

PERFORMANCE OF MIDDLE-INCOME COUNTRIES:



IMPACT GOALS, BASELINE-2021 IMMUNIZATION AGENDA 2030

KEY POINTS:

- This brief presents immunization performance developments in middle-income countries (MICs) during the first two years of the COVID-19 pandemic (2020–2021), adapting a selection of Immunization Agenda 2030 Impact Goals indicators from the [Immunization Agenda 2030 \(IA2030\) scorecard](#).
- We observe that during these two years, vaccine coverage declined more in MICs not eligible for Gavi, the Vaccine Alliance (Gavi) than in other country groups, with coverage for certain vaccines, like HPVc, dropping precipitously. Disruptions in routine immunization negatively affect disease control efforts and the number of lives that can be saved through immunization.
- Equity measures also showed negative trends, with the number of zero-dose children in non-Gavi MICs growing by 3.1 million from 2019 to 2021, an increase of 61%.
- Without significant efforts to recover immunization coverage levels and catch-up children who have missed vaccinations, the target of averting 50 million deaths globally by immunization during the IA2030 decade, 2021–2030, may not be met. Non-Gavi MICs are particularly vulnerable, as coverage rates dropped the most in these countries.

I. WHY FOCUS ON MIDDLE-INCOME COUNTRIES

Each year, one out of every two infants (68 million) is born in a middle-income country (MIC) that is ineligible for support from Gavi (see Box 1 for income threshold).^{1,2} Further, nearly one out of every two zero-dose children, meaning those who have not received a first dose of a vaccine containing diphtheria-pertussis-tetanus (DTP), live in non-Gavi-eligible MICs.

Box 1: Middle-income countries (MICs) include both lower middle- and upper middle-income countries. For the 2023 fiscal year (i.e., GNI in 2021), the World Bank defines lower middle-income countries (LMICs) as economies with a gross national income (GNI) per capita, calculated using the World Bank Atlas method, of between US\$1,086 and US\$4,256 and upper middle-income countries (UMICs) as those with GNI per capita of between US\$4,256 and US\$13,205 (World Bank, 2023). In 2021, countries were eligible for new vaccine introduction and health system and immunization strengthening support from Gavi, the Vaccine Alliance if their GNI per capita was below US\$1,630 (Gavi, 2021)³.

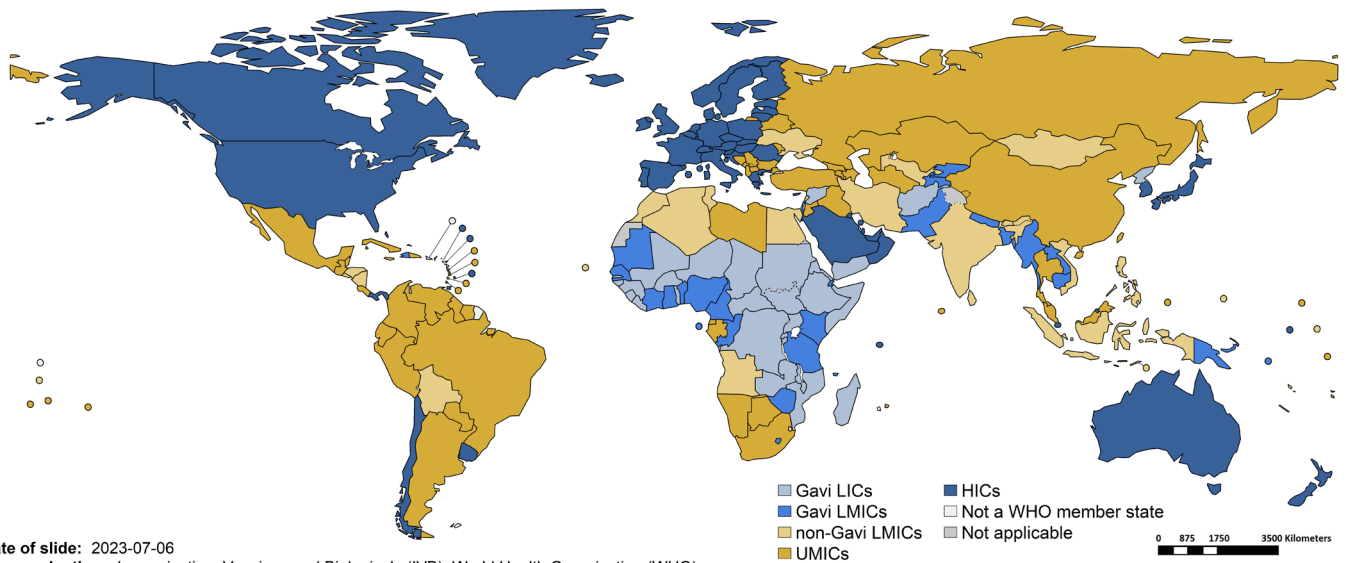
To understand the nature of performance gaps in MICs, WHO convened a Middle-Income Country Task Force in 2014 to develop a strategy and plan of action (WHO, 2015). The Task Force assessed immunization performance, concluding in a 2015 white paper that non-Gavi-eligible MICs represent a large share of un- and under-protected children because such countries face challenges in 1) strong decision-making, 2) financial sustainability, 3) adequate demand and supply of services, and 4) affordable access to supply (MIC Task Force, 2015). The IA2030 Secretariat established a working group on MICs to identify risks and opportunities and ensure partner dialogue to derive solutions, initially producing a MIC Annex in 2020 to the IA2030 Framework for Action. The Annex includes baseline estimates for MIC performance as well as modeling estimates of the number of additional lives to be saved with new vaccine introductions (Immunization Agenda 2030, 2020).

¹ Data are as of 2021 if not otherwise stated.

² In 2020, eighty-two countries were non-Gavi-eligible MICs, with 55 upper-middle-income countries and 27 lower-middle-income countries. (Gavi, 2023). WHO member states are listed in this web page: <https://www.who.int/countries>
See World Bank Country Classification: <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>

³ Refers to traditional sources of support from Gavi, the Vaccine Alliance, excepting the Gavi MICs Approach.

Figure 1. Overview of countries by Gavi and income group



Date of slide: 2023-07-06

Map production: Immunization, Vaccines and Biologicals (IVB), World Health Organization (WHO)

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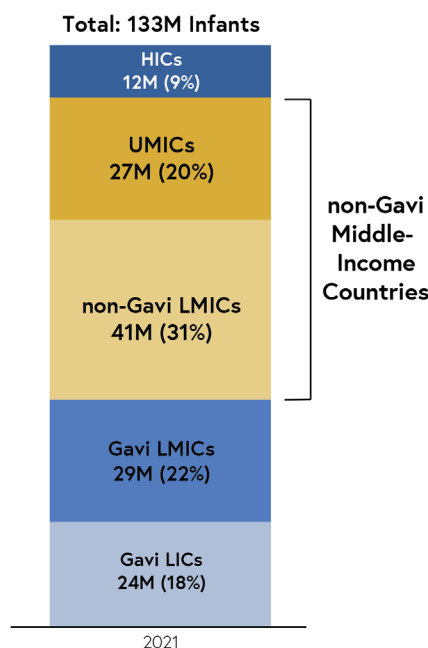
The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area nor of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.
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During the 2019 global resurgence of measles, MICs were notable for having large outbreaks and struggling to access funding to respond (WHO, 2019, Mbivnjo, 2022). MICs also face challenges accessing funding to fill immunity gaps and prevent such outbreaks from occurring. Measles elimination in the Americas was initially threatened and then lost by outbreaks in one MIC (Brazil) (Sato 2023). Then came the COVID-19 pandemic.

As shown in the charts below, the performance of MICs in 2021 was measurably different across five of the seven IA2030 Impact Goals when countries were ineligible for Gavi support. Without urgent action to extend targeted support for these countries, the 2030 global targets endorsed by WHO member states will not be met, and tens of thousands of preventable deaths will occur.

Figure 2. Proportion of the global surviving infant population represented in each Gavi and income group out of 133 million surviving children globally (countries represented) in 2021



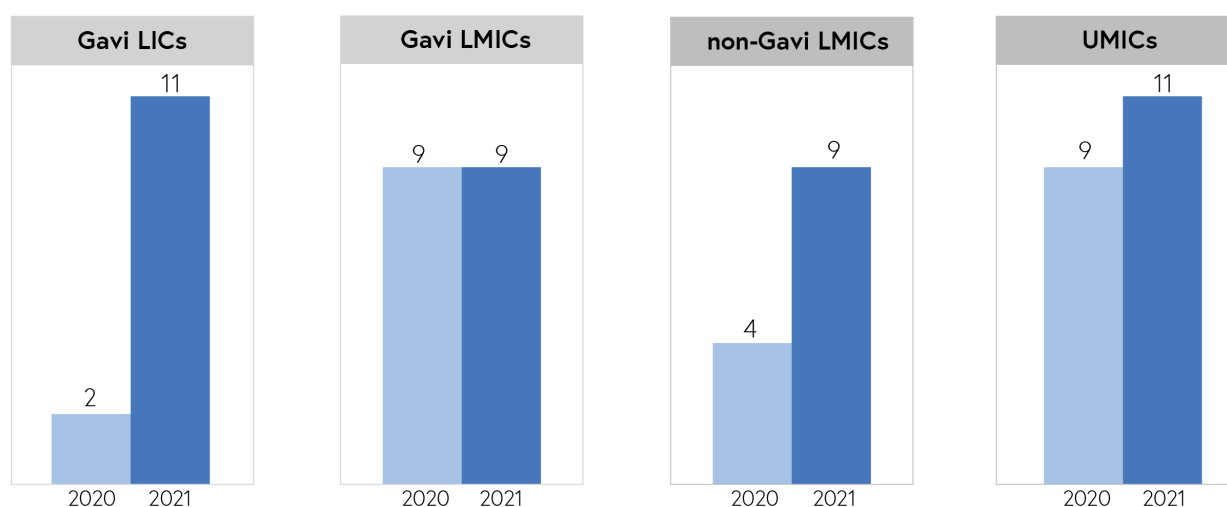
II. VACCINE COVERAGE: STAGNATION, SETBACKS, AND INEQUITIES

Vaccine Introduction

The global target of 500 cumulative new or underutilized vaccine introductions in low- and middle-income countries by 2030 assumes an average of 50 annual introductions per year for all included countries. In 2021, apart from COVID-19 vaccine introductions, non-Gavi-eligible MICs completed 20 vaccine introductions in total.

Aside from COVID-19 vaccine introductions, there were relatively few introductions of new and underutilized vaccines⁴ in non-Gavi MICs. In the 27 LMICs that are not Gavi-eligible, there were nine such introductions in 2021. In the 55 UMICs, also not Gavi-eligible, there were just 11 vaccine introductions.

Figure 3. Number of new or underutilized vaccines introduced to low- and middle-income countries (excepting COVID-19 vaccine introductions)



Coverage

The coverage of vaccines containing antigens for diphtheria-pertussis tetanus (DTP3), measles (MCV2), pneumococcus (PCV3), and human papillomavirus (HPVc) stagnated or decreased during the first two pandemic years (see Figure 4). As such, the global target for Impact Goal 3.1 of 90% coverage by 2030 is off track for all four vaccines.

⁴ Vaccines included in this indicator that are recommended by WHO for use in national immunization schedules in all countries: HepB birth dose, Hib, HPV, IPV2, MCV2, PCV, rotavirus, rubella, DTP booster (currently reporting the fourth dose at any age), and COVID-19 (interim recommendations).

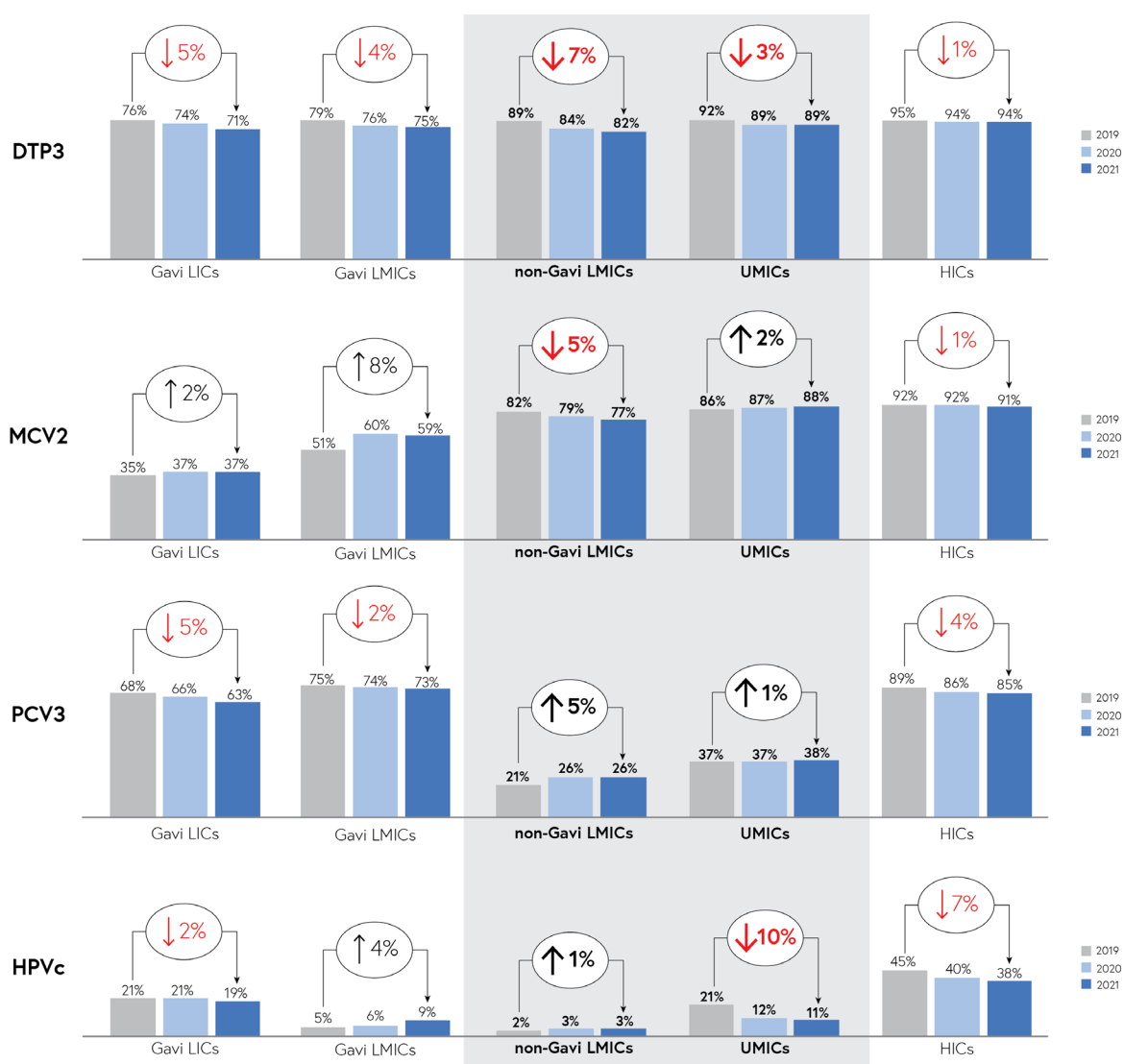
DTP3 coverage. Of all country groupings, the biggest decrease in DTP3 coverage, from 89% to 82%, was seen in non-Gavi LMICs.

Measles coverage. Global coverage of a second dose of a measles-containing vaccine was stagnant globally, while MCV2 coverage dropped in non-Gavi LMICs by five percentage points.

New vaccine coverage. In 2021, non-Gavi-supported MICs had much lower PCV3 coverage than Gavi-eligible LMICs, with PCV3 coverage of 26% in non-Gavi LMICs compared to 73% in Gavi-eligible LMICs. PCV3 coverage in UMICs was stagnant at 38% in 2021.

Meanwhile, HPVc vaccine coverage dropped globally between 2019 and 2021, remaining very low and off-track for meeting 2030 targets, with similar trends within each country group. However, HPVc coverage increased slightly in Gavi-LMICs, reaching 9% coverage in 2021, while coverage was stagnant at 3% in non-Gavi LMICs. From 2019 to 2021, HPVc coverage in UMICs decreased by 10 percentage points.

Figure 4. Vaccination coverage across the life course – DTP3, MCV2, PCV3, and HPVc

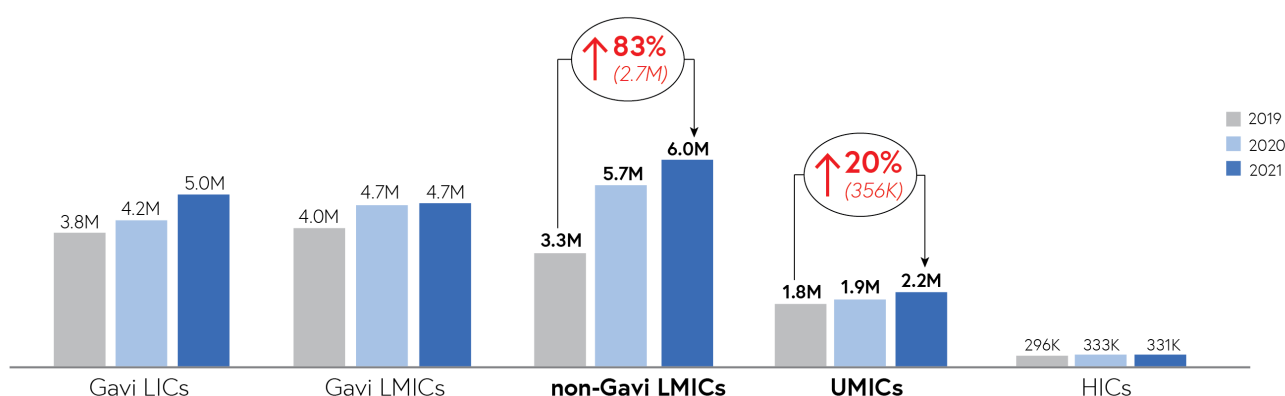


Zero Dose Status

Globally, the number of zero-dose children, or those not receiving DTP1, increased during the first two pandemic years. As such, Impact Goal 2.1 is off-track toward the global target of decreasing the number of zero-dose children by 50% from 2019 to 2030.

Within each country group, more children missed out on DTP1 in 2021 when compared to 2019, but the number of zero-dose children increased significantly in MICs, as seen in Figure 5. The number of zero-dose children in non-Gavi MICs grew by 3.1 million, from 5.1 million in 2019 to 8.3 million in 2021, which is 45% of the global tally of zero-dose children for 2021 (18.2 million global zero-dose children in 2021, not shown).

Figure 5. Number of zero-dose children



III. CONTROL OF VACCINE-PREVENTABLE DISEASE

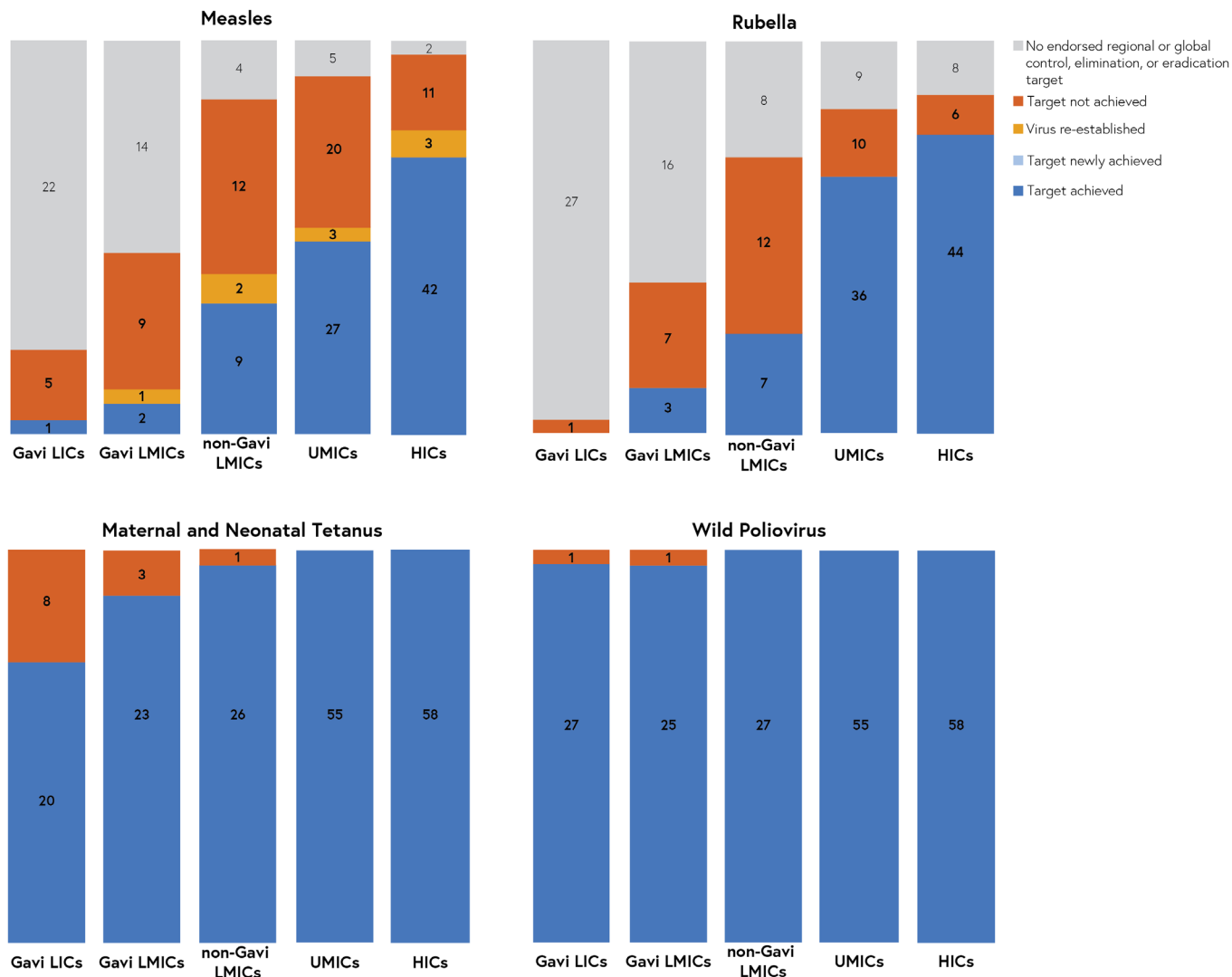
Disruptions in vaccine coverage described above will negatively affect disease control efforts and the number of lives that can be saved through immunization worldwide. Data from 2021 largely do not reflect such dynamics, but current performance measures for non-Gavi MICs in disease control efforts are concerning, particularly for measles and rubella. The pandemic may have a more severe impact on the burden of vaccine-preventable disease and mortality across the life span in certain countries based on their income level and eligibility for donor support.

Outbreaks and Emergencies

Disease control, elimination, and eradication. Impact Goal 1.2 measures progress towards control, elimination, or eradication targets of vaccine-preventable diseases, endorsed at either the global or regional level. When compared to IA2030's baseline year, each year should see more countries achieve the targets and avoid backsliding.

One great risk of lowered vaccine coverage is measles outbreaks and backsliding in achieving measles elimination. Progress toward achieving, maintaining, and regaining measles elimination targets has stalled. Figure 6 shows that 37 MICs ineligible for Gavi support have not achieved measles elimination targets. Several non-Gavi MICs that re-established measles transmission after large outbreaks have not been able to regain their elimination status. Twenty-two non-Gavi wMICs have not achieved the target set for rubella elimination.

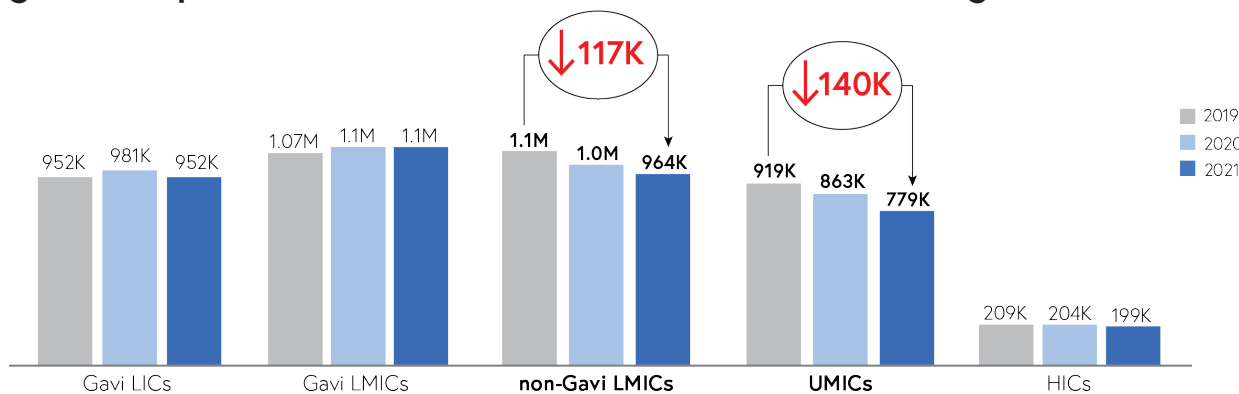
Figure 6. Status of eradication and elimination targets for measles, rubella, maternal and neonatal tetanus, and wild poliovirus in 2021



Vaccine-averted deaths

Coverage declines for nearly all antigens mean Impact Goal 1.1, the modeled number of deaths averted by immunization, is off track to reach 50 million deaths averted from 2021–2030.⁵ MIC countries unsupported by Gavi show a greater decline in the number of future deaths averted during pandemic years (2020–2021) than countries with Gavi support. This was caused by declines in vaccine coverage and a high number of zero-dose children, as described above.

Figure 7. Expected number of future deaths averted through immunization



⁵ WHO/WUENIC Immunization Coverage estimates, estimates of deaths averted from Vaccine Impact Modeling Consortium (VICM), Global Burden of Disease

IV. CONCLUSION

Limitations

Many of these measures represent the status of immunization systems mid-pandemic and illustrate the risks of serious backsliding in non-Gavi MICs. We await the 2022 data to more fully understand the seriousness of performance developments in MICs. Many years of redoubled effort as well as additional financial and technical resources will likely be necessary in these countries.

Conclusions

While non-Gavi MICs have large populations and significant vaccine-preventable disease, especially in non-Gavi LMICs, countries with this classification do not receive significant immunization services funding or internationally coordinated technical support. While still decided primarily based on GNI, donor support increasingly considers vulnerability metrics (UN 2022). Many MICs struggle with weak institutions, limited health budgets, and shortfalls in service delivery. Technical and financial support will need to be tailored to suit country-specific needs. Promising new initiatives like Gavi's MICs Approach should be joined by continued efforts to increase political will and domestic financing while ensuring sufficient coverage of existing vaccines by addressing vaccine demand, service delivery, and accountability. Countries could benefit by accelerating the introduction and scaling up of PCV and HPV vaccines, which would rapidly reduce vaccine-preventable disease in MICs. Further, efforts to strengthen immunization systems are needed to achieve and sustain measles and rubella elimination in MICs. These efforts would bolster vaccine effectiveness across entire programs, including for newly introduced vaccines, by improving access to stronger health care systems, raising the quality of surveillance, extending the role of laboratories in public health, and improving monitoring of the whole program.

Worrisome trends and pandemic-exacerbated inequities across nearly all IA2030 Impact Goal indicators are apparent. Disproportionate backsliding in non-Gavi-eligible MICs highlights the need to better account for equity and vulnerability measures in aid allocations. Visualizing inequities in vaccine access based on donor eligibility may foster greater engagement by current and newer partners to take steps to address barriers, strengthen immunization systems, and ensure life-saving services reach infants, children, and adolescents worldwide.

About the IA2030 Scorecard:

The IA2030 Scorecard visualizes the monitoring and evaluation indicators of the IA2030 Framework for Action endorsed in 2020 by the World Health Assembly with the support of countries and partners. The scorecard is a collaborative initiative led by the IA2030 effort with support from USAID's MOMENTUM Country and Global Leadership.

The Performance of Middle-Income Countries: Impact Goals, Baseline-2021 was developed by the Immunization Agenda 2030 Working Group on Middle-Income Countries, co-led by Nathalie Vande Maele (WHO) and Blandine Bourgoin (Clinton Health Access Initiative), with support from the Scorecard team.

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Draft Summary for Comment

Contact details

Nathalie Vande Maele - vandemaelen@who.int

Blandine Bourgoin - bbourgoin@clintonhealthaccess.org

