.

Ensuring that people have a regular primary care provider is considered important for the effectiveness of the primary care system, and the number who do can be approximated through the percentage of population empaneled with a primary care provider (Rajan et al. 2024). Long waiting times for primary care (or unavailability at night or during weekends) tend to lower use and effectiveness, as people may seek alternative care, for example, in hospital emergency rooms. PER authors can examine administrative data for waiting times to consult a primary care provider, including insurance data, as well as some health and other household surveys.

Similarly, how primary care is organized, for example, through key practices such as gatekeeping and referrals to other providers, is a significant determinant of its effectiveness. If data are available in health insurance or Ministry of Health information systems or annual reports, PER authors can look at the share of visits to specialist doctors through a referral from a primary care provider. A high number of visits to specialists without a referral suggests a weaker primary care system, which often leads to higher health care costs. Finally, some countries have primary care monitoring frameworks (similar to hospital performance assessment frameworks), which are used for monitoring and also in relation to financing health providers. If such a framework exists, PER authors can examine its indicators to assess general productivity of primary care facilities.

The Primary Health Care Performance Initiative (PHCPI), which concluded in 2022, was an international framework for monitoring and improving primary health care, The PHCPI has been used in many low- and middle-income countries. Data collected and compiled for the PHCPI may be helpful to PER authors in assessing primary health care.

Quality of primary care

KEY QUESTIONS

- Are antibiotics prescribed/used appropriately?
- Do diagnosis and treatment in primary care services follow guidelines?
- Does primary care result in better health for selected conditions?

Quality of health services is assessed with comprehensive frameworks covering domains such as accessibility, effectiveness, safety, patient-centeredness, timeliness, equity, and integration (Primary Health Care Performance Initiative, n.d.; Agency for Healthcare Research and Quality, n.d.). The aim of this section is to present a few indicators of quality that may shed light on efficiency. PER authors can also consult the additional guidance note Quality of Health Services for more in-depth guidance on the measurement of quality.

The inappropriate use of antibiotics leads to the waste of financial resources, reflects poor quality care and contributes to anti-microbial resistance, a major health threat that is often common in

Key Indicators	Sources
Data on the prescription/use of antibiotics	• MoH, AMR monitoring • National health insurance fund • Prescription audits or specialized studies
Diagnostic accuracy	• World Bank SDI
Adherence to standard care protocols	• Health facility surveys (World Bank SDI, WHO SARA, DHS SPA, HHFA)
Percentage of population with uncontrolled hypertension, by area	• Health surveys with biomarker data • Administrative data • Quality assessment information systems
Percentage of population with uncontrolled diabetes, by area	• Health surveys with biomarker data • Administrative data • Quality assessment information systems

Note: AMR = antimicrobial resistance; DHS SPA = Demographic and Health Surveys Service Provision Assessment; HHFA = Harmonized Health Facility Assessment; MoH = Ministry of Health; SDI = Service Delivery Indicators; WHO SARA = World Health Organization Service Availability and Readiness Assessment.

primary care. A meta-analysis of studies from low-income countries found that 52 percent of patient visits to primary care providers resulted in a prescription of antibiotics. Among the studies that assessed the appropriateness of antibiotic prescriptions, all but one showed 50 percent or more inappropriate use, and often all prescriptions for antibiotics were inappropriate (Sulis et al. 2020).

Information on the prescription of antibiotics in primary care settings may exist in health insurance databases or specific studies related to medicines or to antimicrobial resistance, for example, studies on prescribing practices or prescription audits based on patient data, or academic studies. However, representative national information may not be available in most countries. So, PER authors could consider trends in the overall use of antibiotics (across providers), particularly for medicines that are not considered first-line treatments according to well-established international guidance in this area (WHO, n.d.-b). Many countries have national anti-microbial resistance plans that may collect information on the general use of antibiotics in line with such plans, including the international WHO-GLASS framework (WHO, n.d.-a). Authors can consult the Medicines and Medical Supplies module for more information.

Diagnostic accuracy in primary care is an area that has received significant attention, including through the work on standardized patients and clinical vignettes. Provider knowledge is assessed in some health facility surveys through clinical vignettes, including the World Bank SDI survey. Health facility surveys may also examine patients' medical records data to check adherence to standard care protocols. This would be useful to examine in countries where such information exists.

Finally, indicators of "effective coverage" capture information on quality and could be useful to monitor. While these indicators are also impacted by access to primary care, poor quality of care also plays a role. For example, high prevalence of uncontrolled hypertension indicates poor screening, diagnosis, and/or inadequate treatment by primary care providers. The same logic would apply to diabetes, for example. While it has been difficult to assess the extent of these issues historically, health surveys with biomarker information are now more common. As such, PER authors can use these indicators to assess the quality of primary care services in a country, in relation to efficiency through preventable morbidity and mortality based on the burden of disease. The module on Service Coverage provides additional guidance.

Integration of services

KEY QUESTIONS

- **How many hospitalizations are avoidable?**
- **What are the trends in emergency room visits?**

Primary care and specialized/hospital care should complement each other, with the health system providing a continuum of coordinated care across different levels to people throughout their life course with care always delivered in the most appropriate setting. This type of care model improves health outcomes and minimizes the use of inappropriate health services. Different avenues exist for providing coordinated services through integrated models of care. For the purposes of a PER, authors should focus on indicators of integration.

Overall, a lack of integration of services can be a major source of inefficiency due to duplication of services, and ineffective and untimely care, which may result in the use of more expensive levels of care.

Hospitalizations for "ambulatory care sensitive conditions" (ACSC) are hospitalizations that could have been prevented with access to effective primary care. These are problematic both from an efficiency and quality of care perspective Similarly, a high number of visits to hospital emergency rooms compared to other countries is indicative of a weak primary care system. For example, people without a regular primary care provider are more likely to seek care at hospital emergency rooms (Fung et al. 2015). While ACSC hospitalizations and emergency room visits could also be related to poor quality of care at the primary level, they are often related to poor integration of services. PER authors can refer to the module on Hospitals and its annexes for more detailed information on these topics.

Equity

KEY QUESTIONS

- **How is unmet need for care distributed across different population groups?**
- **What is the coverage of key interventions across different population groups?**

Equity concerns are central to the concept of primary health care. Here, equity is analyzed by disaggregating data on coverage of primary care services across socioeconomic dimensions, with inequity represented by the difference between better-off and vulnerable populations. As a starting point, PER authors can explore some of the indicators discussed previously but disaggregated across socioeconomic dimensions[7]. Broader linkages between inequality and primary health care are discussed in the box later in this section.

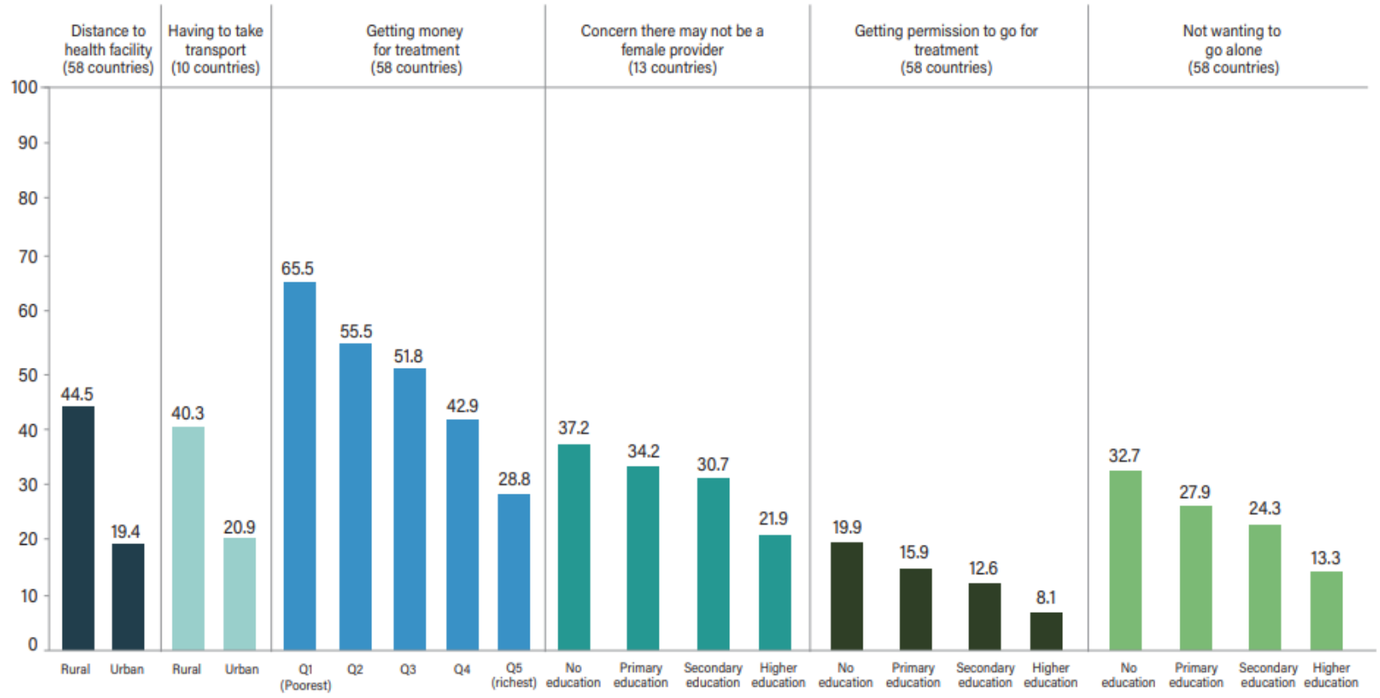
Key Indicators	Sources
Unmet need for health services by socioeconomic status	• Health surveys
Reasons for forgoing care by socioeconomic status	
Coverage of selected health services by socioeconomic status	• Health surveys
Information on responsiveness and patient experience by socioeconomic status	• MoH • Existing studies

Note: MoH = Ministry of Health.

7 It is also possible to disaggregate primary care inputs, such as financing or human resources, across some socioeconomic dimensions, such as urban versus rural areas. Similarly, primary care health status outcomes, such as prevalence of diseases like diabetes, can be disaggregated across socioeconomic dimensions. The module on Health Status and Health Risks and those on different inputs like Human Resources for Health discuss these aspects.

Unmet need for care is strongly associated with socioeconomic differences. For example, girls and women ages 15–49 were more likely to forgo needed health care if they lived in rural areas, were less educated, or from poorer income groups across surveys and countries (WHO SEARO 2024). Their reasons for forgoing care highlight different challenges including social norms and practices, such as women's autonomy and independence (Figure 3). Financial barriers to access could be addressed with the expansion of financial risk protection (see module on Financial Risk Protection).

FIGURE 3
REASONS FOR FORGOING HEALTH CARE AMONG FEMALES AGES 15–49 YEARS (HOUSEHOLD SURVEYS, 2011–21)



Source: WHO SEARO 2024.

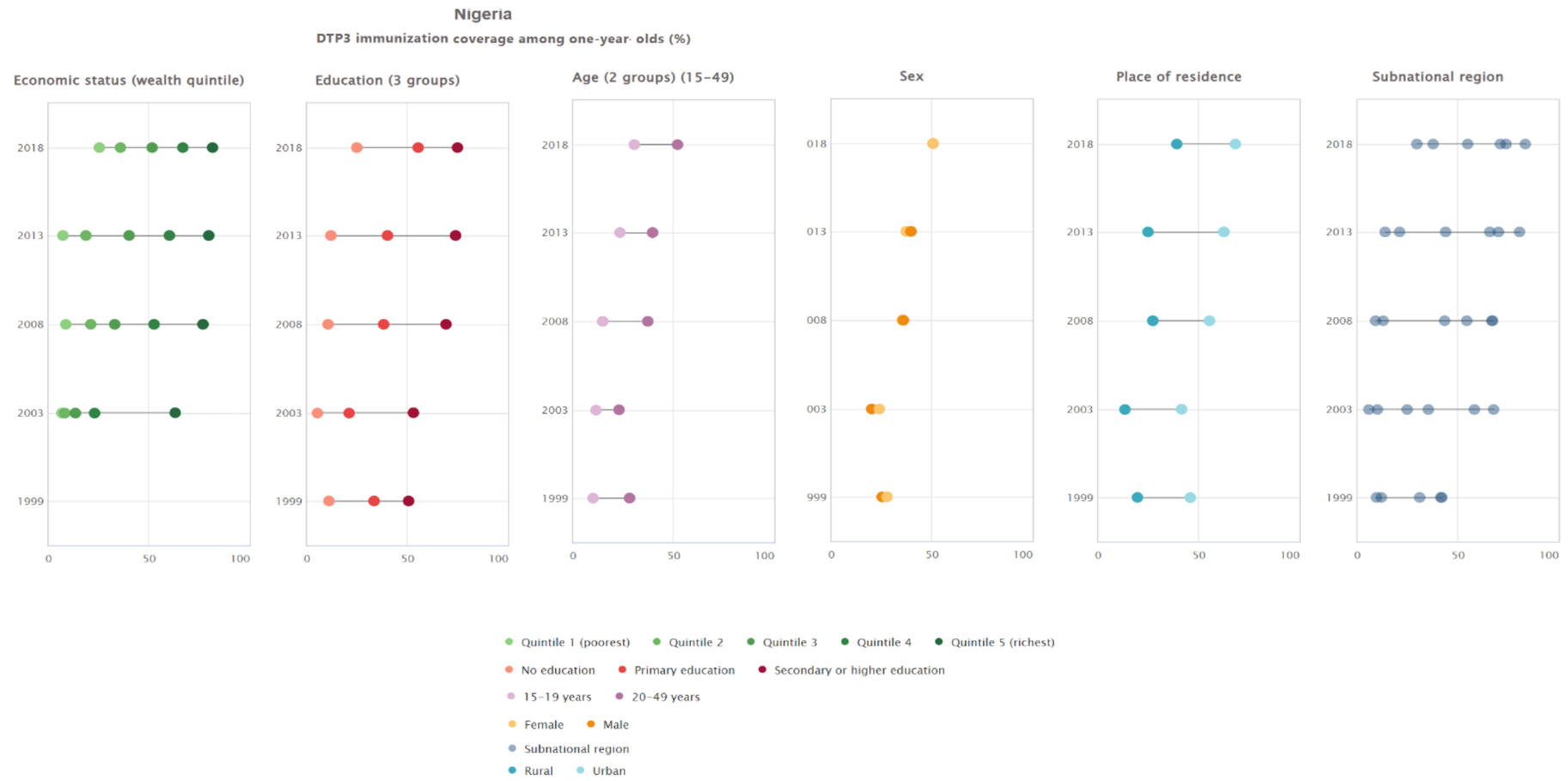
PER authors can also examine socioeconomic and regional variation in service use based on household health surveys. These services include, for example, childhood immunizations, delivery by a skilled birth attendant/in a health facility, cervical cancer screening, and hypertension or diabetes control. The number of visits to primary care providers per 100,000 population or the number of primary health facilities and primary care health workers in different parts of a country can also be considered. Goals for coverage in these services may be part of the monitoring frameworks for the national health policy or subsectoral strategies. PER authors interested in exploring these issues further can also consult the Service Coverage module of this series.

COUNTRY EXAMPLE: DTP3 COVERAGE IN NIGERIA

Nigeria increased coverage of three doses of the DTP vaccine among 1-year-olds, from 22.2 percent in 2003 to over 50 percent in 2018 (WHO Health Inequality Data Repository, n.d.). Through examining multiple rounds of DHS data, however, it is clear that this progress is not consistent across different population groups. Inequity in coverage across socioeconomic dimensions such as wealth quintile, education level of the mother, and age of the mother has not consistently declined. There is also a huge gradient from the north to the south of the country, with the highest coverage in 2018 in the southeast, at 83.4 percent, compared to 29.8 percent in the northwest. Analysis of the 2018 data also shows that complete vaccination coverage among infants ages 12–23 months also strongly varied across ethnicities, with only 18.2 percent of Hausa/Fulani children fully vaccinated compared to 40.8 percent of Yoruba and 56.3 percent of Igbo children. Even after controlling for other socioeconomic factors, significant differentials in coverage across ethnic lines remained (Afolabi et al. 2021).

Box continues on the following page.

COUNTRY EXAMPLE: DTP3 COVERAGE IN NIGERIA *(continued)*



Source: Figure from the WHO Global Health Observatory.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
Service Delivery
M-10: Hospitals
M-11: Primary Care & Public Health
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

INEQUALITY IN PRIMARY HEALTH CARE

As described earlier, the concept of primary health care addresses the broader determinants of health through multisectoral policy and action as well as empower individuals, families, and communities to take charge of their own health. Both these aspects are central to PHC's aim of reducing inequalities and social justice. Addressing social and commercial determinants directly are key for reducing inequality in health. Similarly, empowerment entails changing power dynamics and giving people a stronger voice. This is closely linked to the idea of "people-centered" or "person-centered" care, which emphasizes the holistic needs of people and communities. To meet those needs, care must be delivered in a way that is more respectful and responsive.

When conducting a PER, it is important to consider the different populations—particularly marginalized groups—in the country and their experiences with health service delivery. For example, distrust of health providers or the government stemming from discrimination against persons or communities, often reflecting structural biases in health systems, can result in lower use of health services, higher unmet health needs, and poorer health status, despite higher overall health needs. Therefore, PER authors should consider the intersection of diversity and inclusion issues relevant to each context (for example, disability, sexuality) in addition to traditional equity dimensions such as income. Authors could draw on existing quantitative and qualitative data on responsiveness and patient satisfaction, which would add significant depth to analysis.

Processes and governance

KEY QUESTIONS

- Is country policy oriented toward a primary health care approach to health?
- Is there a robust national response plan for health emergencies and disasters?
- Are primary care services included in benefit packages?
- How are primary care facilities managed? Are there many staff vacancies in primary care facilities?

There are many factors to consider when exploring primary health care governance and processes in a country. Overall, a good starting point is for PER authors to assess whether national health policy is oriented toward a primary health care approach to health. This could be supported through political or normative recognition and adoption of primary health care and related concepts, such as integrated health services and Health in All Policies. It is critical for authors to study the national health policy/strategy: at the very least, this document should recognize the importance of primary care and of strengthening non-hospital-based health services to be considered PHC oriented.

Key Indicators	Sources
Is the national health policy/ strategy oriented toward primary health care? (Yes/No)	• KIIs • Health policy/strategy documents
Is there a robust health emergency preparedness plan? (Yes/No)	• KIIs • Health policy/strategy documents
Does the country have a PHC monitoring framework?	• KIIs • Health policy/strategy documents
How much autonomy do providers have in decision making?	• KIIs
Vacancies in primary care facilities	• MoH

Note: KII = key informant interview; MoH = Ministry of Health.

For public health and essential public health functions, the existence of a robust health emergency preparedness plan is important. WHO guidance on plans for health emergencies and disasters can be used to assess the existing country approach (WHO 2021b). Additionally, a Joint External Evaluation assessment of the country's preparedness can be used if it has been conducted recently (WHO 2022).

Some countries have also embraced primary care performance monitoring and developed or adopted frameworks for this, such as the international PHCPI framework. Some countries also use primary care performance monitoring for funding purposes, including the well-known Quality and Outcomes Framework, which has been used to partially determine payments to general practitioners in the UK's National Health Service since 2004 (NHS, n.d.). PER authors may explore whether the country has such frameworks in place and whether it monitors PHC performance.

Efficient primary care hinges on well-managed facilities and PER authors overseen by trained managers equipped with necessary tools and resources. Granting facilities autonomy, for example, in decisions related to human resources management, enhances responsiveness to financial incentives and improves performance. High staff vacancy rates in primary care impact efficiency and may stem from inadequate and unattractive staffing conditions or delayed recruitment, despite secured funding for positions (see the Human Resources for Health module).

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
Service Delivery
M-10: Hospitals
M-11: Primary Care & Public Health
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

Acknowledgments

This module builds on the concepts and content of the other modules and additional guidance notes, including the Service Availability and Readiness, and Quality of Health Services, notes. We would like to acknowledge the work and contribution of the authors of these documents. We are also extremely thankful to Manuela Villar Uribe for a thorough review and feedback on this module.



References

Afolabi, Rotimi Felix, Mobolaji M. Salawu, Babatunde Makinde Gbadebo, Adetokunbo T. Salawu, Adeniyi Francis Fagbamigbe, and Ayo Stephen Adebowale. 2021. "Ethnicity as a Cultural Factor Influencing Complete Vaccination among Children Aged 12-23 Months in Nigeria." *Human Vaccines & Immunotherapeutics 17* (7): 2008–17. https://doi.org/10.1080/21645515.2020.1870394.

Agency for Healthcare Research and Quality. n.d. "AHRQ Quality Indicators." Accessed May 3, 2024. https://qualityindicators.ahrq.gov/Downloads/Modules/V2023/AHRQ_QI_Indicators_List.pdf.

Black, Robert E., Carol Levin, Neff Walker, Doris Chou, Li Liu, and Marleen Temmerman. 2016. "Reproductive, Maternal, Newborn, and Child Health: Key Messages from Disease Control Priorities 3rd Edition." *The Lancet 388* (10061): 2811–24. https://doi.org/10.1016/S0140-6736(16)00738-8.

Clarke, Lorcan, Edith Patouillard, Andrew J. Mirelman, Zheng Jie Marc Ho, Tessa Tan-Torres Edejer, and Nirmal Kandel. 2022. "The Costs of Improving Health Emergency Preparedness: A Systematic Review and Analysis of Multi-Country Studies." *eClinicalMedicine* 44 (February). https://doi.org/10.1016/j.eclinm.2021.101269.

GHED. n.d. Accessed May 3, 2023. Global Health Expenditure Database, World Health Organization, Geneva. https://apps.who.int/nha/database/ViewData/Indicators/en.

Gmeinder, Michael, David Morgan, and Michael Mueller. 2017. "How Much Do OECD Countries Spend on Prevention?" Paris: OECD Publishing. Organisation for Economic Co-operation and Development. https://doi.org/10.1787/f19e803c-en.

Government of Chile, PAHO, and WHO. "Investing in the Radical Reorientation of Health Systems towards Primary Health Care." Side event at the UN General Assembly, 78th session. September 21, 2023. Pan American Health Organization, Washington, DC; World Health Organization, Geneva. https://www.paho.org/en/events/investing-radical-reorientation-health-systems-towards-primary-health-care.

Hanson, Kara, Nouria Brikci, Darius Erlangga, Abebe Alebachew, Manuela De Allegri, Dina Balabanova, Mark Blecher, et al. 2022. "The Lancet Global Health Commission on Financing Primary Health Care: Putting People at the Centre." *The Lancet Global Health 10* (5): e715–72. https://doi.org/10.1016/S2214-109X(22)00005-5.

Khatri, Resham B., Eskinder Wolka, Frehiwot Nigatu, Anteneh Zewdie, Daniel Erku, Aklilu Endalamaw, and Yibeltal Assefa. 2023. "People-Centred Primary Health Care: A Scoping Review." *BMC Primary Care* 24 (1): 236. https://doi.org/10.1186/s12875-023-02194-3.

Laxminarayan, Ramanan, Anne J. Mills, Joel G. Breman, Anthony R. Measham, George Alleyne, Mariam Claeson, Prabhat Jha, et al. 2006. "Advancement of Global Health: Key Messages from the Disease Control Priorities Project." *The Lancet* 367 (9517): 1193–1208. https://doi.org/10.1016/S0140-6736(06)68440-7.

Macinko, James, Barbara Starfield, and Leiyu Shi. 2007. "Quantifying the Health Benefits of Primary Care Physician Supply in the United States." *International Journal of Health Services: Planning, Administration, Evaluation* 37 (1): 111–26. https://doi.org/10.2190/3431-G6T7-37M8-P224.

Ministry of Health, Malaysia. 2021. *Malaysia National Health Accounts Health Expenditure Report 1997-2021*. https://www.moh.gov.my/moh/resources/Penerbitan/Penerbitan%20Utama/MNHA/MNHA_Health_Expenditure_Report_1997-2019_02092021.pdf.

NHS. n.d. Quality and Outcomes Framework. Accessed March 11, 2024. UK National Health Service. https://qof.digital.nhs.uk/.

OECD. 2020. *Realising the Potential of Primary Health Care.* Paris: OECD Publishing. Organisation for Economic Co-operation and Development. https://www.oecd-ilibrary.org/social-issues-migration-health/realising-the-potential-of-primary-health-care_a92adee4-en.

Primary Health Care Performance Initiative. n.d. Accessed July 10, 2024. https://www.improvingphc.org/measuring-progress-phc.

Rajan, Dheepa, Katherine Rouleau, Juliane Winkelmann, Dionne Kringos, Melitta Jakab, and Faraz Khalid, eds. 2024. *Implementing the Primary Health Care Approach: A Primer. European Observatory on Health Systems and Policies*, World Health Organization, Geneva. https://eurohealthobservatory.who.int/publications/i/implementing-the-primary-health-care-approach-a-primer.

Russo, Letícia Xander, Anthony Scott, Peter Sivey, and Joilson Dias. 2019. "Primary Care Physicians and Infant Mortality: Evidence from Brazil." *PLOS ONE* 14 (5): e0217614. https://doi.org/10.1371/journal.pone.0217614.

Sulis, Giorgia, Pierrick Adam, Vaidehi Nafade, Genevieve Gore, Benjamin Daniels, Amrita Daftary, Jishnu Das, Sumanth Gandra, and Madhukar Pai. 2020. "Antibiotic Prescription Practices in Primary Care in Low- and Middle-Income Countries: A Systematic Review and Meta-Analysis." *PLOS Medicine* 17 (6): e1003139. https://doi.org/10.1371/journal.pmed.1003139.

Van de Maele, Nathalie, Ke Xu, Agnes Soucat, Lisa Fleisher, Maria Aranguren, and Hong Wang. 2019. "Measuring Primary Healthcare Expenditure in Low-Income and Lower Middle-Income Countries." *BMJ Global Health* 4 (1): e001497. https://doi.org/10.1136/bmjgh-2019-001497.

WHO. 2018a. *Building the Economic Case for Primary Health Care: A Scoping Review*. https://www.who.int/publications-detail-redirect/WHO-HIS-SDS-2018.48. Geneva: World Health Organization.

WHO. 2018b. *Essential Public Health Functions, Health Systems and Health Security: Developing Conceptual Clarity and a WHO Roadmap for Action*. Geneva: World Health Organization. https://iris.who.int/handle/10665/272597.

WHO. 2021a. "Measuring Primary Health Care Expenditure under SHA 2011." Technical Note. World Health Organization, Geneva. https://cdn.who.int/media/docs/default-source/health-accounts/measuring-primary-health-care-expenditure-under-sha-2011.pdf?sfvrsn=7613b97e_3.

WHO. 2021b. *WHO Guidance on Preparing for National Response to Health Emergencies and Disasters*. Geneva: World Health Organization. https://www.who.int/publications-detail-redirect/9789240037182.

WHO. 2022a. *Essential Public Health Functions*. Geneva: World Health Organization. https://www.who.int/publications/m/item/essential-public-health-functions.

WHO. 2022b. *Joint External Evaluation Tool: Third Edition*. Geneva: World Health Organization. https://iris.who.int/bitstream/handle/10665/357087/9789240051980-eng.pdf?sequence=1.

WHO. 2023. *Malaysia: A Primary Health Care Case Study in the Context of the COVID-19 Pandemic*. Geneva: World Health Organization. https://iris.who.int/handle/10665/372662.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
Service Delivery
M-10: Hospitals
M-11: Primary Care & Public Health
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

WHO Antibiotics Portal. n.d. Accessed March 7, 2024. World Health Organization, Geneva. https://aware.essentialmeds.org/groups.

WHO Health Inequality Data Repository. n.d. Accessed March 8, 2024. https://www.who.int/data/inequality-monitor/data.

WHO SEARO. 2024. *To Meet the Unmet: Preparing for Health Equity Challenges in WHO South-East Asia Region*. World Health Organization South-East Asia Regional Office. https://www.who.int/publications-detail-redirect/9789290211099.

WHO and UNICEF. 2022. *Primary Health Care Measurement Framework and Indicators: Monitoring Health Systems through a Primary Health Care Lens*. Geneva: World Health Organization; New York: United Nations Children's Fund.

WHO. n.d. GLASS Dashboard. Accessed July 23, 2024. https://worldhealthorg.shinyapps.io/glass-dashboard/_w_7a31ac2b/#!/home.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance



SECTION 3

Final and Intermediate Outcomes

The ultimate goal of health systems is to improve final health outcomes: *better population health and lower health risks*.

Efficient, equitable and effective health systems achieve this by improving financial protection and effective service coverage, which are the components of Universal Health Coverage (UHC). This section provides guidance on evaluating whether public health spending achieves its goals by examining health outcomes and their distribution across population groups. It includes modules on *Universal Health Coverage, service coverage, financial risk protection, and health status and risks.* Intermediate and final health outcomes can be used to asses macro-efficiency by comparing outcomes among countries with similar levels of health expenditure, as explained in the cross-cutting Analysis.

MODULE 12 SERVICE COVERAGE

MODULE 13 FINANCIAL RISK PROTECTION

MODULE 14 HEALTH STATUS AND HEALTH RISKS

MODULE 15 UNIVERSAL HEALTH COVERAGE

CONTINUE

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
M-12: Service Coverage
M-13: Financial Risk Protection
M-14: Health Status and Health Risks
M-15: Universal Health Coverage
List of Acronyms

4 SECTION 4
Additional Guidance

TABLE OF CONTENTS

MODULE 12

Service Coverage

AUTHOR
Jacopo Gabani

START



OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
M-12: Service Coverage
M-13: Financial Risk Protection
M-14: Health Status and Health Risks
M-15: Universal Health Coverage
List of Acronyms

4 SECTION 4
Additional Guidance

INTRODUCTION

Under universal health coverage (UHC), all individuals and communities receive the health services they need, when and where they need them, without suffering financial hardship (WHO 2023). UHC includes the full range of essential health services, and it applies to an entire population, that is, all individuals regardless of socioeconomic background, geographic location, among other factors. Therefore, service coverage is an integral part of UHC.

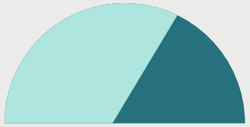
The development of service coverage aggregate indexes mirrors the progress of UHC in the global agenda, from the first UN resolution on the topic in 2012 onward (see Wagstaff 2013 and UHC2030 2019 for a history of the UHC concept). In fact, the first release of the Service Coverage Index was in 2017 (UN Stats),[1] and the IHME Effective Coverage Index (GBD 2019 Universal Health Coverage Collaborators 2020), noted in this module, was developed recently.

It is important to clarify that although service coverage and utilization are often considered to be similar concepts, utilization might not be equivalent to coverage, and coverage might not be equivalent to effective coverage, as shown in Figure 1. Utilization represents the percentage of people obtaining a service regardless of their needs. Coverage represents the percentage of people in need using a service regardless of whether the service provided is the correct one (for example, children 12-23 months needing a vaccination taken to a provider, or people 20-65 living with HIV/AIDS taken to a provider). Finally, effective coverage means that people in need use a service and obtain correct treatment (for example, receipt of three doses of DTP vaccine among children 12-23 months old, or people 20-65 living with HIV/AIDS on anti-retroviral therapy (ART)). In addition, PER authors should note that de jure coverage is not service coverage: being enrolled in a health insurance plan does not mean being effectively covered. This module focuses on how to analyze and measure service coverage, while the efficiency of expenditures on delivering service coverage is addressed in the Cross-Cutting Module on Efficiency.

1 https://unstats.un.org/sdgs/metadata/files/Metadata-03-08-01.pdf.

1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
M-12: Service Coverage
M-13: Financial Risk Protection
M-14: Health Status and Health Risks
M-15: Universal Health Coverage
List of Acronyms
4 SECTION 4 Additional Guidance

FIGURE 1
UTILIZATION, COVERAGE, AND EFFECTIVE COVERAGE



UTILIZATION

- % population using a service
- E.g., % children taken to a health provider
- **But does everyone need a consultation?**



COVERAGE

- % population in need using a service
- % children needing a DTP vaccine dose taken to a health provider
- **But do children get the correct treatment?**



EFFECTIVE COVERAGE

- % population in need using a service and *getting the optimal treatment*
- % of children 12–23 months who needed and received three doses of DTP vaccine

Source: World Bank 2022.

Of note, service coverage is tracked as part of the SDG target 3.8, "Achieve universal health coverage." For the same reason, service coverage is reviewed in the UHC module as well, though in less detail than this module provides.

The module is divided into two sections: the level (and progress) of service coverage and the equity of service coverage. PER authors may also wish to refer to the module on UHC, which includes both financial risk protection and service coverage. The following box defines terms used in this module.

BOX 1. DEFINITIONS OF TERMS

EFFECTIVE COVERAGE
The percentage of people in need of a particular service who obtain the optimal treatment.

EFFECTIVE COVERAGE INDEX
An index developed by the Institute of Health Metrics and Evaluation (IHME), University of Washington, encompassing 41 indicators, of which nine are related to service coverage and 32 are related to outcomes. Full details are provided in Annex 1, as well as in the UHC module.

COVERAGE
The percentage of people, out of all people in need, who obtain treatment from a health provider.

FINANCIAL RISK PROTECTION
A household is protected from financial risk when it is not suffering financial hardship due to catastrophic health expenditures, impoverishing health expenditures, or forgoing care due to financial reasons. The Financial Risk Protection module provides more details on the topic and its related measures, mentioned below.

UHC SERVICE COVERAGE INDEX
Used to track SDG indicator 3.8.1, "Coverage of essential health services," the index is calculated as the unweighted geometric mean of 14 tracers, of which 11 are service coverage tracers and three are service capacity tracers. Full details are provided in Annex 1.

UNIVERSAL HEALTH COVERAGE (UHC)
Under UHC, all individuals and communities receive the health services they need, when and where they need them, without suffering financial hardship. It includes the full range of essential health services and applies to an entire population, that is, all individuals regardless of socioeconomic background, geographic location, or other factors. "Achieve universal health coverage" is SDG target 3.8.

UTILIZATION
The percentage of people using a particular service, regardless of need and whether the treatment is optimal.

OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
M-12: Service Coverage
M-13: Financial Risk Protection
M-14: Health Status and Health Risks
M-15: Universal Health Coverage
List of Acronyms
4 SECTION 4 Additional Guidance

PROGRESS IN THE LEVEL OF SERVICE COVERAGE

KEY QUESTION • **What is the level and trend of service coverage?**

To answer this question, PER authors would usually need to (1) assess the level of service coverage using the aggregate indicator UHC Service Coverage Index; and (2) select the most relevant service coverage indicators, or "tracers," for their own country, and then assess the level and trend for those indicators.

To ascertain whether the service coverage level (whether at the aggregate level or representing single service) is satisfactory, PER authors can compare current service coverage levels with past levels, as well as compare service coverage levels with those of comparator countries (for example, countries in the same region, with the same income group, and similar context and epidemiological profile).

When selecting indicators, PER authors should attempt to select indicators that comprehensively cover different disease areas, as well as cover different types of service, for example, health promotion, screening, and treatment programs.

Key Indicators	Sources
Aggregate measure	
• UHC Service Coverage Index[2]	• WHO/World Bank UHC annual *Global Monitoring Report* • Country MoH report
• UHC Effective Coverage Index	• IHME Global Burden of Disease (GBD) Study 2019[3]
Reproductive, Maternal, Neonatal, and Child Health	
Pregnant women receiving prenatal care of at least four visits (% pregnant women)[4]	• World Bank HNP Statistics database • Household surveys (for example, DHS) • WHO GHO
Immunization (DPT),[5] (% of children 12-23 months)	• World Bank HNP Statistics database • Household surveys (for example, DHS) • Administrative system • WHO GHO
Contraceptive prevalence, any modern method (% of married women ages 15-49)	• World Bank WDI, HNP Statistics database • Household surveys (for example, DHS)
ARI treatment (% children under-5 taken to a health provider)	• World Bank HNP Statistics database • Household surveys (for example, DHS)

2 UHC Service Coverage Index, SDG indicator 3.8.1 (https://unstats.un.org/sdgs/metadata/files/Metadata-03-08-01.pdf).

3 Global Burden of Disease Collaborative Network. 2019. Global Burden of Disease (GBD) Study 2019 (GBD 2019). UHC Effective Coverage Index 1990–2019. 2020. Seattle, Washington: Institute for Health Metrics and Evaluation (IHME).

4 This indicator in the WHO GHO is "Antenatal care, at least four visits (% pregnant women 15–49)."

5 Similar immunization coverage indicators for other diseases can also be used

Key Indicators	Sources
Nutrition[6]	
Early initiation of breastfeeding (% of newborns), or Proportion of mothers/caregivers who receive breastfeeding counseling during postnatal care visits	• Household surveys (for example, DHS) • Administrative Health information systems • UNICEF Data
Vitamin A supplementation (% of children aged 6–59 months)	
Children with diarrhea who received zinc and ORS (% of children under five with diarrhea)	
Women who took iron-folic acid (or any iron-containing) supplements more than 90 days in the current or last pregnancy, or % women aged 15-49 years who took Multiple Micronutrient Supplements in the current or last pregnancy	

6 There is a suite of high-impact cost-effective nutrition services for low- and lower-middle-income countries identified in DCP and Lancet nutrition series (Bhutta et al. 2008, 2013) . See also the Investment Framework for Nutrition (2024) and Optima for additional guidance on high/impact nutrition interventions.

Key Indicators	Sources	
Infectious diseases		
Tuberculosis treatment success rate (% of new cases)	• World Bank WDI • Administrative system	• Household surveys (for example, DHS) • WHO estimates
Antiretroviral therapy coverage (% people living with HIV)	• World Bank WDI, HNP statistics • WHO GHO • Administrative system	• Household surveys (for example, DHS) • Surveillance system • UNAIDS estimates
Proportion of children under five years of age who slept under an insecticide-treated mosquito net (%)	• WHO GHO • Administrative system	• Household surveys (for example, DHS) • WHO/Malaria Atlas Project estimates
Noncommunicable diseases		
Prevalence of hypertension among adults aged 30-79 years	• Household surveys (for example, DHS)	• WHO GHO
Mean fasting plasma glucose (mmol/L) (age-standardized estimate)	• Household surveys (for example, DHS)	• WHO GHO
Prevalence of cervical cancer screening among women aged 30-49 years (%)	• Household surveys (for example, DHS)	• WHO GHO
Prevalence of current tobacco use (% adults)	• World Bank HNP statistics • World Bank WDI	• Household surveys (for example, DHS) • WHO GHO

Note: ARI = acute respiratory infections; DHS = Demographic and Health Surveys; HNP = Health, Nutrition, and Population; IHME = Institute for Health Metrics and Evaluation; MoF = Ministry of Finance; UHC = Universal Health Coverage; ORS = oral rehydration solutions; WDI = World Development Indicators; WHO GHO = World Health Organization Global Health Observatory. We have used the indicator name used at the linked source. However, we recognize that in some cases, different datasets, and in some cases, even the same dataset, might use slightly different names for the same indicator. PER authors should use the links provided and be mindful of different naming across and within datasets to avoid confusion.

OVERVIEW

1 SECTION 1 What Is a Health PER?

2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3 Topic-Specific Analysis

Health System Context

Health Financing

Inputs

Service Delivery

Outcomes

M-12: Service Coverage

M-13: Financial Risk Protection

M-14: Health Status and Health Risks

M-15: Universal Health Coverage

List of Acronyms

4 SECTION 4 Additional Guidance

The list of indicators above is not exhaustive, and different PER authors could investigate different indicators, as relevant, from either household surveys (for example, Demographic and Health Surveys (DHS)) or global datasets (for example, World Bank Health, Nutrition, and Population (HNP) Statistics or the World Health Organization Global Health Observatory (WHO GHO)).

It is important to note that the WHO service coverage index is meant to capture progress at the global level. This imposes important constraints related to the set of tracers chosen. While the WHO service coverage index could be used for a high-level analysis (for example, a comparison across countries), for country-level monitoring, the choice of the service tracers should be more closely aligned with (1) the country's burden of disease; (2) the country's health priorities; and (3) the availability of specific data on the country.

Annex 1 provides a definition of the aggregate service coverage indicators and a list of all the tracers used to build them. These tracers may serve as inspiration for PER authors selecting their own service coverage indicators.

While the indicators obtained from the World Bank World Development Indicators (WDI) and HNP Statistics databases are useful for comparison at the regional and country levels, they will not be useful at the subnational level. In order to run analyses at the subnational level, authors will need to check whether Demographic and Health Surveys or other household surveys provide subnational-level data, and run subnational-level analysis if data are available.



EQUITY OF SERVICE COVERAGE

KEY QUESTION • **Is service coverage distributed equitably?**

This section analyzes how service coverage indicators are distributed across income quintiles in order to assess UHC equity. Thus far, there is no dataset available that disaggregates service coverage aggregate indexes (the UHC Service Coverage Index or UHC Effective Coverage Index) by income quintile. However, HEFPI and the World Bank HNP Statistics by wealth quintile disaggregate service coverage indicators by income quintile.

Key Indicators	Sources
Service coverage indicators across quintiles	• World Bank HEFPI dataset • World Bank HNP Statistics database, by wealth quintile • WHO Health Equity Monitor • Household surveys (for example, DHS) • Administrative dataset

Note: DHS = Demographic and Health Surveys; HEFPI = Health Equity and Financial Protection Indicators; HNP = Health, Nutrition, and Population; WHO = World Health Organization.

PER authors can assess the equity of service coverage by following these steps:

1. Select service coverage indicators based on local context or from the list of service coverage indicators used to generate the UHC Service Coverage Index (see Annex 1).

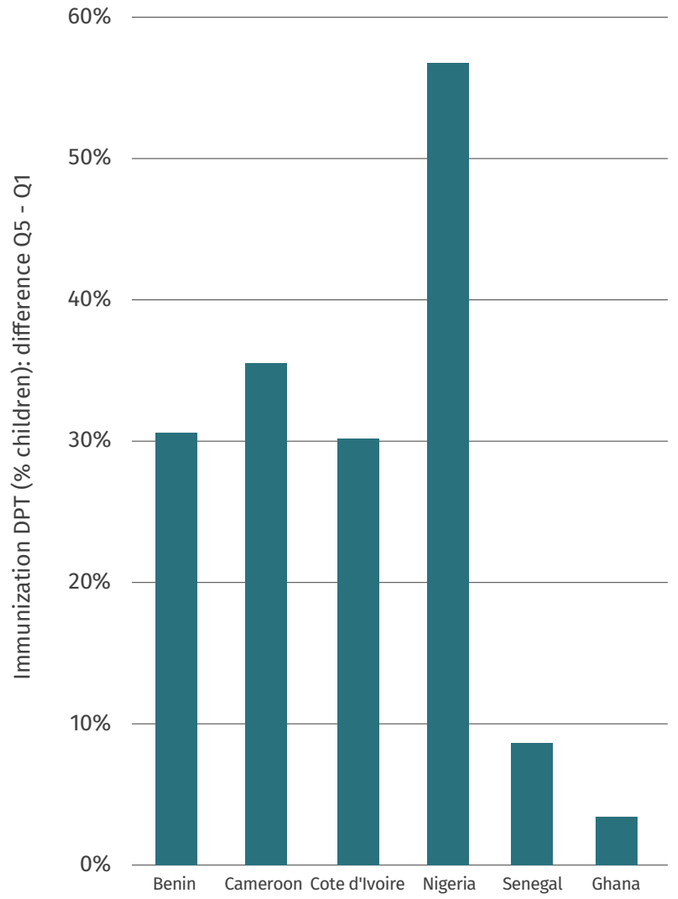
2. Analyze progress for each indicator across quintiles (see "Sources" in the preceding table). It is possible that progress is more marked for top quintiles and less marked for lower quintiles, or vice versa.

PER authors are encouraged to explore equity of service coverage further using data from household surveys, which would allow for disaggregation beyond socioeconomic quintiles (for example, rural/urban, age, geographic location, and so on). When using household surveys, authors can calculate the concentration indexes for each service coverage indicator as a summary measure for equity

across socioeconomic groups. Other summary measures commonly used are (1) the difference between the top and bottom quintile (for example, DPT immunization coverage (percentage of children younger than 5 years) for top quintile Q5 minus the same measure for bottom quintile Q1); or (2) the ratio of the top and bottom quintile (for example, DPT immunization coverage (percentage of children younger than 5 years) for top quintile Q5 divided by the same measure for bottom quintile Q1). Figure 2 compares quintiles for selected West African countries. The chart shows that immunization coverage is highly inequitable in Nigeria, while children in Ghana (and to some extent, Senegal) have similar DPT immunization coverage regardless of whether they are in the top or bottom income quintile. We note that summary measures (that is, concentration indexes, or Q1-Q5 differences and ratio) do not provide a full picture across income levels, and therefore are complements, not substitutes, of analyses across all income levels and/or income groups.

The analysis in Figure 2 can be helpful to assess the equity of service coverage at the country level, and at a rather high level. PER authors interested in equity, including at the subnational level, would need to assess coverage indicators, for example, by district/region (or similar administrative level). Authors could, for example, produce graphs of primary health care expenditures per capita across different districts in the region, which might be available from health resource tracking or government budget documents, and compare them with measures of health need, for example, from Demographic Health Surveys. In addition, PER authors might use benefit incidence analysis to assess the equity of expenditures for service delivery in a more granular way (O'Donnell et al. 2008; Gabani et al. 2024). Authors interested in whether the public health care system redistributes resources could also run, together with benefit incidence analyses, financing and fiscal incidence analysis (O'Donnell et al. 2008; Gabani et al. 2024; Lustig et al. 2015).

FIGURE 2
COMPARISON OF DIFFERENCE IN DPT IMMUNIZATION COVERAGE BETWEEN TOP AND BOTTOM QUINTILES IN LOWER-MIDDLE-INCOME COUNTRIES IN WEST AFRICA, 2018 (PERCENT)



Source: World Bank staff.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
M-12: Service Coverage
M-13: Financial Risk Protection
M-14: Health Status and Health Risks
M-15: Universal Health Coverage
List of Acronyms

4 SECTION 4
Additional Guidance

References

Bhutta, Zulfiqar A., Tahmeed Ahmed, Robert E. Black, Simon Cousens, Kathryn Dewey, Elaine Giugliani, Batool A. Haider, Betty Kirkwood, Saul S. Morris, Harshpal S. Sachdev, and Meera Shekar; Maternal and Child Undernutrition Study Group. 2008. "What Works? Interventions for Maternal and Child Undernutrition and Survival." *The Lancet* 371 (9610): 417–40. https://doi.org/10.1016/S0140-6736(07)61693-6.

Bhutta, Zulfiqar A., Jai K. Das, Arjumand Rizvi, Meera F. Gaffey, Neff Walker, Susan Horton, Patrick Webb, Anna Lartey, and Robert E. Black; *The Lancet* Nutrition Interventions Review Group, the Maternal and Child Nutrition Study Group. 2013. "Evidence-Based Interventions for Improvement of Maternal and Child Nutrition: What Can Be Done and at What Cost?" Lancet 382 (9890): 452–77. https://doi.org/10.1016/S0140-6736(13)60996-4.

Gabani, Jacopo, Sumit Mazumdar, Sylvester Bob Hadji, and Michael Matthew Amara. 2024."The Redistributive Effect of the Public Health System: The Case of Sierra Leone." *Health Policy and Planning*, Vol. 39, Issue 1, January: 4–21. https://doi.org/10.1093/heapol/czad100.

GBD. 2019. Universal Health Coverage Collaborators. 2020. "Measuring Universal Health Coverage Based on an Index of Effective Coverage of Health Services in 204 Countries and Territories, 1990–2019: A Systematic Analysis for the Global Burden of Disease Study 2019." *The Lancet 396* (10258) :1250–84. August 27. doi:10.1016/S0140-6736(20)30750-9. https://www.healthdata.org/research-analysis/library/measuring-universal-health-coverage-based-index-effective-coverage-health.

Lustig, Nora. 2015. Chapter 16, "The Redistributive Impact of Government Spending on Education and Health: Evidence from Thirteen Developing Countries in the Commitment to Equity Project." In *Inequality and Fiscal Policy*. Washington, DC: International Monetary Fund.

O'Donnell, Owen, Eddy van Doorslaer, Adam Wagstaff, and Magnus Lindelow. *Analyzing Health Equity Using Household Survey Data: A Guide to Techniques and Their Implementation*. Washington, DC: World Bank.

OVERVIEW

1 SECTION 1 What Is a Health PER?

2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3 Topic-Specific Analysis

Health System Context

Health Financing

Inputs

Service Delivery

Outcomes

M-12: Service Coverage

M-13: Financial Risk Protection

M-14: Health Status and Health Risks

M-15: Universal Health Coverage

List of Acronyms

4 SECTION 4 Additional Guidance

Optima Nutrition Learning Tool. n.d. "Optima Nutrition Learning Tool." World Bank, Washington, DC. https://www.worldbank.org/en/topic/health/brief/optima-nutrition-learning-tool.

UHC2030. 2019. "A History of Universal Health Coverage in the UN." UN 2019 High-level Meeting on Universal Health Coverage.

Wagstaff, Adam. 2013. "Universal health coverage: Old wine in a new bottle? If so, is that so bad?" World Bank Blogs. February 12. https://blogs.worldbank.org/en/developmenttalk/universal-health-coverage-old-wine-in-a-new-bottle-if-so-is-that-so-bad.

Wang, Huihui, Kyoko Shibata Okamura, Ali Winoto Subandoro, Yurie Tanimichi Hoberg, Lubina Fatimah Qureshy, and Mamata Ghimire. 2022. *A Guiding Framework for Nutrition Public Expenditure Reviews.* International Development in Practice. Washington, DC: World Bank. https://doi.org/10.1596/978-1-4648-1853-0.

World Health Organization (WHO). 2023. "Universal Health Coverage (UHC)." Fact Sheet/Detail. World Health Organization, Geneva. https://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-(uhc). October 5.

Data Sets

World Bank Health Equity and Financial Protection Indicators (HEFPI), https://datatopics.worldbank.org/health-equity-and-financial-protection/.

World Bank Health, Nutrition and Population Statistics, https://datatopics.worldbank.org/health/.

World Bank World Development Indicators, https://datatopics.worldbank.org/world-development-indicators/.

World Health Organization (WHO) Health Equity Monitor, https://www.who.int/data/gho/data/themes/topics/topic-details/GHO/health-equity-monitor.



OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
M-12: Service Coverage
M-13: Financial Risk Protection
M-14: Health Status and Health Risks
M-15: Universal Health Coverage
List of Acronyms

4 SECTION 4
Additional Guidance

ANNEX 1

Detail of UHC Measures from WHO/World Bank and IHME

This annex is organized in three parts: (1) an overview of UHC indexes in the literature, shown in the table; (2) a list of the tracers used to generate the UHC Service Coverage Index; and (3) a list of the tracers used to generate the UHC Effective Coverage Index.



UHC MONITORING TOOLS

	UHC Service Coverage Index (SDG indicator 3.8.1)*	UHC Effective Coverage Index
Number and type of indicators	14 tracers covering service coverage (11) and service capacity (3)	41 indicators in total
Categorization or list of tracers	Indicator groups: 1. Reproductive, maternal, newborn, and child health (4 tracers) 2. Infectious diseases (4 tracers) 3. Noncommunicable diseases (3 tracers) 4. Service capacity and access (3 tracers) Detail of all tracers is provided below.	9 service coverage indicators 32 outcome-based indicators Detail of all tracers is provided below.
Data source	Household survey, administrative and institutional data	Household and administrative data
Modeling when data are missing	Extensive	Extensive
Compilation method	Geometric mean, unweighted	Weighting of indicators according to disease burden
Number of countries included	183	204
Reference	UHC Service Coverage Index, SDG 3.8.1, metadata	GBD 2019 Universal Health Coverage Collaborators. 2020. "Measuring Universal Health Coverage Based on an Index of Effective Coverage of Health Services In 204 Countries and Territories, 1990–2019: A Systematic Analysis for the Global Burden of Disease Study 2019. *The Lancet*. August 27, 2020. doi:10.1016/S0140-6736(20)30750-9.
Data download	https://datacatalog.worldbank.org/int/search/dataset/0060802 Additional source (with same data, available online without downloading the dataset): https://data.worldbank.org/indicator/SH.UHC.SRVS.CV.XD	http://ghdx.healthdata.org/record/ihme-data/gbd-2019-uhc-effective-coverage-index-1990-2019

Source: World Bank staff.
*Reminder: SDG target 3.8, "Achieve universal health coverage," is monitored via SDG indicator 3.8.1 as well as SDG indicator 3.8.2, "Catastrophic health spending (and related indicators)." SDG 3.8.2 is measured using CATA at the 10 percent and 25 percent levels. These measures are also reviewed in the Financial Risk Protection module.

UHC SERVICE COVERAGE INDEX TRACERS

REPRODUCTIVE AND MATERNAL HEALTH

3. **Family planning:** Percentage of women of reproductive ages (15–49 years) who are married or in union who have their need for family planning satisfied with modern methods
4. **Pregnancy care:** Percentage of women ages 15–49 years with a live birth in a given time period who received antenatal care four or more times
5. **Child immunization:** Percentage of infants receiving three doses of diphtheria-tetanus-pertussis containing vaccine
6. **Child treatment:** Percentage of children younger than 5 years with symptoms of acute respiratory infection (cough and fast or difficult breathing due to a problem in the chest and not due to a blocked nose only) in the two weeks preceding the survey for whom advice or treatment was sought from a health facility or provider

COMMUNICABLE DISEASES

7. **Tuberculosis:** Percentage of incident TB cases that are detected and treated
8. **HIV/AIDS:** Percentage of adults and children living with HIV currently receiving antiretroviral therapy
9. **Malaria:** Percentage of population in malaria-endemic areas who slept under an insecticide-treated net the previous night (only for countries with high malaria burden)
10. **Water, sanitation, and hygiene:** Percentage of population using at least basic sanitation services

NONCOMMUNICABLE DISEASES

11. **Hypertension:** Percentage of treatment (taking medicine) for hypertension among adults ages 30–79 years with hypertension (age-standardized estimate)
12. **Diabetes:** Age-standardized mean fasting plasma glucose (mmol/L) for adults ages 18 years and older
13. **Tobacco:** Age-standardized prevalence of adults ages 15 years and older currently using any tobacco product (smoked and/or smokeless tobacco) on a daily or nondaily basis (SDG indicator 3.a.1; see metadata at https://www.who.int/data/gho/indicator-metadata-registry/imr-details/prevalence-of-current-tobacco-use-among-persons-aged-15-years-and-older-(age-standardized-rate)

SERVICE CAPACITY AND ACCESS

14. **Hospital access:** Hospital beds density, relative to a maximum threshold of 18 per 10,000 population

15. **Health workforce:** Health professionals (physicians, psychiatrists, and surgeons) per capita, relative to maximum thresholds for each cadre (partial overlap with SDG indicator 3.c.1; see metadata at https://unstats.un.org/sdgs/metadata/files/Metadata-03-0C-01.pdf)
16. **Health security:** International Health Regulations (IHR) core capacity index, which is the average percentage of attributes of 13 core capacities that have been attained (SDG indicator 3.d.1; see metadata at https://www.who.int/data/gho/indicator-metadata-registry/imr-details/4672)

IHME EFFECTIVE COVERAGE INDEX INDICATORS[7]

Intervention coverage

1. Met need for family planning with modern contraception
2. ANC1
3. ANC4
4. Skilled birth attendance
5. In-facility delivery rate
6. DTP3
7. Polio3
8. MCV1
9. ART coverage



7 Sources: Section 4 of the supplementary appendix to GBD 2019 Universal Health Coverage Collaborators. 2020. "Measuring Universal Health Coverage Based on an Index of Effective Coverage of Health Services in 204 Countries and Territories, 1990–2019: A Systematic Analysis for the Global Burden of Disease Study 2019. *The Lancet* 396 (10258): 1250–84. August 27, 2020. doi:10.1016/S0140-6736(20)30750-9. https://www.healthdata.org/research-analysis/library/measuring-universal-health-coverage-based-index-effective-coverage-health. For additional details, PER authors can also refer to World Health Organization (WHO). 2019. "An Updated Method for the Essential Health Services Coverage Index." World Health Organization, Geneva. https://unstats.un.org/sdgs/files/meetings/webex17jan2019/1_3.8.1_Tier%20Reclassification%20Request_WHO.pdf.

Outcome-based (risk-standardized death rates or mortality-to-incidence ratios)

1. Tuberculosis
2. Diarrheal diseases
3. Lower respiratory infections
4. Upper respiratory infections
5. Asthma, diphtheria
6. Whooping cough
7. Tetanus
8. Measles
9. Maternal disorders
10. Neonatal disorders
11. Colon and rectum cancer
12. Nonmelanoma skin cancer
13. Breast cancer
14. Cervical cancer
15. Uterine cancer
16. Testicular cancer
17. Hodgkin lymphoma
18. Leukemia
19. Rheumatic heart disease
20. Ischemic heart disease
21. Cerebrovascular disease
22. Hypertensive heart disease
23. Peptic ulcer disease
24. Appendicitis
25. Hernia
26. Gallbladder and biliary diseases
27. Epilepsy
28. Diabetes
29. Chronic kidney disease
30. Chronic obstructive pulmonary disease
31. Congenital heart anomalies
32. Adverse effects of medical treatment

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
M-12: Service Coverage
M-13: Financial Risk Protection
M-14: Health Status and Health Risks
M-15: Universal Health Coverage
List of Acronyms

4 SECTION 4
Additional Guidance

TABLE OF CONTENTS

MODULE 13

Financial Risk Protection

AUTHOR

Patrick Hoang-Vu Eozenou

START



OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
M-12: Service Coverage
M-13: Financial Risk Protection
M-14: Health Status and Health Risks
M-15: Universal Health Coverage
List of Acronyms

4 SECTION 4
Additional Guidance

INTRODUCTION

This module is designed to help PER authors assess financial risk protection in the context of a Public Expenditure Review (PER). It defines "financial risk protection" and its measurement. The indicators from this module can be used to assess whether prepaid and pooled health expenditures are providing financial protection efficiently.

This could be done, for example, by reviewing the levels of public health expenditures and financial protection across comparator countries (such as countries in the same region or in the same income group). For example, countries with (relatively) limited financial protection, and (relatively) high public health expenditures, are not providing financial protection efficiently, as they need more resources to produce lower levels of financial protection. This module focuses on how to analyze and measure financial protection, while the link with efficiency is addressed in the cross-cutting module on Efficiency.

Financial protection is one of the two foundations of Universal Health Coverage (UHC), the other being service coverage (see, for example, Wagstaff and Neelsen 2020), and represents one of the final coverage goals of the health system. Financial protection is achieved when (1) there are no financial barriers to access; and (2) direct payments (out-of-pocket (OOP) health spending) required to obtain health services are not a source of financial hardship.

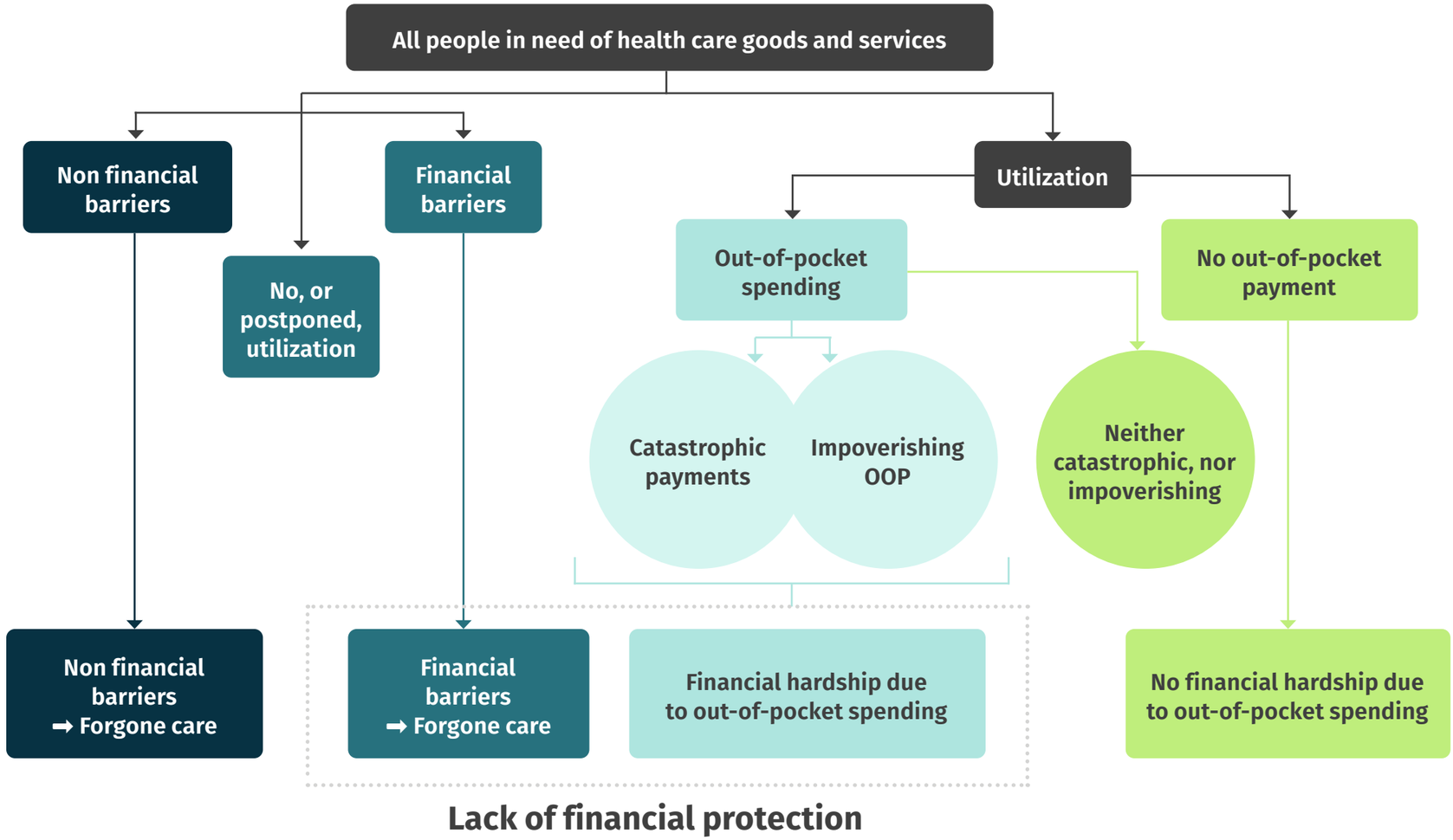
The literature on this topic is vast and has explored the topics of catastrophic health expenditures. Examples include a seminal paper exploring catastrophic health expenditure in Vietnam (Wagstaff and Doorslaer 2003), and an assessment of catastrophic health expenditure across countries (Wagstaff et al. 2018a); a paper on impoverishment (Wagstaff et.al 2018b); and later, forgone care, for example, a cross-country review (Kakietek et al. 2022) as well as an example from Liberia (Gabani and Guinness 2019). Recent discussions also underlined the importance of considering a "societal poverty line" (Jolliffe and Beer Prydz 2021) for measuring impoverishment due to OOP health spending.

Several Sustainable Development Goals (SDGs) have targets that relate to health. SDG 3 focuses specifically on ensuring healthy lives and promoting wellbeing for all at all ages. SDG 3's target 3.8—"Achieve universal health coverage, including financial risk protection, access to quality essential healthcare services and access to safe, effective, quality and affordable essential medicines and vaccines for all"—is key to attaining SDG 3 overall as well as the health-related targets of other SDGs. Target 3.8 has two indicators: 3.8.1 on coverage of essential health services and 3.8.2 on the proportion of a country's population with catastrophic spending on health, defined as large household expenditure on health as a share of household total consumption or income. These indicators must be measured together to obtain a clear picture of those who are unable to access health care and those who face financial hardship due to spending on health care.

To assess these two criteria, PER authors should consider all the population in need of health care services and/or health products rather than a subgroup with a specific health need or in need of a specific intervention (Figure 1). Some people seeking care face barriers to access because of financial constraints, unacceptability, inaccessibility, or unavailability of services, among other frequent factors. All such barriers contribute to delaying, interrupting, or entirely preventing people from using services (hereafter referred to as "forgone care"). Even when contact is established, as (Figure 1) shows, access to care can be a source of financial hardship if OOP health spending is high in relation to a household's welfare. If health spending is proportional, then access to care does not result in financial hardship.



FIGURE 1
FINANCIAL PROTECTION, FORGONE CARE, AND FINANCIAL HARDSHIP



Source: World Bank and WHO (2023).

It is important to note that "equity disaggregation" can be done and is strongly recommended across all measures noted in this module. PER authors should focus on socioeconomic inequalities in order to compare the level of financial protection between socioeconomic groups in terms of forgone care, as well as in terms of financial hardship. A synthetic measure of inequalities in health OOP can be constructed using concentration indexes or by comparing average OOP or budget shares across expenditure quintiles. In addition to socioeconomic inequalities, differences across specific population subgroups, especially more vulnerable groups, using factors defined based on the country context (groups based on gender or age of the head of the household, rural/urban location, regional location, household belonging to minority groups, single-headed households, and so on), can also be highlighted. All the indicators presented in this module, except forgone care, are available in the Health Equity and Financial Protection Indicators dataset (HEFPI) at the aggregate country level. HEFPI often provides the indicators disaggregated by income quintile. PER authors who want to explore financial protection across different population subgroups defined by country-relevant factors (for example, as noted above: gender and age of the head of household, rural/urban location, and so on) can do so by analyzing data from household surveys.

It should also be noted that the Universal Health Coverage module discusses both service coverage and financial risk protection. However, in the UHC module, financial risk protection is not discussed in substantive detail. This module provides an in-depth review of financial risk protection (see the following Box 1 for definitions for key financial risk protection concepts and indicators used in this module).



BOX 1. DEFINITIONS OF TERMS

OUT-OF-POCKET HEALTH SPENDING

Any spending incurred by a household when any member uses a health good or service to receive any type of care (that is, preventive, curative, rehabilitative, or long-term care); provided by any type of provider; for any type of disease, illness, or health condition; in any type of setting (for example, outpatient, inpatient, or home). OOP health spending includes formal and informal expenses directly related to the cost of seeking care, as mapped in division 06 of the UN Classification of Individual Consumption According to Purposes (COICOP-2018)[1] (that is, on medicines and medical products (06.1); outpatient care services, including dental care (06.2); inpatient care services, including inpatient dental care (06.3); diagnostic imaging services and medical laboratory services (06.4.1); and patient emergency transportation services and emergency rescue (06.4.2)). It excludes prepayment (for example, taxes, contributions, or premiums) and reimbursement to the household by a third party, such as the government, a health insurance fund, or a private insurance company. It also excludes indirect expenses (for example, nonemergency transportation cost) and the opportunity cost of seeking care (for example, lost income).

CATASTROPHIC HEALTH SPENDING

A sufficient, but not necessary, condition for financial hardship to occur. The definition of catastrophic health spending used in relation to SDG indicator 3.8.2 is focused on relatively large OOP health spending, in effect, those exceeding 10 percent and 25 percent of the household's total consumption or income (budget), respectively, in a given year. For poor and near-poor people (that is, people who are living below a poverty line per person per day ($1.90 or $3.20) or near the poverty line or a relative poverty line), it is the absolute level of OOP health spending that is crucial, because even OOP health expenditures that are less than 10 percent of the household budget might push them below the poverty line (if they are just above it) or further into poverty (if they are already below the poverty line). For this reason, indicators of impoverishing health spending are also used to track financial hardship.

1 The Classification of Individual Consumption According to Purpose (COICOP) was revised in 2018 to provide more information on important components of household care consumption.

Box continues on the following page.

BOX 1. DEFINITIONS OF TERMS *(continued)*

IMPOVERISHING OOP HEALTH SPENDING

Occurs when a household is forced by an adverse health event to divert spending from nonmedical budget items, such as food, shelter, or clothing, to the extent that its spending on such items is reduced to below or further below the level indicated by a poverty line. Impoverishment is defined as occurring when (1) a household's consumption including OOP spending is more than the poverty line but its consumption excluding OOP spending is less than the poverty line, that is, when nonpoor households become poor because of OOP; or (2) household consumption net and gross of OOP are both below the poverty line, and there is OOP, that is, poor households are pushed further below the poverty line because of OOP.

FINANCIAL PROTECTION AND WELFARE

Financial hardship through catastrophic or impoverishing health spending can be established within a framework where welfare is measured by income or by total consumption expenditure.[2] (For a more recent discussion of financial hardship measurement and welfare, see Wagstaff 2019). Moreover, households may also adopt suboptimal risk-coping strategies (for example, dissaving, borrowing, selling assets) to address adverse health shocks in the short term, with long-term or permanent consequences for their welfare.[3]

2 For more details on the measurement of welfare through income or consumption, see Mancini et al. (2022) and O'Donnell et al. (2008), chapter 6.

3 The potential welfare implications of these strategies are studied in Chetty and Looney (2005) and analyzed empirically in Flores et al. (2008).

OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
M-12: Service Coverage
M-13: Financial Risk Protection
M-14: Health Status and Health Risks
M-15: Universal Health Coverage
List of Acronyms
4 SECTION 4 Additional Guidance

LEVEL OF FINANCIAL PROTECTION

KEY QUESTIONS

- **What is the level of financial protection?**
  - *What is the proportion of households forgoing care because of financial barriers?*
  - *What is the proportion of households exposed to financial hardship because of OOP health expenditures?*

There may be variations of this indicator (for example, the use of health care services in a given period as a percentage of population in need, barriers to service use for health care services). PER authors can analyze the indicator as presented in Figure 2 and disaggregate by wealth or income quintile if data are available.

Key Indicators	Sources
Measuring forgone care due to financial barriers	
Percentage of population forgoing needed health care because of financial barriers	• Nationally representative surveys with information on health service use and nonuse (for example, LSMS)

Note: LSMS = Living Standard Measurement Surveys.



OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
M-12: Service Coverage
M-13: Financial Risk Protection
M-14: Health Status and Health Risks
M-15: Universal Health Coverage
List of Acronyms
4 SECTION 4 Additional Guidance

FIGURE 2
USE OF OUTPATIENT SERVICES IN PAST 30 DAYS

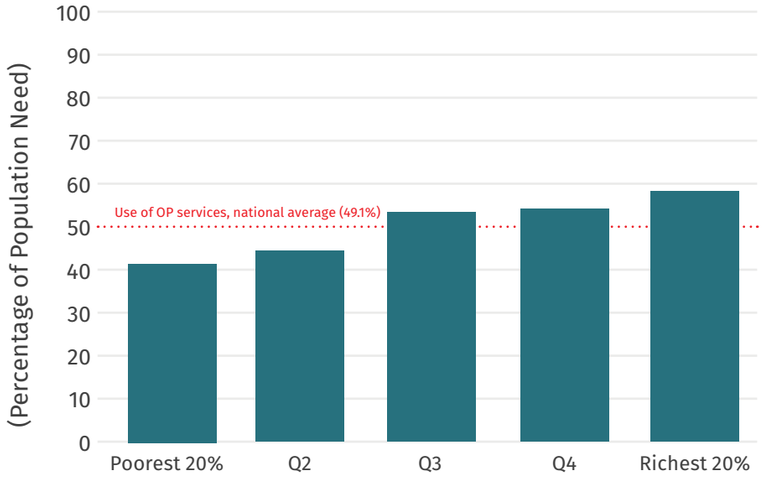
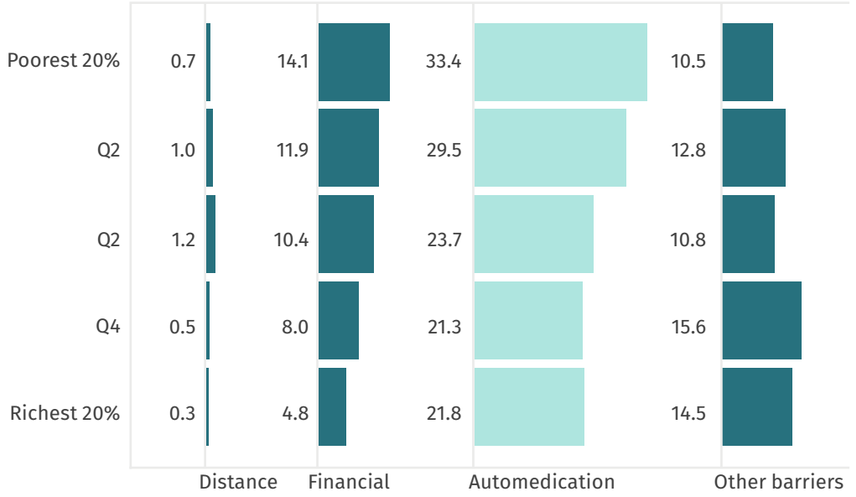


FIGURE 3
BARRIERS TO SERVICE USE FOR OUTPATIENT CARE, PERCENT



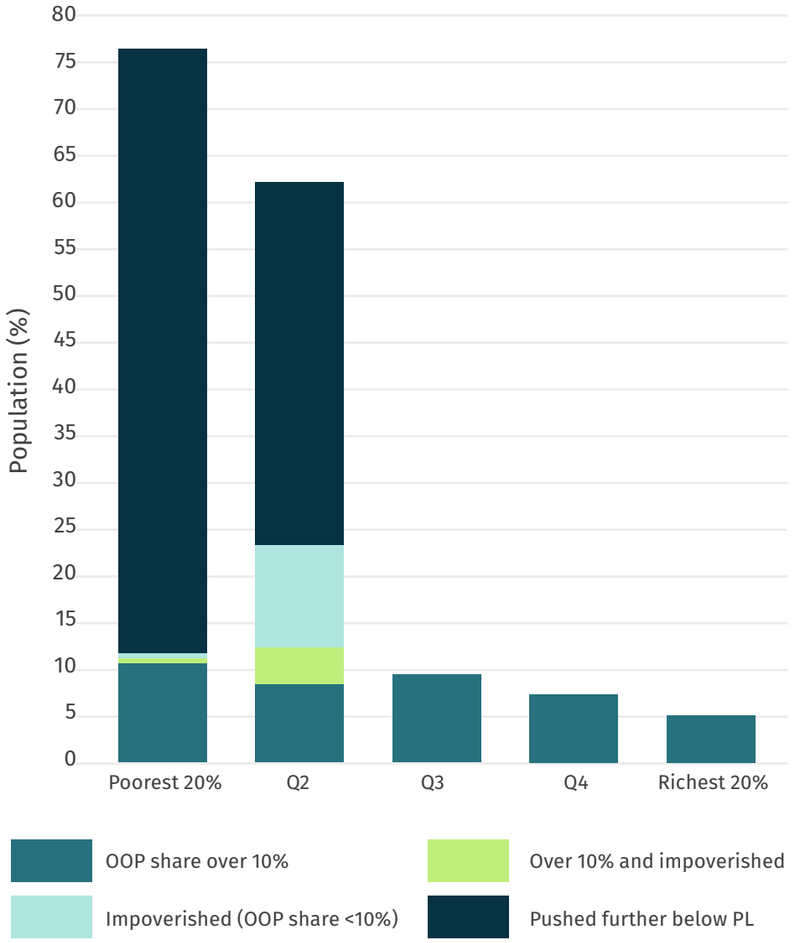
Source: Mali EHCVM (2018), individually weighted averages.
Note: Percentages are conditional on need of outpatient care.

Using household surveys, PER authors should assess the level of financial risk due to health OOP by wealth or income quintile. Figure 3 shows the share of the population in each income quintile that experiences catastrophic health expenditures. If data permit, authors can disaggregate the distribution within each population quintile to differentiate between those who are impoverished and those who have been pushed further below the poverty line.

Key Indicators	Sources
Measuring catastrophic health expenditures	
Proportion of population spending more than 10% of household consumption or income on out-of-pocket health care expenditure (%)	• HEFPI • Nationally representative income or consumption expenditure surveys with information on OOP and on total consumption or income (for example, LSMS)

Note: HEFPI = Health Equity and Financial Protection Indicators; LSMS = Living Standard Measurement Surveys; OOP = out-of-pocket.

FIGURE 4. Financial Risk Due to Health OOP (by quintile)



Source: Mali EHCVM (2018), household weighted averages.

Key Indicators	Sources
Measuring impoverishing spending on health	
Proportion of population pushed below the $2.15 ($ 2017 PPP) poverty line by OOP health care expenditure (%)	• HEFPI • Nationally representative income or consumption expenditure surveys with information on OOP and on total consumption or income (for example, LSMS)
Proportion of population pushed below the $3.65 ($ 2017 PPP) poverty line by OOP health care expenditure (%)	• HEFPI • Nationally representative income or consumption expenditure surveys with information on OOP and on total consumption or income (for example, LSMS)
Proportion of population pushed below the 60% median consumption poverty line by OOP health care expenditure (%)	• HEFPI • Nationally representative income or consumption expenditure surveys with information on OOP and on total consumption or income (for example, LSMS)

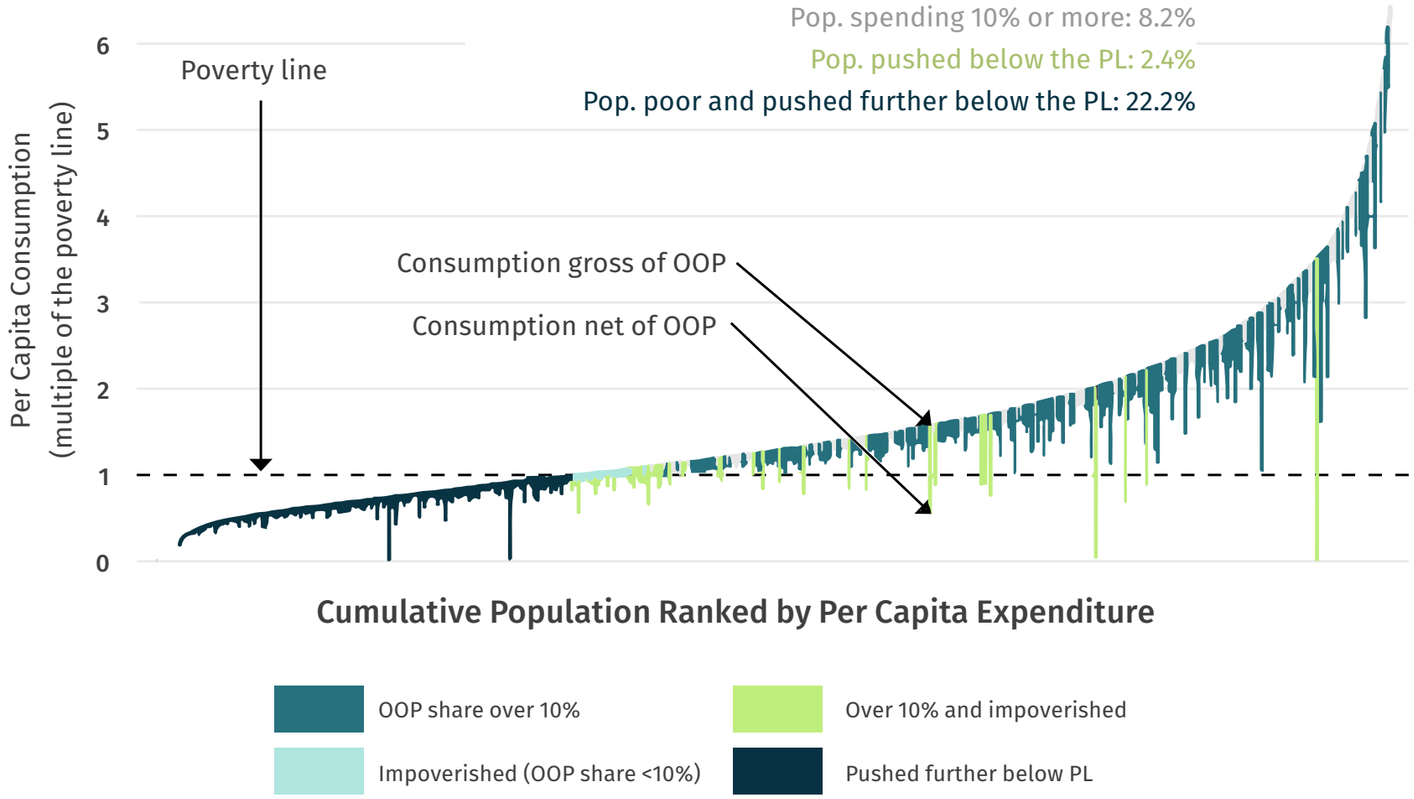
Note: HEFPI = Health Equity and Financial Protection Indicators; LSMS = Living Standard Measurement Surveys; OOP = out-of-pocket; PPP = purchasing power parity. Poverty lines are per person per day. HEFPI datasets still use outdated poverty lines ($1.90 and $3.20 2011 PPP). However, the *UHC Global Monitoring Report 2023* uses the updated poverty lines, which are noted in this table. PER authors ideally should use the updated poverty lines and should always note the exact poverty line used.

PER authors should conduct trend analysis and benchmarking for all key indicators cited in the table. Trend analysis for recent years will provide some insight into progress over those years as well as a future trajectory. Authors should benchmark across similar countries to see how the country in question compares, as well as across geopolitical entities (subnational, urban/rural). If data permit, authors can also present the analysis as illustrated in Figure 5 (a brief introduction to Pen's Parade is provided by Chan 2022).

FIGURE 5
Financial Risk Due to Health OOP (Pen's Parade)

Source: Mali EHCVM (2018), household weighted averages.

Note: Per capita consumption is expressed in multiple of the national poverty line. The upper 1% of the distribution is trimmed. The *Pen's Parade* or the *Income Parade* is a concept described in a 1971 book published by the Dutch economist Jan Pen describing the ranking of a population across the socioeconomic distribution. OOP = out-of-pocket; PL = poverty line.



OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
M-12: Service Coverage
M-13: Financial Risk Protection
M-14: Health Status and Health Risks
M-15: Universal Health Coverage
List of Acronyms
4 SECTION 4 Additional Guidance

OUT-OF-POCKET EXPENDITURES AS A SHARE OF TOTAL HEALTH EXPENDITURE

KEY QUESTION • **What is the share of aggregate OOP expenditures in total health expenditure?**

In cases where no recent household expenditure survey data are available to document the level of financial protection in the country, PER authors can use National Health Accounts data as a proxy indicator to the extent that aggregate OOP over total health expenditure, or over aggregate consumption, is positively correlated with household OOP budget shares and with indicators of catastrophic and impoverishing health expenditures.

Key Indicators	Sources
OOP expenditure (% of current health expenditure)	• WHO Global Health Expenditure Dataset • World Bank WDI

Note: OOP = out-of-pocket; WDI = World Development Indicators; WHO = World Health Organization.

References

Chan, D. 2022. "The Parade of Inequality: Investigating Exacerbated Disparities," Accessed May 2024. https://econreview.studentorg.berkeley.edu/the-parade-of-inequality-investigating-exacerbated-disparities/.

Chetty, R., and A. Looney. 2005. "Consumption Smoothing and the Welfare Consequences of Social Insurance in Developing Economies." NBER Working Paper. National Bureau of Economic Research, Cambridge, MA. https://www.nber.org/system/files/working_papers/w11709/w11709.pdf.

Flores, G., J. Krishnakumar, O. O'Donnell, and E. van Doorslaer. 2008. "Coping with Health-Care Costs: Implications for the Measurement of Catastrophic Expenditures and Poverty." *Health Economics*, 17(12): 1393–1412. https://onlinelibrary.wiley.com/doi/epdf/10.1002/hec.1338.

Gabani, J., and L. Guinness, L. 2019. "Households forgoing healthcare as a measure of financial risk protection: an application to Liberia." *International Journal for Equity in Health* 18, 193. https://doi.org/10.1186/s12939-019-1095-y.

Jolliffe, D., and E. Beer Prydz. 2021. "Societal Poverty: A Relative and Relevant Measure." *The World Bank Economic Review*, 35(1): 180–206. https://doi.org/10.1093/wber/lhz018.

Kakietek, J.J., J.D. Eberwein, N. Stacy, D. Newhouse, and N. Yoshida. 2022. "Foregone healthcare during the COVID-19 pandemic: early survey estimates from 39 low- and middle-income countries." *Health Policy and Planning* 37(6): 771–78. https://academic.oup.com/heapol/article/37/6/771/6546909?login=false.

Mancini, G., and G. Vecchi. 2022. *On the Construction of a Consumption Aggregate for Inequality and Poverty Analysis (English)*. Washington, DC: World Bank Group. http://documents.worldbank.org/curated/en/099225003092220001/P1694340e80f9a00a09b20042de5a9cd47e.

O'Donnell, O., E. van Doorslaer, A. Wagstaff, and M. Lindelow. 2008. *Analyzing Health Equity Using Household Survey Data: A Guide to Techniques and Their Implementation*. Washington, DC: World Bank. https://openknowledge.worldbank.org/handle/10986/6896.

Wagstaff, A. 2019. "Measuring Catastrophic Medical Expenditures: Reflections on Three Issues." *Health Economics* 28(6): 765–81. https://onlinelibrary.wiley.com/doi/full/10.1002/hec.3881.

Wagstaff, A., and E. van Doorslaer. 2003. "Catastrophe and impoverishment in paying for health care: with applications to Vietnam 1993–1998." *Health Economics* 12(11): 921–33.

Wagstaff, A., G. Flores. J. Hsu, M. Smitz, K. Chepynoga, and L.R. Buisman. 2018a. "Progress on catastrophic health spending in 133 countries: a retrospective observational study." *The Lancet Global Health* 6(2): e169–79. https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(17)30429-1/fulltext#articleInformation.

Wagstaff, A., G. Flores, M. Smitz, J. Hsu, K. Chepynoga, and P. Eozenou. 2018b. "Progress on impoverishing health spending in 122 countries: a retrospective observational study." *The Lancet Global Health* 6(2): e180–92. https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(17)30486-2/fulltext.

Wagstaff, A., and S. Neelsen. 2020. "A comprehensive assessment of universal health coverage in 111 countries: a retrospective observational study." *The Lancet Global Health*, 8(1): 39–49. https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(19)30463-2/fulltext.

World Bank and World Health Organization. 2023. *Tracking Universal Health Coverage: 2023 Global Monitoring Report*. Washington, DC: World Bank; Geneva: World Health Organization. https://openknowledge.worldbank.org/entities/publication/1ced1b12-896e-49f1-ab6f-f1a95325f39b.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
M-12: Service Coverage
M-13: Financial Risk Protection
M-14: Health Status and Health Risks
M-15: Universal Health Coverage
List of Acronyms

4 SECTION 4
Additional Guidance

TABLE OF CONTENTS

MODULE 14

Health Status and Health Risks

AUTHORS

Nejma Cheikh, Zara Shubber, and Priyanka Saksena

START



INTRODUCTION

Improving the health status of the population and reducing health risks is the goal of the health sector. "Health status" refers broadly to all aspects of the health of an individual or population (NCBI 2006). Indicators of health status include prevalence of specific diseases, life expectancy, and mortality rate. Health risks are factors that raise the likelihood of adverse health outcomes. These factors are numerous and across different domains but are modifiable through effective public policy, including health policy.

The module presents indicators for monitoring health status and health risks. Indicators for health status will be objectively measured through health outcome indicators, while health risks will focus on factors that are not only influenced by the health sector. The indicators in this module are part of the World Health Organization's (WHO) 2018 Global Reference List of 100 Core Health Indicators, a standardized set of core indicators ranked by the global community for reporting across the range of global health priorities. PER authors can consider further refining their choice of indicators for monitoring health status and risks in a specific country by referring to this document.

Authors should note that indicators related to service coverage, effective coverage, and quality of health care services are addressed in other modules. Cross-analysis with other key modules—including Financial Risk Protection, Service Coverage, Hospitals, and Primary Health Care and Public Health Services—will provide a more comprehensive analysis.

Finally, PER authors can use the key indicators listed in this module to compare between countries and to measure changes over time. International or regional benchmarking with countries of similar income level (using World Bank income classification by income level or gross national income per capita, for example) and/or geography can enable authors to identify countries that have achieved significant progress in health outcomes. This type of comparison involves both showing differences in health outcomes between countries and trying to determine possible factors accounting for such differences and identifies instructive best practices. Similarly, PER authors can use benchmarking to draw comparisons across geopolitical entities (for example, subnational, urban versus rural) within the reviewed country. The following box defines terms used in the module.

OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
M-12: Service Coverage
M-13: Financial Risk Protection
M-14: Health Status and Health Risks
M-15: Universal Health Coverage
List of Acronyms
4 SECTION 4 Additional Guidance

BOX 1. DEFINITIONS OF TERMS

HEALTH STATUS

Health status is a broad concept that outlines the level of physical and mental health of an individual or a population. Measurement of health status typically focuses on health outcomes, including well-known aggregate population level outcomes, such as life expectancy at birth or the prevalence of specific diseases like tuberculosis or diabetes. These types of health outcomes are particularly useful in understanding the net result of public health interventions alongside the influence of social, environmental, and commercial determinants of health.

HEALTH RISKS

A health risk is a factor that influences the likelihood of an adverse health outcome, for example, premature mortality due to noncommunicable diseases. Health risks span different areas, such as behavioral, physiological, environmental, or occupational factors. Certain health risks are highly amenable to interventions in the health system. For example, high levels of lipids in the blood or cholesterol and hypertension or high blood pressure are important risk factors for cardiovascular diseases. As such, interventions in the health system to screen people and give medicines to patients with high cholesterol and hypertension are effective in reducing the prevalence of cardiovascular disease and premature mortality from cardiovascular disease. Health risks primarily amenable to health system interventions are covered in other modules. This module focuses on health risks that require broader public policy as well as public health attention—for example, malnutrition among children or exposure to high levels of air pollution.

DISABILITY-ADJUSTED LIFE YEARS (DALYS)

DALYs are an aggregate measure that sums the years of life lost (YLLs) due to premature mortality and the years lived with a disability (YLDs) due to diseases and injuries. One DALY represents the loss of the equivalent of one year of full health, and countries with higher DALYs have a higher disease burden. The estimates of YLL are based on biological and demographic data, while YLD additionally applies a discounting weight depending on the severity of disease/injury. Time and age discounting is also applied. The WHO and Global Burden of Disease project uses a standard methodology and has country-specific estimates that PER authors can use.

HEALTH-ADJUSTED LIFE EXPECTANCY (HALE)

Health-adjusted life years is the converse of DALYs, or the number of years a person lives in full health through discounting for the number of years of life lived with a disease or injury. Health-adjusted life expectancy aggregates this across the population to arrive at the life expectancy at a given age. HALE (and life expectancy in general) is typically compared at birth. PER authors should note that the variation in HALE is less than the variation in life expectancy. For example, global life expectancy increased by 6.6 years between 2000 and 2019. However, HALE increased by just 5.4 years during the same period. This was due to declining mortality but not reduced years lived with disease or injury.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
M-12: Service Coverage
M-13: Financial Risk Protection
M-14: Health Status and Health Risks
M-15: Universal Health Coverage
List of Acronyms

4 SECTION 4
Additional Guidance

PROGRESS ON HEALTH STATUS AND HEALTH RISKS

Health Status

KEY QUESTION • What are the health outcomes in the country?

The defining goal of the health system is to improve the health of the population. This encompasses improvements in both the average level and the distribution of health outcomes within the population (WHO 2000). Progress in this area can be examined through objective health outcomes indicators. When selecting indicators, PER authors should try to select some aggregate indicators, such as life expectancy, alongside other indicators that capture the specific disease burden of the country, focusing on the leading causes of death. In addition to life expectancy and other mortality-focused indicators, authors can consider summary measures or mortality and morbidity in a population, such as health-adjusted life expectancy (HALE) or disability-adjusted life years (DALYs) (Lajoie 2015). However, when making cross-country comparisons, PER authors should keep in mind that the latter have more limited variation than life expectancy.



Health Status

Key Indicators	Sources
Mortality	
Neonatal mortality rate (per 1,000 live births)	The main sources of infant mortality data are vital registration systems and direct or indirect estimates based on population-based household surveys (such as Demographic and Health Surveys—DHS) and population censuses. Data can be found in: • World Bank Open Data • WHO GHO • UNICEF Data Warehouse • UN Inter-agency Group for Child Mortality Estimation database • STATcompiler • Institute for Health Metrics and Evaluation Global Burden of Disease
Infant mortality rate (per 1,000 live births)	The main sources of infant mortality data are vital registration systems and direct or indirect estimates based on population-based household surveys (such as DHS) and population censuses. Data can be found in: • World Bank Open Data • WHO GHO • UNICEF Data Warehouse • UN Inter-agency Group for Child Mortality Estimation database • STATcompiler • Institute for Health Metrics and Evaluation Global Burden of Disease

Table continues on the following page.

Key Indicators	Sources
Mortality (Continued)	
Under-5 mortality rate (per 1,000 live births)	The main sources of under-5 mortality data are vital registration systems and direct or indirect estimates based on population-based household surveys (such as DHS) and population censuses. Data can be found in: • World Bank Open Data • WHO GHO • UNICEF Data Warehouse • UN Inter-agency Group for Child Mortality Estimation database • STATcompiler • Institute for Health Metrics and Evaluation Global Burden of Disease
Maternal mortality ratio (per 100,000 live births)	The main sources of mortality data are vital registration systems and direct or indirect estimates based on population-based household surveys (such as DHS) and population censuses. Data can be found in: • World Bank Open Data • WHO GHO • UNICEF Data Warehouse • UN Inter-agency Group for Maternal Mortality Estimation database • Institute for Health Metrics and Evaluation Global Burden of Disease • STATcompiler
Aggregate indicators	
Life expectancy at birth (years)	Preferred data sources include civil registration with complete coverage as well as direct and indirect estimates based on population-based household surveys (such as DHS) and population censuses. Data can be found in: • World Bank Open Data • WHO GHO • Institute for Health Metrics and Evaluation Global Burden of Disease

Table continues on the following page.

Key Indicators	Sources
Burden of disease	
Health-adjusted life expectancy at birth (years)	Indicator is statistically derived; data can be found in: • WHO GHO • Institute for Health Metrics and Evaluation Global Burden of Disease
Health-adjusted life years • Disability-adjusted life years • Years of life lost from mortality	Indicator is statistically derived; data can be found in: • WHO GHO • Institute for Health Metrics and Evaluation Global Burden of Disease
Disease-specific prevalence rates	Preferred data sources include population-based household surveys (such as DHS) and other representative special surveys. Data can be found in: • World Bank Open Data • WHO GHO • STATcompiler • Institute for Health Metrics and Evaluation Global Burden of Disease • Other special health repositories such as AIDSInfo • Articles published in peer-reviewed journals

Note: DHS = Demographic and Health Surveys; WHO GHO = World Health Organization Global Health Observatory.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
M-12: Service Coverage
M-13: Financial Risk Protection
M-14: Health Status and Health Risks
M-15: Universal Health Coverage
List of Acronyms

4 SECTION 4
Additional Guidance



Health Risks

KEY QUESTION

- What are the main health risks for the population?

To identify the main health risks, PER authors should examine the burden of disease and leading causes of death. For instance, a low-income country context may call for a focus on malnutrition-related risks, while a middle-income country context may require greater focus on environmental risks, such as exposure to high levels of air pollution. Some important risk factors for consideration are listed in the following table.

As discussed earlier, this module focuses on health risks that require broad public policy as well as public health attention. Risk factors that are more directly attributable to the health sector are considered in other modules, namely the Service Coverage module and Primary Health Care and Public Health Service module. However, if PER authors do not conduct these other modules in their PERs, they can also choose to examine additional health risks as part of this module.

To choose the most important health risks for a country, PER authors can also analyze and compare causes and risks within a country using the Institute for Health Metrics and Evaluation (IHME) Global Burden of Disease (GBD) Compare tool,[1] which provides estimates for 87 behavioral, environmental, metabolic, and occupational risk factors.

1 https://www.healthdata.org/data-tools-practices/interactive-visuals/gbd-compare.

Health Risks

Key Indicators	Sources
Child malnutrition • Stunting prevalence among children under 5 years (%) • Wasting prevalence among children under 5 years (%)	Preferred data sources include household and specific population-based household surveys such as DHS, MICS, and RHS, as well as surveillance systems. Data can be found in: • World Bank Open Data • WHO GHO • UNICEF Open Data • STATcompiler
Unsafe water, sanitation, hygiene • Population using improved drinking-water sources (%) • Population using improved sanitation services (%)	Preferred data sources include census data and population-based household surveys such as DHS, as well as administrative reporting systems. Data can be found in: • WHO GHO • UNICEF Data Warehouse • STATcompiler
Indoor smoke from solid fuels • Population using solid fuels (%) • Percentage of households that use solid fuels for cooking (averages)	Preferred data sources include population censuses and household surveys such as DHS and MICS. Data can be found in: • WHO GHO • STATcompiler

Table continues on the following page.

Key Indicators	Sources
Tobacco use* • Prevalence of current tobacco use (%) • Smoking impact ratio (%)	Preferred data source is a population-based survey, such as STEPS, DHS, National Drug Abuse Surveys, Global Adult Tobacco Survey. Data can be found in: • WHO Global Health Observatory • STATcompiler
Alcohol use • Alcohol, consumers in past 12 months (%) • Prevalence of heavy episodic drinking (≥60 grams alcohol on at least one occasion weekly) among adults • Total (recorded and unrecorded) alcohol per capita (age 15+ years) consumption within a calendar year in liters of pure alcohol	Preferred data sources include population-based (preferably nationally representative) surveys, such as STEPS. For per capita consumption, administrative reporting systems provide data for recorded per capita alcohol consumption, while survey data are the preferred sources for unrecorded per capita alcohol consumption. Data can be found in: • World Bank Open Data • WHO GHO
Physical inactivity • Prevalence of insufficiently physically active adolescents (defined as less than 60 minutes of moderate to vigorous intensity activity daily) • Prevalence of insufficiently physically active persons age 18+ years (defined as less than 150 minutes of moderate-intensity activity per week, or equivalent)	Preferred data sources include population-based surveys (such as the Global Physical Activity Questionnaire), school health surveys, and surveillance systems. Data can be found in: • WHO GHO
Low fruit and vegetable intake • Adults who eat less than five servings of fruit and/or vegetables (400 grams) on average per day (%)	Preferred data sources are population-based (preferably nationally representative) surveys such as household surveys with health information and STEPS. Data can be found in: • WHO GHO

Table continues on the following page.

Key Indicators	Sources
Urban outdoor air pollution • Annual mean concentration of particulate matter of less than 2.5 microns of diameter (PM2.5) [ug/m^3] • Annual mean concentration of particulate matter of less than 10 microns of diameter (PM10) [ug/m^3]	Concentrations of PM2.5 are typically measured from fixed-site, population-oriented monitors located within metropolitan areas. Data can be found in: • World Bank Open Data • National/subnational/monitoring reports and websites • Relevant national agencies
Occupational risks • Incidence, frequency, and severity rates of fatal and non-fatal occupational injuries (number of cases per hours worked)** • Percentage of workers employed in industries at high risk for Occupational Injury • Proportion of workers exposed to background, low, and high levels of workplace carcinogens • Proportion of workers with background, low, and high levels of exposure to airborne particulates • Proportion of workers with high, moderate, and low exposure to ergonomic stressors • Proportion of workers with high and moderate exposure categories to noise (>90 dBA and 85-90 dBA)	Data sources vary and include civil registration systems and other administrative records (e.g., insurance records, notification records, and labor inspection records), establishment censuses and surveys, labor force surveys and other special surveys, and surveillance systems. Data can be found in: • ILOSTAT • National/subnational/monitoring reports and websites • Relevant national agencies

Note: DHS = Demographic and Health Surveys; ILOSTAT = International Labor Organization statistical database; MICS = Multiple Indicator Cluster Surveys; RHS = Reproductive Health Surveys; STEPS = WHO STEPwise approach to NCD risk factor surveillance; UNICEF = United Nations Children's Fund; WHO GHO = World Health Organization Global Health Observatory.

* Two measures are commonly used to estimate tobacco use exposure: prevalence of current tobacco use and smoking impact ratio (SIR). Whereas the prevalence-based measure takes into account the current prevalence of tobacco use, SIR provides an indication of cumulative exposure to smoking in a population (Kong et al. 2016). It is defined as population lung cancer mortality greater than the background lung cancer mortality rate recorded in never-smokers in the population, relative to the excess lung cancer mortality rate recorded in a known reference group of smokers (Reitsma et al. 2017).

** The most common rates used in occupational safety are incidence rates (the number of occupational injuries during the reference period for a given number of workers in the reference group), frequency rates (the number of occupational injuries during the reference period for a given number of hours worked by workers in the reference group), and severity rates (the number of days lost due to new cases of occupational injury during the reference period for a given number of hours worked by workers in the reference group) (ILO 2020).

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
M-12: Service Coverage
M-13: Financial Risk Protection
M-14: Health Status and Health Risks
M-15: Universal Health Coverage
List of Acronyms

4 SECTION 4
Additional Guidance

EQUITY OF HEALTH STATUS AND HEALTH RISKS

KEY QUESTION • **Are health status and health risks the same across different population groups?**

Typically, health outcomes are inequitable. Seminal work by the Commission on Social Determinants and Health, for example, illustrated a more than 25-year difference in life expectancy for boys born in different areas of Glasgow. Analysis by key dimensions of equity (for example, age, gender, education level, socioeconomic status, place of residence) over time will indicate whether a given situation is improving, stagnating, or worsening. Knowing where progress has been achieved can offer lessons for programs and policies that can be applied to other health risks where progress remains slow. If possible, all indicators used for health status and health risk monitoring should be examined across different socioeconomic and geographic groups in a country, with particular attention to poor and marginalized populations.

However, reliable disaggregated data on health outcomes and health risks doesn't always exist in low- and middle-income countries. Indeed, information from civil registration and vital statistics and other administrative information systems often have systematic biases in coverage, with lower reporting among rural, poor, and marginalized population groups. In this case, only health status and health risk information that relies on household surveys like MICS/DHS may be reliably disaggregated. In addition, PER authors may also wish to search for academic country or regional studies in this area, which may rely on different sources and methodologies, to examine health status through an equity lens.

References

Bolnick, H., A.L. Bui, A. Bulchis, C. Chen, A. Chapin, L. Lomsadze, A. Mokdad, et al. 2020. "Health-Care Spending Attributable to Modifiable Risk Factors in the USA: An Economic Attribution Analysis." *The Lancet 5* (10): 525–35. https://www.thelancet.com/journals/lanpub/article/PIIS2468-2667(20)30203-6/fulltext.

International Labour Organization. 2020. *Quick Guide on Sources and Uses of Statistics on Occupational Safety and Health*. Geneva: International Labour Organization. https://ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/publication/wcms_759401.pdf.

Kong, K.A., K.H. Jung-Choi, D. Lim, H.A. Lee, W.K. Lee, S.J. Baik, S.H. Park, et al. 2016. "Comparison of Prevalence- and Smoking Impact Ratio-Based Methods of Estimating Smoking-Attributable Fractions of Deaths." *Journal of Epidemiology 26* (3): 145–54. https://pubmed.ncbi.nlm.nih.gov/26477995/.

Lajoie, J. 2015. "Understanding the Measurement of Global Burden of Disease." *National Collaborating Centre for Infectious Diseases*. https://nccid.ca/publications/understanding-the-measurement-of-global-burden-of-disease/#:~:text=Healthy%20life%20expectancy%20(HALE%2C%20also,to%20live%20in%20good%20health.

Murray, C.J.L., A.Y. Aravkin, P. Zheng, K.M. Abbas, M. Abbasi-Kangevari, F. Abd-Allah, A. Abdelalim, et al. 2020. "Global Burden of 87 Risk Factors in 204 Countries and Territories, 1990–2019: A Systematic Analysis for the Global Burden of Disease Study 2019." *The Lancet*, Vol. 396, No. 10258: 1129–1306. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30752-2/fulltext.

National Center for Biotechnology Information (NCBI). 2006. *Global Burden of Disease and Risk Factors*. Bethesda, MD: National Center for Biotechnology Information. https://www.ncbi.nlm.nih.gov/books/NBK11818/.

Nixon, J., and P. Ulmann. 2006. "The Relationship between Health Care Expenditure and Health Outcomes." *The European Journal of Health Economics 7*: 7–18. https://link.springer.com/article/10.1007/s10198-005-0336-8.

Reitsma, M.B., N. Fullman, M. Ng, J.S. Salama, A.A. Abajobir, K.H. Abate, C. Abbafati, et al. 2017. "Smoking Prevalence and Attributable Disease Burden in 195 Countries and Territories, 1990–2015: A Systematic Analysis from the Global Burden of Disease Study." *The Lancet*, Vol. 389, No. 10082: 1885–1906. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(17)30819-X/fulltext.

World Bank. 2008. *Analyzing Health Equity Using Household Survey Data: A Guide to Techniques and Their Implementation*. Washington, DC: World Bank. https://openknowledge.worldbank.org/handle/10986/6896.

World Bank. 2018. *Analyzing Health Equity Using Household Survey Data*. Washington, DC: World Bank. https://www.worldbank.org/en/topic/health/publication/analyzing-health-equity-using-household-survey-data.

World Health Organization. 2000. *A Framework for Assessing the Performance of Health Systems.* Geneva: World Health Organization. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2560787/pdf/10916909.pdf.

World Health Organization. 2003. *How Summary Measures of Population Health Are Affecting Health Agendas*. Geneva: World Health Organization. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2572457/pdf/12856047.pdf.

World Health Organization. 2009. *Global Health Risks: Mortality and Burden of Disease Attributable to Selected Major Risks*. Geneva: World Health Organization. https://apps.who.int/iris/handle/10665/44203.

World Health Organization. 2014. *The Case for Investing in Public Health: The Strengthening Public Health Services and Capacity*. Geneva: World Health Organization. https://www.euro.who.int/data/assets/pdf_file/0009/278073/Case-Investing-Public-Health.pdf.

World Health Organization. 2016. *Addressing and Managing Conflicts of Interest in the Planning and Delivery of Nutrition Programmes at Country Level*. Geneva: World Health Organization. https://apps.who.int/iris/handle/10665/206554.

World Health Organization. 2018. *Health in All Policies as Part of the Primary Health Care Agenda on Multisectoral Action*. Geneva: World Health Organization. https://apps.who.int/iris/handle/10665/326463.

World Health Organization. 2020. *SCORE Global Report on Health Data Systems and Capacity Report*. Geneva: World Health Organization. https://apps.who.int/iris/bitstream/handle/10665/339125/9789240018709-eng.pdf.

World Health Organization. 2022. *Health Inequality Monitor. Geneva: World Health Organization*. https://www.who.int/data/health-equity.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
M-12: Service Coverage
M-13: Financial Risk Protection
M-14: Health Status and Health Risks
M-15: Universal Health Coverage
List of Acronyms

4 SECTION 4
Additional Guidance

TABLE OF CONTENTS

MODULE 15

Universal Health Coverage

AUTHORS

Jacopo Gabani and Sven Neelsen

START



INTRODUCTION

The module discusses both assessing progress toward Universal health coverage (UHC) and evaluating the equity of service coverage and financial risk protection, the key components of UHC measurement. UHC is recognized as a policy priority in many countries. Because the objective of public expenditure reviews (PERs) is typically to assess the consistency of public expenditures with policy priorities, and the results achieved, then it is of crucial importance to assess the progress toward UHC.

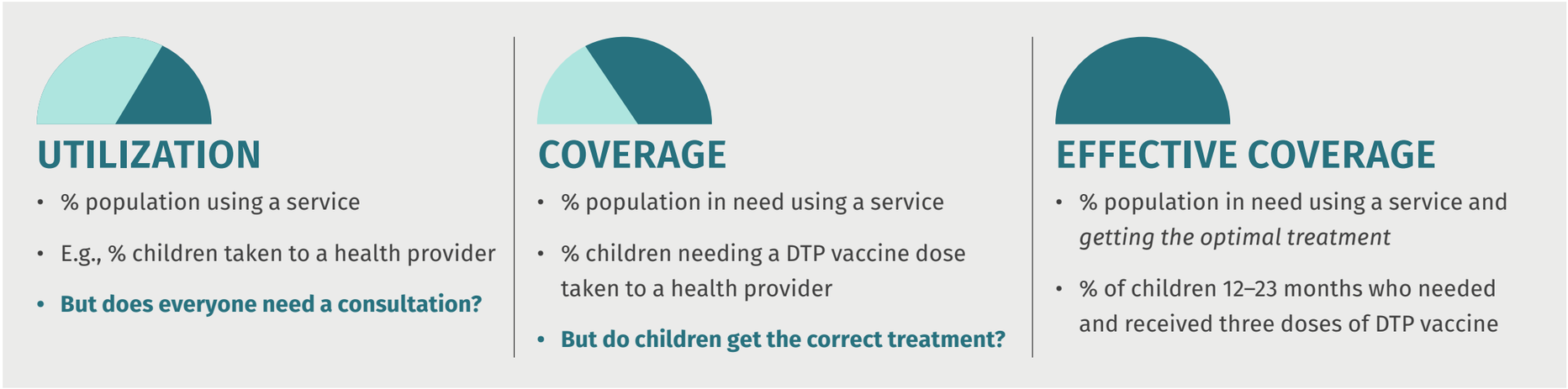
Under universal health coverage, all individuals and communities receive the health services they need, when and where they need them, without suffering financial hardship (WHO 2023). UHC includes the full range of essential health services, and it applies to an entire population, that is, all individuals regardless of socioeconomic background, geographic location, among other factors. For service coverage to be effective, the services received must be of sufficient quality to obtain potential health gains (Figure 1).

The literature on UHC has largely focused on assessing service coverage and financial risk protection (see the World Bank and WHO Universal Health Coverage Global Monitoring Reports 2021, 2022, and 2023). These reports show substantial progress in the UHC service coverage index (from 45 to 68 in the 2000–21 period). However, they also show that in 2021, about 2 billion people faced financial hardship and 4.5 billion people were not covered by essential health services.

Both service coverage and financial protection indicators need to be assessed to track the progress toward UHC. Accordingly, Sustainable Development Goal (SDG) target 3.8, “Achieve UHC,” is monitored via SDG indicator 3.8.1 for service coverage and SDG indicator 3.8.2 for financial risk protection. Looking at both indicators is important because citizens may forgo care to avoid financial hardship. The resulting low incidence of financial hardship comes at the expense of low coverage. Conversely, service coverage might increase, but if service coverage increases are financed by out-of-pocket (OOP) health expenditures, the incidence of financial hardship due to OOP health expenditures might increase.

1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
M-12: Service Coverage
M-13: Financial Risk Protection
M-14: Health Status and Health Risks
M-15: Universal Health Coverage
List of Acronyms
4 SECTION 4 Additional Guidance

FIGURE 1
UTILIZATION, COVERAGE, AND EFFECTIVE COVERAGE



Source: World Bank 2022.

Financial protection is achieved for an individual or household when two conditions are met: (1) those who obtain adequate care do not suffer financial hardship in the form of (a) catastrophic or (b) impoverishing OOP health spending; and (2) no one in need forgoes adequate care for financial reasons.

An important caveat is that utilization might not be equivalent to coverage, and coverage might not be equivalent to effective coverage, as shown in Figure 1. Utilization represents the percentage of people obtaining a service regardless of their needs. Coverage represents the percentage of people in need utilizing a service regardless of whether the service provided is the correct one. Finally, effective coverage means that people in need use a service and obtain the correct treatment. In addition, PER authors should note that de jure coverage is not service coverage: being enrolled in insurance doesn't mean that those who are enrolled by insurance receive care when needed. Finally, we note that different terms are used to identify people "covered" by health insurance (for example, "enrolled" in Thailand, "insured" in Estonia, "covered" in Ghana). In this module we use "enrolled" to avoid confusion with service coverage definitions.

The module is divided into two sections: progress and equity. PER authors may also refer to the modules on Service Coverage and Financial Risk Protection separately. The following box defines terms used in this module.

BOX 1. DEFINITIONS OF TERMS

EFFECTIVE COVERAGE
The percentage of people in need of a particular service who obtain the optimal treatment.

EFFECTIVE COVERAGE INDEX
An index developed by the Institute of Health Metrics and Evaluation (IHME), University of Washington, encompassing 41 indicators, of which nine are related to service coverage and 32 are related to outcomes. Full details are provided in Annex 1, as well as in the Service Coverage module.

CATASTROPHIC HEALTH EXPENDITURE
A household incurs catastrophic health expenditure when its total OOP health expenditures, as a percentage of total consumption, are above a certain threshold. Commonly used thresholds are 10 percent and 25 percent. For example, a household incurs catastrophic health expenditures when its OOP health expenditures are above 10 percent (or 25 percent) of total consumption. Note that the proportion of people incurring catastrophic health expenditures at the 10 percent level, and 25 percent level, are used to track Sustainable Development Goal (SDG) indicator 3.8.2, "Catastrophic health expenditures (and related measures)."

COVERAGE
The percentage of people, out of all people in need, who obtain treatment from a health provider.

FINANCIAL RISK PROTECTION
A household is protected from financial risk when it is not suffering financial hardship due to catastrophic health expenditures, impoverishing health expenditures, or forgoing care due to financial reasons. The Financial Risk Protection module provides more details on the topic and its related measures mentioned below.

FORGOING CARE
A household forgoes needed care when it does not initiate, or interrupt, requesting a health care service, despite needing it. For example, an individual might decide not to undergo a needed surgery due to its financial costs.

IMPOVERISHING HEALTH EXPENDITURE
OOP health expenditures are impoverishing if they (1) push or (2) further push households below a poverty line. Households are pushed into poverty by OOP health spending if their total consumption lies above a poverty line but their consumption net of OOP health payments lies below it. And households are pushed further into poverty by OOP health expenditures if their total consumption already lies below a poverty line and they incur any OOP health payments. The population incurring impoverishing health expenditures is tracked as part of SDG indicator 3.8.2, using poverty lines of $2.15 and $3.65 per person per day, but other absolute and relative poverty lines should be considered according to context.

Box 1 continues on the following page.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
M-12: Service Coverage
M-13: Financial Risk Protection
M-14: Health Status and Health Risks
M-15: Universal Health Coverage
List of Acronyms

4 SECTION 4
Additional Guidance

BOX 1. DEFINITIONS OF TERMS *(continued)*

UHC SERVICE COVERAGE INDEX
Used to track SDG indicator 3.8.1, it is calculated as the unweighted geometric mean of 14 tracers, of which 11 are service coverage tracers and three are service capacity tracers. Full details are provided in Annex 1 as well as the Service Coverage module.

UNIVERSAL HEALTH COVERAGE (UHC)
Under UHC, all individuals and communities receive the health services they need, when and where they need them, without suffering financial hardship. It includes the full range of essential health services, and it applies to an entire population, that is, all individuals regardless of socioeconomic background, geographic location, or other factors. "Achieving UHC" is SDG target 3.8.

UTILIZATION
The percentage of people using a particular service, regardless of need and whether the treatment is optimal.



PROGRESS TOWARD UNIVERSAL HEALTH COVERAGE

KEY QUESTIONS

- What is the country's progress toward UHC?
- What is the progress on service coverage and financial protection?

This section focuses on the UHC index and aggregate measures of service coverage and the two most common indicators of financial risk protection. PER authors interested in conducting more detailed analyses of service coverage and financial risk protection should refer to those modules.

PER authors may use the following indicators to measure progress toward universal health coverage. The following table contains contains more information about these UHC monitoring tools.

Key Indicators	Sources
UHC service coverage index	• WHO/World Bank UHC annual *Global Monitoring Report* • Country MoH reports
UHC service coverage index	• IHME *Global Burden of Disease* (GBD) study, 2019
Financial risk protection indicator(s). If using one indicator, the most common indicator used is the "proportion of population spending more than 10% of household consumption or income on out-of-pocket health care expenditure (%)" (CATA) (Wagstaff and Neelsen 2020). Other options are CATA at the 25% level, and "proportion of population pushed below the $1.90 or $3.20 (2011 PPP) poverty line by out-of-pocket health care expenditure (%)."	• World Bank HEFPI dataset (see also the Financial Risk Protection module) and the WHO GHO

Note: HEFPI = Home Equity and Financial Protection Indicators; IHME = Institute of Health Metrics and Evaluation, University of Washington; MoH = Ministry of Health; OOP = out-of-pocket; PPP = purchasing power parity; UHC = universal health coverage; WHO = World Health Organization; WHO GHO = World Health Organization Global Health Observatory. The poverty lines of $1.90 and $3.20 are per person per day. The most recent *UHC Global Monitoring Report 2023* and the WHO Global Health Observatory use updated poverty lines of $2.10 and $3.65. PER authors can use data in HEFPI, which still applies the $1.90 and $3.20 poverty lines, or the WHO Global Health Observatory data, making sure that the source and poverty line used are clearly stated.

When assessing the country's progress toward UHC, PER authors should consider both service coverage and financial protection. Authors should note that there are caveats for the suggested indicators to monitor this progress (caveats for service coverage indicators were noted earlier). Further, UHC indexes have not been developed at the subnational level, so distributional analysis by region, wealth quintile, ethnic group, or coverage group cannot be conducted. Such analysis is, however, possible at the level of individual indicators, which can be sourced from household survey data or the Home Equity and Financial Protection Indicators (HEFPI) dataset, which also offers corresponding visualizations.[1]

The World Health Organization (WHO) service coverage index (like the Institute of Health Metrics and Evaluation (IHME) effective coverage index) is largely modeled and available until 2021 for all countries. The challenge is that only a minority of points are not modeled, and this can hinder country dialogue if clients don't accept the modeled estimates. Additional caveats include that noncommunicable disease (NCD) services are underrepresented in the WHO service coverage index.[2] This may be an issue for countries with a high burden of NCDs. It is worth noting that PER authors may opt to look at the additional key indicators as a supplement to analyzing service coverage levels in the country, focusing on those that are of particular relevance to the country's context. Authors may refer to the HEFPI dataset for a compilation of service coverage variables. For example, countries with high malnutrition burdens may opt to include nutrition service coverage indicators, which are not captured by the existing UHC Service Coverage Index (see the Service Coverage module for possible nutrition indicators)

These tracer indicators may be used to monitor coverage of essential health services. If possible, PER authors should focus on essential health services that reflect the success of effective health promotion, screening, and treatment programs when assessing the effectiveness of service coverage. See Annex 1 for a list of tracer indicators that may be used.

A final caveat is that advancing toward UHC is dependent on a country's ability and willingness to track UHC. Household surveys with detailed consumption modules are required for financial risk protection tracking. PER authors are therefore encouraged to collaborate with relevant client institutions (for example, national statistics institutes) leading the surveys, to ensure that relevant health sector questions are included. Similar reasoning applies to service coverage tracking, as administrative data are often used in addition to household surveys.

1 See https://datatopics.worldbank.org/health-equity-and-financial-protection/.

2 A discussion of this issue can be found in chapter 1.4 of the 2021 *UHC Global Monitoring Report:* https://openknowledge.worldbank.org/handle/10986/36724.

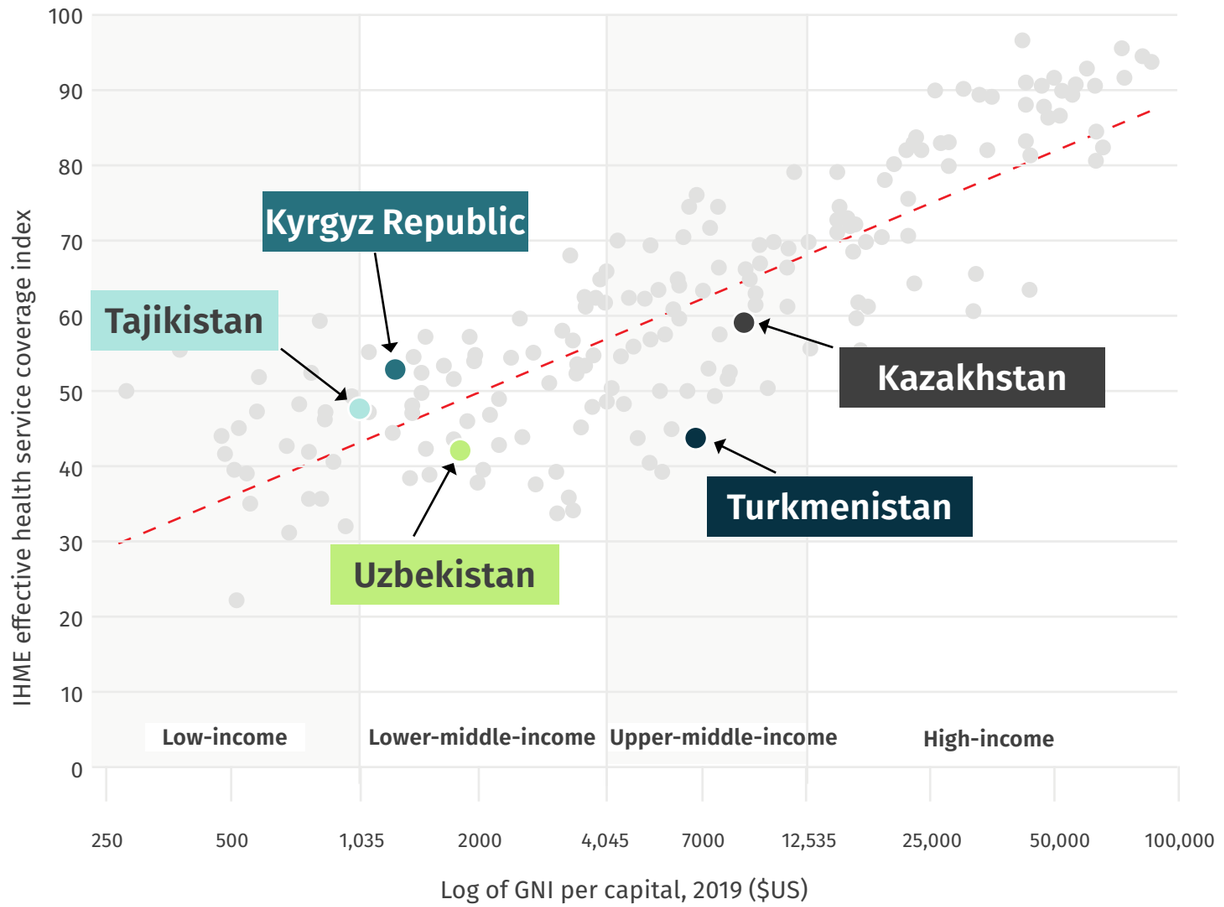
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
M-12: Service Coverage
M-13: Financial Risk Protection
M-14: Health Status and Health Risks
M-15: Universal Health Coverage
List of Acronyms
4 SECTION 4 Additional Guidance

There may be significant disparities in service coverage across population groups or geographic entities. Depending on the country's context, PER authors should assess distribution across geopolitical entities (urban/rural and subnational entities), gender, socioeconomic characteristics (income/wealth/consumption; see also the next section on "Equity of UHC"), and other population dimensions (for example, sexual orientation, health benefits entitlement).

PER authors should benchmark the UHC service coverage index or the effective coverage index against comparator countries. PER authors may conduct cross-country comparisons, examining positioning relative to regional and income group peers. Figure 2 shows an example using the IHME effective coverage index over (log) GNI per capita and linear regression line, highlighting Central Asian countries.

As noted in the introduction, to meaningfully interpret progress toward UHC, PER authors should look at the progress in service coverage vis-à-vis the progress in financial protection to check whether one is improving at the expense of the other; ideally, both service coverage and financial risk protection should improve at the same time.

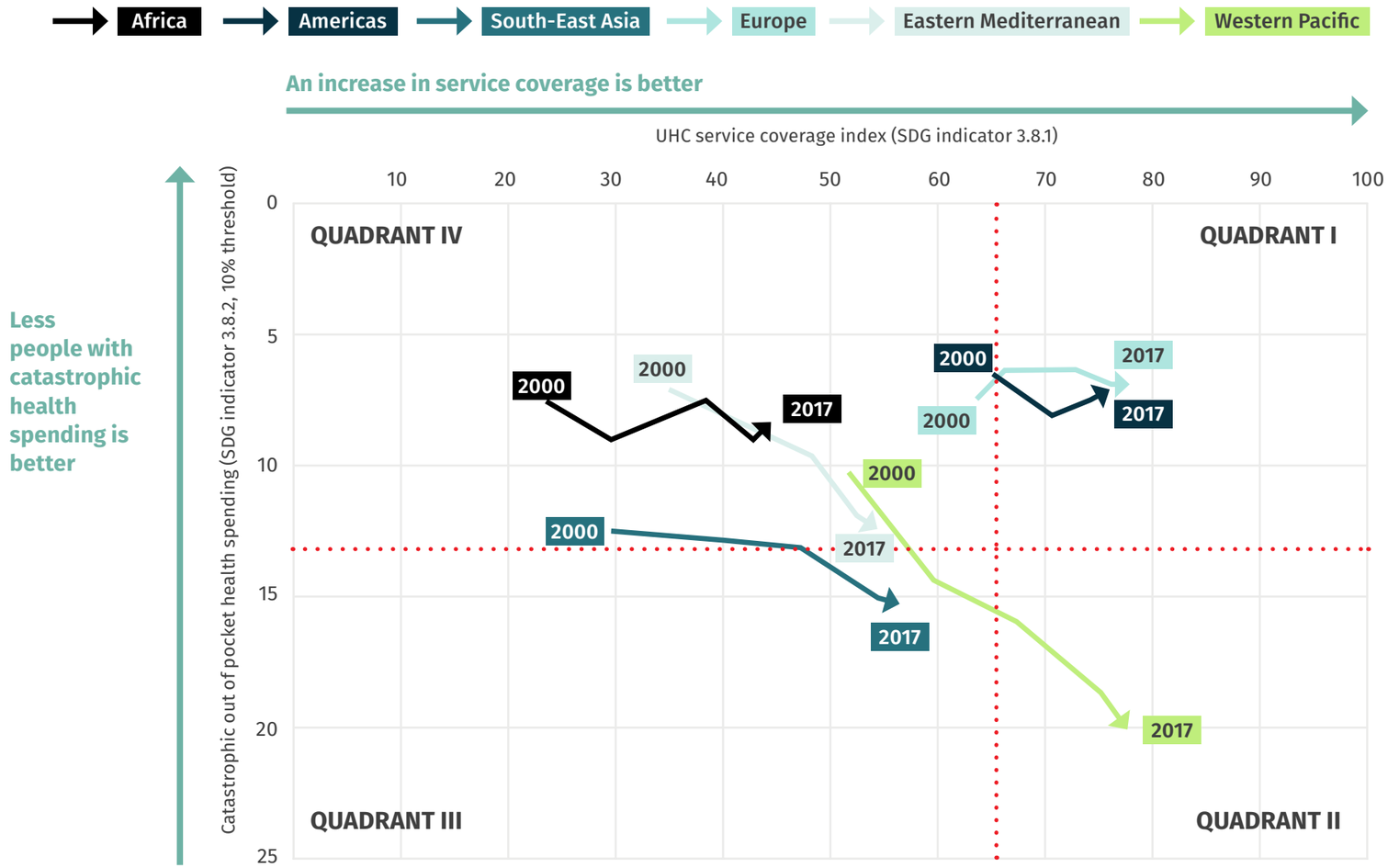
FIGURE 2
EFFECTIVE COVERAGE INDEX ACROSS INCOME GROUPS



Source: Tajikistan Public Expenditure Review 2021.

A comparison of trends in service coverage and financial risk protection can be made in several ways, including in a single graph (Figure 3) or in two separate graphs showing the trend sets separately and then providing a unified comment for both indicators.

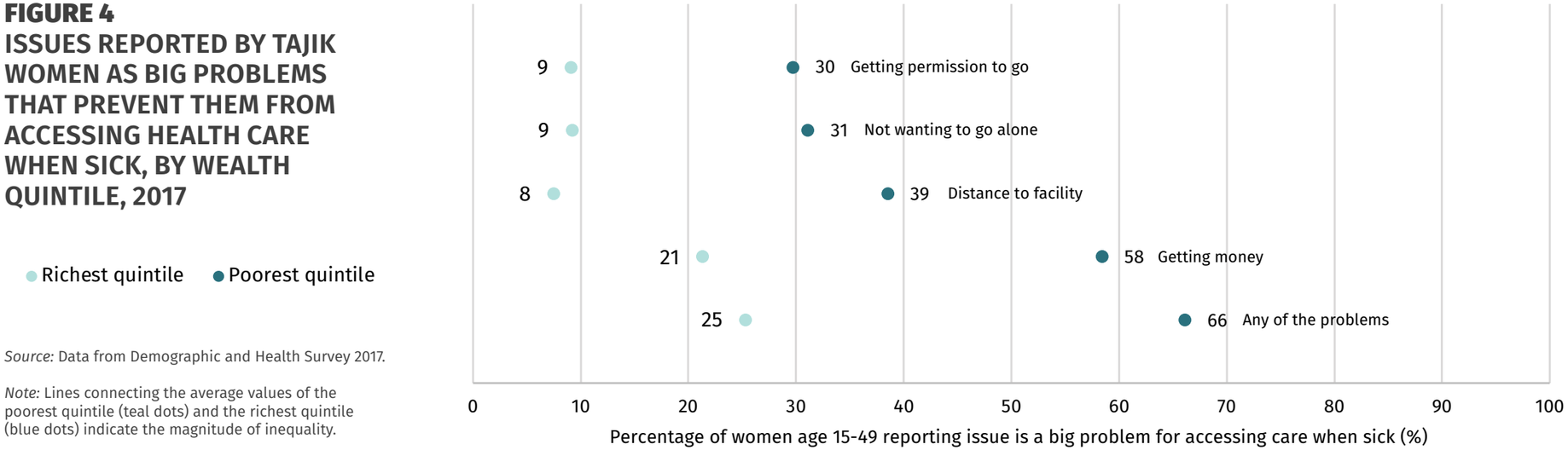
FIGURE 3
TRENDS IN UHC SERVICE COVERAGE INDEX AND INCIDENCE OF CATASTROPHIC HEALTH SPENDING BY WHO REGION, 2000–17



Source: SDG indicator 3.8. 1: WHO global service coverage database, 2021 update; SDG indicator 3.8.2: WHO and World Bank global financial protection database, 2021 update. https://www.who.int/publications/i/item/9789240040618.

Note: The vertical axis corresponds to the 2017 global incidence rate of catastrophic health spending defined as the proportion of the population-weighted population with household out-of-pocket health expenditure exceeding 10% of household budget (13.2% in 2017). The horizontal axis corresponds to the 2017 global population-weighted average UHC SCI (65) in 2017.

FIGURE 4
ISSUES REPORTED BY TAJIK WOMEN AS BIG PROBLEMS THAT PREVENT THEM FROM ACCESSING HEALTH CARE WHEN SICK, BY WEALTH QUINTILE, 2017



Source: Data from Demographic and Health Survey 2017.

Note: Lines connecting the average values of the poorest quintile (teal dots) and the richest quintile (blue dots) indicate the magnitude of inequality.

PER authors can also plot the service coverage index against impoverishing out-of-pocket spending. Quadrant I implies high levels of service coverage and low levels of catastrophic health spending; Quadrant II implies high levels of service coverage but also relatively high levels of catastrophic health spending; Quadrant III implies low service coverage and high catastrophic payments; and Quadrant IV implies low service coverage and low catastrophic payments. Authors can find the latest data from the most recent publication of *Tracking Universal Health Coverage: Global Monitoring Report*.[3]

Where data are available, PER authors may also consider analyzing the two using forgone care for financial and other reasons across socioeconomic groups. Figure 4 helps one visualize this analysis. Authors may obtain data from Demographic Health Surveys or country-specific household budget surveys (including Living Standards Measurement Study surveys), which often include questions on forgone care.[4]

3 Data can be downloaded from https://datacatalog.worldbank.org/int/search/dataset/0060802/.

4 Living Standards Measurement Study and many national multipurpose household surveys include questions about forgone care explicitly (for example., "Did you use care when ill? If not, why not?"). The actual question in DHS is about "problems when accessing" rather than "forgone care"—similar but not entirely the same thing. This being said, data from DHS serve as a good proxy and are readily available from StatCompiler.

EQUITY OF UNIVERSAL HEALTH COVERAGE

KEY QUESTION • **Is progress in service coverage and financial risk protection distributed equitably?**

This section focuses on analyzing how UHC indicators are distributed across income quintiles, in order to assess UHC equity. Thus far, there is no dataset available that disaggregates UHC indexes by income quintile. However, there is a dataset that disaggregates service coverage indicators by income quintile.

PER authors can assess the equity of UHC by following these steps:

1. Select service coverage indicators (preferably no more than three) based on local context or from the list of service coverage indicators used to generate the UHC index (see Annex 1 and/or the Service Coverage module).
2. Select financial risk protection indicators (preferably no more than three) based on local context. Indicators typically used are the proportion of population facing catastrophic health expenditure at the 10 percent level, and proportion of population facing impoverishing OOP expenditures at the $2.15 or $3.65 per person per day poverty lines (for example, low-income countries might prefer the $2.15 threshold, and lower-middle-income countries might prefer the $3.65 threshold). Other absolute and relative poverty lines—for example, the societal poverty line of 60 percent of median consumption that is included in the *Tracking Universal Health Coverage: 2023 Global Monitoring Report*—should be considered according to context.
3. Analyze progress for each indicator across quintiles (see "Sources" in the following table). It is possible that progress is more marked for top quintiles and less marked for lower quintiles, and vice versa.

Key Indicators	Sources
Service coverage indicators across quintiles	• World Bank HEFPI dataset • World Bank HNP statistics by wealth quintile • Household surveys • Administrative dataset
Financial risk protection indicators across quintiles	• World Bank HEFPI dataset • Household surveys

Note: HEFPI = World Bank Health Equity and Financial Protection Indicators; HNP = Health, Nutrition, and Population.

It is noteworthy that equity considerations for service coverage and financial risk protection are also discussed, respectively, in the Service Coverage and Financial Risk Protection modules.

An important caveat is that data across quintiles are not readily available; therefore, data limitations might affect the ability of PER authors to run equity analyses.

Figure 5 on the following page presents a simple example of an equity analysis of catastrophic health expenditure (for financial risk protection) and inpatient care access in the past 12 months (for service coverage). The figure shows that in Chile, the lowest quintile had good access to inpatient care compared with other quintiles, but also faced the highest catastrophic health expenditures (at the 10 percent level). Given the high percentage of people covered by insurance in Chile, the results suggest that these households might have needed or opted to go to private providers for their care. However, data limitations did not allow comparing these indicators from the same year.

Finally, we should note that equity in service delivery or financial risk protection need not be explored only across income quintiles. PER authors can use household surveys to assess the equitable distribution of services across different dimensions, for example, gender, geographic location (different regions, or rural versus urban regions), or other minorities relevant for the country in question.

FIGURE 5.1 CATASTROPHIC HEALTH EXPENDITURE (10%), 2016

Source: World Bank staff.

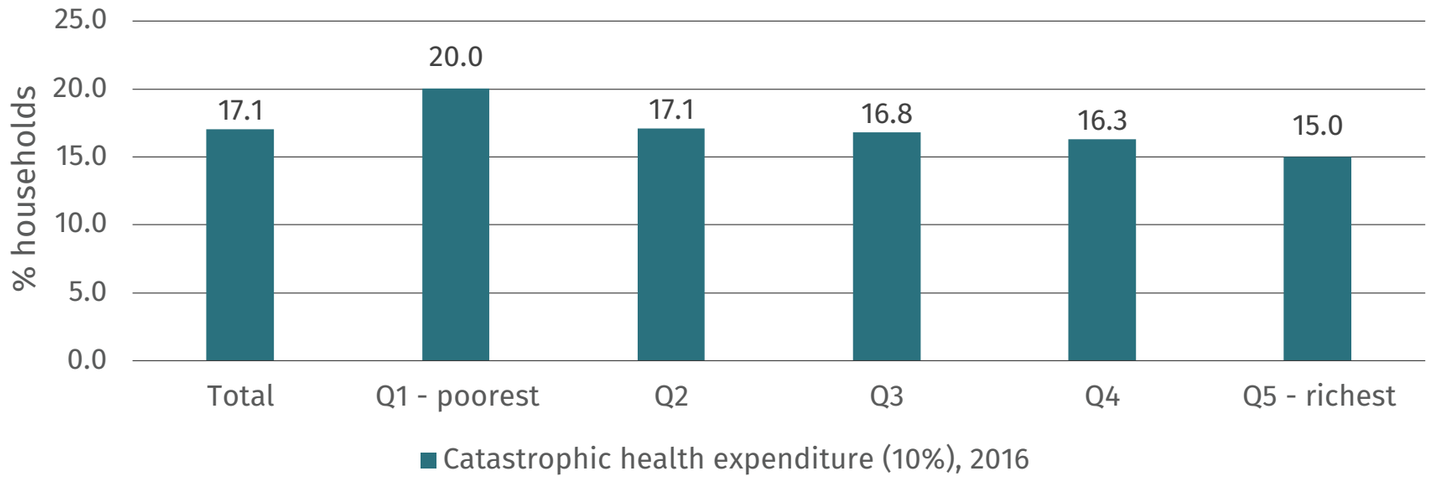
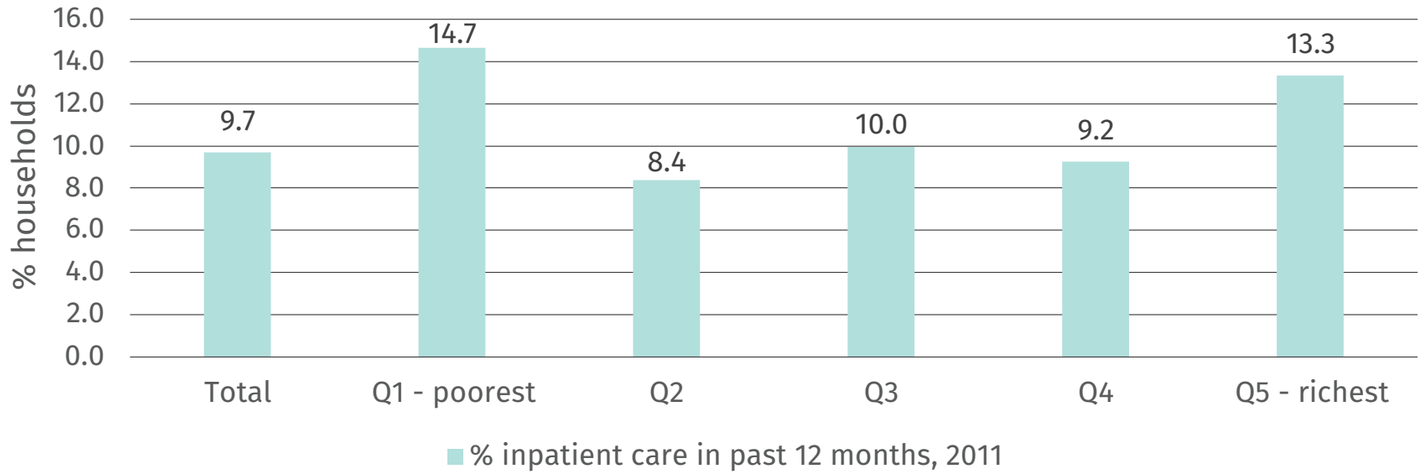


FIGURE 5.2 % INPATIENT CARE IN PAST 12 MONTHS, 2011

Source: World Bank staff.



OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
M-12: Service Coverage
M-13: Financial Risk Protection
M-14: Health Status and Health Risks
M-15: Universal Health Coverage
List of Acronyms

4 SECTION 4
Additional Guidance

References

de Walque, Damien, Eeshani Kandpal, Adam Wagstaff, Jed Friedman, Sven Neelsen, Moritz Piatti-Fünfkirchen, Anja Sautmann, Gil Shapira, and Ellen Van de Poel. 2022. *Improving Effective Coverage in Health: Do Financial Incentives Work?* Policy Research Report. Washington, DC: World Bank.

Hogan, Daniel R., Gretchen A. Stevens, Ahmad Reza Hosseinpoor, and Ties Boerma. 2018. "Monitoring Universal Health Coverage within the Sustainable Development Goals: Development and Baseline Data for an Index of Essential Health Services." *The Lancet Global Health 2018* 6(2): e152-e68.

Lozano, Rafael, Nancy Fullman, John Everett Mumford, et al. 2019. "Measuring Universal Health Coverage Based on an Index of Effective Coverage of Health Services in 204 Countries and Territories, 1990-2019: A Systematic Analysis for the Global Burden of Disease Study, 2019." *The Lancet 2020* 396(10258): 1250–84.

World Health Organization. 2024. "Universal Health Coverage" fact sheet. World Health Organization, Geneva.

World Health Organization and World Bank. 2021. *Tracking Universal Health Coverage: 2021 Global Monitoring Report*. Geneva: World Health Organization and Washington, DC: World Bank. https://openknowledge.worldbank.org/handle/10986/36724.

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
M-12: Service Coverage
M-13: Financial Risk Protection
M-14: Health Status and Health Risks
M-15: Universal Health Coverage
List of Acronyms

4 SECTION 4
Additional Guidance

ANNEX 1

Detail of UHC Measures from WHO/World Bank and IHME

This annex is organized into three parts: (1) an overview of the two UHC indexes, in the table; (2) a list of the tracers used to generate the UHC service coverage index; and (3) a list of the tracers used to generate the UHC effective coverage index.



UHC MONITORING TOOLS

	UHC Service Coverage Index (SDG indicator 3.8.1)*	UHC Effective Coverage Index
Number and type of indicators	14 tracers covering service coverage (11) and service capacity (3)	41 indicators in total
Categorization or list of tracers	Indicator groups: 1. Reproductive, maternal, newborn, and child health (4 tracers) 2. Infectious diseases (4 tracers) 3. Noncommunicable diseases (3 tracers) 4. Service capacity and access (3 tracers) Detail of all tracers is provided below.	9 service coverage indicators 32 outcome-based indicators Detail of all tracers is provided below.
Data source	Household survey, administrative and institutional data	Household and administrative data
Modeling when data are missing	Extensive	Extensive
Compilation method	Geometric mean, unweighted	Weighting of indicators according to disease burden
Number of countries included	183	204
Reference	UHC Service Coverage Index, SDG 3.8.1, metadata	GBD 2019 Universal Health Coverage Collaborators. 2020. "Measuring Universal Health Coverage Based on an Index of Effective Coverage of Health Services In 204 Countries and Territories, 1990–2019: A Systematic Analysis for the Global Burden of Disease Study 2019. *The Lancet*. August 27, 2020. doi:10.1016/S0140-6736(20)30750-9.
Data download	https://datacatalog.worldbank.org/int/search/dataset/0060802 Additional source (with same data, available online without downloading the dataset): https://data.worldbank.org/indicator/SH.UHC.SRVS.CV.XD	http://ghdx.healthdata.org/record/ihme-data/gbd-2019-uhc-effective-coverage-index-1990-2019

Source: World Bank staff.
*Reminder: SDG target 3.8, "Achieve universal health coverage," is monitored via SDG indicator 3.8.1 as well as SDG indicator 3.8.2, "Catastrophic health spending (and related indicators)." SDG 3.8.2 is measured using CATA at the 10 percent and 25 percent levels. These measures are also reviewed in the Financial Risk Protection module.

UHC SERVICE COVERAGE INDEX TRACERS

See the Service Coverage module for more information about assessing service coverage (as opposed to UHC).

REPRODUCTIVE AND MATERNAL HEALTH

1. **Family planning:** Percentage of women of reproductive ages (15–49 years) who are married or in union who have their need for family planning satisfied with modern methods
2. **Pregnancy care:** Percentage of women ages 15–49 years with a live birth in a given time period who received antenatal care four or more times
3. **Child immunization:** Percentage of infants receiving three doses of diphtheria-tetanus-pertussis containing vaccine
4. **Child treatment:** Percentage of children younger than 5 years with symptoms of acute respiratory infection (cough and fast or difficult breathing due to a problem in the chest and not due to a blocked nose only) in the two weeks preceding the survey for whom advice or treatment was sought from a health facility or provider

COMMUNICABLE DISEASES

5. **Tuberculosis:** Percentage of incident TB cases that are detected and treated
6. **HIV/AIDS:** Percentage of adults and children living with HIV currently receiving antiretroviral therapy
7. **Malaria:** Percentage of population in malaria-endemic areas who slept under an insecticide-treated net the previous night (only for countries with high malaria burden)
8. **Water, sanitation, and hygiene:** Percentage of population using at least basic sanitation services

NONCOMMUNICABLE DISEASES

9. **Hypertension:** Percentage of treatment (taking medicine) for hypertension among adults ages 30–79 years with hypertension (age-standardized estimate)
10. **Diabetes:** Age-standardized mean fasting plasma glucose (mmol/L) for adults ages 18 years and older
11. **Tobacco:** Age-standardized prevalence of adults ages 15 years and older currently using any tobacco product (smoked and/or smokeless tobacco) on a daily or nondaily basis (SDG indicator 3.a.1; see metadata at https://www.who.int/data/gho/indicator-metadata-registry/imr-details/prevalence-of-current-tobacco-use-among-persons-aged-15-years-and-older-(age-standardized-rate)

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
M-12: Service Coverage
M-13: Financial Risk Protection
M-14: Health Status and Health Risks
M-15: Universal Health Coverage
List of Acronyms

4 SECTION 4
Additional Guidance

SERVICE CAPACITY AND ACCESS

12. **Hospital access:** Hospital beds density, relative to a maximum threshold of 18 per 10,000 population
13. **Health workforce:** Health professionals (physicians, psychiatrists, and surgeons) per capita, relative to maximum thresholds for each cadre (partial overlap with SDG indicator 3.c.1; see metadata at https://unstats.un.org/sdgs/metadata/files/Metadata-03-0C-01.pdf)
14. **Health security:** International Health Regulations (IHR) core capacity index, which is the average percentage of attributes of 13 core capacities that have been attained (SDG indicator 3.d.1; see metadata at https://www.who.int/data/gho/indicator-metadata-registry/imr-details/4672)



IHME EFFECTIVE COVERAGE INDEX INDICATORS

Intervention coverage

1. Met need for family planning with modern contraception
2. ANC1
3. ANC4
4. Skilled birth attendance
5. In-facility delivery rate
6. DTP3
7. Polio3
8. MCV1
9. ART coverage

Outcome-based (risk-standardized death rates or mortality-to-incidence ratios)

1. Tuberculosis
2. Diarrheal diseases
3. Lower respiratory infections
4. Upper respiratory infections
5. Asthma, diphtheria
6. Whooping cough
7. Tetanus
8. Measles
9. Maternal disorders
10. Neonatal disorders
11. Colon and rectum cancer
12. Nonmelanoma skin cancer
13. Breast cancer
14. Cervical cancer
15. Uterine cancer
16. Testicular cancer
17. Hodgkin lymphoma
18. Leukemia
19. Rheumatic heart disease
20. Ischemic heart disease
21. Cerebrovascular disease
22. Hypertensive heart disease
23. Peptic ulcer disease
24. Appendicitis
25. Hernia
26. Gallbladder and biliary diseases
27. Epilepsy
28. Diabetes
29. Chronic kidney disease
30. Chronic obstructive pulmonary disease
31. Congenital heart anomalies
32. Adverse effects of medical treatment

OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

Health System Context
Health Financing
Inputs
Service Delivery
Outcomes
List of Acronyms

4 SECTION 4
Additional Guidance

TABLE OF CONTENTS

ACRONYMS

ACSC
Ambulatory Care Sensitive Conditions

ARI
Acute Respiratory Infections

CABRI
Collaborative Africa Budget Reform Initiative

COA
Chart of Accounts

COICOP
Classification of Individual Consumption According to Purpose

CPIA
Country Policy and Institutional Assessment

DAH
Development Assistance for Health

DALYs
Disability-Adjusted Life Years

DHS
Demographic and Health Surveys

DPF
Development Policy Financing

DRGs
Diagnosis-Related groups

EML
Essential Medicines List

EPHF
Essential Public Health Functions

FMIS
Financial Management Information System

GBD
Global Burden of Disease

GDP
Gross Domestic Product

GHED
Global Health Expenditure Database

GHO
World Health Organization Global Health Observatory

GNI
Gross National Income

HALE
Health-Adjusted Life Expectancy

HBP
Health Benefits Package

HEFPI
Health Equity and Financial Protection Indicators

HIF
Health Insurance Fund

HNP
Health, Nutrition, and Population

HRH
Human Resources for Health

ICD
International Classification of Disease

IHME
Institute for Health Metrics and Evaluation

ILO
International Labour Organization

ILOSTAT
International Labour Organization statistical database

IMF
International Monetary Fund

KII
Key Informant Interview

LSMS
Living Standard Measurement Surveys

ACRONYMS

MDA
Ministry, Department, or Agency

MICS
Multiple Indicator Cluster Surveys

MoF
Ministry of Finance

MoH
Ministry of Health

MTI
Macroeconomics, Trade and Investment

NHA
National Health Accounts

ODA
Official Development Assistance

OECD
Organisation for Economic Co-operation and Development

OOP
Out-of-Pocket Payments

PEFA
Public Expenditure and Financial Accountability

PER
Public Expenditure Review

PFM
Public Financial Management

PforR
Program for Results

PHC
Primary Health Care

PPP
Purchasing Power Parity

RHS
Reproductive Health Surveys

RMNCH
Reproductive, Maternal, Newborn, and Child Health

SDG
Sustainable Development Goal

SHI
Social Health Insurance

STEPS
WHO STEPwise approach to NCD risk factor surveillance

UHC
Universal Health Coverage

UNFPA
United Nations Population Fund

UNICEF
United Nations Children's Fund

WDI
World Development Indicators

WEO
World Economic Outlook

WHO
World Health Organization

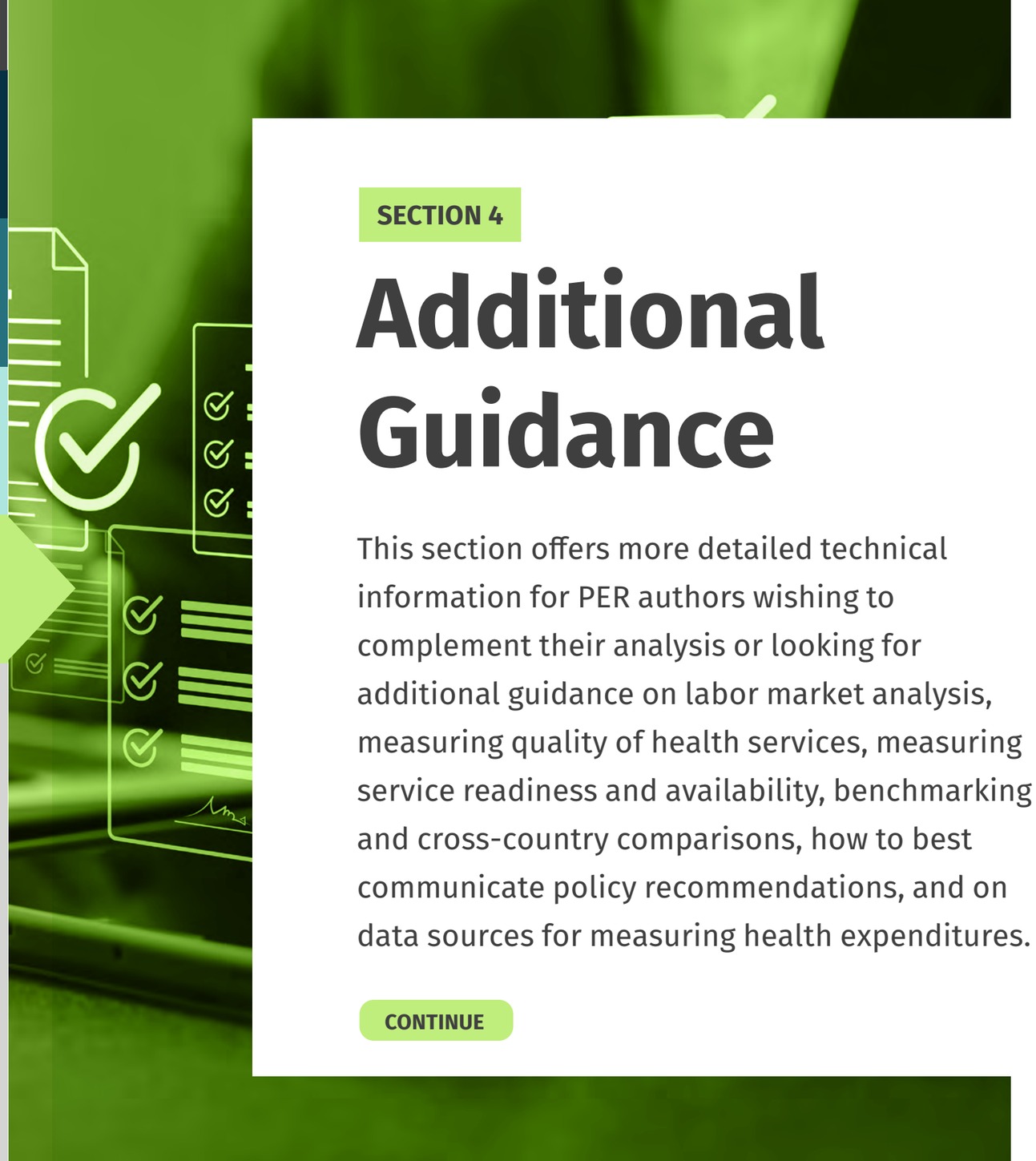
OVERVIEW

1 SECTION 1
What Is a Health PER?

2 SECTION 2
Cross-Cutting Analysis on Efficiency and Equity

3 SECTION 3
Topic-Specific Analysis

4 SECTION 4
Additional Guidance



SECTION 4

Additional Guidance

This section offers more detailed technical information for PER authors wishing to complement their analysis or looking for additional guidance on labor market analysis, measuring quality of health services, measuring service readiness and availability, benchmarking and cross-country comparisons, how to best communicate policy recommendations, and on data sources for measuring health expenditures.

CONTINUE

ADDITIONAL GUIDANCE 1

BENCHMARKING

ADDITIONAL GUIDANCE 2

HEALTH LABOR MARKET ANALYSIS AND HEALTH WORKFORCE PROJECTIONS

ADDITIONAL GUIDANCE 3

SERVICE AVAILABILITY AND READINESS

ADDITIONAL GUIDANCE 4

QUALITY OF HEALTH SERVICES

ADDITIONAL GUIDANCE 5

GUIDING PRINCIPLES FOR CRAFTING IMPACTFUL RECOMMENDATIONS IN PUBLIC EXPENDITURE REVIEWS

ADDITIONAL GUIDANCE 6

HEALTH EXPENDITURE DATA SOURCES

OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
4 SECTION 4 Additional Guidance
Additional Guidance 1
Additional Guidance 2
Additional Guidance 3
Additional Guidance 4
Additional Guidance 5
Additional Guidance 6
List of Acronyms

ADDITIONAL GUIDANCE 1

BENCHMARKING

Benchmarking is the process of systematically comparing performance against recognized best practices or comparator organizations or units of performance. Alternatively, benchmarking makes a comparison based on average performance, relative to the best performer, relative to a clinical norm or target, or relative to past performance (Hafez 2020).

The objectives of benchmarking for the Health PER are to (1) assess performance objectively; and (2) expose areas where improvement is needed and aid in the prioritization of responses.

There are two types of benchmarking in the Health PER guidance—international benchmarking and benchmarking across geopolitical entities. Guidance on benchmarking across geopolitical entities is provided within the module and is specific to the indicators (for example, benchmarking across urban and rural, benchmarking across subnational entities). Guidance on international benchmarking, as discussed in this note, is centered around finding comparator countries when conducting benchmarking.

PER authors can identify comparator countries using four sets of criteria: country characteristics, economic structure and socioeconomic performance, health sector characteristics, and client preference.

For country characteristics, PER authors can consider the following characteristics:

- Island or landlocked
- Small state
- Fragile or post-conflict country
- Regions and subregions, in terms of geography, language, and culture

For economic structure and socioeconomic characteristics, PER authors can look at the following characteristics:

- Size of government (share of GGE in GDP)
- Demographics (population density, age structure, population size)—implications for economic productivity and implications for the health sector
- Education (literacy rate)
- Governance (level of decentralization)—implications for how health is financed and how services are delivered
- Income level (GNI per capita)
- Poverty (percentage of population living below the poverty line)
- Labor force (unemployment rate, level of informality, employment in agriculture)

For health sector characteristics, PER authors can consider:

- Burden of disease (HIV/AIDS and TB burden, NCDs)—high spending on these diseases may be driving spending on health
- Health financing (for example, mix of revenue sources—predominantly general tax financed versus predominantly social health insurance (SHI), dependency on development assistance for health (DAH), level of fragmentation)
- Size of the private sector involvement in service delivery – implications on efficiency and equity of service delivery in the country

For client preference, PER authors can consider:

- Government stakeholders may have specific countries they would ask to serve as benchmarks. An example may be countries that stakeholders would like to emulate in terms of health sector performance.

When choosing comparator countries, PER authors should give priority to technical criteria and add according to client preference. For ease of interpretation, limit the number of comparator countries to four to six. In addition, authors may choose to include income group and regional averages (simple mean or median).

References

Hafez, R., ed. 2020. *Measuring Health System Efficiency in Low- and Middle-Income Countries: A Resource Guide*. Joint Learning Network for Universal Health Coverage.

ADDITIONAL GUIDANCE 2

HEALTH LABOR MARKET ANALYSIS AND HEALTH WORKFORCE PROJECTIONS

AUTHORS

Edson Correia Araujo, Bernardo D.P. Coelho, and Priyanka Saksena

Health Labor Market Analysis

Applying economic frameworks to analyze the labor market helps in understanding the diverse and interrelated constraints affecting human resources for health, the impact of health policies on these resources, and the employment dynamics in the health sector. Supply and demand underpin this economic perspective.

The supply of health workers is the total number of individuals who are qualified and willing to provide health services. It depends on the wage rate, the nonpecuniary job attributes, and personal and professional characteristics of the health professional. Empirical studies have shown relatively small, but usually statistically significant, effects of wage changes on labor supply. As such, issues around the supply of health workers are more likely to be addressed when PER authors consider broader issues, such as occupational choice, education and training issues, demographic and household characteristics, and specialty choice and career pathways, alongside compensation.

The demand for health workers is the number of workers employers are willing to hire. Employers can be public (civil service, a national or regional health authority, hospitals, health centers), private for-profit, or not-for-profit health care providers.

The demand for health workers is shaped by a complex set of determinants subject to time and context, such as (1) economic factors (budget allocated to the health sector and the proportion of it allocated to health workers, financing mechanisms); (2) technology (how health services are produced and delivered and by consequence the demand for health workers in terms of their numbers and their profile); (3) regulations (which set the division of labor in health); and (4) different models of care. For example, employers may want to use a mix of workers they regard as more efficient and less costly, but they may be constrained by the rigidity of the definition of scopes of practice.

A Health Labour Market Analysis (HLMA) is a tool that can help in understanding factors that influence labor market outcomes systematically. It allows policymakers to identify constraints and opportunities to devise better interventions.

A HLMA can focus on the following factors:

- A country's capacity to educate and train qualified health workers from a **supply-side** perspective. This determines the pool of available workers, including their skills mix and level of competence, but is offset by those who move abroad or leave practice.
- Availability and characteristics of employment in the public, private for-profit, and other (for example, non-profit) sectors from a **demand-side** perspective that shape health worker decisions.
- The **governance structure** and **regulatory system** in place, which influence the health labor market by setting rules and establishing the role of public policy in the market.
- Health worker **performance** at the individual and institutional levels, which will be influenced not only by workers' education, but also how they are compensated and incentivized, supervised and supported, and their access to relevant resources, such as training, physical infrastructure, equipment, and supplies.

PER authors can consult from World Bank and World Health Organization (WHO) guidance documents on health labor market analyses for further details on HLMAs (McPake, Scott, and Edoka 2014; World Health Organization 2021).

Health Workforce Projections

Policymakers face challenges in training, deploying, and retaining health workers in sufficient numbers and with the necessary skill mix. The growing demand for health care services, a result of demographic and epidemiological transitions, will exacerbate the pressures on an already weak health labor market. Health workforce projections aim to equip governments with the information and tools required to determine how many health professionals are needed to meet population health needs, both now and in the future.

There are several methods to help policymakers estimate how many health professionals are needed to meet population health needs. The choice depends on data availability and on a clearly defined objective or problem. Different approaches can lead to different results; therefore, an accurate evaluation of the practicality and feasibility of applying each approach is critical.

The table below summarizes main methodological approaches for generating health workforce projections.

Approaches	Assumptions	Advantages	Limitations
NEEDS-BASED APPROACH Estimate health workforce gaps based on the epidemiological and demographic profiles (the projected health service needs, both met and unmet) of the population.	It assumes that (1) population epidemiological demographic profiles will be a perfect proxy for health care needs and access to services; and (2) the use of resources will be prioritized based on need.	Compared to other HRH projection methods, it is easier to explain and understand, and therefore can be valuable for advocacy.	It does not capture changes in medical or other technologies that alter service delivery efficiency. The definition of "needs" does not explicitly take into account coverage and quality. And it does not adjust for disparities in the distribution of health services.

Table continues on the following page.

Approaches	Assumptions	Advantages	Limitations
UTILIZATION-BASED APPROACH It uses present health service utilization to estimate future health service requirements (and health workforce needs). It incorporates projected trends in the current workforce, such as demographics, turnover, attrition rates, etc., to estimate future health workforce needs.	It assumes that (1) the population currently uses an appropriate mix of health services; and (2) future health care needs can be estimated based on predictable trends in population fertility, mortality, and migration.	Given that future health service utilization rates are closely linked to present utilization rates, the projected health workforce numbers tend to remain financially realistic.	It does not capture future changes in behavior patterns, employment trends, or environmental factors. Additionally, it may not address existing shortcomings in the quality or accessibility of health services.
HEALTH WORKFORCE-TO-POPULATION RATIO It uses a given health worker-to-population ratio to achieve a desirable health or health service delivery goal. For example, the World Health Report (World Health Organization 2006) states that countries need a population density of at least 2.28 doctors, nurses, and midwives per 1,000 population to ensure skilled attendance at birth.	It assumes that (1) the relative proportion of health workers in each area is the most important determinant of ability to deliver health services; and (2) desired ratios may be based on the ratio of a region or reference. It can also consider constant aspects such as efficiency, productivity, and economies of scale should be considered.	It is relatively simple and may be satisfactory if realistic assumptions are made about health workforce growth rates.	It does not consider the effects of changes in health services utilization or changes in health workforce mix, productivity, task shifting, etc. Additionally, existing imbalances in health worker distribution will likely persist.

Table continues on the following page.

Approaches	Assumptions	Advantages	Limitations
SERVICE TARGET-BASED APPROACH It sets targets for specific health care services (targets based on current services provided, technologies in use, demand, and expert opinion) that are translated into staffing requirements.	It assumes that health services standards can be met by health workers and facilities within a specified amount of time.	It considers the complexity of the relationships between variables (efficiency, productivity, demand, etc.) and can complement other projection methods; additionally, the approach is particularly valuable in planning for critical health care services or services for small populations served by a single institution.	It depends on strict service delivery assumption and with risk of inaccuracy (expert opinion, e.g.).
ADJUSTED SERVICE TARGET-BASED APPROACH It uses pre-established targets for priority health service needs (determined by population demographics, expert opinion, and the incidence and prevalence of health problems). Functional job analyses are used to determine the health worker skills and time required to achieve those targets (HRH full-time equivalents for each intervention).	It assumes that evidence-based interventions can be effectively implemented in all circumstances.	Estimates are based on the skills and competencies required to provide health services, rather than positions. It also can consider efficiency through optimization of skills mix (reduction of overlapping skills, and the combination of skill sets that work in synergy).	It requires a significant amount of information, including a comprehensive review of the health workforce skills, competencies, and accurate expert opinion on service delivery requirements.

Table continues on the following page.

Approaches	Assumptions	Advantages	Limitations
SERVICE TARGET-BASED APPROACH It sets targets for specific health care services (targets based on current services provided, technologies in use, demand, and expert opinion) that are translated into staffing requirements.	It assumes that health services standards can be met by health workers and facilities within a specified amount of time.	It considers the complexity of the relationships between variables (efficiency, productivity, demand, etc.) and can complement other projection methods; additionally, the approach is particularly valuable in planning for critical health care services or services for small populations served by a single institution.	It depends on strict service delivery assumption and with risk of inaccuracy (expert opinion, e.g.).
ADJUSTED SERVICE TARGET-BASED APPROACH It uses pre-established targets for priority health service needs (determined by population demographics, expert opinion, and the incidence and prevalence of health problems). Functional job analyses are used to determine the health worker skills and time required to achieve those targets (HRH full-time equivalents for each intervention).	It assumes that evidence-based interventions can be effectively implemented in all circumstances.	Estimates are based on the skills and competencies required to provide health services, rather than positions. It also can consider efficiency through optimization of skills mix (reduction of overlapping skills, and the combination of skill sets that work in synergy).	It requires a significant amount of information, including a comprehensive review of the health workforce skills, competencies, and accurate expert opinion on service delivery requirements.

Table continues on the following page.

Approaches	Assumptions	Advantages	Limitations
FACILITIES-BASED APPROACH It focuses on improving individual health center capacity, facility mix, and geographic distribution of health care facilities (specific targets are set for each type of facility).	It assumes that adjustments to the number, size, and type of health care facilities will improve the ability of the entire health sector to address health service needs (bottom-up approach).	It provides more detailed information, and more suitable to assessing different policy options, while remaining focused on the point of services delivery.	It does not consider information about the quality of health services or population health needs.

Source: Adapted from McQuide, Stevens, and Settle 2008.

References

McPake, Barbara, Anthony Scott, and Ijeoma Edoka. 2014. *Analyzing Markets for Health Workers: Insights from Labor and Health Economics*. Directions in Development—Human Development. Washington, DC: World Bank. https://doi.org/10.1596/978-1-4648-0224-9.

McQuide, P., J. Stevens, and D. Settle. 2008. *An Overview of Human Resources for Health*. IntraHealth International.

World Health Organization. 2021. *Health Labour Market Analysis Guidebook*. Geneva: World Health Organization. https://iris.who.int/bitstream/handle/10665/348069/9789240035546-eng.pdf.

ADDITIONAL GUIDANCE 3

SERVICE AVAILABILITY AND READINESS

AUTHORS

Kathryn Gilman Andrews and Jigyasa Sharma

Introduction

This additional guidance includes information on service availability and readiness and highlights the key questions and potential tracer indicators that need to be considered in benchmarking progress in these areas. Access to care is driven by both supply-side and demand-side factors, and this guidance focuses on the supply side. A common definition of access to care (Penchansky and Thomas 1981) encompasses affordability, availability, accessibility, accommodation, and acceptability. Of these five "As," availability and accommodation are supply-side indicators. Availability "measures the extent to which the provider has the requisite resources, such as personnel and technology, to meet the needs of the client" (Wyszewianski 2002). Also on the supply side, accommodation "reflects the extent to which the provider's operation is organized in ways that meet the constraints and preferences of the client" (Wyszewianski 2002). Together, these supply-side readiness factors can be grouped together and referred to as "service availability and readiness." The three demand-side elements of the five "As" (affordability, accessibility, and acceptability)[1] are covered in the "Demand for Health Services" module, while the "Quality of Care" module discusses issues relating to areas of care quality.

1 "Affordability is determined by how the provider's charges relate to the client's ability and willingness to pay for services. ... Accessibility refers to geographic accessibility, which is determined by how easily the client can physically reach the provider's location. ... finally, acceptability captures the extent to which the client is comfortable with the more immutable characteristics of the provider, and vice versa." https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1464050/.

Service availability and readiness can be further divided into general and service-specific elements. The World Health Organization (WHO) defines **general service availability** as "the physical presence of items required for the delivery of services and encompasses health infrastructure, core health personnel, and aspects of service utilization" (O'Neill et al. 2013). This is a measure of whether health facilities and staff are present and offer services in accordance with their mandate and whether these health facilities provide care that accommodates patients' needs (in keeping with the definition of "accommodation" above).

WHO defines **service-specific availability** as "whether a specific type of health intervention is offered" (O'Neill et al. 2013). The interventions of interest can be defined either by target population and/or by specific disease. While the choice of which tracer services to examine should be based on contextual factors, WHO's universal health coverage (UHC) service coverage index uses tracer indicators covering the service-specific domains of reproductive, maternal, newborn, and child health; infectious diseases; and noncommunicable diseases (Hogan et al. 2017). It is also important to assess health facilities' inpatient and surgical care capacity to evaluate how well they are responding to the comprehensive health care needs of the population.

WHO defines **general service readiness** as "the overall capacity of health facilities to provide basic services at minimum standards" (O'Neill et al. 2013). Readiness, therefore, refers to the presence of amenities and equipment, clinical guidelines, diagnostics and lab testing capacity, and essential medicines and commodities. Service readiness differs from service availability in that readiness measures the functional capacity of available facilities and staff to deliver care up to a minimum standard level.

The definition of **service-specific readiness** is "the ability of health facilities to offer a specific service and the capacity to provide that service measured through selected tracer items that include trained staff, clinical guidelines, equipment, diagnostic capacity, and medicines and commodities."[2] As with service-specific availability, which tracer items are relevant depends substantially on the context; key areas of interest (with their associated indicators) may include reproductive, maternal, newborn and child health; infectious diseases; noncommunicable diseases; and inpatient care and surgical capacity (Hogan et al. 2017).

2 https://www.data4impactproject.org/prh/service-delivery/access-to-sexual-and-reproductive-health-services/service-availability-and-readiness-assessment-sara/.

General Service Availability

KEY QUESTION • What is general service availability?

Ensuring the availability of health facilities and health staff is the first step toward providing access to health services. Inherent in understanding general service availability is understanding the models of care that are used in a given context, so documentation of service availability should begin with a description of levels and types of care, how they interact with one another, and how they are organized to be accessed by patients. The suggested indicators below highlight basic information on the density of health facilities by type of facility in any given country, the availability of beds, the density of health care providers by cadre, and the elements of "accommodation" as defined above.

The extent to which female healthcare providers are available has implications for women's access to health care, equity, and women's empowerment and economic outcomes (Boniol 2019). The list also contains indicators of the availability of infrastructure for differently abled persons and the accessibility of health facilities in terms of transportation, opening hours, and scheduling. The extent to which the services available are patient-centered and responsive to the needs of the population is covered in the "Quality of Care" module.

Key Indicators	Sources
Health facility density (total number of health facilities per 10,000 population)	• WHO Global Health Observatory database • Country-specific facility census (master facility list) and/or (HMIS)
Health facility density stratified by facility level (numbers of primary care facilities such as health posts, health centers, hospitals, and specialized care facilities)	
Health facility density stratified by ownership (such as public, private, for-profit, or NGO)	
Hospital bed density (number of inpatient beds per 10,000 population)	

Key Indicators	Sources
Number of health care providers per 10,000 population (all clinical staff—such as doctors, nurses, midwives, and community health workers)	• WHO Global Health Observatory database • National Health Workforce Accounts, country-specific healthcare provider registry/roster, or HMIS • Health facility surveys SDI, SARA, SPA
Numbers of health care providers per 10,000 population stratified by cadre (such as doctors, nurses, midwives, and community health workers; as possible, stratification by health care providers providing primary care vs. secondary or tertiary care)	
Number of female health care providers per 10,000 population (all clinical staff—such as doctors, nurses, midwives, and community health workers)	• National Health Workforce Accounts, country-specific healthcare provider registry/roster, or HMIS • Health facility surveys SDI, SARA, SPA
Numbers of female health care providers per 10,000 population stratified by cadre (such as doctors, nurses, midwives, community health workers)	
Total number and % of health facilities with at least one health care provider (clinical staff such as doctor, nurse, or midwife) present on the day of an unannounced visit	• World Bank's Service Delivery Indicators (SDI) surveys
Total number and % of health facilities with at least one female health care provider (clinical staff such as doctor, nurse, or midwife) present on the day of an unannounced visit	

Key Indicators	Sources
Total number and % of health facilities with infrastructure that is accessible to differently abled persons, such as: • Any assistive technologies, such as signage with braille, to help those who are blind or visually impaired • At least one functional ramp/lift for people with limited mobility to go up or down inclines within or at the entrance to the health facility	• Country-specific facility census (master facility list) and/or HMIS • World Bank's SDI surveys
Total number and % of health facilities offering 24/7 medical care	
Total number and % of health facilities offering appointments for medical care	
Total number and % of health facilities offering telemedicine for medical care	
Total number and % of health facilities that have conducted drills/simulations for disasters/emergencies (such as on managing surge capacity, fire safety, safety procedures in the event of natural disasters/weather events, etc.)	
Total number and % of health facilities that are connected to a motorable road (road that can be driven on by motorized vehicles)	
Total number and % of health facilities that can be accessed via public transportation	

Note: HMIS = health management information system; SARA = Service Availability and Readiness Assessment"; SDI = Service Delivery Indicators; SPA = Service Provision Assessment

WHO's Global Health Observatory (GHO) Database[3] contains high-level internationally comparable information on many of the indicators described above. However, if more detailed information is available from country-specific health facility and healthcare provider rosters, PER authors should use those data to enable analysis at the most granular level. Facility rosters (also known as master facility lists) are often available from ministries of health, and some are publicly available, as is the case in Kenya.[4] Also, some health management information systems (HMIS) may collect information on available staff, services, equipment, and supplies. In the absence of country-specific provider rosters or a robust HMIS, health facility surveys, such as the World Bank's Service Delivery Indicators (SDI) health surveys, WHO's Service Availability and Readiness (SARA) surveys, and USAID's Service Provision Assessment (SPA) surveys often collect information on numbers of healthcare providers working at a nationally representative sample of facilities, which could be used to estimate total provider numbers and density. The World Bank's SDI health surveys go one step further by collecting information on the presence or absence of a sample of healthcare providers at their facility of employment during an unannounced visit, which helps illustrate effective availability of staff to deliver care.

What is the distribution of general service availability?

If the necessary data are available, PER authors can compare countries with their income peers or with neighboring countries using the indicators listed above to identify those high-performing countries from which others can learn. Similarly, making within-country comparisons of the above indicators over time and by geopolitical strata (for example, comparing urban versus rural areas, comparing different subnational administrative levels, or comparing among different catchment populations—stratified by income levels or other measures of degrees of vulnerability or marginalization, and so on.) can reveal areas of progress, disparities, and opportunities for improvement.

3 https://www.who.int/data/gho/data/indicators/indicators-index.
4 http://kmhfl.health.go.ke/.

Service-Specific Availability

KEY QUESTION • What is service-specific availability?

Availability applies not only to health facilities and health care providers but also to specific high-priority services that are needed to treat a country's burden of disease. PER authors must tailor their selection of service-specific indicators to reflect the population of and the disease priorities in each given context. As described above, WHO's UHC service coverage index uses the service-specific areas of reproductive, maternal, newborn, and child health; infectious diseases; and noncommunicable diseases (Hogan et al. 2017).

The indicators suggested below reflect key services and subservices within these areas (in addition to the availability of primary and inpatient care) but do not capture the effectiveness, safety, or quality of the services provided (this is covered in the "Quality of Care" module). To further define service-specific availability, WHO recommends measuring whether a facility provides a defined set of subservices. For example, the service-specific availability of family planning is defined as whether a facility provides a list of 13 tracer subservices (including male sterilization, injectable contraceptives, and female condoms) (WHO 2015). Depending on the context and the research questions, PER authors may choose to select the tracer subservices listed in Table 3.4.1 of WHO's SARA reference manual (WHO 2015). Importantly, the epidemiologic, demographic, and perhaps even income profile of each country will inform the selection of relevant indicators that reflect key context-specific priorities. For example, in countries that are not malaria-endemic, availability of diagnostic and treatment services for malaria may not be relevant, and instead other diseases or technologies may be prioritized.

Key Indicators	Sources
Total number and % of facilities providing the following reproductive, maternal, newborn, and child health services: 1. Family planning services 2. Antenatal care services 3. Intrapartum care (labor, delivery, and newborn) services including basic emergency obstetric and newborn care (BEmONC) services 4. Intrapartum care (labor, delivery, and newborn) services including comprehensive emergency obstetric and newborn care (CEmONC) services 5. Neonatal intensive care services 6. Child immunization services 7. Pediatric (sick child) care services	• Country-specific facility census (master facility list) and/or HMIS • Health facility surveys SDI, SARA, and SPA
Total number and % of facilities providing diagnostic and treatment services for the following infectious diseases: 1. Tuberculosis 2. HIV/AIDS 3. Malaria	• Country-specific facility census (master facility list) and/or HMIS • Health facility surveys SDI, SARA, and SPA
Total number and % of facilities providing diagnostic and treatment services for the following noncommunicable diseases/health conditions: 1. Cardiovascular diseases (including the management of chronic hypertension) 2. Diabetes 3. Cancer 4. Mental health 5. Health promotion and prevention services including tobacco control	
Total number and % of health facilities offering primary care	
Total number and % of health facilities offering inpatient care services: 1. Any inpatient care 2. Basic surgery 3. Blood transfusion	

Note: HMIS = health management information system; SARA = Service Availability and Readiness Assessment"; SDI = Service Delivery Indicators; SPA = Service Provision Assessment.

What is the distribution of service-specific availability?
If the necessary data are available, comparing countries with their income peers or with neighboring countries in terms of the indicators listed above can identify those high-performing countries from which others can learn. Similarly, PER authors can make within-country comparisons of the above indicators over time and by geopolitical strata (for example, comparing urban versus rural areas, comparing different subnational administrative levels, or comparing among different catchment populations—stratified by income levels or other measures of degrees of vulnerability or marginalization, and so on.) to reveal areas of progress, disparities, and opportunities for improvement.

General Service Readiness

KEY QUESTION • **What is general service readiness?**

The general service readiness of health facilities relates to their capacity to provide services that meet at least minimum standards, which depends on the availability of basic amenities, equipment, supplies, and medicines. While the list of key indicators below is derived from WHO's recommended tracer items for general service readiness (O'Neill et al. 2013), the specific items (in the table notes) must be adapted to each country's context. Specifically, the epidemiologic, demographic, and even income profile of each country will inform the selection of relevant indicators that reflect key context-specific priorities. For example, in countries that are not malaria-endemic, availability of blood smear or rapid test for malaria may not be relevant, and instead other commodities may be prioritized. As another example, in settings where electrification is universal, tracking availability of other amenities may be prioritized.

Key Indicators	Sources
Total number and % of facilities with available and functioning basic amenities and equipment*	• Supply-chain management information system or health management information system (HMIS) • Health facility surveys SDI, SARA, or SPA
Total number and % of facilities meeting basic infection prevention and control standards**	
Total number and % of facilities with basic diagnostic (laboratory and testing) capacity***	
Total number and % of facilities meeting the minimum standard for essential medicines and commodities†	
Total number and % of facilities: (1) with basic amenities and equipment; (2) meeting basic infection prevention and control standards; (3) with basic diagnostic capacity; and (4) with essential medicines and commodities	

Note: *Amenities: electric power; improved water source within 500 meters of facility; room with auditory and visual privacy for patient consultations; adequate sanitation facilities for clients; communication equipment (phone or shortwave radio); computer with email/internet access; emergency transportation. Equipment: weighing scales (child, adult); thermometer; stethoscope; blood pressure apparatus; light source; refrigerator.
**Infection prevention and control standard: safe final disposal of sharps, safe final disposal of infectious wastes; appropriate storage of sharps, appropriate storage of infectious waste; disinfectant; single-use standard disposable or auto-disposable syringes; soap and running water or alcohol-based hand rub; latex gloves; guidelines.
***Diagnostic capacity: blood hemoglobin; blood glucose; blood smear or rapid test for malaria parasites; urine dipstick protein; urine dipstick glucose; HIV antibody test; syphilis rapid test; urine pregnancy test.
† Essential medicine: amoxicillin, atenolol, captopril, ceftriaxone, ciprofloxacin, co-trimoxazole suspension, diazepam, diclofenac, glibenclamide, omeprazole, amitriptyline, paracetamol suspension, salbutamol, simvastatin.
SARA = Service Availability and Readiness Assessment"; SDI = Service Delivery Indicators; SPA = Service Provision Assessment.
For more information: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3845262/pdf/BLT.12.116798.pdf and https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3845262/.

What is the distribution of general service readiness?

If the necessary data are available, PER authors can compare countries with their income peers or with neighboring countries in terms of the indicators listed above to identify those high-performing countries from which others can learn. Similarly, making within-country comparisons of the above indicators over time and by geopolitical strata (for example, comparing urban versus rural areas, comparing different subnational administrative levels, or comparing among different catchment populations—stratified by income levels or other measures of degrees of vulnerability or marginalization, and so on.) can reveal areas of progress, disparities, and opportunities for improvement.

Service-Specific Readiness

KEY QUESTION • What is service-specific readiness?

The readiness of health facilities to provide key high-priority services depends on the availability of trained staff and clinical guidelines, equipment, diagnostics, and medicines and commodities for each of these services. As with service-specific availability, while which tracer items are relevant will depend substantially on the context, key areas of interest may include reproductive, maternal, newborn, and child health; infectious diseases; and non-communicable diseases (Hogan et al. 2017). The list of suggested key indicators below is drawn from WHO's list of tracer guidelines on the equipment, diagnostics, medicines, and commodities needed for each service. For example, family planning service-specific readiness is defined as whether a facility has a list of eight tracer items (including guidelines on family planning, staff trained in family planning, blood pressure apparatus, and contraceptive pills) (WHO 2015). Table 3.4.1 of WHO's SARA reference manual provides the specific tracer items (WHO 2015), counts of which are provided in the table below. The suggested indicators in the table include the percentage of health facilities that have all tracer items for each service (for example, all eight in the case of family planning services) and the mean number of items for each service across all health facilities. Again, the epidemiologic, demographic, and even income profile of each country will inform the selection of relevant indicators that reflect key context-specific priorities. For example, in countries that are not malaria-endemic, the tracer indicators for malaria may not be relevant, and instead other tracer indicators may be prioritized.

What is the distribution of service-specific readiness?

If the necessary data are available, comparing countries with their income peers or with neighboring countries using the indicators listed above can identify those high-performing countries from which others can learn. Similarly, PER authors can compare within-country the above indicators over time and by geopolitical strata (for example, comparing urban versus rural areas, comparing different subnational administrative levels, or comparing among different catchment populations—stratified by income levels or other measures of degrees of vulnerability or marginalization, and so on) to reveal areas of progress, disparities, and opportunities for improvement.

Key Indicators		Sources
% of facilities providing the following reproductive, maternal, newborn, and child health services that achieve all tracer indicators and the mean number of tracer indicators achieved:	1. Family planning services (8) 2. Antenatal care services (11) 3. Intrapartum care (labor, delivery, and newborn) services including basic emergency obstetric and newborn care (BEmONC) services (25) 4. Intrapartum care (labor, delivery, and newborn) services including comprehensive emergency obstetric and newborn care (CEmONC) services (20) 5. Child immunization services (18) 6. Pediatric (sick child) care services (19)	• Country-specific facility census (master facility list) and/or HMIS • Health facility surveys (SDI, SARA, and SPA)
% of facilities providing diagnostic and treatment services for the following noncommunicable diseases/health conditions that achieve all tracer indicators and the mean number of tracer indicators achieved:	1. Tuberculosis (12) 2. HIV clinical and supportive care* (24) 3. Malaria (9)	
% of facilities providing diagnostic and treatment services for the following noncommunicable diseases/health conditions that achieve all tracer indicators and the mean number of tracer indicators achieved:	1. Cardiovascular diseases (including chronic hypertension) (12) 2. Diabetes (13) 3. Cancer** 4. Mental health*** 5. Health promotion and prevention services including tobacco control†	
% of facilities providing secondary and tertiary level care for inpatients that achieve all tracer indicators and the mean number of tracer indicators achieved:	1. Basic surgery (17) 2. Blood transfusion (7)	

Note: *HIV clinical and supportive care readiness indicators for "care and support services," "antiretroviral prescription and client management," and "prevention of mother to child transmission (PMTCT) services."
**WHO's SARA survey does not currently list the requirements for specific cancer service readiness, except for cervical cancer; in the absence of such guidance, based on a country's burden of disease and national guidelines, the readiness indicators should include appropriate tracer items for staff and clinical guidelines, equipment, and diagnostics.
***WHO's SARA survey does not include mental health, despite its importance; in the absence of guidance, based on a country's burden of disease and national guidelines, the readiness indicators should include appropriate tracer items for staff and clinical guidelines, equipment, and diagnostics.
†Tracer items for health promotion and prevention services for staff and clinical guidelines, equipment, and diagnostics should be adapted based on national guidelines and treatment and counseling protocols.
HMIS = health management information system; "SARA = Service Availability and Readiness Assessment"; SDI = Service Delivery Indicators; SPA = Service Provision Assessment.

References

Boniol, M., M. McIsaac, L. Xu, T. Wuliji, K. Diallo, and J. Campbell. 2019. "Gender Equity in the Health Workforce: Analysis of 104 Countries." Health Workforce Working Paper 1. World Health Organization. https://apps.who.int/iris/bitstream/handle/10665/311314/WHO-HIS-HWF-Gender-WP1-2019.1-eng.pdf.

Hogan, D.R., G.A. Stevens, A.R. Hosseinpoor, and T. Boerma. 2017. "Monitoring Universal Health Coverage within the Sustainable Development Goals: Development and Baseline Data for an Index of Essential Health." *Lancet Global Health*, 6: e152–68. https://www.thelancet.com/action/showPdf?pii=S2214-109X%2817%2930472-2.

O'Neill, K., M. Takane, A. Sheffel, C. Abou-Zahr, and T. Boerma. 2013. "Monitoring Service Delivery for Universal Health Coverage: The Service Availability and Readiness Assessment." *Bulletin of the World Health Organization*, 91(12): 923–31. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3845262/.

Penchansky, R., and J.W. Thomas. 1981. "The Concept of Access: Definition and Relationship to Consumer Satisfaction." *Medical Care*, 19(2): 127–40. https://pubmed.ncbi.nlm.nih.gov/7206846/.

World Health Organization. 2015. *Service Availability and Readiness Assessment (SARA): An Annual Monitoring System for Service Delivery Reference Manual*. 2015. Geneva: World Health Organization. https://cdn.who.int/media/docs/default-source/service-availability-and-readinessassessment(sara)/sara_reference_manual_chapter3.pdf?sfvrsn=7a0f3a33_3&ua=1.

Wyszewianski, L. 2002. "Access to Care: Remembering Old Lessons." *Health Services Research*, 37(6): 1441–43. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1464050/.

ADDITIONAL GUIDANCE 4

QUALITY OF HEALTH SERVICES

AUTHORS

Ian Forde and Lubina Fatima Qureshy

Introduction

This additional guidance is designed to collect information on the quality of care in the delivery of health services, and highlights the key questions and potential indicators needed to measure the effectiveness and equity of care.

It is estimated that high-quality care can avert 2.5 million deaths from cardiovascular disease, nearly a million deaths from tuberculosis, and as many as half of all maternal and a million newborn deaths annually. In low- and middle-income countries, three-fifths of deaths from conditions that require health care are attributable to poor-quality care. In high-income countries, an estimated 7 percent of all hospitalized patients acquire a health care-related infection (WHO 2020a).

Recognizing this, there has been a recent paradigm shift to addressing health care through the lens of quality of care rather than service provision alone. The expansion of population health programs to improve coverage subsumed quality in service provision. Health indicators may not respond favorably to increased coverage without also assuring quality. Users of health services would then lose confidence in such substandard services and therefore avoid them (see, for example, Hanefield et

al. 2017). Thus, quality of care should be aimed at quality of health services or improvements in health outcomes rather than simply increasing the quantity of health services (Peabody et al. 2006). Poor quality of services is wasteful and has a high opportunity cost in terms of diverting resources from other pressing needs such as funding schools, providing social assistance, and enhancing infrastructure. In effect, the burden of waste contributes to discounting human capital and reducing future productivity. Embedding quality in health systems is affordable for all countries, regardless of their level of economic development (WHO, OECD, and World Bank 2018).

However, precisely defining "quality of care" is as challenging as identifying ways to measure it. Measures of quality of care are multifaceted, spanning different levels of care and different country settings. This guidance considers measurable characteristics of health care quality alongside indicators in the areas of effectiveness, safety, timeliness, and responsiveness. Indicators for other aspects related to quality such as integration, equity, and efficiency are presented in other modules in this series including the Primary Health Care and Public Health Services and Hospital modules.

The indicators listed under the key questions include those that are more relevant to low- and middle-income countries that align with SDG indicators. Key question indicators also include those that are relevant to all countries but may currently lack organized data collection, especially in low- and middle-income countries. For each of the key questions discussed below, PER authors should use relative comparators, such as cross-country or regional comparisons and benchmarking, where possible in order to enrich the analysis and make the measures easier to interpret. Country monitoring should also bear in mind the Donabedian framework, striving to continually improve structures and processes to produce better outcomes, rather than just focusing on values of indicators (Donabedian 1966; Berwick and Fox 2016).

Input Quality

KEY QUESTION • Are health services effective?

Effectiveness refers to health care that is delivered in accordance with scientific knowledge and evidence-based guidelines, subject to the availability of basic structures—physical infrastructure, including electricity, water and sanitation, and health care buildings; adequate health workforce; medicines and other related health products; as well as functioning health information systems (WHO and UNICEF 2022). Ineffective care may occur because evidence and/or guidelines do not exist in a given setting, because the provider of care may not know about them or may choose not to comply with them. Ineffective care is likely to waste inputs and unlikely to improve outcomes such as health risk and health status, thereby jeopardizing public spending.

Key Indicators	Sources
Diagnostic accuracy provided in five clinical vignettes	• SDI surveys[1] for low- and middle-income countries
Adherence to clinical guidelines	• SDI surveys for low- and middle-income countries
Treatment accuracy	• SDI surveys for low- and middle-income countries
Control of glycemia during pregnancy	• In-country studies and surveys • KIIs
Excess mortality for patients diagnosed with a severe mental illness	• OECD.Stat for OECD countries and selected nonmember countries
Cholera case fatality rate in endemic countries	• WHO Global Health Observatory, https://www.who.int/data/gho/data/indicators/indicators
Use of antibiotics to treat diarrhea	• Demographic and health surveys in low- and middle-income countries*

Note: * "Use of antibiotics to treat diarrhea" is an indicator of safety as well as effectiveness of health services. KII = key informant interview; OECD = Organisation for Economic Co-operation and Development; SDI = service delivery indicators; WHO = World Health Organization.

1 Since 2010, 26 SDI surveys have been completed in 12 countries in Africa. The surveys are planned for a number of other African countries. Data collection for the first SDI surveys in Latin America (Guatemala), East Asia and Pacific (Indonesia), Europe and Central Asia (Armenia, Moldova, and Ukraine), Middle East and North Africa (Iraq), and South Asia (Bhutan) are underway or being considered (https://www.sdindicators.org/faq).

PER authors can consider the analysis in this section in conjunction with the additional guidance on Service Readiness and Availability, which suggests data on the quantity and quality of health personnel and the availability of basic equipment, as well as the module on Primary Health Care.

Depending on the scope of the country's PER, in addition to the indicators listed above, PER authors can assess the effectiveness of care by inspecting facilities' medical records, patient exit interviews, direct observation of provider-client interactions, standardized patients, or clinical vignettes. While clinical vignettes measure a provider's knowledge of evidence-based protocols for defined medical cases, other forms of measurement predominantly capture compliance with these guidelines. In particular, standardized patients provide consistent cases of illness to providers and allow for comparison of quality of care across providers.

The indicator antibiotic treatment for diarrheal disease is included to assess effectiveness and safety. In order to indicate inappropriate use (overuse or underuse) of antibiotics to treat diarrhea, PER authors may need to benchmark the data against statistics or studies in the literature. For example, a study in Kenya found that antibiotics were prescribed in 20–50 percent of diarrhea cases that did not warrant this treatment (Rhee et al. 2019). Authors can also evaluate indicators for other public health programs in the country. These may include the cholera case fatality rate for countries that are endemic.

KEY QUESTION • Are health services Safe?

Safe care minimizes harm, including health care-acquired infections (such as a urinary tract infection from a poorly maintained urinary catheter), preventable injuries (such as a fall in a health care setting), and preventable medical errors on the patient (such as wrong-site surgery). Unsafe care is likely to worsen outcomes such as health status and may be wasteful if additional inputs or resources are needed to address the impacts of a preventable error. For example, safety failures contribute to about 15 percent of hospital expenses in OECD countries. Often, the cost of safety failures is higher than the cost of prevention. Estimates suggest a savings of US$28 billion between 2010 and 2015 in the US in Medicare hospitals that improved patient safety. In low- and middle-income countries, at least a third of the adverse events occur in noncomplex situations and a majority of these are likely avoidable (Institute of Medicine 2001; Slawomirski et al. 2017).

Key Indicators	Sources
Overall volume of opioids prescribed	• OECD.Stat for OECD countries and selected non-member countries
Total volume of antibiotics for systemic use	• OECD.Stat for OECD countries and selected non-member countries
Domain score for standard precautions for infection prevention	• SARA, WHO (metadata archive under development)

Note: OECD = Organisation for Economic Co-operation and Development; SARA = Service Availability and Readiness Assessment; WHO = World Health Organization.

There are limited and often low-quality data available for indicators of the provision of safe health services in low- and middle-income countries. More recently, WHO has used data from the Service Availability and Readiness Assessment (SARA). However, the metadata archive was under development at the time of writing this report.

PER authors can also consider additional indicators of safety such as a surgical item left behind, other post-operative complications such as embolisms after knee/hip replacement surgery, wound dehiscence or sepsis, and obstetric trauma after delivery. Data on these are available in some settings, including many OECD countries. Countries with good adverse-event reporting systems may additionally have data on medical errors.

Additionally, data on health-care associated infections could be considered, as discussed in the Hospitals module. Although there is a paucity of data on health care-associated infections for low- and middle-income countries, a recent analysis reports infection rates between 17 and 33 percent in some countries (Maki and Zervos 2021). Authors can use data from key informant surveys or interviews to enrich their analysis and look for in-country studies to inform this part of the PER.

KEY QUESTION • Are health services timely?

Beyond reducing unnecessary delays in providing and receiving services, most importantly, timely care means recognizing situations requiring urgent intervention as quickly as possible and taking appropriate action, thus preventing avoidable hospital conditions. Conversely, delaying less urgent services may be justified if a reasonable waiting time allows planning and delivering services in a more financially sustainable manner. Care that is excessively delayed risks worsening a patient's health status and/or health risk. Further, the health care service is ultimately less effective (if a patient's condition has deteriorated), implying ineffective public spending. The following table presents indicators of timely noncommunicable disease (NCD) care.

Key Indicators	Sources
Adults with up-to-date NCD screening	• Check for in-country studies and data
Proportion of cancer cases treated in early stages	• Check for in-country studies and data • Also see Global Cancer Observatory data (https://gco.iarc.fr/projects) for all countries and the SURVCAN project for low- and middle-income countries (https://survival.iarc.fr/survcan)
Cancer five-year net survival rate (for different types)	• OECD.Stat for OECD countries and selected nonmember countries

Note: NCD = noncommunicable disease; OECD = Organisation for Economic Co-operation and Development; SURVCAN = Cancer Survival in Countries in Transition.

The availability of data to measure delivery timeliness is skewed toward OECD countries. PER authors need to check for in-country data and studies for low- and middle-income countries; the WHO Global Cancer Observatory recently began collecting data on cancer survival in low- and middle-income countries. Its website also contains data on cancer rates in individual countries; these data can be compared with the regional or global averages to assess quality of care. Although the focus of the Cancer Survival in Countries in Transition (SURVCAN) project of the WHO International Agency for Research on Cancer, is to measure the effectiveness of cancer services, this could also be used as an indicator of delivery timeliness, as timely initiation of treatment is critical for cancer survival (see, for example, Stokstad et al. 2021). PER authors should note, however, that SURVCAN-3, the third project initiative, was recently launched and data are sparse.

In countries with good hospital information systems, there may also be data on things like the administration of oxytocin right after vaginal delivery to prevent hemorrhage or timeliness of surgery for a hip fracture after a patient is admitted. PER authors can consider these types of indicators after discussion with the country clinical authorities if reliable data on them are available.

KEY QUESTION Are health services integrated?

Integrated care is coordinated across the different providers a patient interacts with during an episode of care as well as throughout the life course. This may include both health and social care, and is particularly important for the increasing burden of NCDs. The complex and chronic needs associated with NCDs require a cohesive team of professionals, each performing individual tasks. Poorly integrated care jeopardizes public spending, mainly through wasteful inputs (redundant investigations or incompatible treatment plans, for example), and also risks a patient's worsening health if care is ineffective. PER authors can learn more about indicators related to service integration in the Hospitals and Primary Health Care and Public Health Services modules.

KEY QUESTION Are health services responsive to people's needs?

Key Indicators	Sources
Community engagement efforts	• Check for in-country case studies

Note: OECD = Organisation for Economic Co-operation and Development.

Patient-centeredness care respects and responds to a patient's preferences, needs, and values. Care that is not patient centered may have negative impacts on public spending if a patient is unwilling or unable to comply with a treatment plan prescribed without considering patient preferences, needs, and values. More information about this is presented in the Primary Health Care and Public Health Services module. Community engagement can also be a part of responsiveness and implies involving different stakeholders who work together to (1) address health-related issues, enabling changes in behaviors and practices within communities; and (2) promote their involvement in public health programs, resulting in programs that address people's needs. There is evidence to support the role of community engagement in reducing inequities, improving benefits, and sharing responsibility toward public health (Yuan et al. 2021). PER authors can provide qualitative information on responsiveness and community engagement, including case studies, where specific indicators are not available. For example, in the rural highlands of Guatemala, the engagement of and consultation with traditional community birth attendants helped to establish the correct location of birthing facilities. The centers were set up close to patients' homes. The staff at the facility were also employed from the community, providing a sense of ownership; spoke the local dialect; and respected the local culture.

KEY QUESTION Do different population groups have access to quality care?

High-quality health care needs to be available and affordable for all people, regardless of underlying social disadvantages. Equitable health care does not vary according to demographic characteristics such as gender, race, ethnicity, geographic location, and socioeconomic status. It should be closely linked to patient-centeredness and should show concern for individuals' or groups' values and preferences. Inequitable care can jeopardize public spending, because inequity is closely tied to efficiency. Healthier populations need less health care. Patients' inability to access and use health care services in a timely manner, however, could lead to excess spending on emergency services and later treatment, which preventive care and early intervention could avoid (see, for example, Asamani et al. 2021). Indicators related to equity are presented in other modules in this series, including the Service Coverage and Primary Health Care and Public Health Services modules.

References

Asamani, J.A., S.A. Alugsi, H. Ismaila, and J. Nabyonga-Orem. 2021. "Balancing Equity and Efficiency in the Allocation of Health Resources—Where Is the Middle Ground?" *Healthcare*, 9(10): 1257. https://doi.org/10.3390/healthcare9101257.

Berwick, Donald, and Daniel M. Fox. 2016. "Evaluating the Quality of Medical Care: Donabedian's Classic Article 50 Years Later." *The Milbank Quarterly*, 94(2): 237–41. Published online June 6. doi: 10.1111/1468-0009.12189. PMCID: PMC4911723PMID: 27265554. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4911723/.

Donabedian, A. 1966. "Evaluating the Quality of Medical Care." *The Milbank Memorial Fund Quarterly*, 44(3) (suppl): 166–206. Reprinted in *The Milbank Quarterly*, 2005, 83(4): 691–729.

Institute of Medicine. 2001. *Crossing the Quality Chasm: A New Health System for the 21st Century*. Committee on Quality of Health Care in America. Washington, DC: National Academies Press.

Maki, G., and M. Zervos. 2021. "Health Care-Acquired Infections in Low- and Middle-Income Countries and the Role of Infection Prevention and Control." *Infectious Disease Clinics of North America*, 35(3): 827–39. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8331241/.

Peabody, J., R. Shimkhada, O. Adeyi, H. Wang, E. Broughton, et al. 2018. "Quality of Care," chapter 10. In: D.T. Jamison, H. Gelband, S. Horton, P. Jha, R. Laxminarayan, C.N. Mock, and R. Nugent (editors). *Disease Control Priorities* (Third Edition), Volume 9: *Improving Health and Reducing Poverty*. Washington, DC: World Bank.

Rhee, C., G. Aol, A. Ouma, et al. 2019. "Inappropriate Use of Antibiotics for Childhood Diarrhea Case Management—Kenya, 2009–2016." B*MC Public Health*, 19 (Suppl 3): 468. https://doi.org/10.1186/s12889-019-6771-8.

WHO. 2018. *Handbook for National Quality Policy and Strategy: A Practical Approach for Developing Policy and Strategy to Improve Quality of Care*. Geneva: World Health Organization. https://www.who.int/publications/i/item/9789241565561.

WHO. 2020a. "Quality Health Services." Fact Sheet. World Health Organization. https://www.who.int/news-room/fact-sheets/detail/quality-health-services.

WHO. 2020b. "Newborns: Improving Survival and Well-Being," Fact Sheet. World Health Organization. https://www.who.int/news-room/fact-sheets/detail/newborns-reducing-mortality.

WHO. 2020c. *Community Engagement: A Health Promotion Guide for Universal Health Coverage in the Hands of the People*. Geneva: World Health Organization. License: CC BY-NC-SA 3.0 IGO. https://www.who.int/publications/i/item/9789240010529.

WHO. 2022. The Global Health Observatory: "Composite Coverage Index (%) (Health Inequality Monitor)." https://www.who.int/data/gho/indicator-metadata-registry/imr-details/4489. Accessed October 12, 2022.

WHO, OECD, and World Bank. 2018. *Delivering Quality Health Services: A Global Imperative for Universal Health Coverage*. Geneva: World Health Organization, Paris: Organisation for Economic Co-operation and Development, Washington, DC: World Bank.

WHO and UNICEF. 2022. *Primary Health Care Measurement Framework and Indicators: Monitoring Health Systems through a Primary Health Care Lens*. Geneva: World Health Organization; New York: United Nations Children's Fund. https://www.who.int/publications/i/item/9789240044210.

Yuan, M., H. Lin, H. Wu, et al. 2021. "Community Engagement in Public Health: A Bibliometric Mapping of Global Research." Archives of Public Health, 79(6). https://archpublichealth.biomedcentral.com/articles/10.1186/s13690-021-00525-3.

OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
4 SECTION 4 Additional Guidance
Additional Guidance 1
Additional Guidance 2
Additional Guidance 3
Additional Guidance 4
Additional Guidance 5
Additional Guidance 6
List of Acronyms

ADDITIONAL GUIDANCE 5

GUIDING PRINCIPLES FOR CRAFTING IMPACTFUL RECOMMENDATIONS IN PUBLIC EXPENDITURE REVIEWS

The key to driving change is maintaining a strong focus. The Human Development PER guidelines (2004) identified that many Bank Public Expenditure Reviews (PERs) suffer from a lack of prioritization, resulting in a lengthy list of important issues that neither the client nor the Bank can effectively address.[1] While providing multiple recommendations can be useful for technical staff, policymakers and the Bank should concentrate on a limited number of critical issues— the Human Development guidance recommends around three. Identifying these key areas where progress will be most impactful is essential for resolving public expenditure challenges in the sector. In addition to having a limited number of prioritized recommendations, generic recommendations that do not include specific actionable strategies and policies to achieve the intended goal should be avoided. When making recommendations teams may find it useful to check their write-up against the SMART acronym, ensuring that recommendations are:

- **Specific:** A specific recommendation identifies exactly what is to be achieved, by whom, and in what context or timeline.
- **Measurable:** A measurable recommendation includes criteria for measuring progress and outcomes, ensuring that it is possible to track and evaluate the success of the action.
- **Actionable:** An actionable recommendation provides clear steps that can be taken and specifies who is responsible for carrying out these actions.
- **Realistic and feasible:** Feasible and achievable given the available resources, constraints, and context, including political viability. A realistic recommendation considers the practical limitations and ensures that the goals set can be attained.
- **Technical:** Based on sound technical knowledge, expertise, and principles. A technical recommendation relies on evidence-based practices and scientific or technical data to ensure its validity and effectiveness. Recommendations should be clearly linked to the challenges identified in the PER.

1 Abu-Ghaida, D. N., Berryman, S. E., Chernichovsky, D., Grosh, M. E., & Lundberg, M. K. A. (2004). Guidelines for public expenditure reviews in the human development sectors*. Office of the Chief Economist, HDNVP. World Bank

OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
4 SECTION 4 Additional Guidance
Additional Guidance 1
Additional Guidance 2
Additional Guidance 3
Additional Guidance 4
Additional Guidance 5
Additional Guidance 6
List of Acronyms

ADDITIONAL GUIDANCE 6

HEALTH EXPENDITURE DATA SOURCES

NOTE FORTHCOMING

OVERVIEW
1 SECTION 1 What Is a Health PER?
2 SECTION 2 Cross-Cutting Analysis on Efficiency and Equity
3 SECTION 3 Topic-Specific Analysis
4 SECTION 4 Additional Guidance
Additional Guidance 1
Additional Guidance 2
Additional Guidance 3
Additional Guidance 4
Additional Guidance 5
Additional Guidance 6
List of Acronyms

ACRONYMS

BEmONC
Basic Emergency Obstetric and Newborn Care

CEmONC
Comprehensive Emergency Obstetric and Newborn Care

GDP
Gross Domestic Product

GHED
Global Health Expenditure Database

GHO
Global Health Observatory

GNI
Gross National Income

HLMA
Health Labour Market Analysis

HMIS
Health Management Information System

NCD
Noncommunicable Disease

NGO
Nongovernmental Organization

OECD
Organisation for Economic Co-operation and Development

SARA
Service Availability and Readiness Assessments

SDI
Service Delivery Indicators

SPA
Service Provision Assessment

SURVCAN
Cancer Survival in Countries in Transition

TB
Tuberculosis

UHC
Universal Health Coverage

UNICEF
United Nations Children's Fund

USAID
United States Agency for International Development

WHO
World Health Organization