

Progress and Challenges with Achieving Universal Immunization Coverage

2023 WHO/UNICEF Estimates of National Immunization Coverage (WUENIC)

Sources:

- Member State reports to WHO and UNICEF up to 1 July 2024
- The 2024 World Bank Development Indicators Online
- United Nations, Population Division, 2024 revision

Estimates as of July 15, 2024



World Health
Organization

unicef 

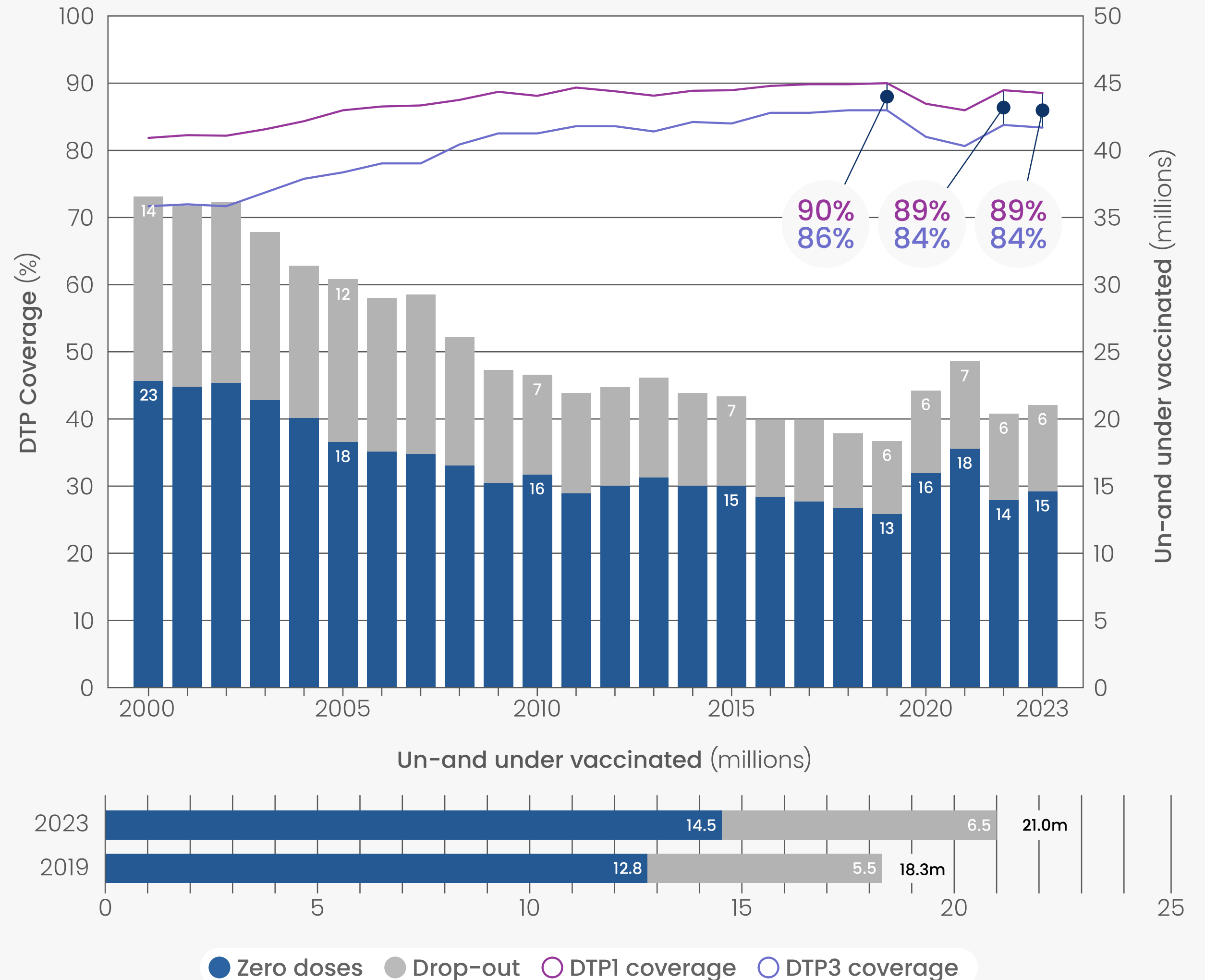
The UNICEF logo, which consists of a stylized figure of a mother holding a child, set against a globe, all within a laurel wreath.

DTP immunization coverage is flat compared to 2022, and the number of “zero-dose” children is still higher than in 2019, before the pandemic

There was no meaningful change in coverage compared to 2022. Performance was not yet restored to 2019 levels – the baseline value for the Immunization Agenda 2030.

The number of completely unvaccinated children (“zero-dose”) is slightly up from last year (by 600 thousand from 13.9m to 14.5m) and is still 1.7 m higher than in 2019.

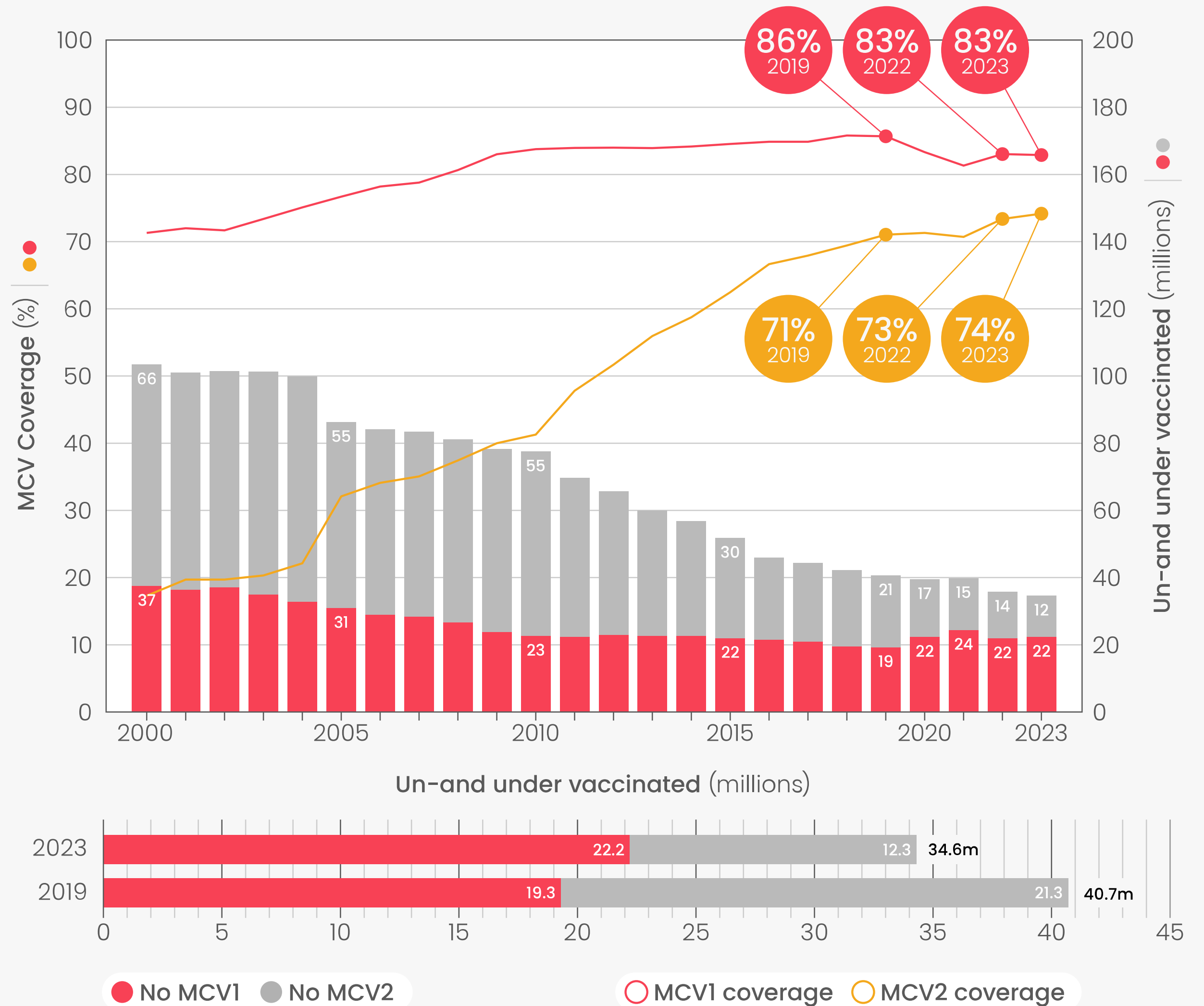
Some children also “drop out”, i.e. receive a first but not a third protective dose of DTP. The total number of un- and under-immunised children stands at 21m in 2023, 2.7m above the baseline value.



MCV immunization coverage and unimmunized children are similar to 2022 levels, not yet recovered to 2019 levels

There was no meaningful change in coverage or in the number unimmunized children for measles. Global coverage for MCV1 was not yet restored to 2019 levels, and the number of children who missed a first dose of measles vaccine in 2023 was 2.9m higher than in 2019.

Continued introduction of a second dose of measles led to further improvement in MCV2 coverage.



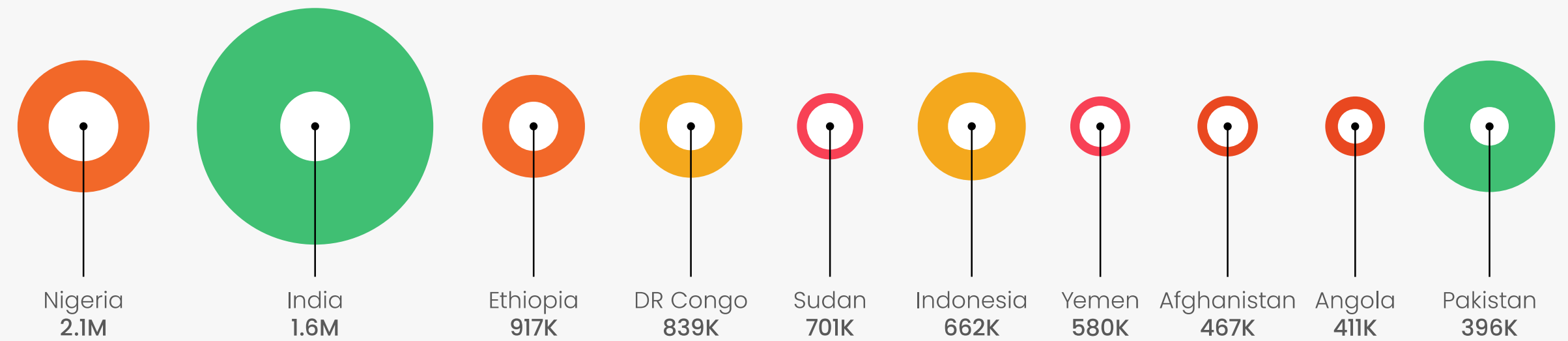
10 countries account for 59% of "zero dose children*". 3 of these are also in the list of 10 countries with lowest DTP1 coverage.

The countries with most zero dose children is a mix of those with large birth cohorts, weak health systems, or both. New in this list in 2023 are countries afflicted by conflict, like Sudan, Yemen, and Afghanistan.

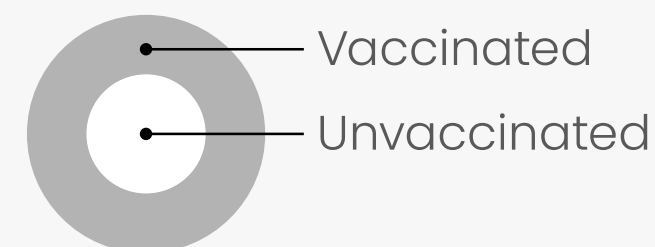
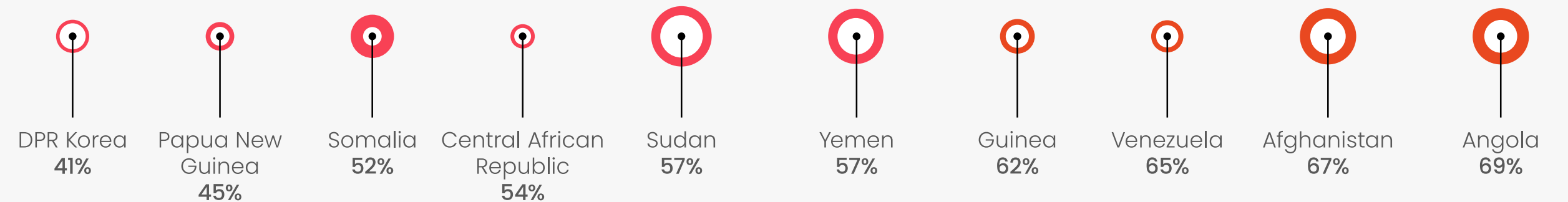
Additionally, some smaller countries have even lower coverage.

** Zero dose Children are those that were consistently missed and did not receive any vaccine in 2023. Operationally, their number is estimated through the number of children who missed DTP1*

No DTP1 (zero dose)



Countries with lowest DTP1 coverage



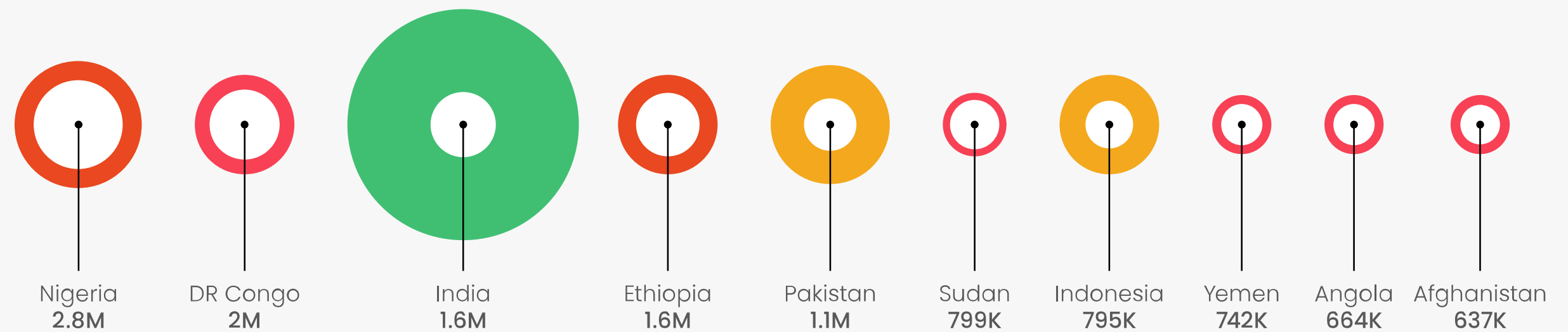
Coverage according to legend, circles sized to numbers of vaccinated and unvaccinated children.

10 countries accounted for 55% of children without a measles vaccine. 3 of these are also among 10 countries with lowest MCV1 coverage.

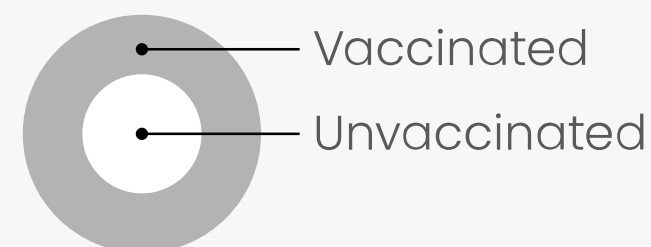
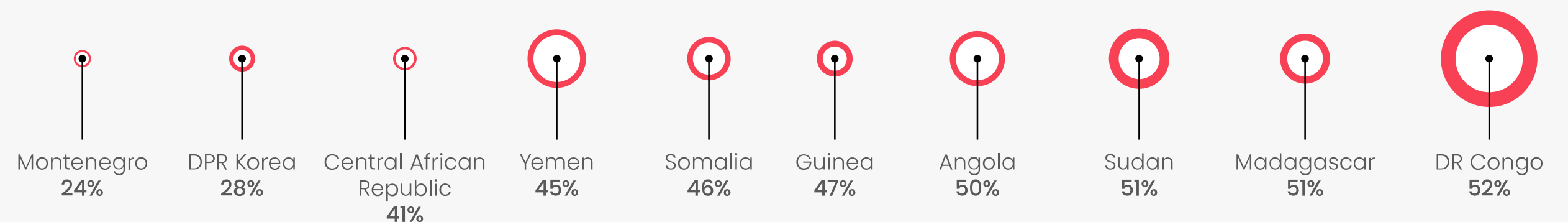
The countries with most “measles zero dose” children is a mix of those with large birth cohorts, weak health systems, or both. New in this list in 2023 are countries afflicted by conflict, like Sudan, Yemen, and Afghanistan.

Additionally, some smaller countries have even lower coverage.

No measles vaccine



Countries with lowest MCV1 coverage



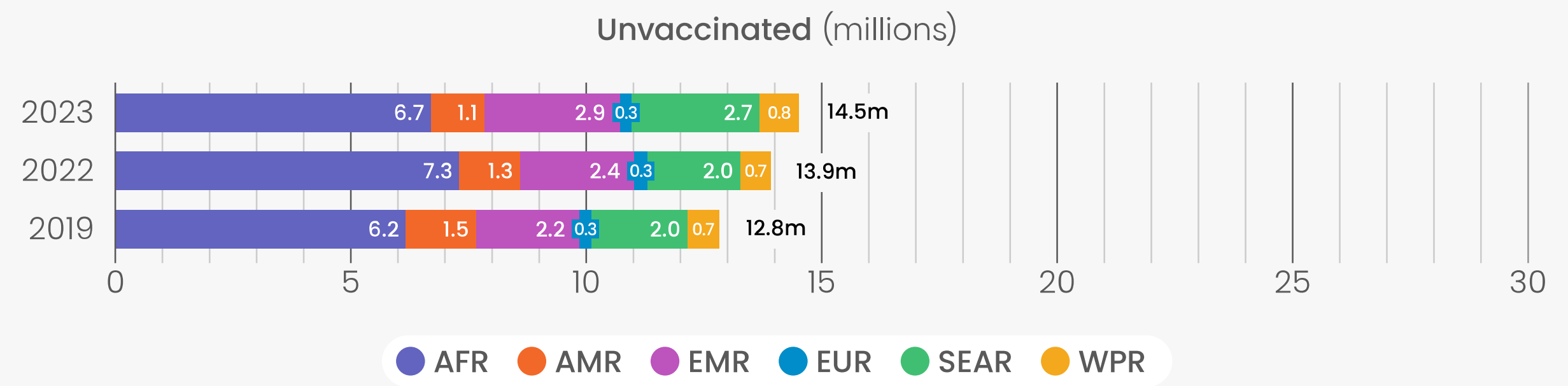
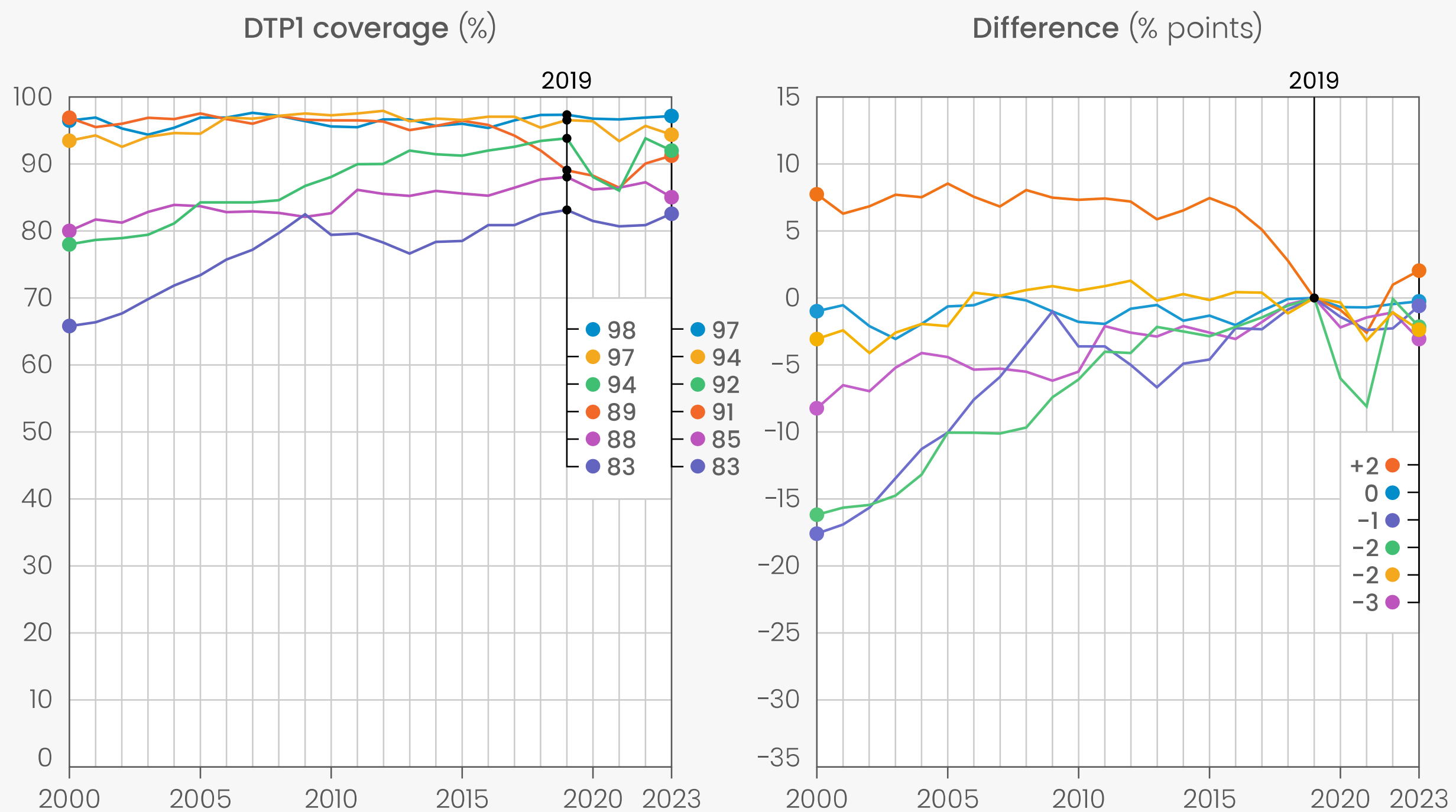
Coverage according to legend, circles sized to numbers of vaccinated and unvaccinated children.

DTP1 coverage varies across WHO regions, with the African region making the best progress in 2023

AFR sees the largest improvement although it remains the region with the lowest coverage. AMR achieves higher coverage, driven by robust recovery in select countries in the region.

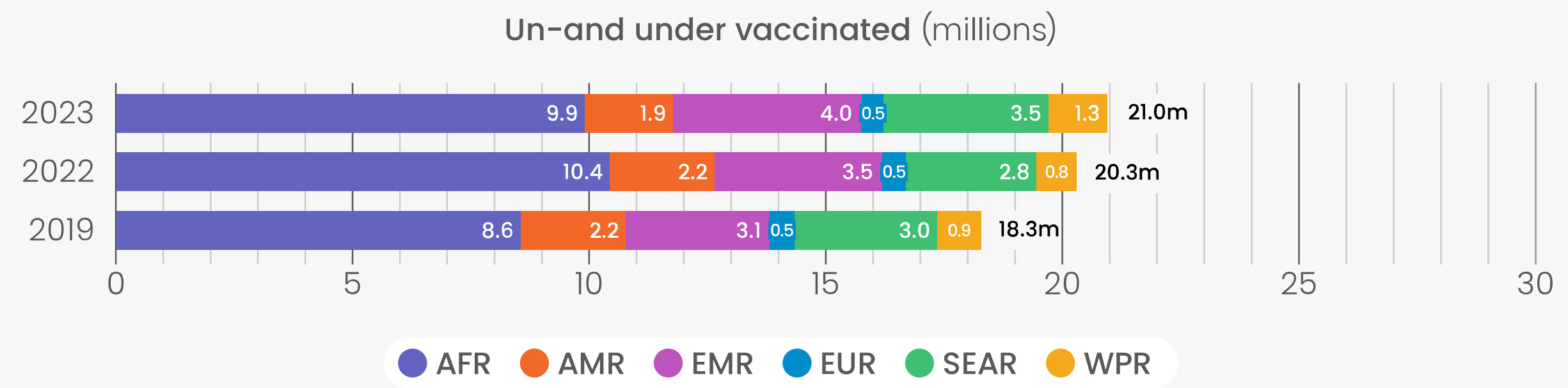
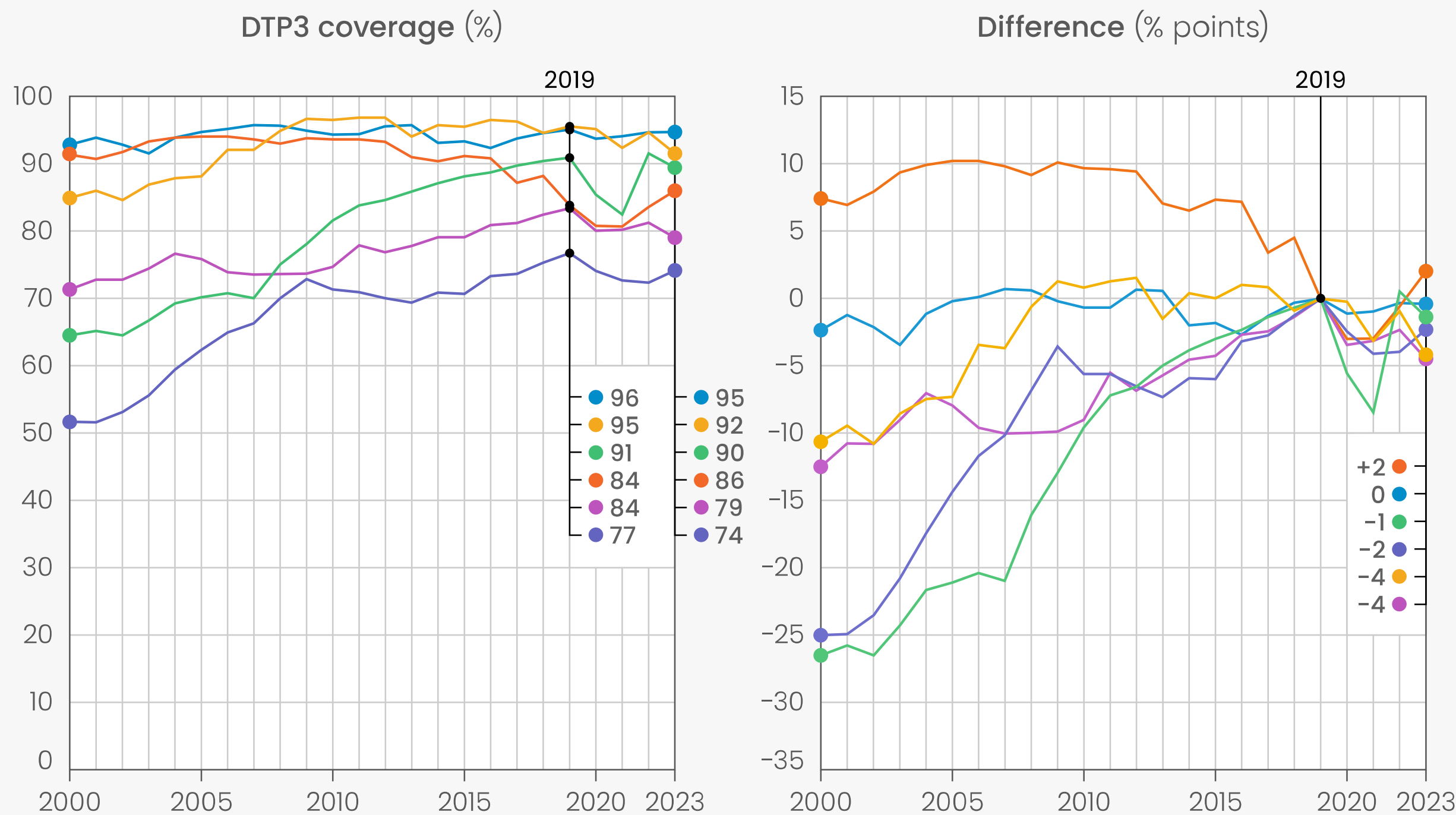
Conflict in EMR led to a concerning drop in coverage in 2022. Coverage in WPR remains high, although a longer-term erosion of historically very high coverage is apparent.

Most zero dose children reside in AFR, followed by SEAR and EMR.



DTP3 coverage is significantly lower than DTPI in the African and the Eastern Mediterranean regions, reflecting higher drop out

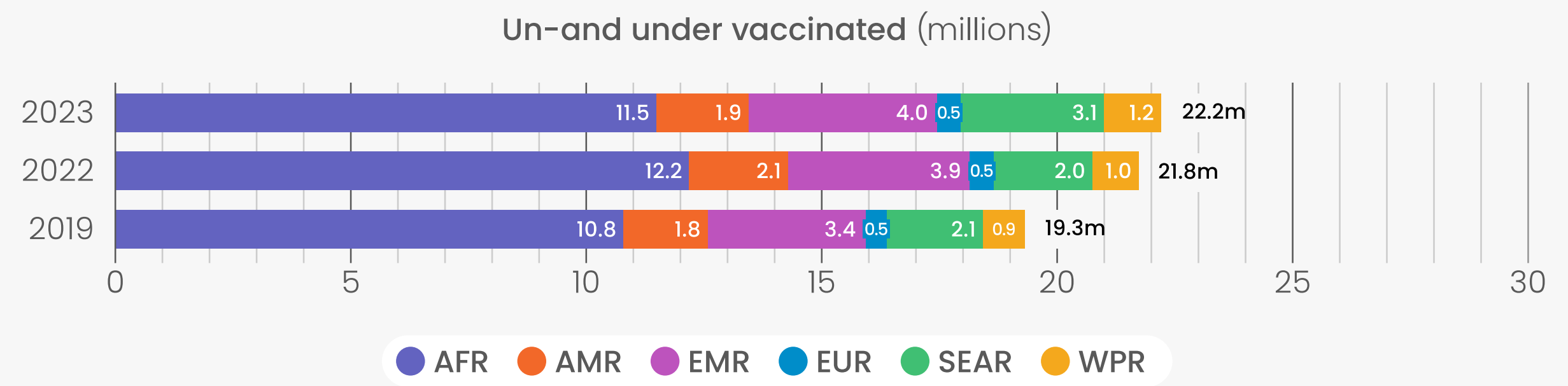
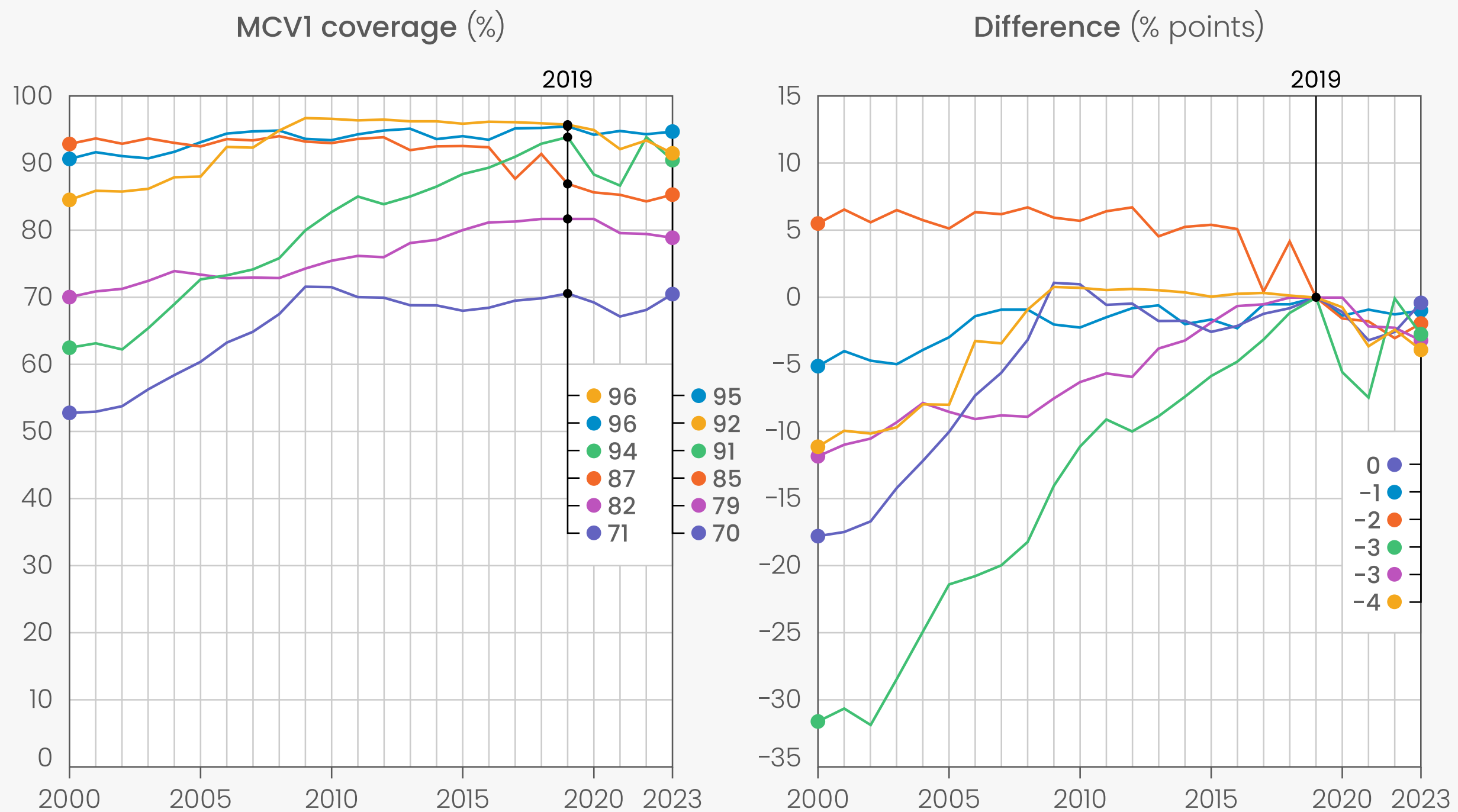
Similar patterns to those seen for DTPI. The African and Eastern Mediterranean regions have significantly lower DTP3 coverage, indicating issues with drop-out, and the ability to consistently provide 3 doses in the first year of life.



MCV1 coverage is lower than DTP3 in the African and the Eastern Mediterranean regions

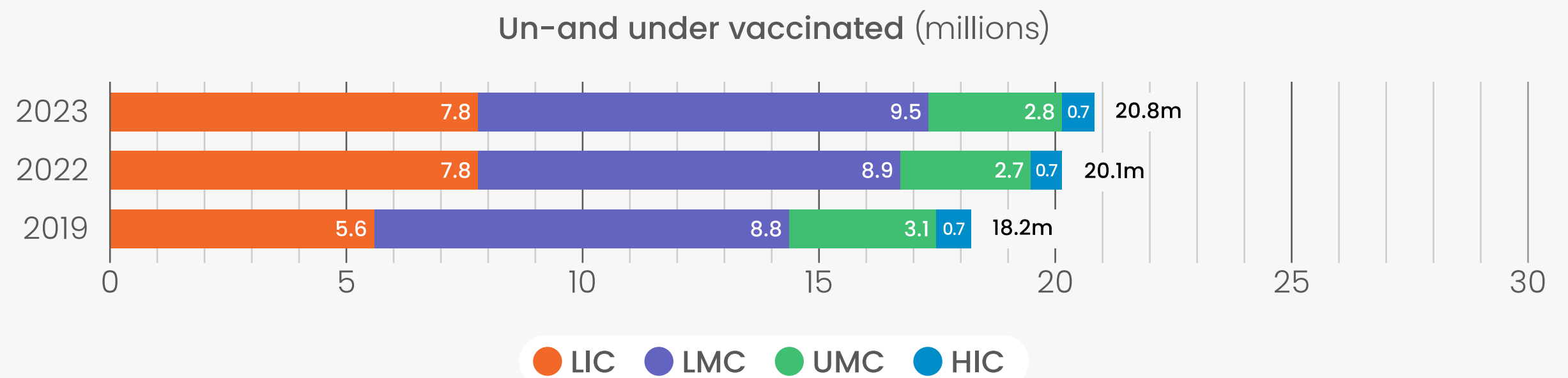
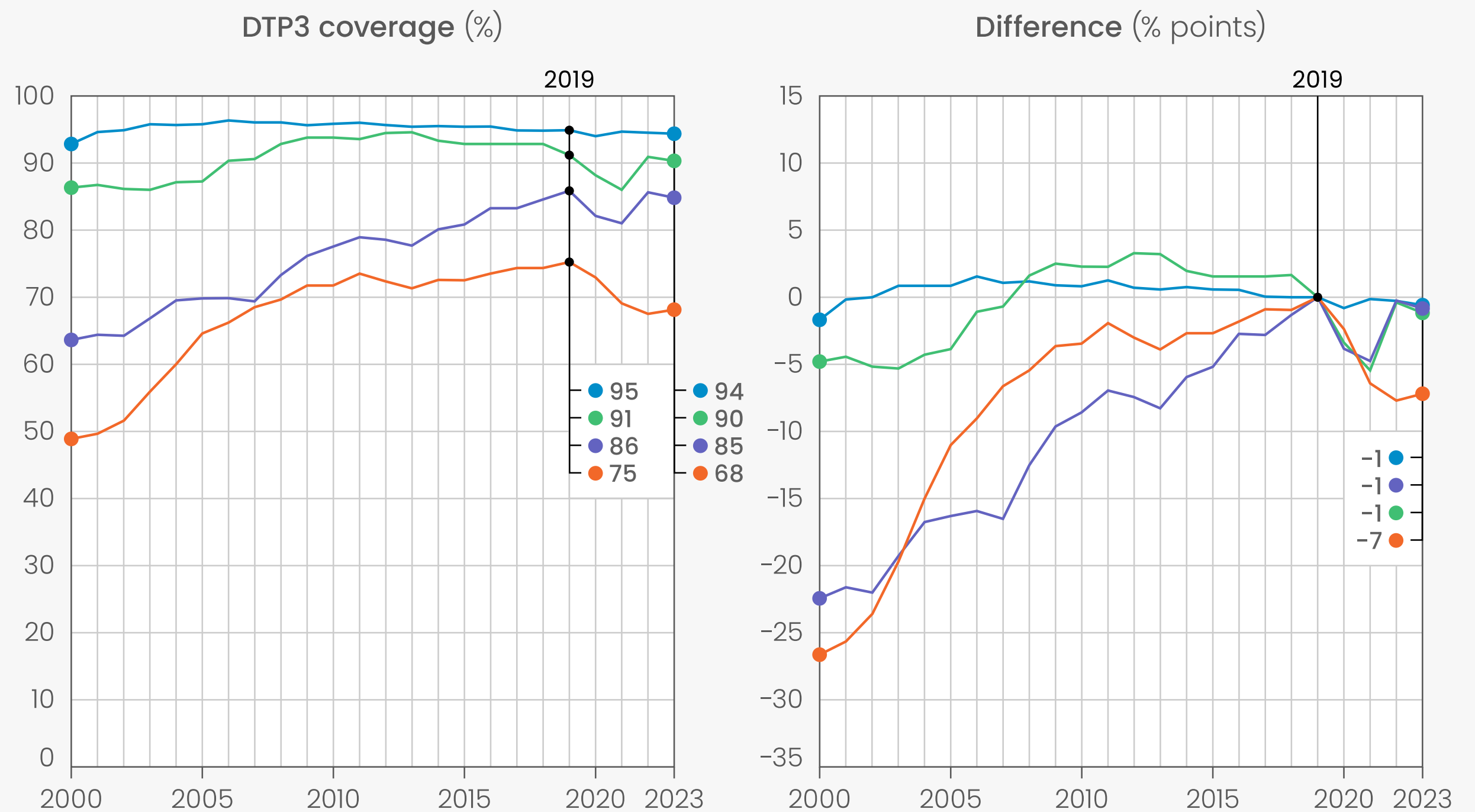
Similar pattern to those seen for DTP1 and DTP3, but lower coverage for MCV1 in AFR, and more modest improvements than for DTP.

Most measles unvaccinated children reside in AFR, followed by EMR and SEAR.



DTP3 coverage in Low Income Countries did not decline further, for the first year since the pandemic

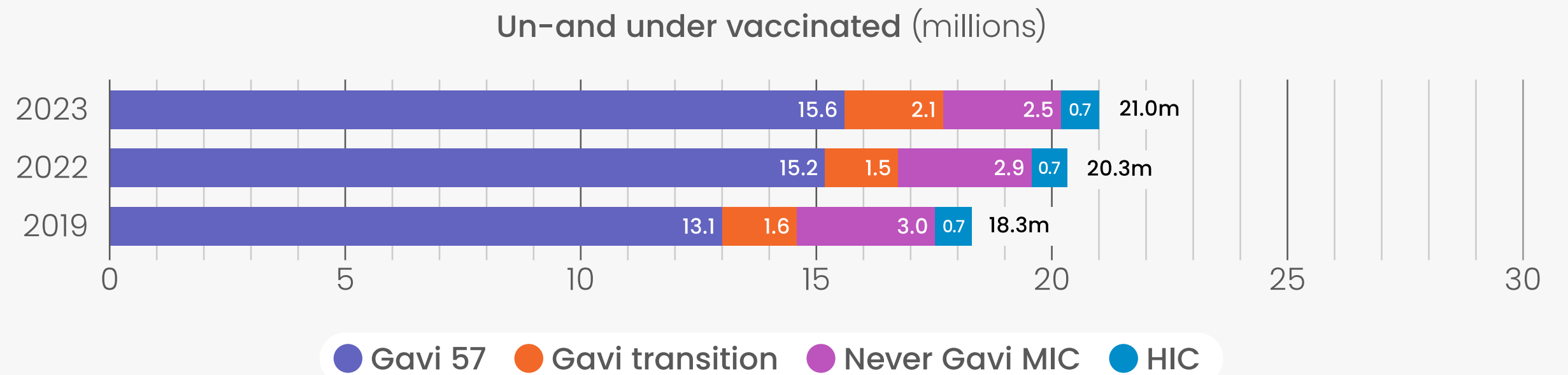
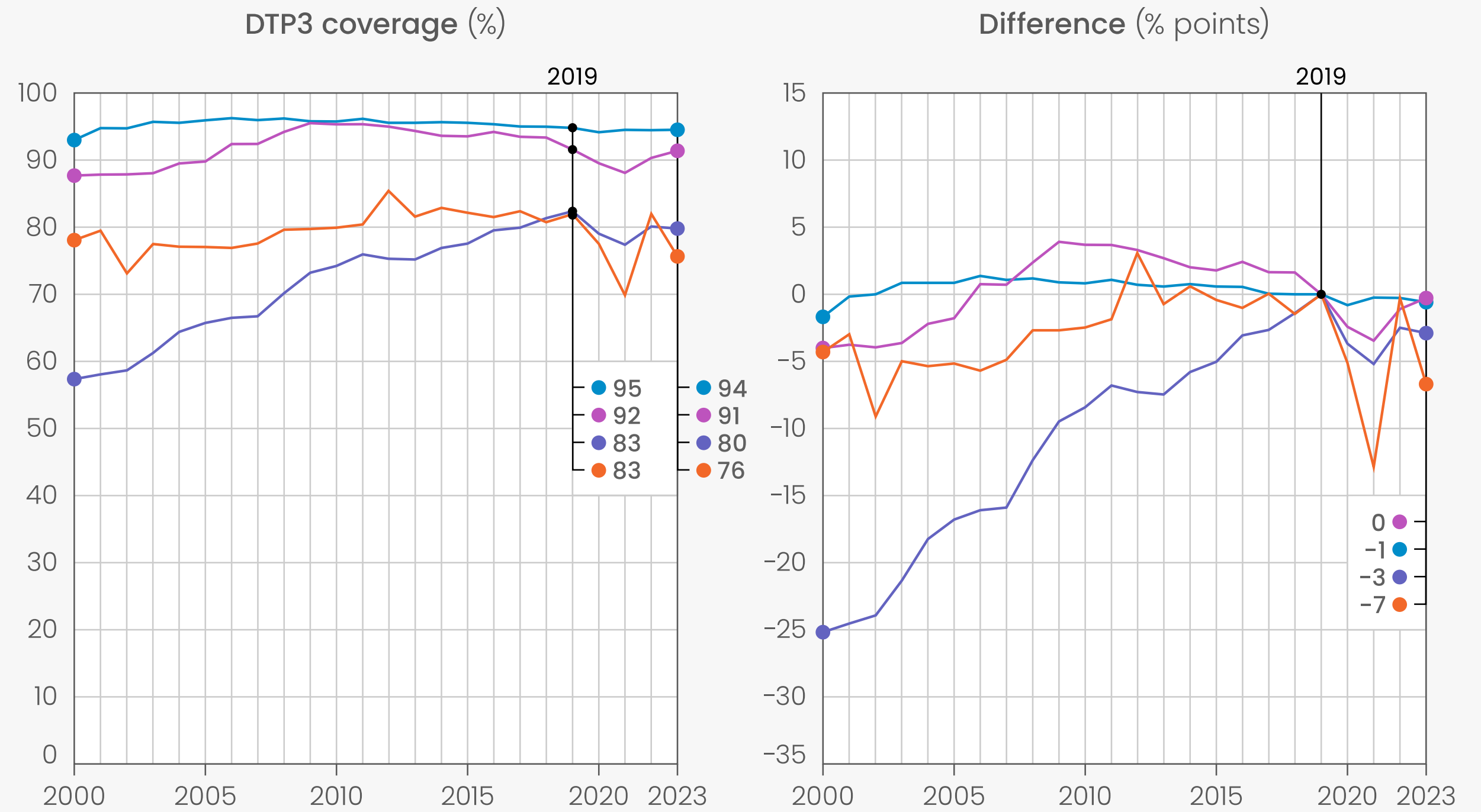
Coverage in Low-Income Countries (LICs) halt its 3 year decline. Coverage in all other income groups declines slightly.



DTP3 coverage is stable in GAVI supported countries, and still well below 2019 levels

On average, GAVI-supported countries have not made further progress to recover towards the 2019 baseline.

GAVI-transitioned countries decreased on average after strong gains in 2022. This pattern should be interpreted with caution: 2022 estimates might have been inflated by the inclusion of catch-up doses then.

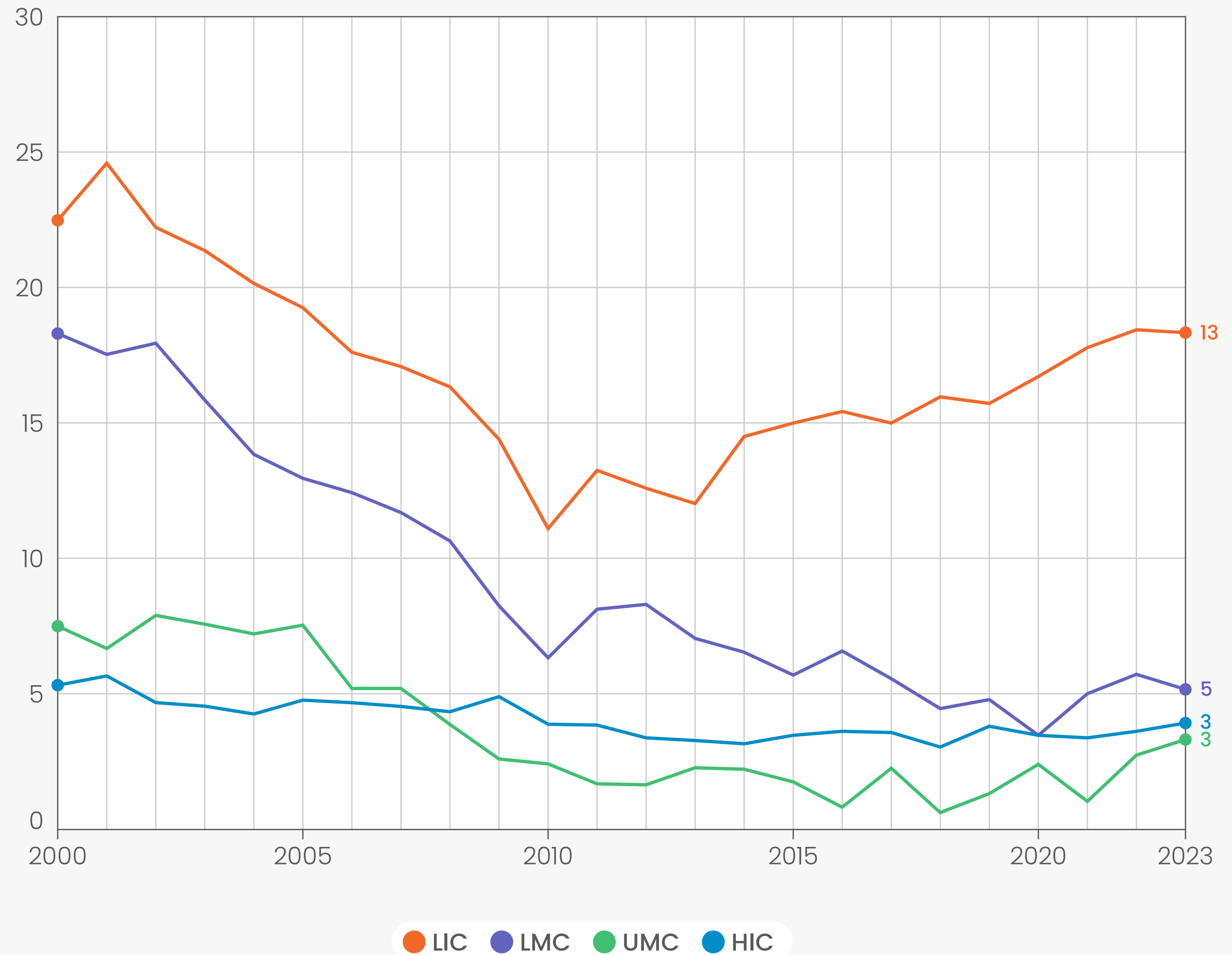


Not all children who start their vaccine schedule also finish it. In LICs, 13% of children who received DTP1 drop out before receiving measles

The percentage of children who start but not finish the recommended schedule is referred to as the drop-out rate. The drop-out rate between the first dose of DTP containing vaccine and the first dose of measles is as high as 13% in low income countries.



DTP1-MCV1 dropout rate (%)



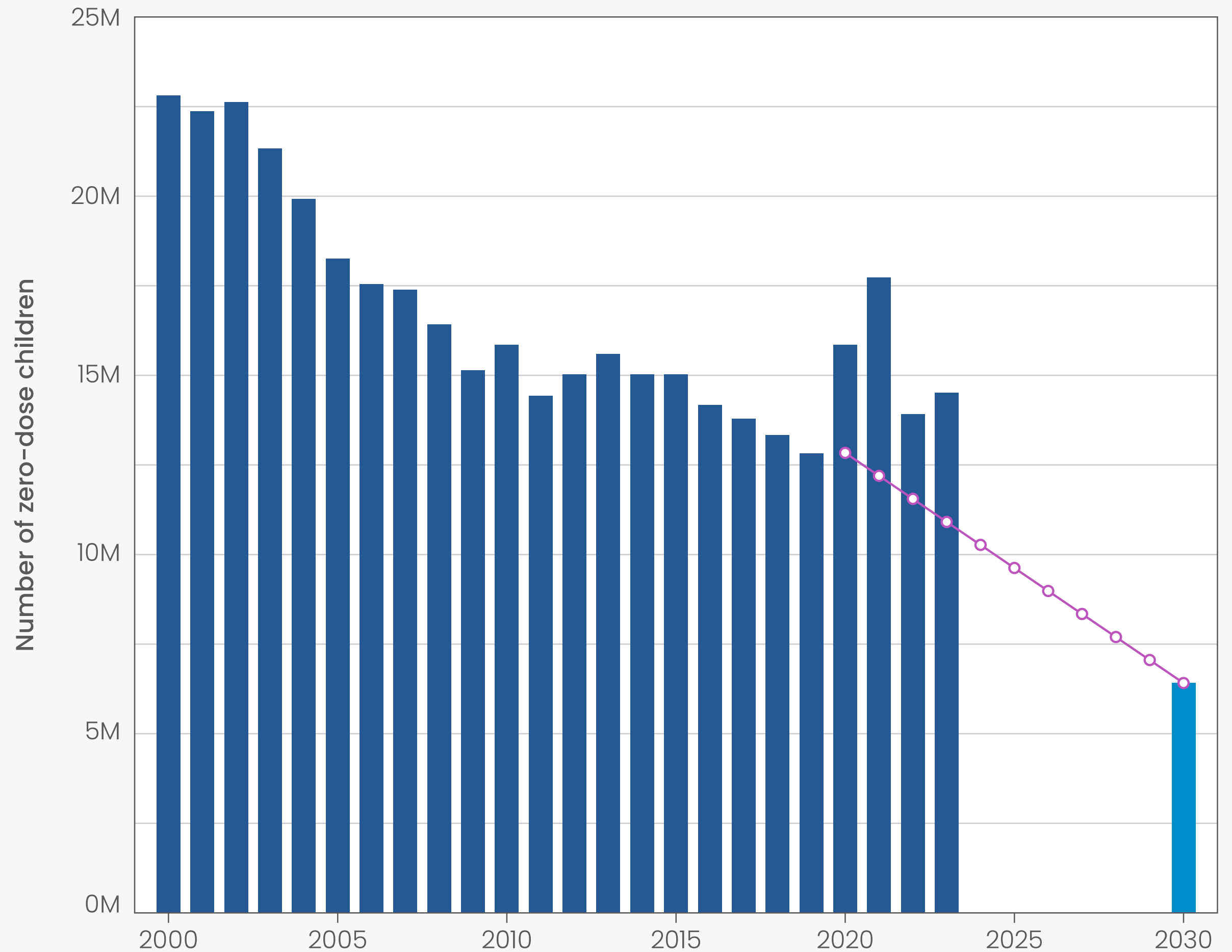
The global estimate of Zero-Dose children is off-track to achieve IA2030 goals

A key goal of the Immunization Agenda 2030 (IA2030) is to reduce the number of zero-dose children by half by 2030.

Actual achievements show that the 2023 estimate of zero-dose children is still above 2019 levels. I.e. global coverage has not fully recovered from pandemic disruptions and is not yet on track to achieve the IA2030 target.

Note: The Immunization Agenda 2030 (IA2030) calls on all countries to reduce the number of zero dose children in 2019 by half by 2030. Dark blue bars are the estimated number of zero-dose children in 2000-2030, light blue bar is the target number of zero-dose children by 2030. Line shows trajectory the country needs to be on, and points show annual goals to meet the target by 2030, assuming a linear decline.

Source: WHO/UNICEF Estimates of National Immunization Coverage, 2023 revision.



● Estimate ● IA2030 zero-dose target ○ Annual goals to meet 2030 target



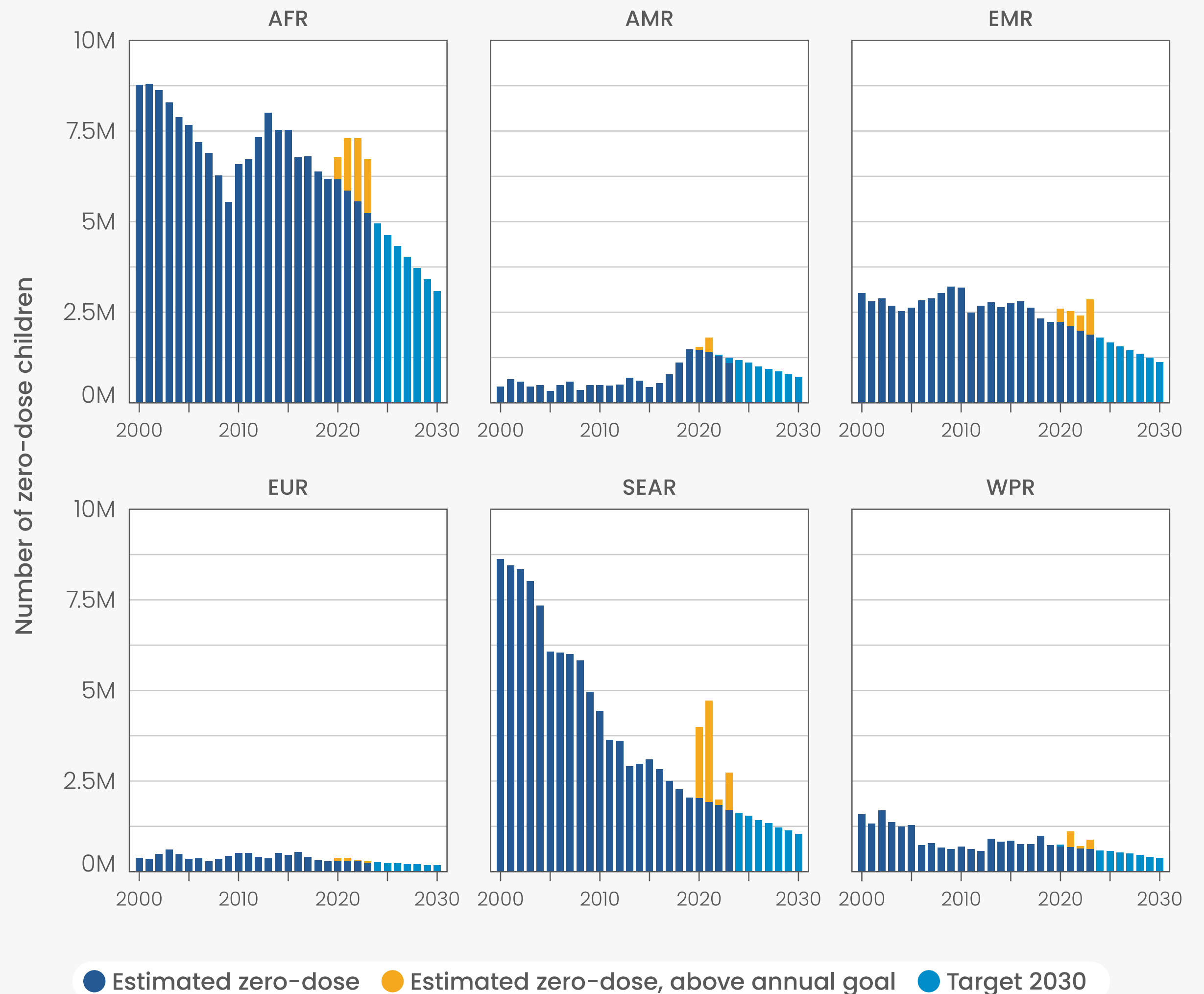
All regions apart from the region of the Americas have zero-dose children in excess of their target trajectory

Compared to a straight-line trajectory between 2021 and 2030 that represents the zero-dose targets for each region, actual achievements show that their 2023 estimate of zero-dose children is too high to reach the end of decade targets.

The region of the Americas is the exception to this observation and is performing better than that target trajectory.

Note: The Immunization Agenda 2030 (IA2030) calls on all countries to reduce the number of zero dose children in 2019 by half by 2030. Dark blue bars are the estimated number of zero-dose children in 2000-2019, light blue bars are the number of zero-dose children required to meet the 2030 target based on a linear trajectory from baseline and yellow bars are the additional zero-dose children above the targets in 2020-2030.

Source: WHO/UNICEF Estimates of National Immunization Coverage, 2023 revision; United Nations, Department of Economic and Social Affairs, Population Division (2024). World Population Prospects 2024, Online Edition.



● Estimated zero-dose ● Estimated zero-dose, above annual goal ● Target 2030

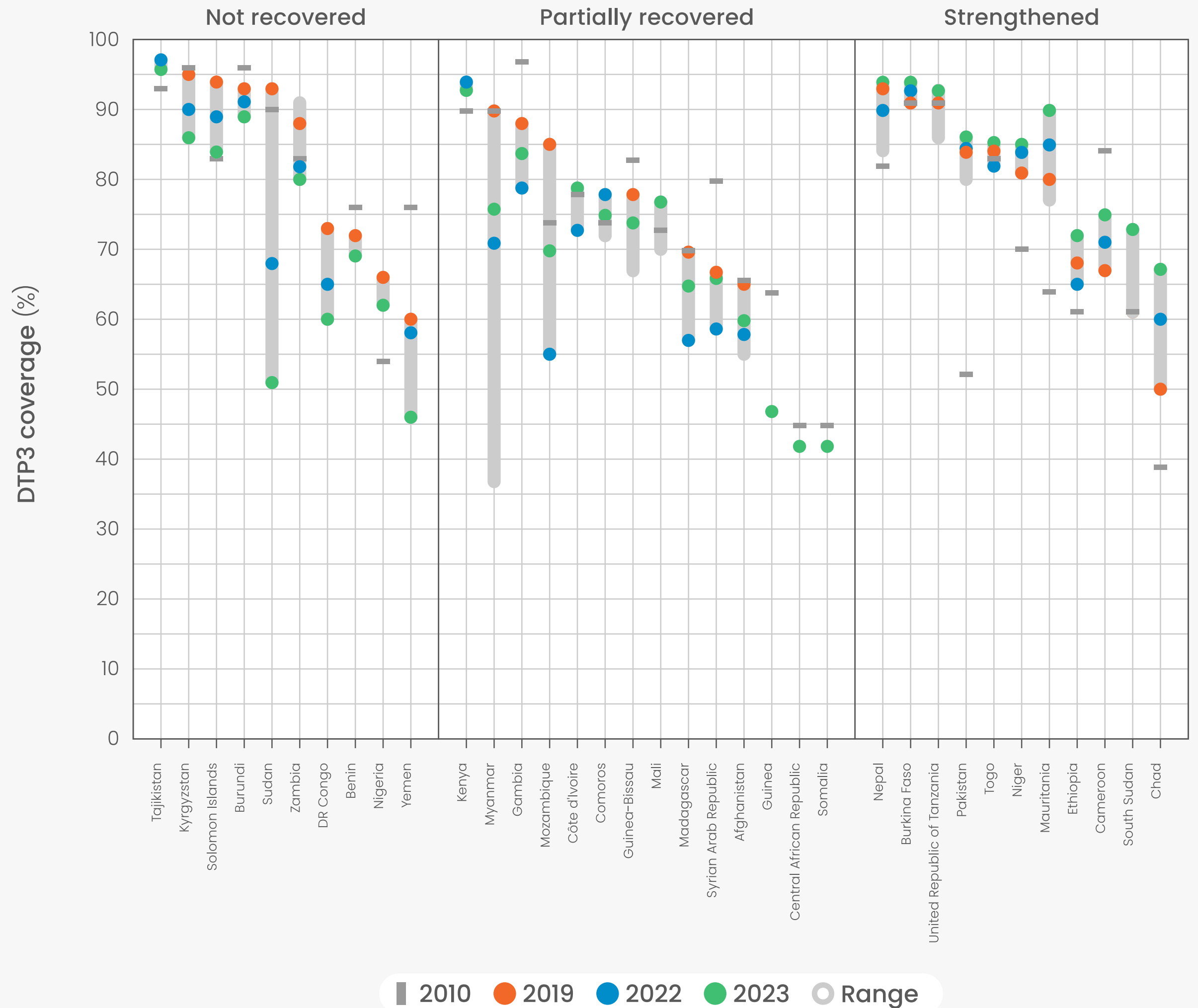
Among countries with a big catch-up plan, some have strengthened DTP3 coverage or are on the path to recovery, while others are still at the low points in the 2019–2023 range.

Catch up, recover and strengthen

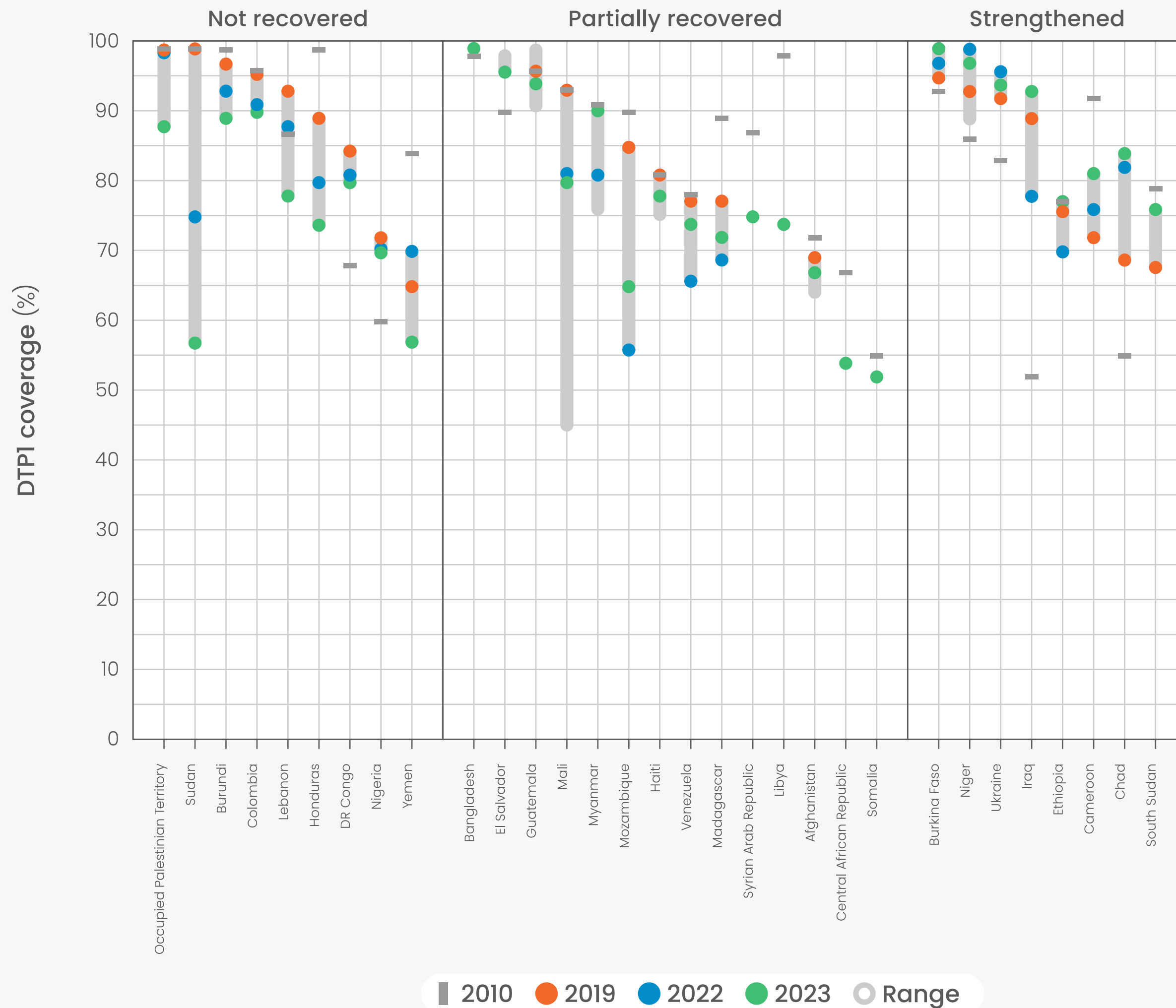
35 countries have developed plans to catch up with children who were un and under vaccinated since 2019. The Gavi Alliance supports their ambition by financing the vaccines that will be needed during this “Big Catch Up”.

Apart from catching up with missed children, countries where coverage dipped during the pandemic also aim to recover to their 2019 baseline and further strengthen their programme performance towards 2030 targets.

The graph shows the trajectory of these 35 priority countries from 2019 to 2023.



Among countries with Fragile, Conflict, and Vulnerable settings, some have recovered or strengthened DTP1 coverage, while others are still at the low points in the 2019–2023 range.

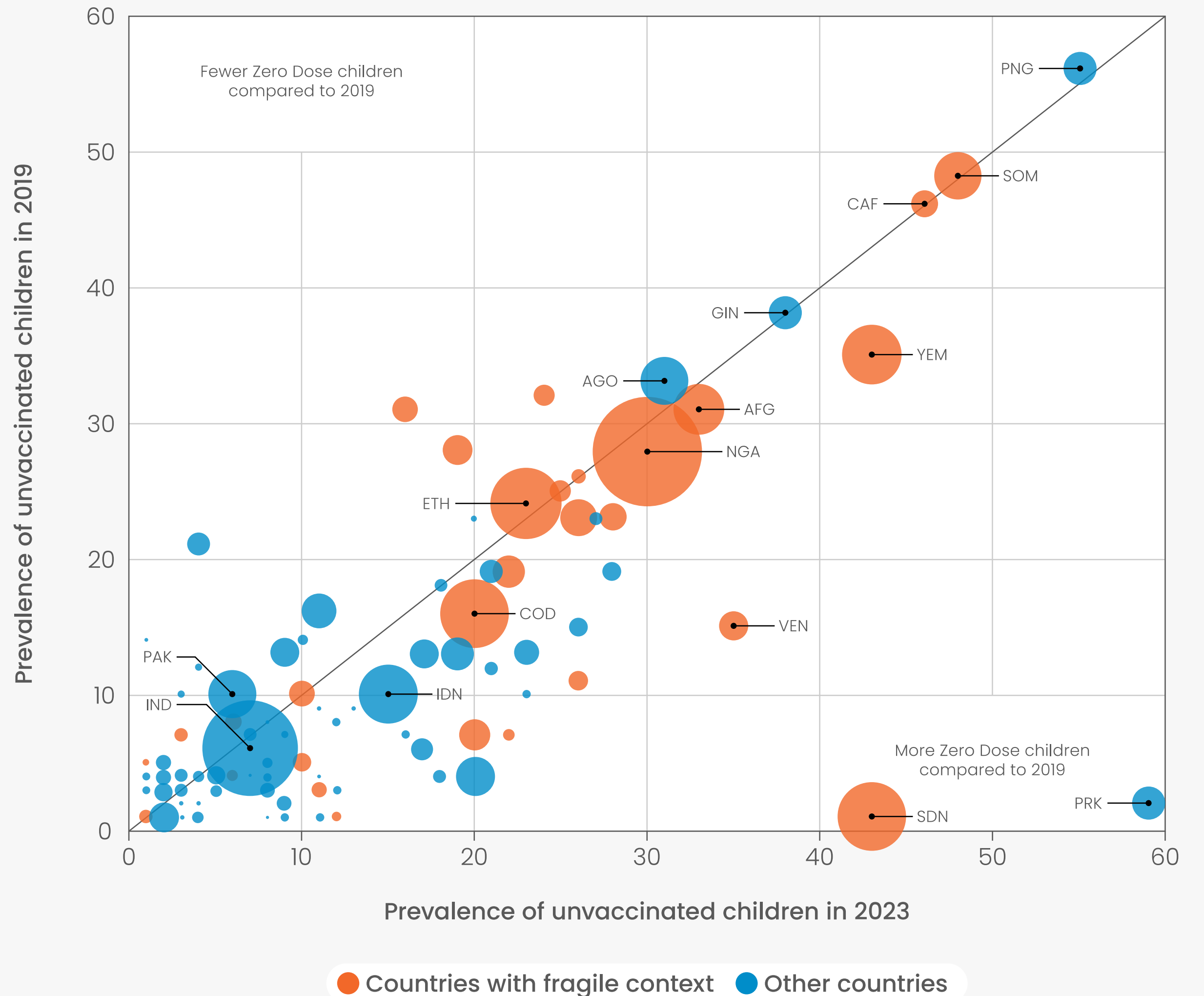


Zero dose children live disproportionately in countries and territories with fragile, conflict, and vulnerable (FCV) settings.

55% of unvaccinated children live in countries with fragile, conflict, and vulnerable (FCV) settings, while these countries only account for XX% of the global birth cohort.

Many of these countries have furthermore experienced worrying declines in performance since 2019.

The size of the bubbles is proportional to the number of unvaccinated children in each country.



Measles coverage in countries with large or disruptive measles outbreaks since 2019 is too low to control further outbreaks

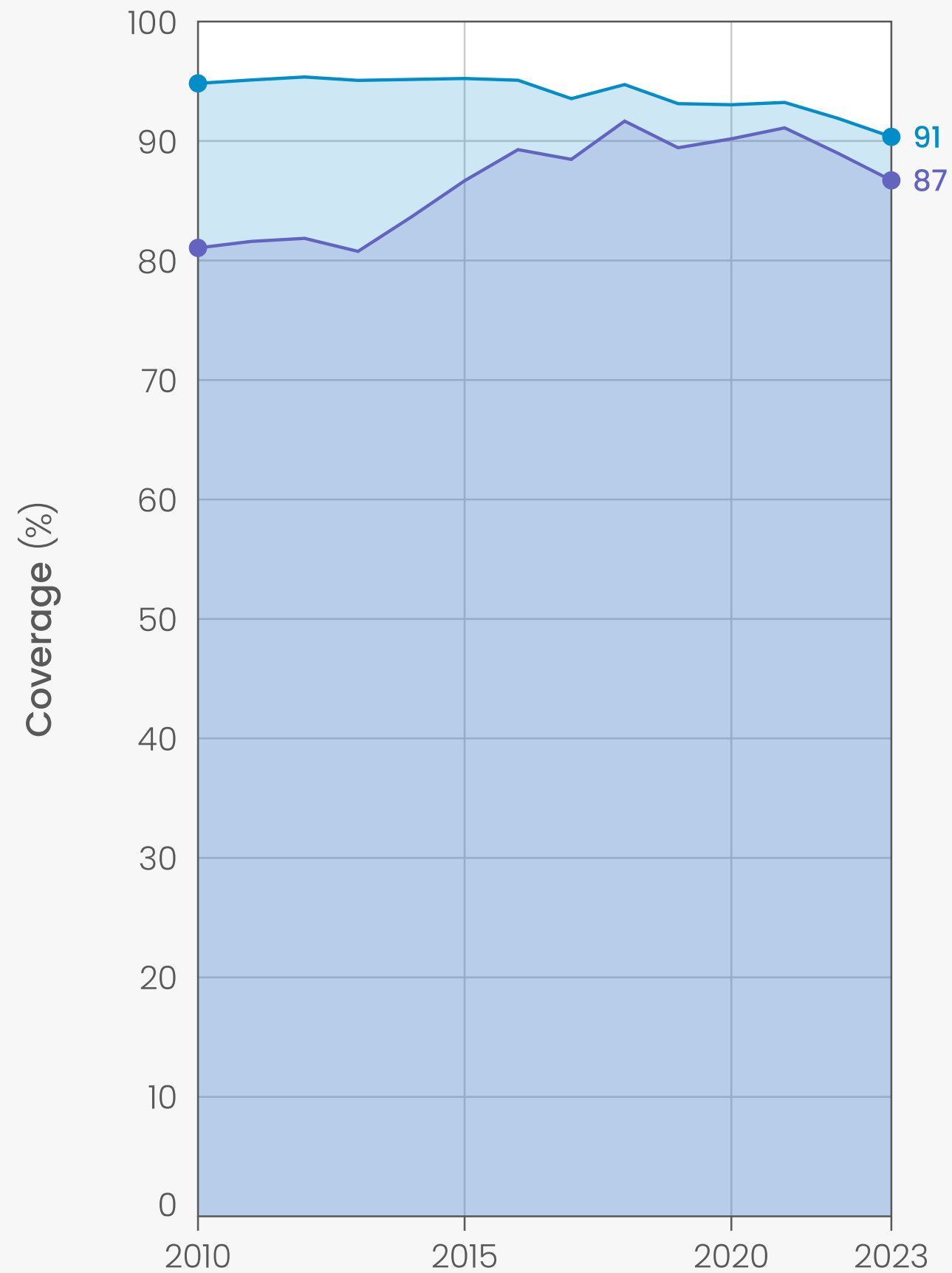
The 91 countries not experiencing measles outbreaks in the last 5 years achieve consistently higher measles vaccine coverage than the 103 countries that did experience outbreaks. Even in these countries there is a concerning recent decline.

The 103 countries experiencing outbreaks are on average achieving 10 percentage points lower coverage for a first dose of measles vaccine. These represent 75% of the global birth cohort.

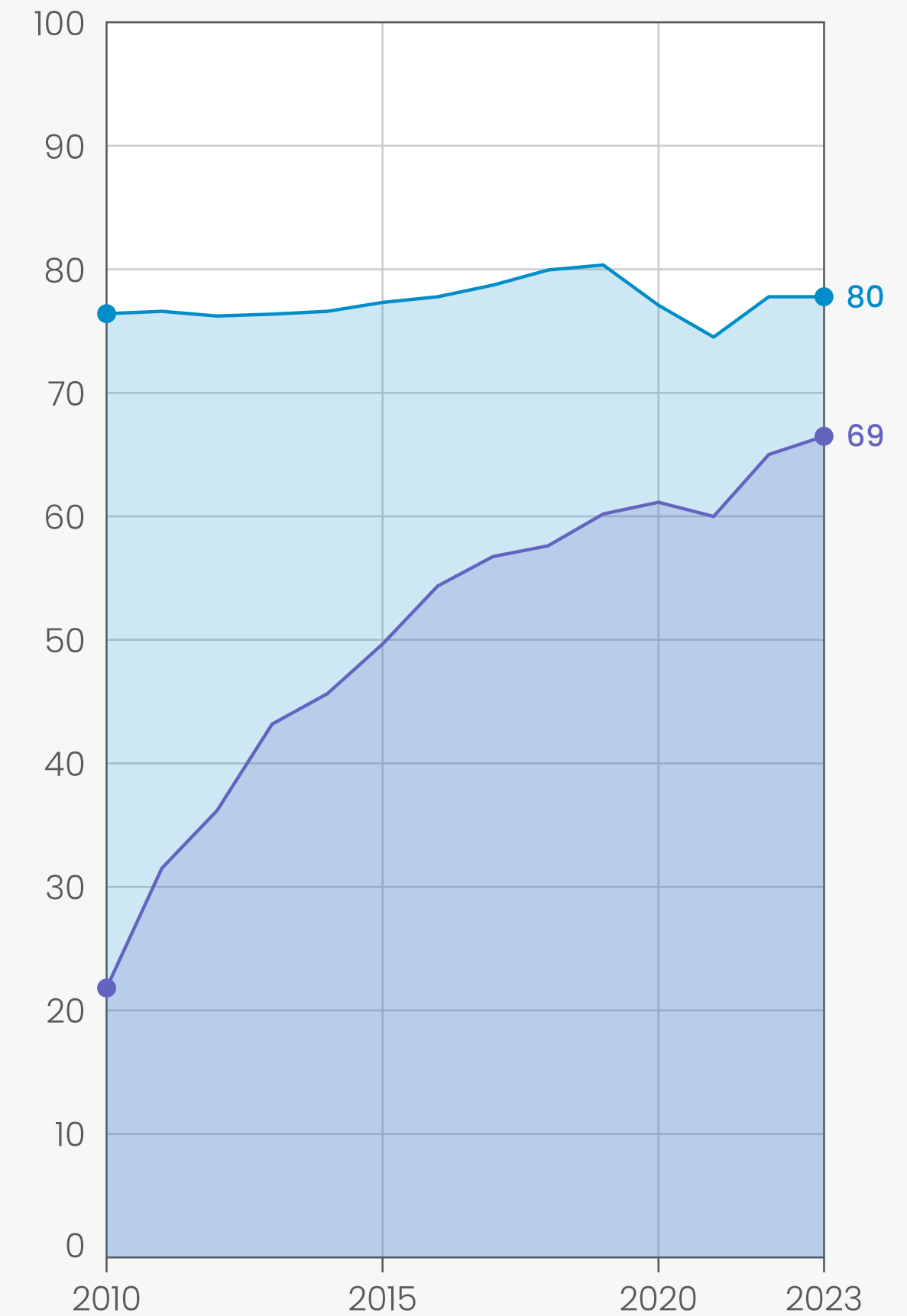
Sustained and consistent improvements in routine immunisation over time are effective at curtailing measles transmission, when combined with SIAs.



No outbreaks in the last 5 years (N=91)



Outbreaks in the last 5 years (N=103)



● MCV1 ● MCV2

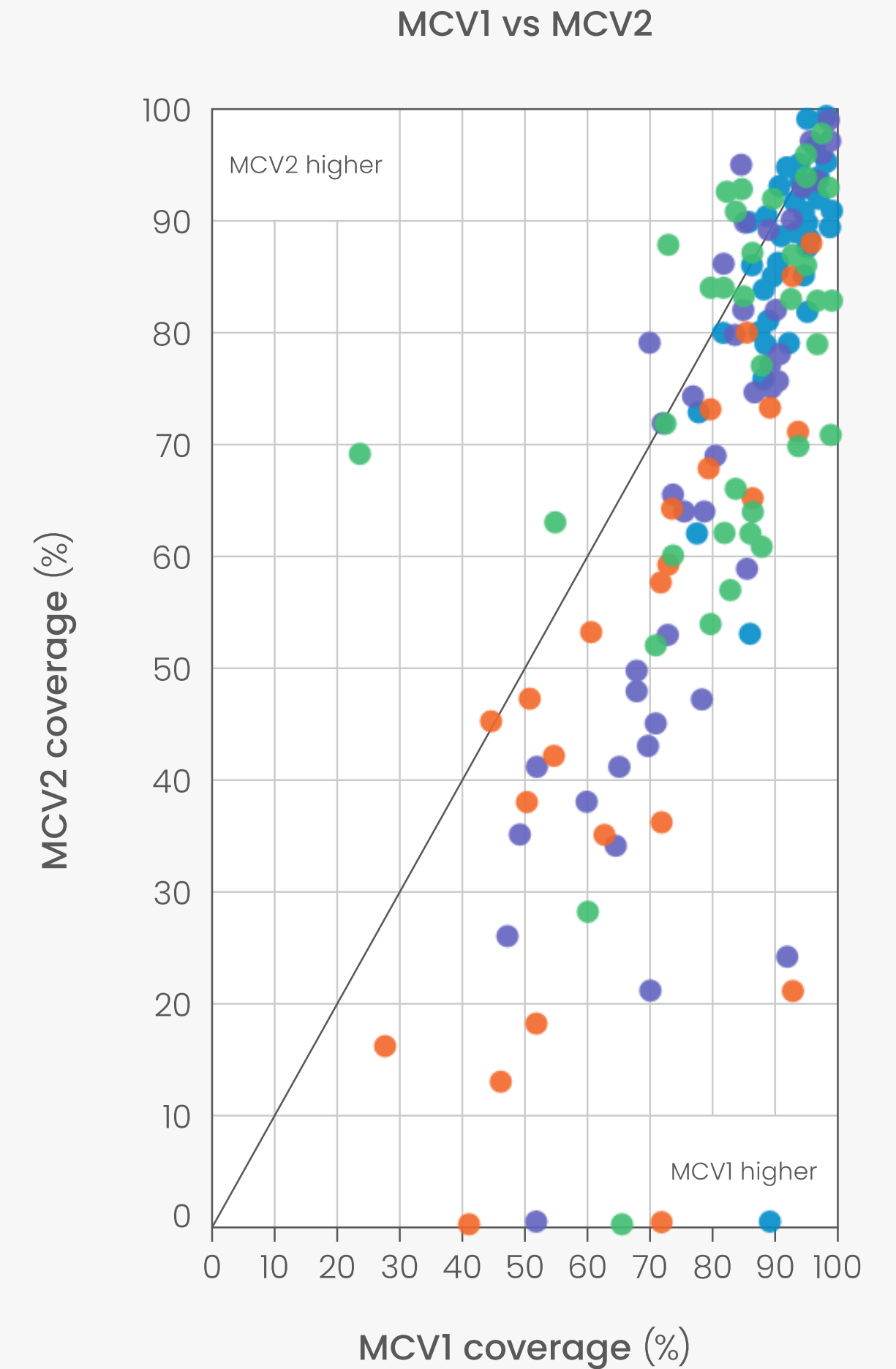
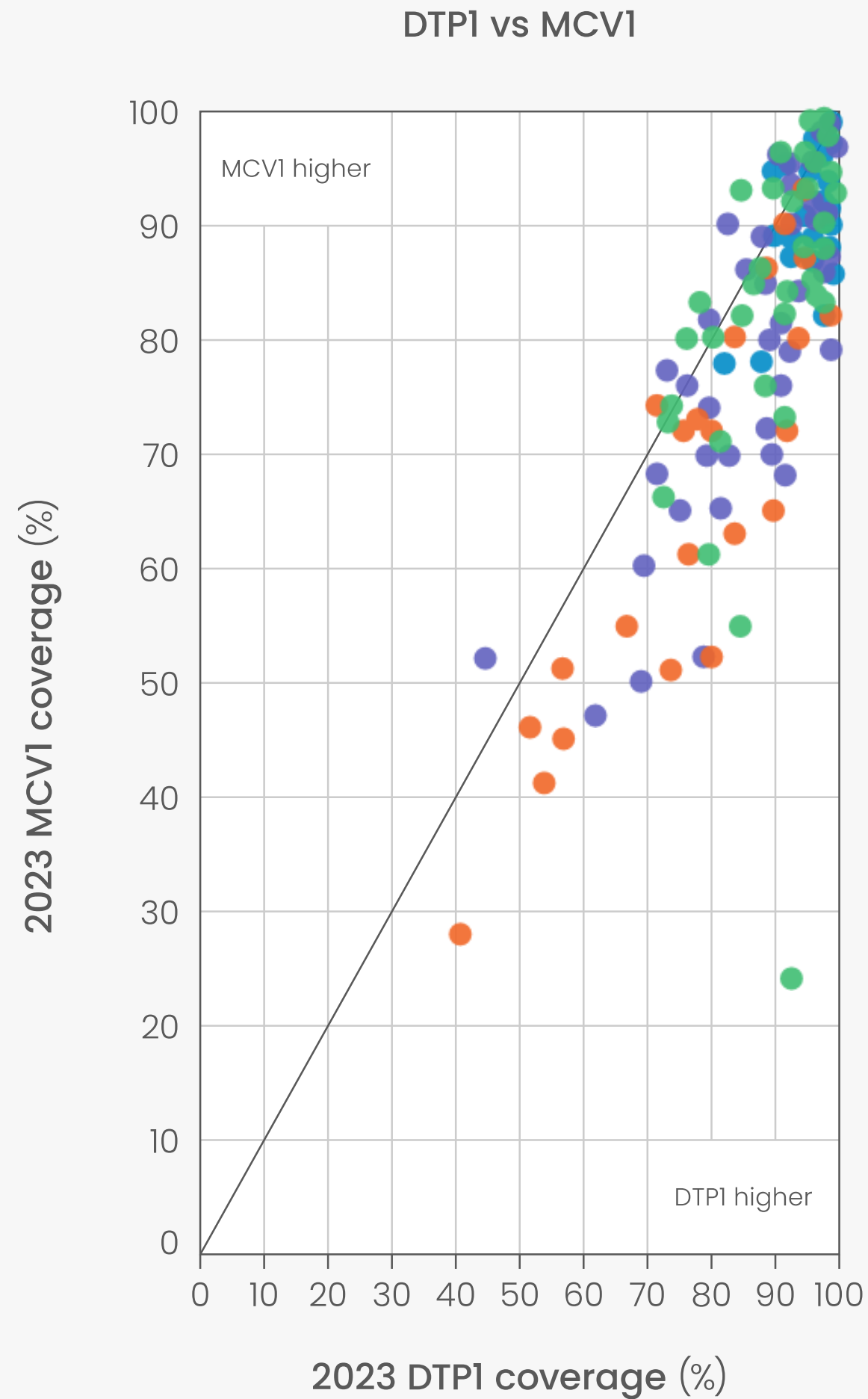
Focusing on zero dose (DTP1) does not guarantee full immunization

Substantial drop out between DTP1 and MCV1, and even more so between MCV1 and MCV2, is seen across all income groups.

Particularly deep drops are seen in LICs and LMCs.

A single-minded focus on Zero Dose children will not guarantee high coverage with all other antigens

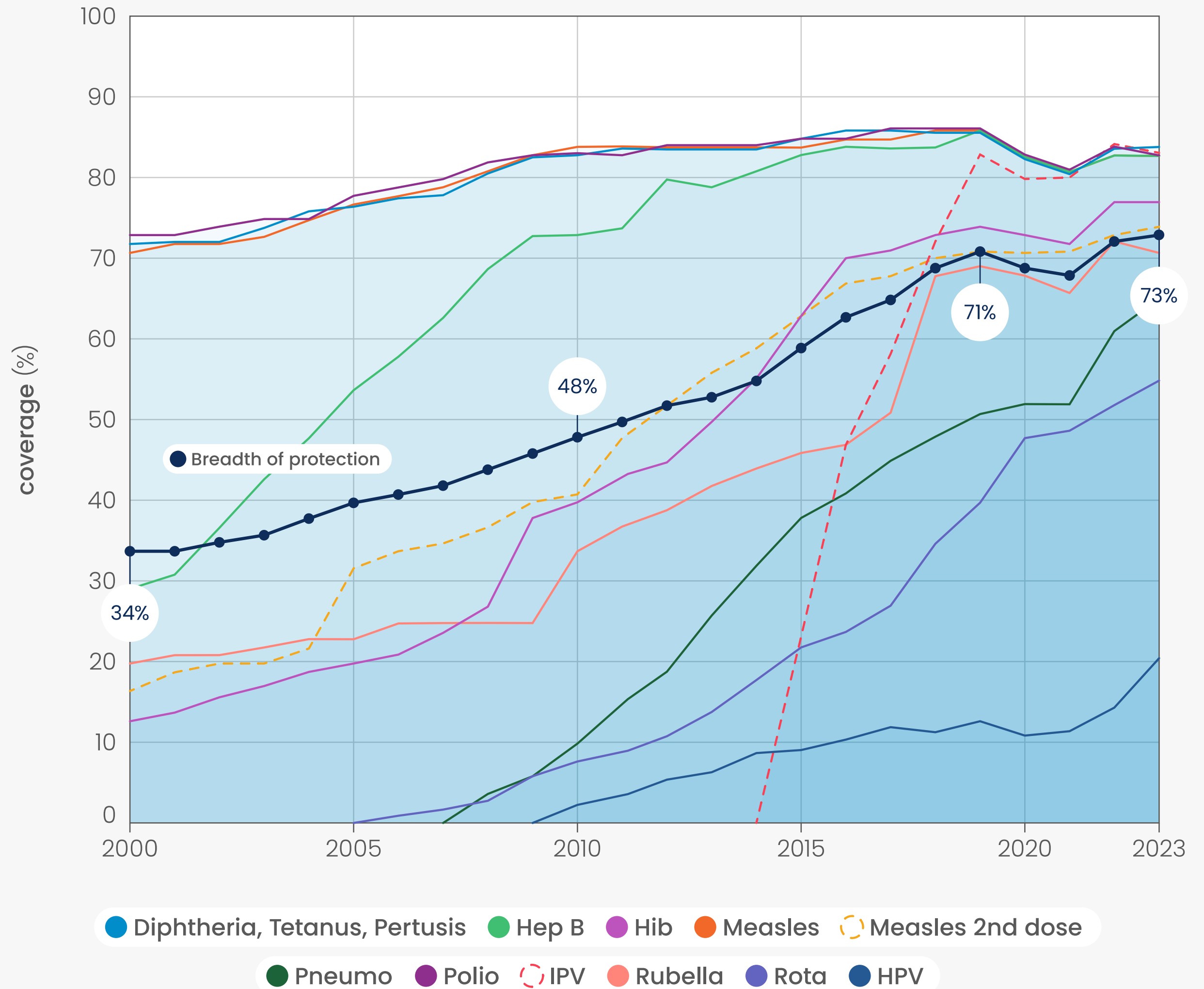
MCV2 is scheduled in the 2nd year of life in 127 countries and at school age in the remaining countries.



The steady introduction of new and under utilized vaccines continues to improve the Breadth of Protection (BOP)

While coverage of well established vaccines has stagnated for years, the continued introduction of new and under utilised vaccines leads to a consistently improving "Breadth of protection", the average coverage of a set of vaccines WHO recommends for universal use.

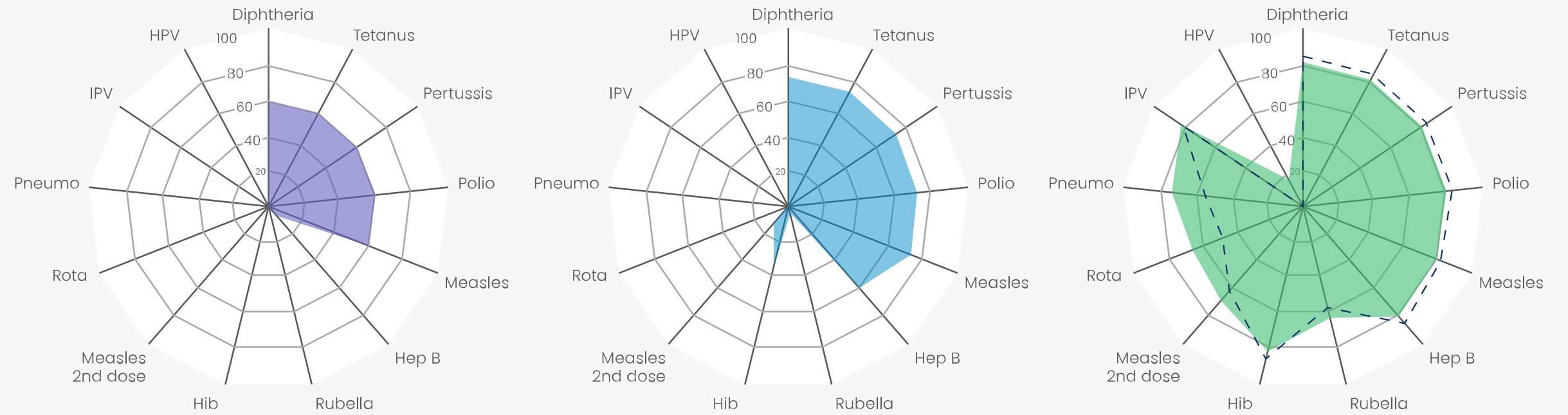
$$\text{Breadth of protection} = \frac{((DTP3 \times 3) + \text{HepB3} + \text{Hib3} + \text{IPV1} + \text{MCV1} + \text{MCV2} + \text{PCV3} + \text{POL3} + \text{RCV1} + \text{RotaC} + \text{HPV})}{13}$$



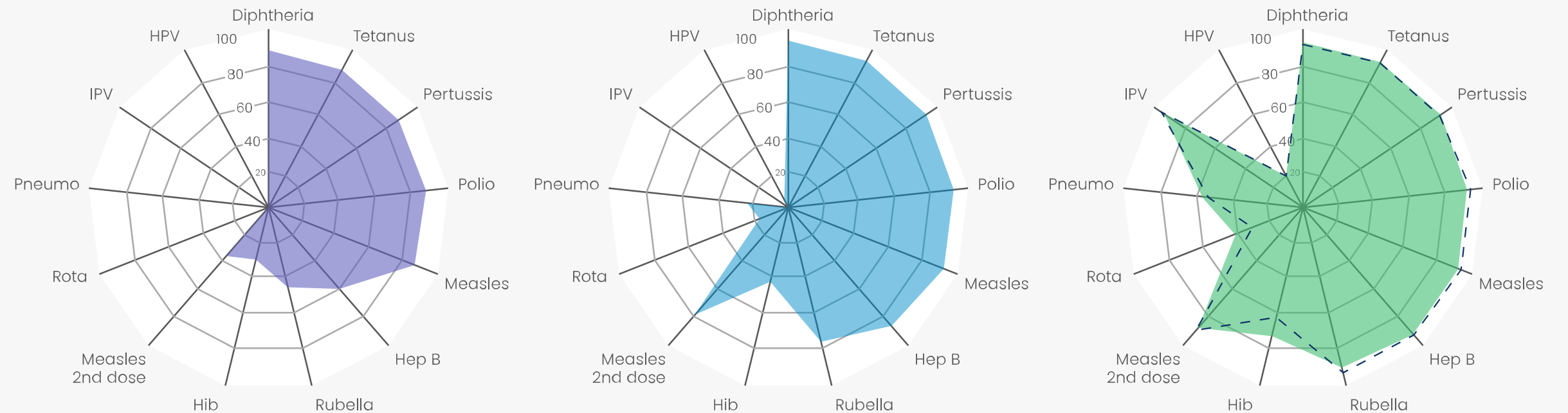
Support by the Gavi Alliance has markedly improved the Breadth of Protection in supported countries

The GAVI Alliance has been instrumental in improving the breadth of protection in low- and middle-income countries.

BOP in Gavi supported countries between 2000 and 2023



BOP in not supported countries between 2000 and 2023



● 2000 ● 2010 ○ 2019 ● 2023



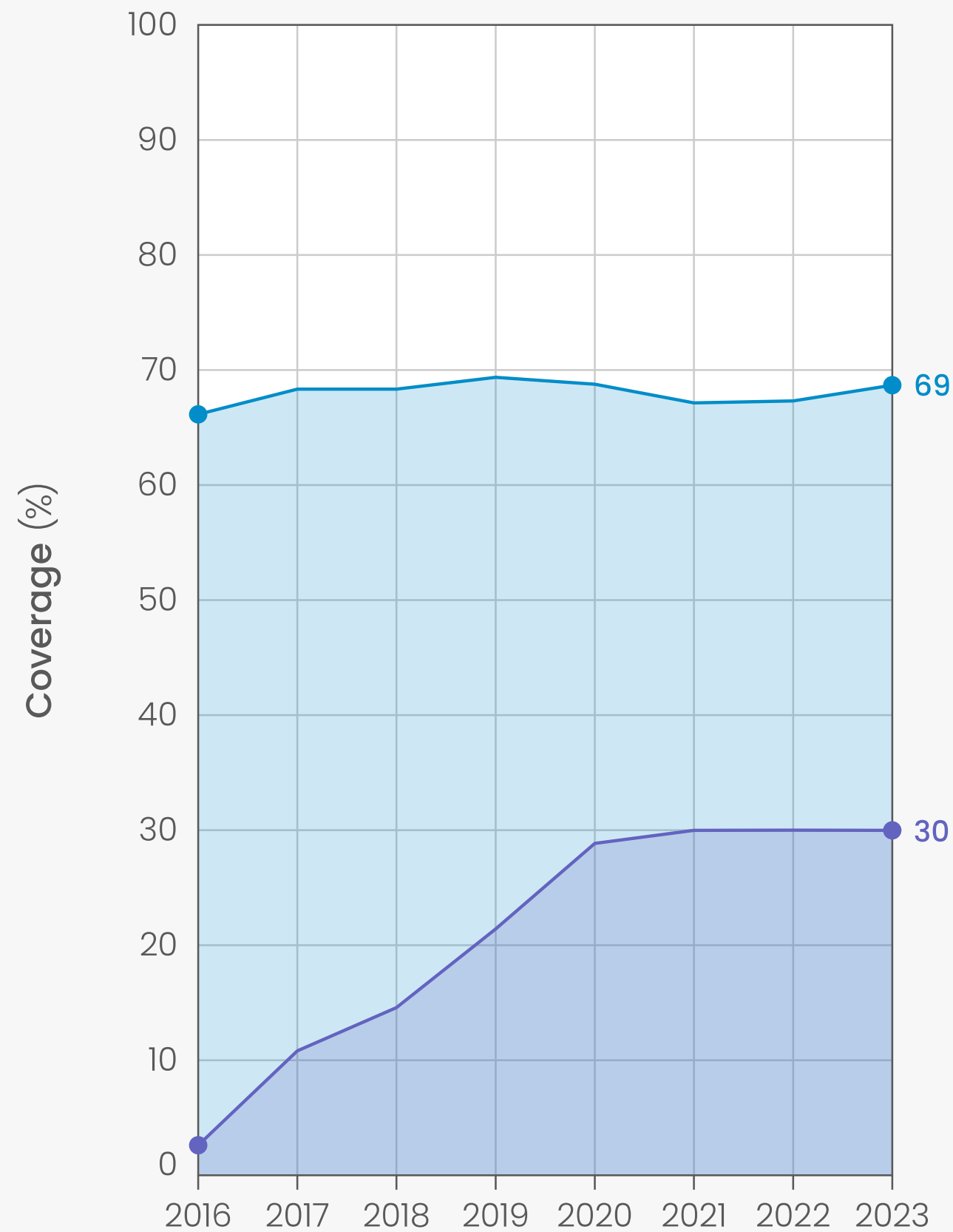
Meningitis A and MCV1 coverage in countries from the Meningitis belt

In this release, WUENIC for the first time estimates Meningitis A vaccine coverage for countries at risk. Across all countries in the African “meningitis belt”, coverage stands at only 30%, partly because 11 countries still need to introduce this vaccine, and partly because many countries at risk of meningitis have weak systems and low coverage.

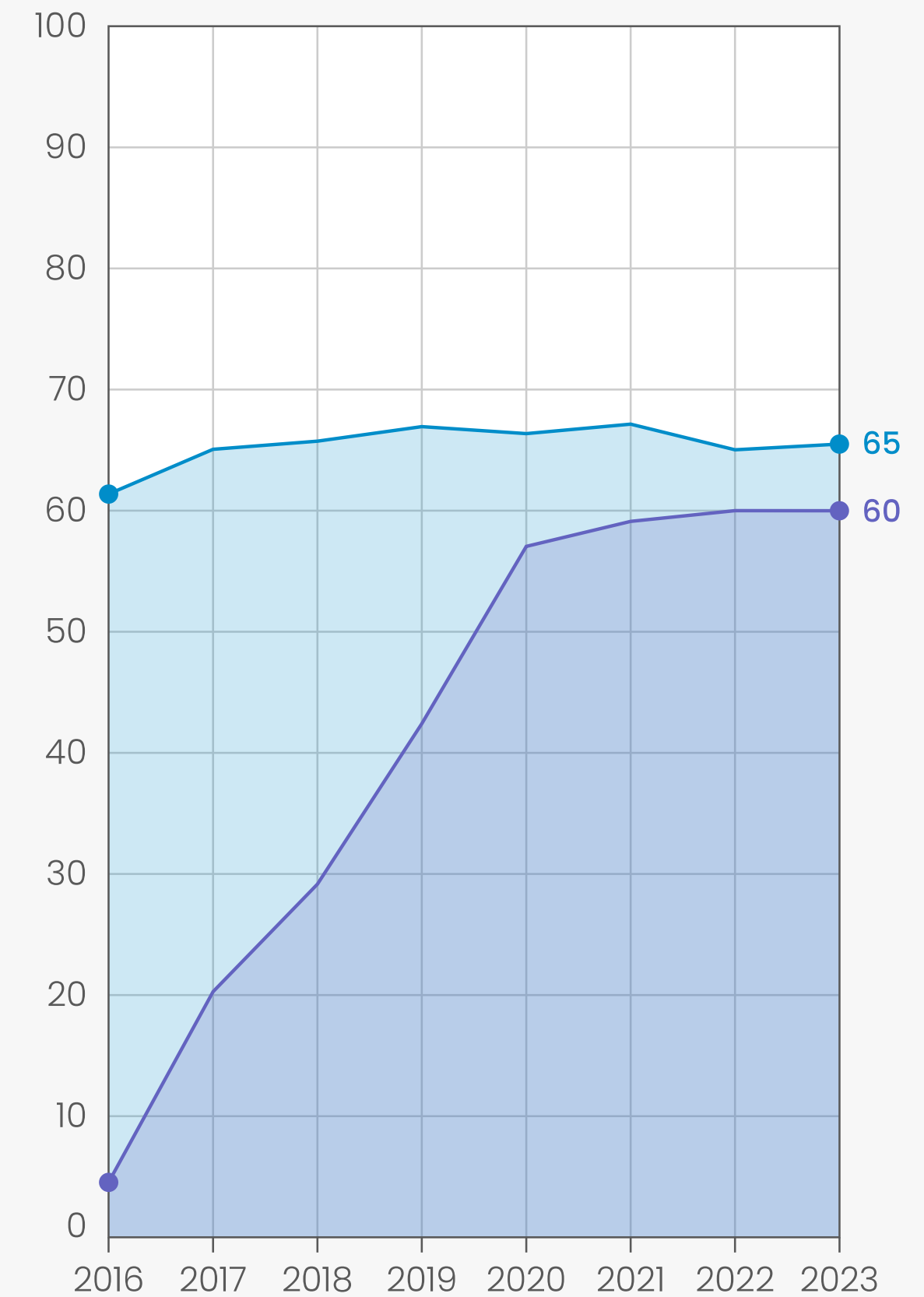
Furthermore, uptake of Meningitis A vaccine is not yet optimal, as shown by the gap between Meningitis A and measles coverage. The right-hand panel compares Men A vaccine coverage in the 15 countries that introduced it nationally to measles coverage achieved in the same countries, which shows a 5 percentage point difference.



All countries from the meningitis belt (N=26)



Countries from the meningitis belt and having introduced Meningitis A vaccine in the national immunization schedule (N=15)

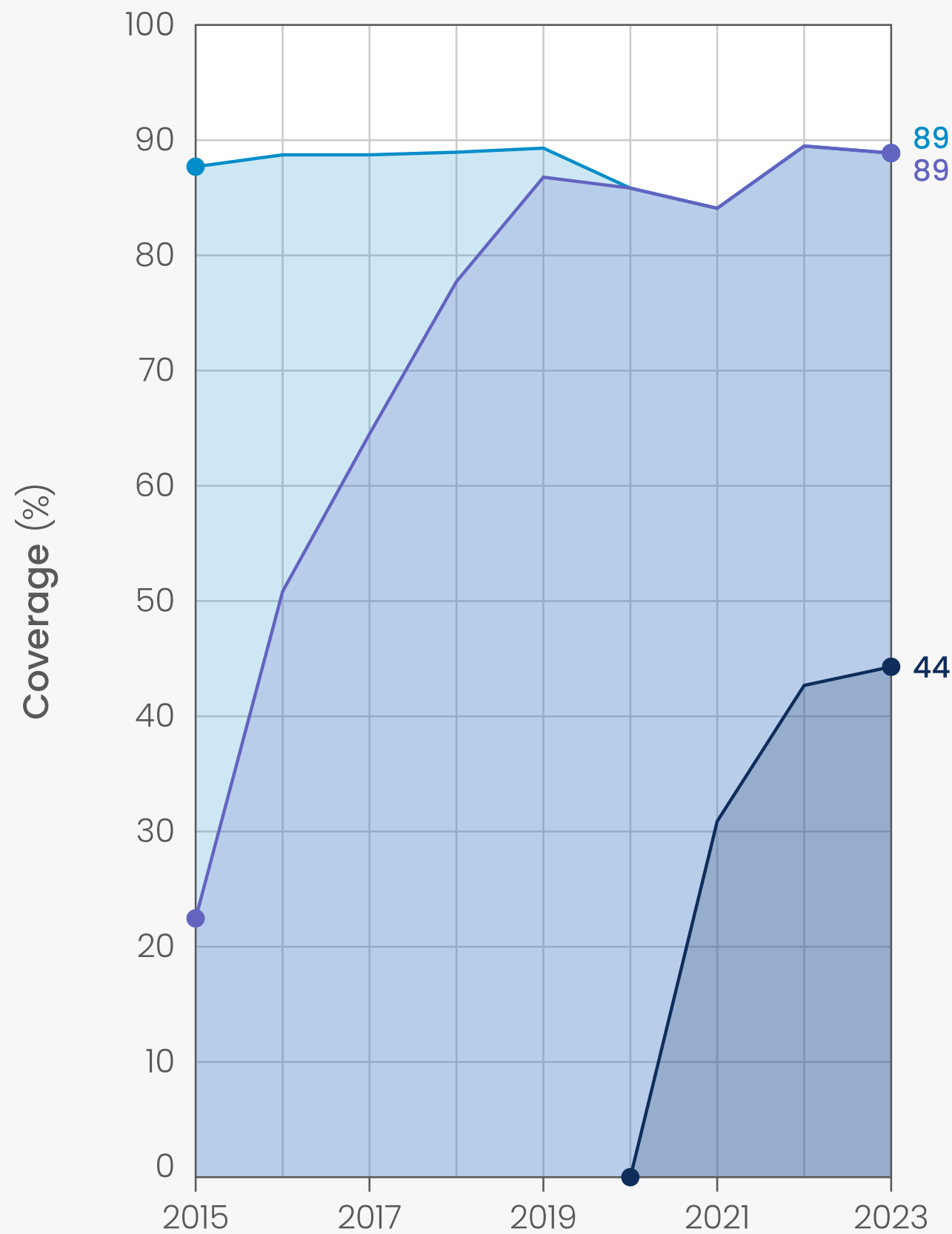


● MCV1 ● MenA

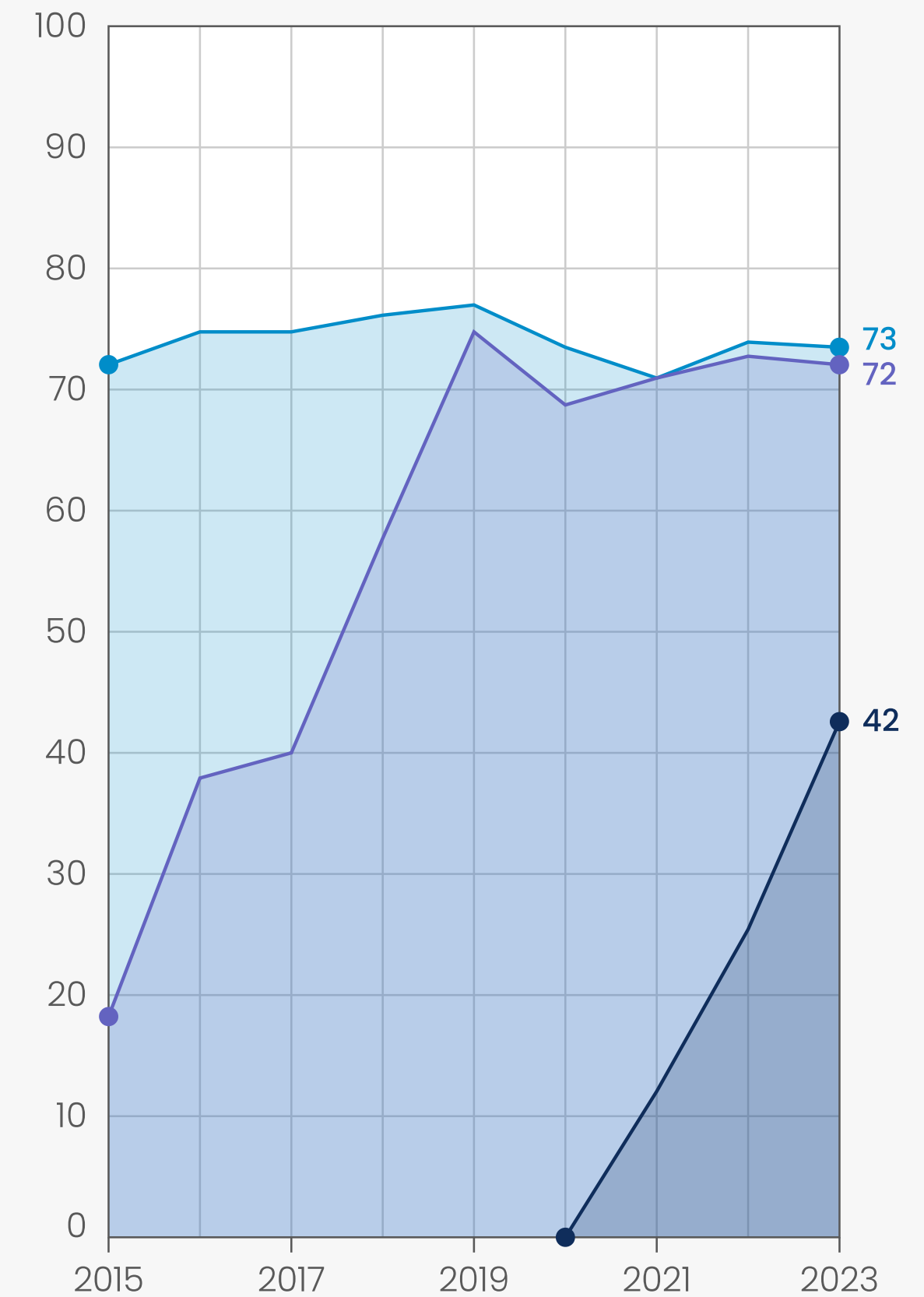
IPV coverage remains too low in countries with cVDPV circulation

Among OPV-using countries, countries with no cVDPV circulation show higher routine coverage with IPV1 and IPV2. In both groups of countries, IPV1 coverage is very similar to DTP3 coverage, which is generally administered during the same contact.

104 OPV-using countries without cVDPV circulation (76% of global birth cohort)



32 OPV-using countries with cVDPV circulation (24% of global birth cohort)

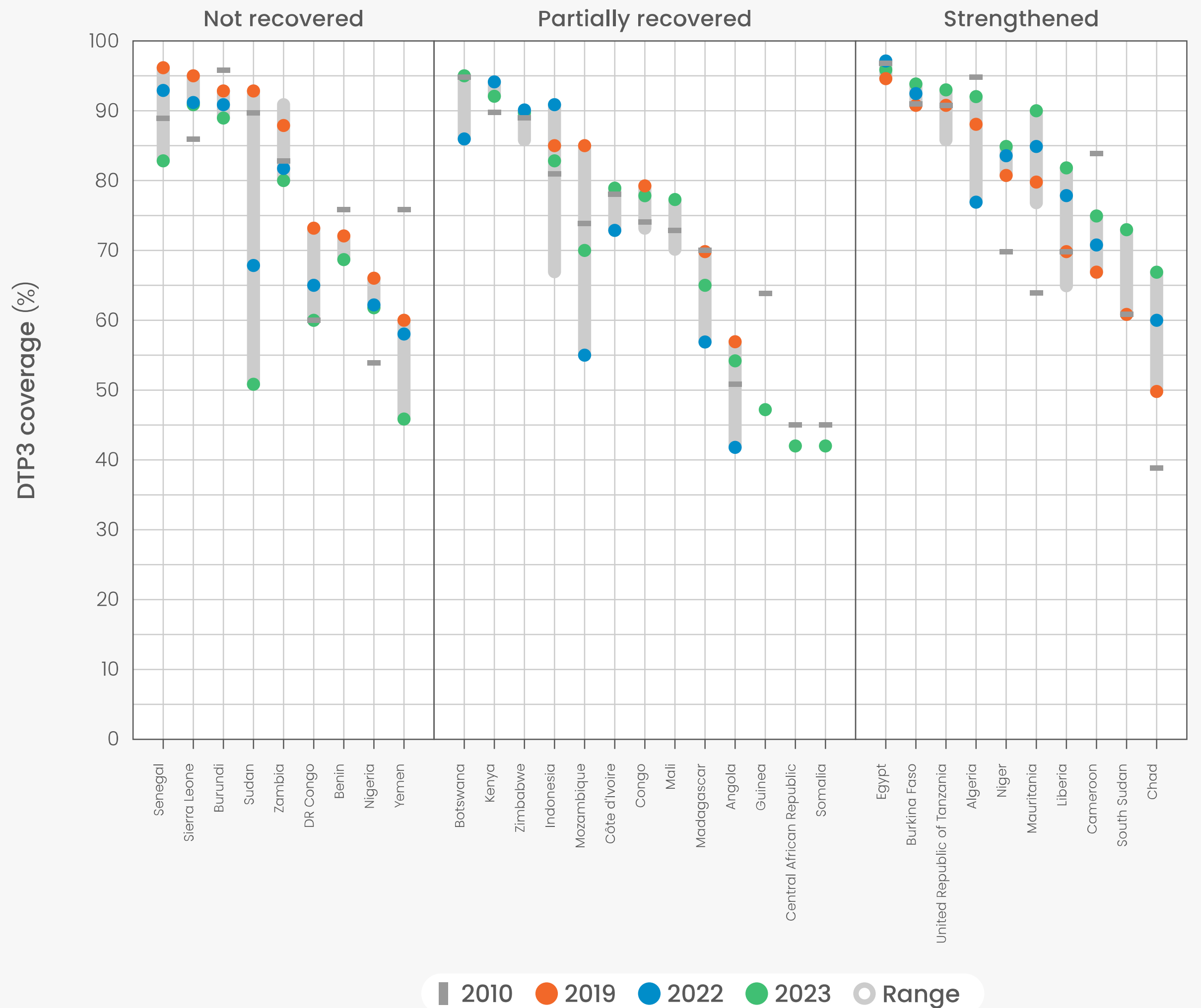


● DTP3 ● IPV1 ● IPV2



Many countries with cVDPV circulation have not yet sufficiently strengthened coverage to control future outbreaks

Countries with low routine immunization coverage are vulnerable to outbreaks of circulating vaccine derived polio virus. Only some of these countries have managed to strengthen their coverage above the 2019 baseline value.



Yellow Fever vaccine coverage remains too low in countries at risk

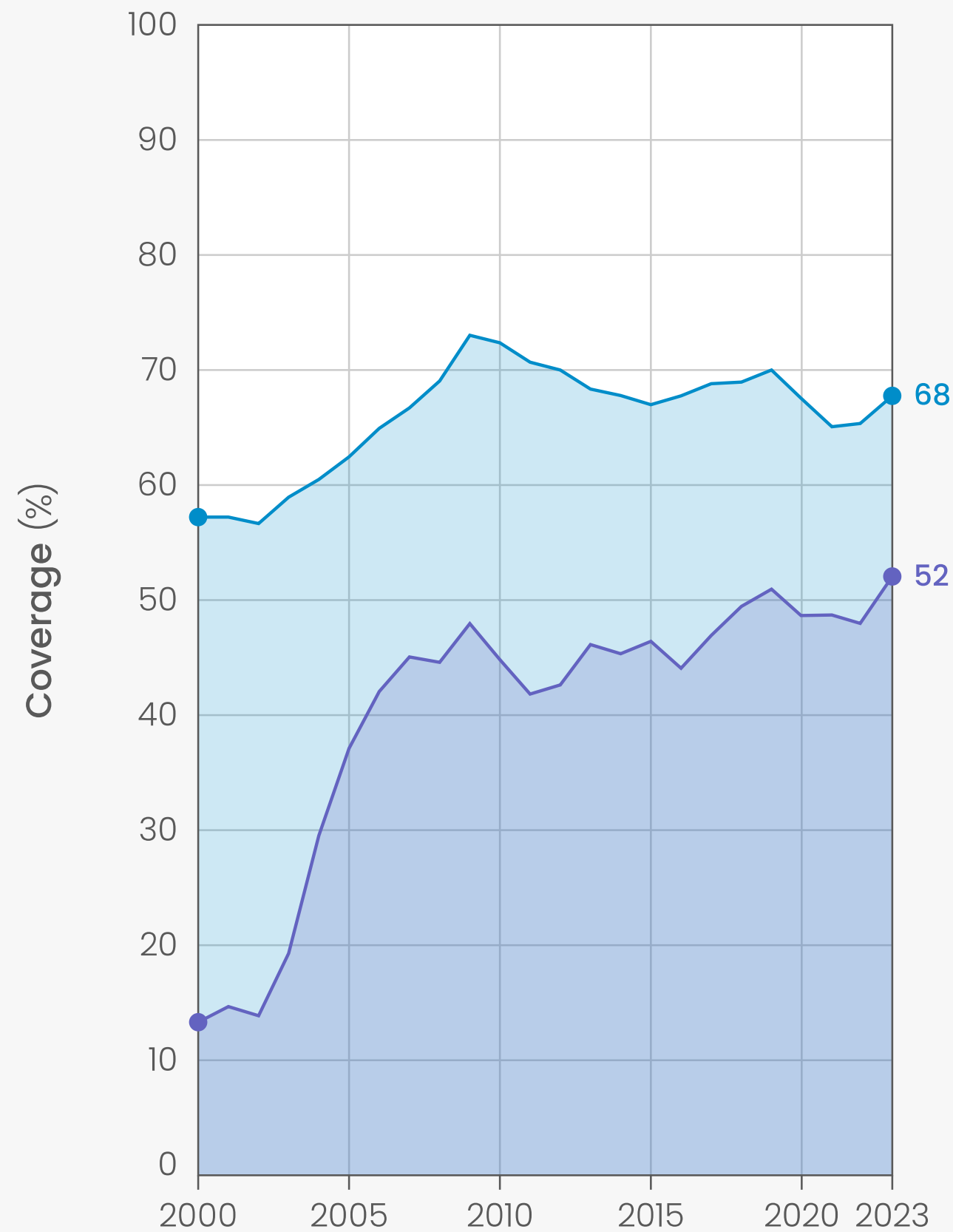
Across all countries at risk, coverage with yellow fever vaccine (YFV) stands at only 52%, partly because some large countries (Sudan, South Sudan, and Ethiopia) still need to introduce this vaccine, and partly because many countries at risk of yellow fever have weak systems and low coverage.

Furthermore, uptake of YFV is not yet optimal, as shown by the gap between YFV and measles coverage. The right-hand panel compares YFV coverage in the 33 countries that introduced it nationally to measles coverage achieved in the same countries, which shows a 7 percentage point difference.

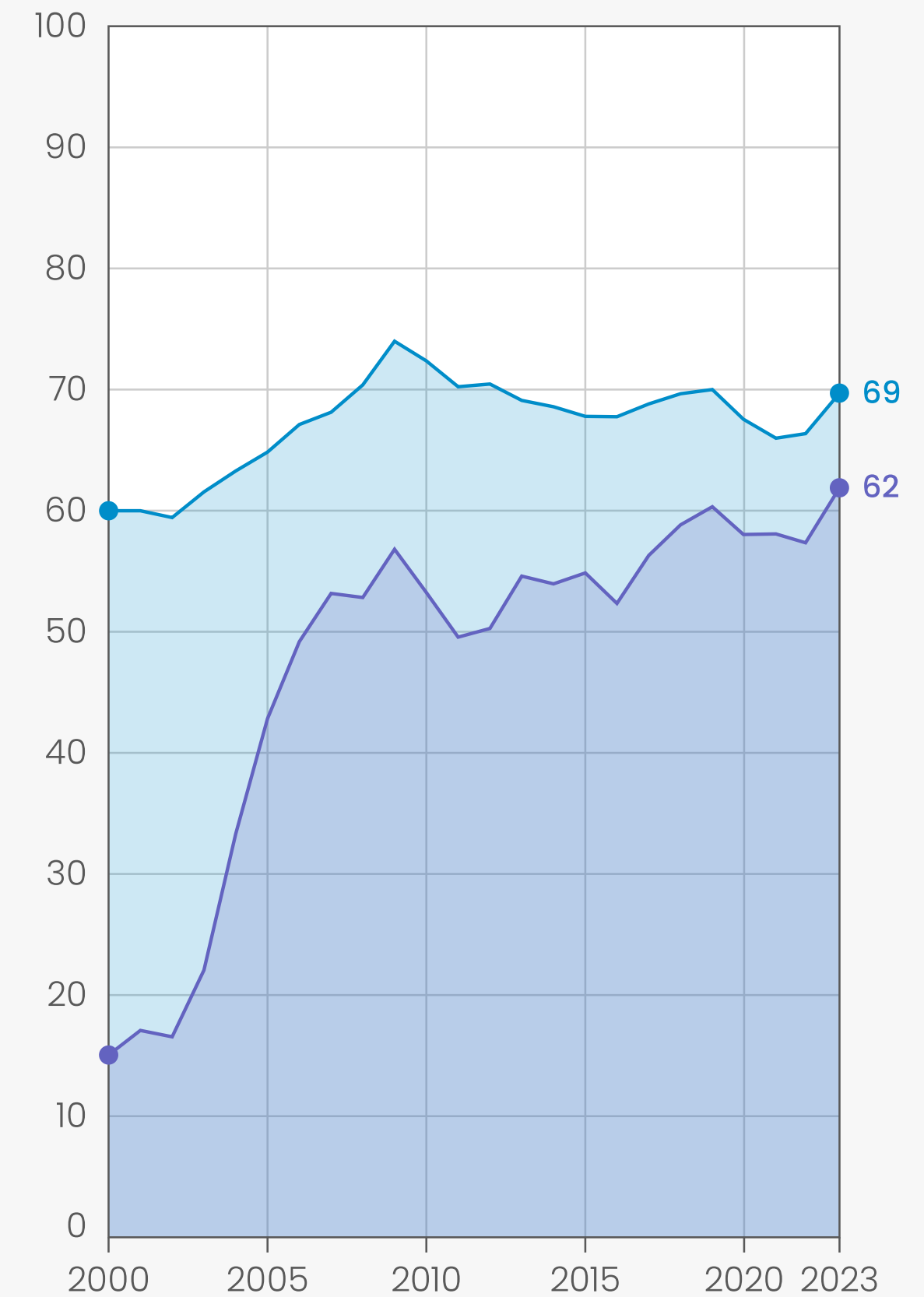
Analysis excludes countries with subnational risk (Argentina, Kenya and Panama)



All countries at risk for YF (N=36)



Countries at risk for YF and having introduced YFV in the national immunization schedule (N=33)



● MCV1 ● YFV

Global HPV vaccine coverage among girls substantially increased

The positive trend observed since last year was confirmed and strong increases in first and final dose global HPV coverage among girls were registered in 2023.

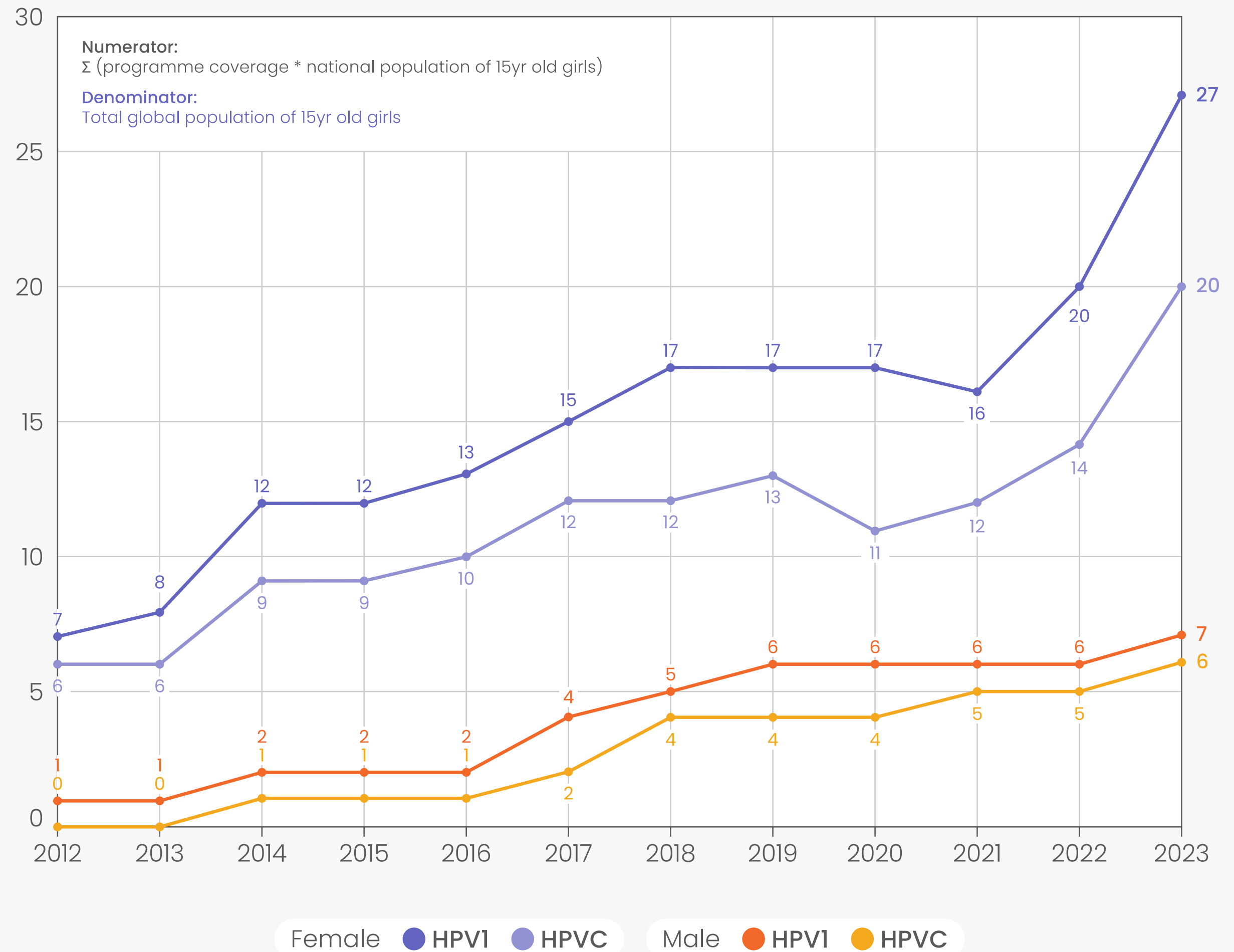
Increase in HPV coverage is driven particularly by new introductions and programme expansion combined with encouraging signs of recovery of coverage in existing programmes.

All countries are included in global and regional calculations. Countries with HPV programmes but not reporting in 2023 are flatlined based on 2022 data.

Countries where HPV vaccine has not been introduced are included in the calculation of the estimate using a value of zero.



Global HPV Vaccine Coverage (%)



HPV vaccine coverage in countries nearly restored to pre-pandemic level

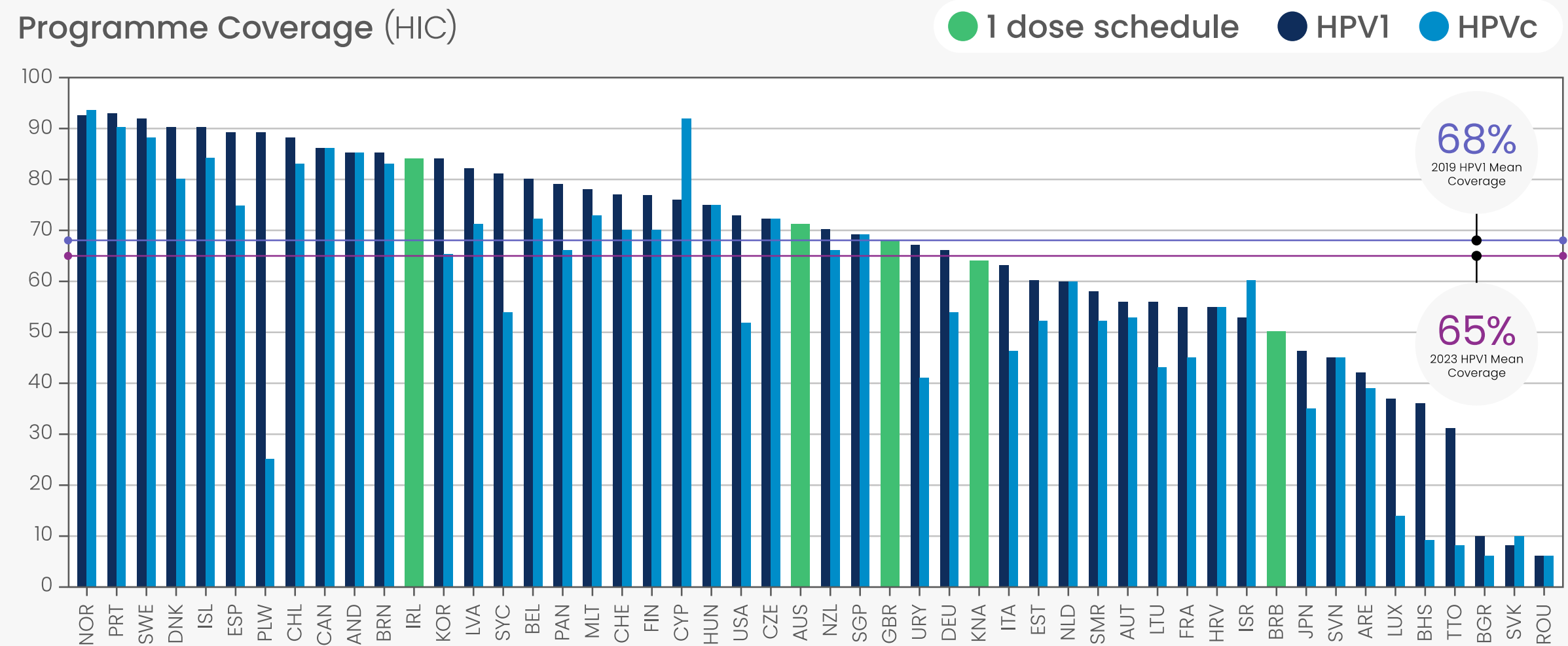
Average coverage improved in L&MIC in 2023, but still not recovered to 2019 levels. HIC continue to show stable program performance

In L&MIC mean first dose coverage increased to 59% but is still lower than that in 2019 (63%).

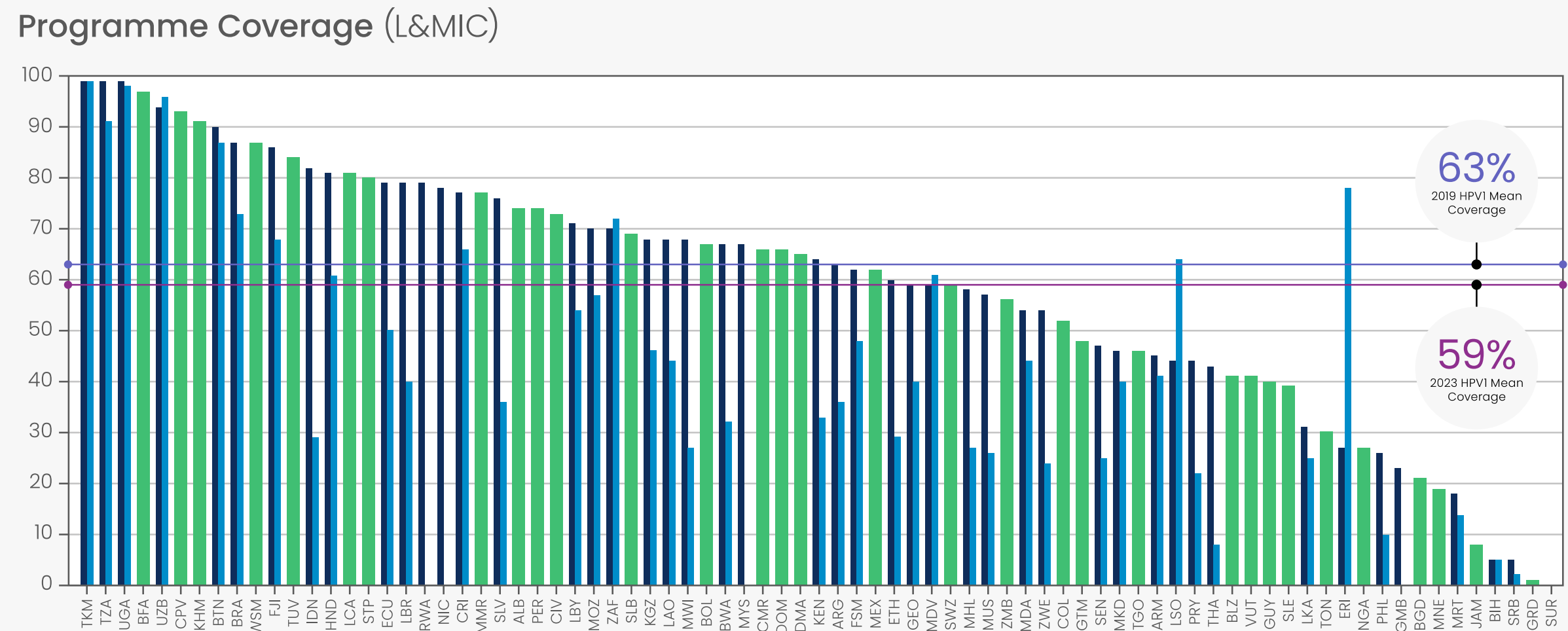
Meanwhile, HIC continue to show stable coverage (mean 65%) comparable to pre-pandemic levels. However limited signs of strengthening among low performing programmes were seen

By the end of 2023, 37 countries had started implementation of a single-dose schedule, both in higher and lower income settings.

Programme Coverage (HIC)



Programme Coverage (L&MIC)



Single-dose schedule can help to increase coverage

Strong uptake of single-dose HPV schedule has boosted HPV vaccine coverage. 37 countries started implementation of the single dose schedule in 2023.

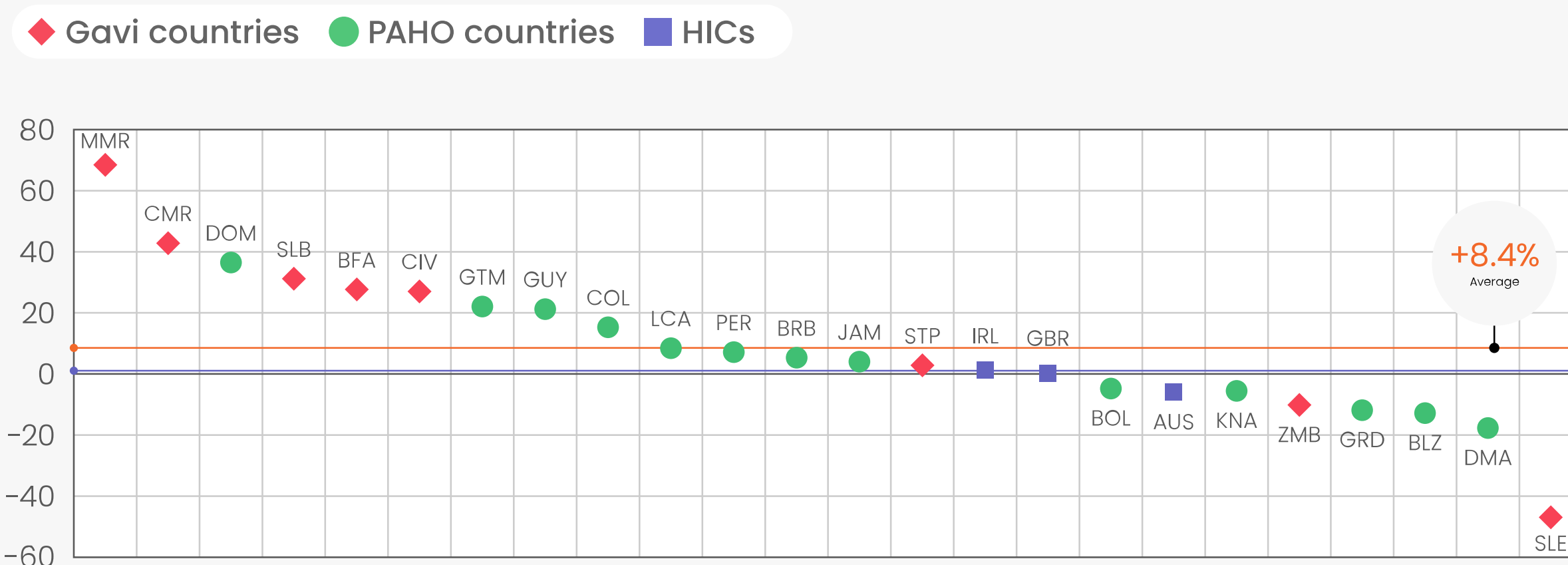
47% of the 28M girls 9–14-year-old that received a first dose of HPV globally in 2023 lived in a single-dose schedule country

By starting 1-dose schedules in 2023 an estimated 6M additional girls have been reached - through earlier introductions or additional age cohorts targeted.

Switching to single-dose increased HPV coverage in the large majority of countries – on average by 8%.

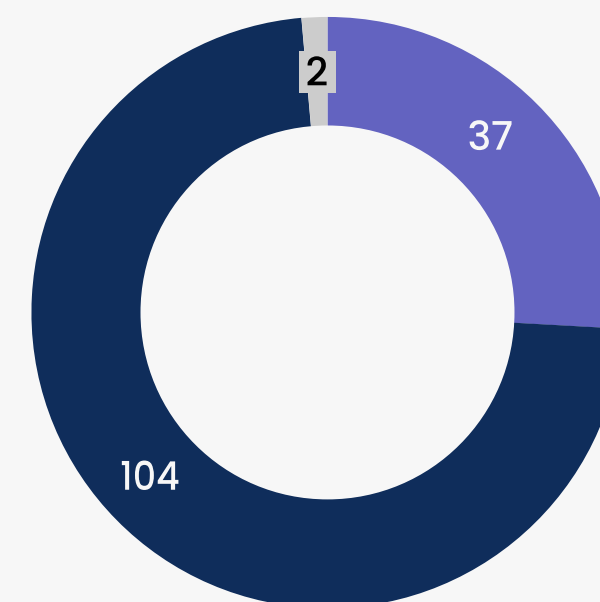
Offering catch-up possibilities in single dose programmes remains crucial to further increase coverage.

Difference in HPV1 between 2023 & 2022 (absolute % points) among countries switching from 2 to 1 dose in 2023 (n=24)

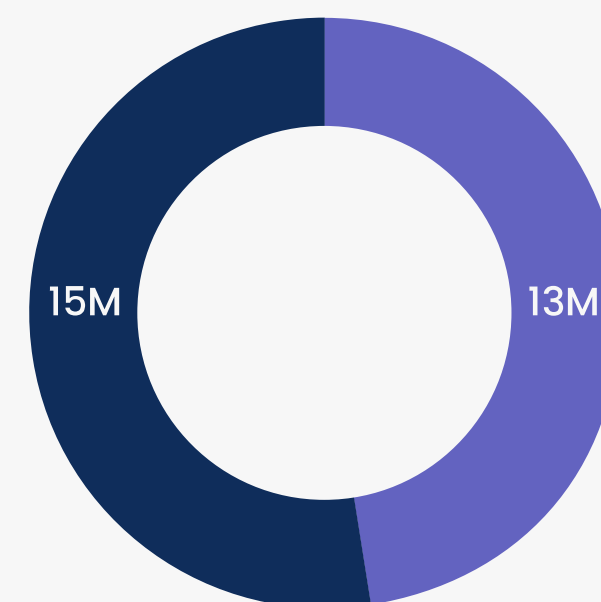


Globally, nearly half of all girls were on a single dose schedule while only 37 countries implemented the single dose schedule.

Number of countries that have HPV vaccine, by schedule



Number of 9-14 year old girls who received first dose in 2023, by schedule



- 1 dose schedule
- 2 dose schedule
- Others

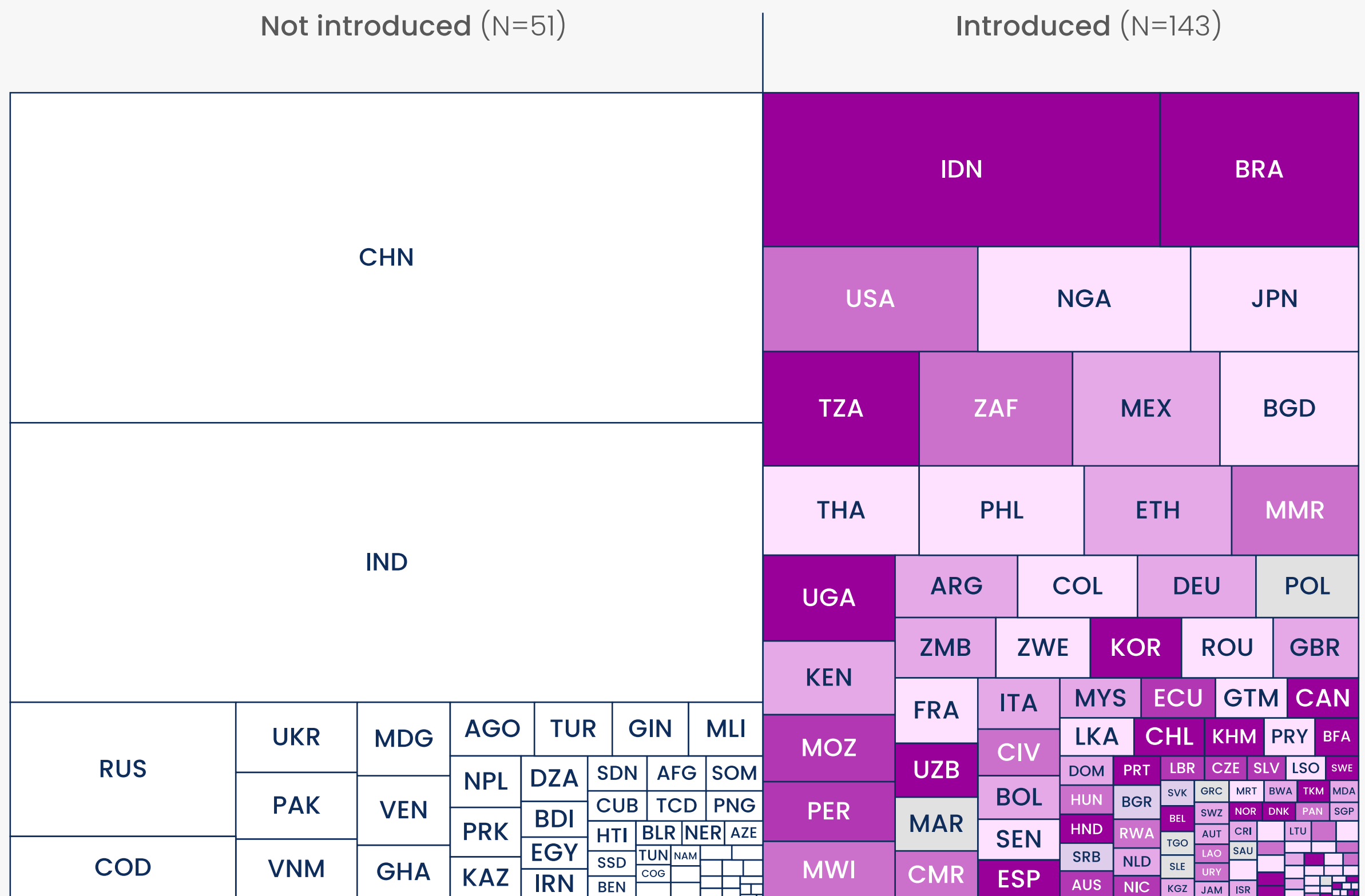


HPV vaccine still needs to be introduced in countries with more than half the global burden of cervical cancer (56%)

Following the introduction in several large countries in 2023, nearly half the global burden of cervical cancer is now protected by access to HPV vaccine programmes.

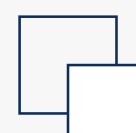
44% of the global burden of cervical cancer, 660.000 new cases each year (Globocan 2022), is in countries where girls can access HPV vaccines.

Over the coming year at least 5 countries with nearly a third of the remaining burden plan to introduce HPV to protect their girls



HPV1 coverage

○ 0% ◐ <50% ◑ 50-59% ◒ 60-69% ◓ 70-79% ◔ ≥80% ◕ No estimates available

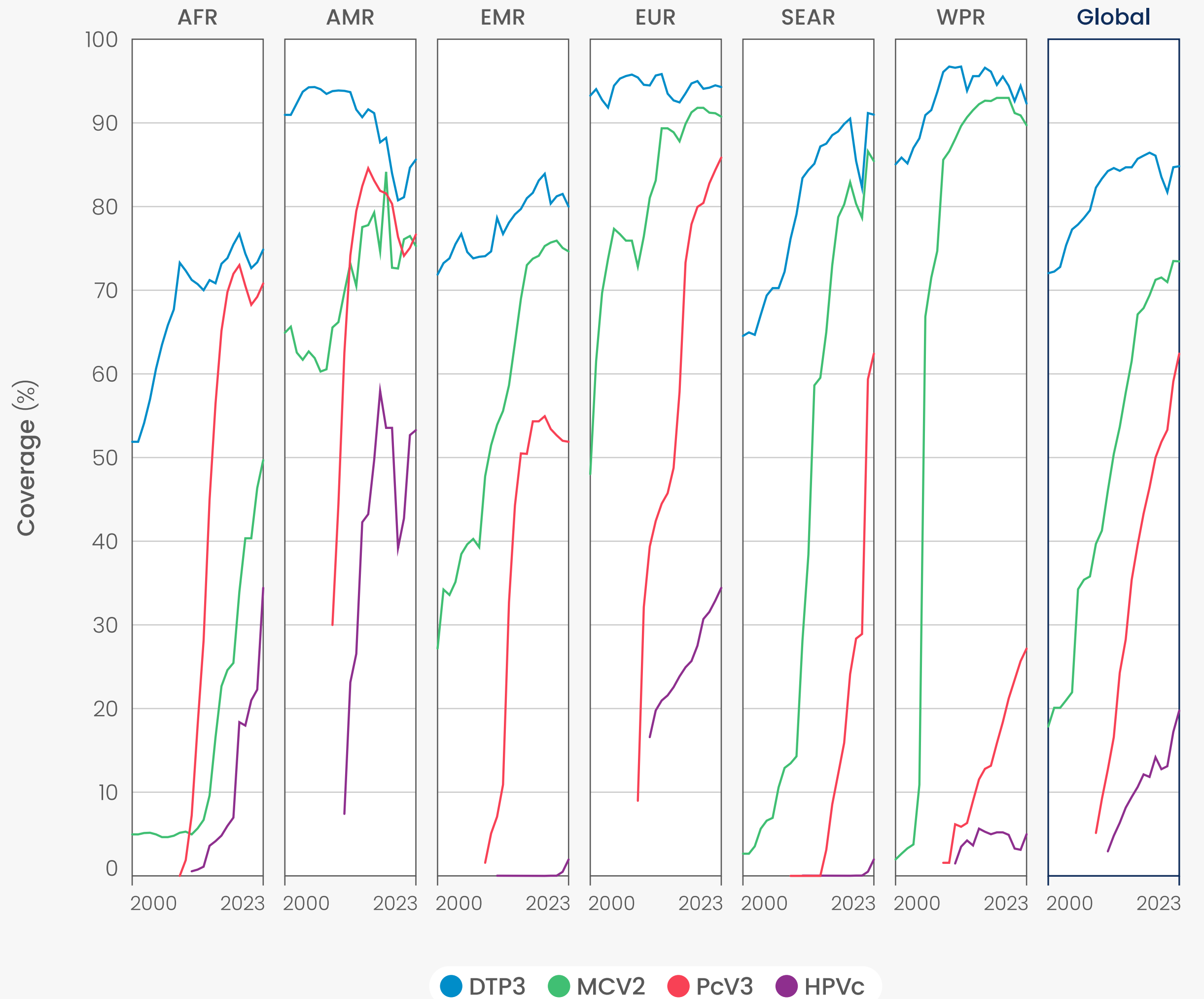


Size of the squares is proportional to the number of annual cervical cancer cases



Coverage with all vaccines that are used to monitor progress of Sustainable Development Goal 3 (SDG3)

While DTP3 seems to stagnate at the global level and across many regions, coverage of newer vaccines is making better progress.



Where to find data and background information on immunization coverage estimates and related data

WUENIC and the annual immunization data reported by countries are available on [WHO and UNICEF Immunization data portals](#)

- www.who.int/data/immunization
- <https://data.unicef.org/topic/child-health/immunization/>

WHO and UNICEF coverage estimates [methods](#) and [country profiles](#):

- <https://www.who.int/teams/immunization-vaccines-and-biologicals/immunization-analysis-and-insights/global-monitoring/immunization-coverage/who-unicef-estimates-of-national-immunization-coverage>
- <https://worldhealthorg.shinyapps.io/wuenic-trends/>

For more information on the [Immunization Agenda 2030](#), please visit

- www.immunizationagenda2030.org/

For more information on “Big Catch-Up”, please visit

- www.who.int/news/item/24-04-2023-global-partners-announce-a-new-effort-the-big-catch-up-to-vaccinate-millions-of-children-and-restore-immunization-progress-lost-during-the-pandemic
- www.who.int/publications/i/item/9789240075511
- www.gavi.org/vaccineswork/one-year-big-catch-what-progress

- [Interim 2024 MI4A Public Vaccine Purchase Dataset](#) available through WHO’s [Market Information for Access Initiative](#). The dataset includes price, procurement and volume information reported to WHO and UNICEF. It is published to improve market transparency and increase equitable access to vaccines and immunization coverage. MI4A has released an interim dataset of data reported by countries as of 26 June 2024. WHO will release the final version of the dataset in September 2024.

- www.who.int/publications/m/item/interim-2024-mi4a-public-vaccine-purchase-dataset

- The [WHO expenditure dashboard](#) describes key concepts and associated indicators underpinning Sustainable Financing for Immunization. The preliminary data are available here:

- <https://who-f4i-dev.proto.qclear.app/>

- The brief [“Access to Immunization in Middle-Income Countries: Immunization Agenda 2030 in-depth review”](#) highlights immunization performance in middle-income countries, from 2019 to 2022, visualizing progress towards IA2030 Impact Goals and Strategic Priority indicators. The brief also reviews four bottlenecks slowing progress and highlights major initiatives supporting middle-income countries.

- <https://www.immunizationagenda2030.org/resources/62-unequal-access-to-immunization-in-middle-income-countries-immunization-agenda-2030-in-depth-review>