The big catch-up in immunisation coverage after the COVID-19 pandemic: progress and challenges to achieving equitable recovery

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Each year in mid-July WHO and UNICEF jointly release Estimates of National Immunization Coverage (WUENIC) for 195 member states. These estimates are the culmination of a comprehensive collection of essential health data, involving immunisation staff in every country, with data validated against large scale surveys and events such as vaccine stock-outs or other local service interruptions. The WUENIC 2021 estimates[1] showed the COVID-19 pandemic induced major disruptions to routine immunisation services that resulted in immunisation losses not seen for decades, which hampered polio eradication efforts and led to a resurgence of outbreaks of measles and yellow fever and increasing reports of diseases such as diphtheria and pertussis.[2–5] Reduced and delayed vaccination against human papillomavirus will incur future consequences with preventable cases of cervical cancer among women, mainly in low-income and middle-income countries where the burden is highest, and screening and treatment are weakest.[6] The Immunization Agenda 2030 (IA2030), ratified by all member states in 2020, committed to reduce by half the world's zero-dose children (ie, immunisation coverage), and promises to "leave no one behind" (ie, equity).[7] WHO and UNICEF, with partner Gavi, the Vaccine Alliance and IA2030 have designated 2023 as an intensified year of action termed "The Big Catch-Up", calling for catching-up children who have missed immunisations, restoration of immunisation services to pre-pandemic levels, and strengthening these services to achieve IA2030 targets.[8] IA2030 calls for evidence-informed, target-driven, and experience-based accountability by immunisation partners and country programmes and for implementation to achieve quantitative commitments on immunisation coverage and equity made by every country.[9]

It is encouraging that in the 2023 WUENIC reporting of 2022 immunisation coverage, with pandemic barriers removed and the concerted efforts of countries, there are 3·8 million fewer zero-dose children—ie, children not receiving a single dose of a diphtheria, tetanus, pertussis vaccine (DTP1).[10] Countries' response to the major disruption to immunisation is generating results. Here we draw on these new WUENIC estimates,[10] which were released on July 18, 2023, to examine impacts on the status of immunisation coverage and equity goals of IA2030.

At the start of 2023, recovery had begun. But this recovery is uneven. Low-income countries show virtually no recovery in 2022, and middle-income countries, formerly supported by Gavi, are somewhat slow to recover. DTP1 vaccination, which defines zero-dose children, has partly returned to pre-pandemic levels globally, but in the low-income country group is still 5% below 2019 levels.[10] Meanwhile, in low-income countries, measles vaccination shows a lower recovery trajectory, being 7% below 2019 levels and the drop-out rate between children receiving DTP1 and DTP3, or measles-containing-vaccine first-dose (MCV1) stands at 13% and 18%, respectively, far above the drop-out rates for any other income group.[10] Globally, the monthly number of ongoing large measles outbreaks

Panel: **How to achieve sustainable and equitable post-pandemic recovery in immunisation coverage**

- Identify and address low coverage throughout the life course of the poorest and most disadvantaged individuals and communities.
- Identify barriers to uptake of vaccination services due to age, location, social, and cultural and gender-related factors, and use evidence-based approaches to overcome these barriers to achieving high, equitable coverage. Building trust in vaccine programmes is especially important after the COVID-19 pandemic.
- Address the role of gender in accessing vaccination services and use gender-responsive strategies to overcome the barriers faced by recipients, caregivers, service providers, and health workers.
- Use measles cases and outbreaks as a tracer to identify weaknesses in immunisation programmes, and to guide programmatic planning in identifying and addressing these weaknesses.
- Use the experience of disease eradication and elimination initiatives in reaching the most marginalised populations and integrate successful strategies for delivery and accountability into immunisation programmes, with the full integration of disease control perspectives into primary health care.
- Develop, evaluate, and scale up innovative, locally tailored, evidence-based, people-centred approaches and context-specific interventions to reach poorly served populations, including through strengthening local capacity to conduct implementation research on coverage and equity.

The text of this panel is derived from the Immunization Agenda 2030.[7]

almost doubled from January to December, 2022, rising to 32 countries.[10] Susceptibility to measles accumulated from pandemic disruption of immunisation services and delays to supplementary vaccination campaigns, often fuelled by political instability and cross-border conflicts that weaken or destroy immunisation services.[11]

The recovery in immunisation coverage is also geographically uneven. Regions, such as southeast Asia and the Eastern Mediterranean that had achieved year-on-year improvements in the decade before the COVID-19 pandemic are the most resilient, with more rapid and robust recoveries. Regions with immunisation programme stagnation in the years leading into the COVID-19 pandemic continued that trend, while regions with longstanding declines in vaccine coverage continued to decline during the pandemic into 2022, notwithstanding hard-won gains in some countries.[10] These observations support the notion that sustained health system investment and strengthening assures vaccine programme resilience in crises and pandemic preparedness.

The decade before the COVID-19 pandemic saw global stagnation in vaccination coverage.[12] The recovery in immunisation coverage in many settings in 2022 predominantly resulted from reinstating services disrupted during the pandemic. But these services were not optimal and left out 12·9 million children from any routine immunisations in 2019.[10] The WUENIC estimates report 14·3 million zero-dose children in 2022, down from a high of 18·1 million in 2021 but still an 11% increase above the 2019 value.[10] The impact of the COVID-19 pandemic was to amplify the annual number of zero-dose children by 5·2 million more children beyond those being missed already as a result of structural problems affecting immunisation services that preceded the pandemic and persist in 2023. If the benefits of vaccination are to reach all children equitably, community-centred health system strengthening for quality and ease of access, community and parental engagement for demand and confidence, reliable vaccine stock supply, and tailored immunisation programming for difficult-to-access communities are all needed.[13] The ability of countries to recover rapidly and increase immunisation coverage in a short period shows that intensive efforts can result in improved outcomes. Once recovery can be achieved in every country, and improvement sustained, then we will be closer to a world where every child, adolescent, and adult is afforded the right to protection from vaccine-preventable infectious disease and death.

A primary strategic focus for country immunisation programmes has been on reducing the absolute number of zero-dose children. This approach is proving successful with early gains seen in DTP1 coverage and these efforts should continue. However, the newly released WUENIC estimates for 2022[10] highlight it is time to sharpen the focus on use of additional metrics of immunisation risk and progress. The panel shows the steps needed to achieve sustainable and equitable progress in immunisation coverage according to the third strategic priority of the IA2030.[7] Both coverage and equity should be explicitly targeted for improvement, since one may not necessarily follow from achieving the other.

For all countries, political commitment, conducive policy, and workforce capacity that allow and encourage catch-up vaccination in children older than target eligibility is crucial to complete recovery in immunisation coverage and sustain progress. Vaccination that is fully cost-free to all recipients, domestic investment in primary health care (including through repurposing remaining pandemic funds), and jurisdictional independence for local priority setting and political ownership and commitment are all needed for locally relevant actions that resolve barriers in access and demand to achieve and sustain the immunisation system strengthening that is required. Such long-term and sustainable investments will also produce resilience from future shocks.

The WUENIC coverage estimates for 2022[10] suggest that despite the setbacks of the COVID-19 pandemic, the IA2030 impact goals can be achieved but only with intensified commitment and a single-minded focus on ensuring children are reached by and remain within immunisation services. This will entail reaching communities where there are zero-dose children, even if communities are remote or small, ensuring that children complete their schedules with all recommended vaccines, and detecting pockets of low immunisation, in otherwise well immunised urban areas, that can sustain disease transmission. Better identification of settings where there is low vaccine coverage, including understanding the contexts where multiple vulnerabilities co-exist, such as low uptake of immunisation together with poor nutrition or other deprivations or risk factors, will allow targeted, integrated approaches. Such granular understanding requires locally relevant and actionable

data and microplanning by local immunisation managers who know their own communities, are empowered to implement the plans they devise, alongside the leveraging of immunisation as the backbone of primary health care. Statistics and global averages are important, but local contexts are most relevant for impactful action on the ground. Targeting the largest absolute numbers of zero-dose children will maximise the total good that can be achieved, while targeting immunisation coverage rates (not only numbers) and drop-out measures will ensure programme gains are equitable, as the WUENIC data show. Doing the most good, most efficiently, and doing so equitably requires trade-offs in immunisation programme investments. Even while focusing on making the largest absolute gains in vaccine coverage, stakeholders must confront the challenging task of reaching everyone, everywhere—no matter how far, no matter how few.

This year's WUENIC data show a recovery underway, albeit uneven, of immunisation coverage, and these data highlight the need to intensify efforts to address equity. The COVID-19 pandemic knocked countries off the trajectory towards vaccine and immunisation success by 2030, but the ongoing recovery shows that countries are taking action, partners are geared up, and that the goals and the vision of IA2030 are achievable.

KLO'B is the Director of WHO's Department of Immunization, Vaccines and Biologicals. EL is UNICEF's Associate Director-Health, Chief of Immunization. We are both, in our official capacities, responsible for the joint production of WUENIC estimates. We declare no other competing interests.

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1 WHO, UNICEF. WHO and UNICEF estimates of immunization coverage: 2021 revision, July 2022. Geneva: World Health Organization, 2022.
2 Shet A, Carr K, Danovaro-Holliday MC, et al. Impact of the SARS-CoV-2 pandemic on routine immunisation services: evidence of disruption and recovery from 170 countries and territories. *Lancet Global Health* 2022; **10:** e186–94.
3 Causey K, Fullman N, Sorensen RJD, et al. Estimating global and regional disruptions to routine childhood vaccine coverage during the COVID-19 pandemic in 2020: a modelling study. *Lancet* 2021; **398:** 522–34.
4 WHO. Yellow fever—African Region. Jan 3, 2023. https://www.who.int/emergencies/disease-outbreak-news/item/2022-DON431 (accessed July 11, 2023).
5 Bigouette JP, Henderson E, Traoré MA, et al. Update on vaccine-derived poliovirus outbreaks—worldwide, January 2021–December 2022. *MMWR Morb Mortal Wkly Rep* 2023; **72:** 366–71.
6 WHO. Human papillomavirus vaccines: WHO position paper, December 2022. *Weekly Epidemiol Record* 2022; **50:** 645–72.
7 Immunization Agenda 2030. Immunization Agenda 2030: a global strategy to leave no one behind. https://www.immunizationagenda2030.org/ (accessed July 12, 2023).
8 WHO, Gavi, the Vaccine Alliance, Immunization Agenda 2030, UNICEF. The big catch-up: an essential recovery immunization plan for 2023 and beyond. Geneva: World Health Organization, 2023. https://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? (accessed July 12, 2023).
9 WHO. 73rd World Health Assembly. Immunization Agenda 2030. Geneva: World Health Organization, 2021. https://apps.who.int/gb/ebwha/pdf_files/WHA73/A73(9)-en.pdf (accessed July 11, 2023).
10 WHO, UNICEF. WHO and UNICEF estimates of immunization coverage: 2022 revision. July 18, 2023. Geneva: World Health Organization, 2023. https://www.who.int/teams/immunization-vaccines-and-biologicals/immunization-analysis-and-insights/global-monitoring/immunization-coverage/who-unicef-estimates-of-national-immunization-coverage (accessed July 18, 2023).
11 Ho LL, Gurung S, Mirza I, et al. Impact of the SARS-CoV-2 pandemic on vaccine-preventable disease campaigns. *Int J Infect Dis* 2022; **119:** 201–09.
12 Nnaji CA, Owoyemi AJ, Amaechi UA, Wiyeh AB, Ndwandwe DE, Wiysonge CS. Taking stock of global immunisation coverage progress: the gains, the losses and the journey ahead. *Int Health* 2021; **13:** 653–57.
13 O'Brien K, Lemango E, Nandy R, Lindstrand A. The immunization Agenda 2030: a vision of global impact, reaching all, grounded in the realities of a changing world. *Vaccine* 2022; published online Dec 15. https://doi.org/10.1016/j.vaccine.2022.02.073.

Rising tide: opportunities for accelerating action on drowning prevention

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Drowning leads to an estimated 236 000 deaths annually, with 90% of the burden in low-income and middle-income countries (LMICs).[1] This inequity is due to differential exposure, treatment, and recovery outcomes for drownings. Children from socioeconomically disadvantaged and rural communities are at the highest risk of drowning due to their increased exposure to unsafe water bodies.[2–4] The risk of drowning is increased by environmental factors such as monsoons and flooding as well as limited access to emergency services and swimming lessons.[2–4] Climate crisis, displacement, and political inaction on safe migration routes amplify drowning risk for populations such as refugees, artisanal fishers, coastal communities, and those exposed to flooding.[5,6]

Drowning prevention gained significant attention in May, 2023, when 81 countries supported the World Health Assembly (WHA) resolution for accelerating action on global drowning prevention.[7] The WHA resolution builds on the 2021 UN General Assembly