

# Building resiliency in immunization programs in the time of COVID-19 recovery

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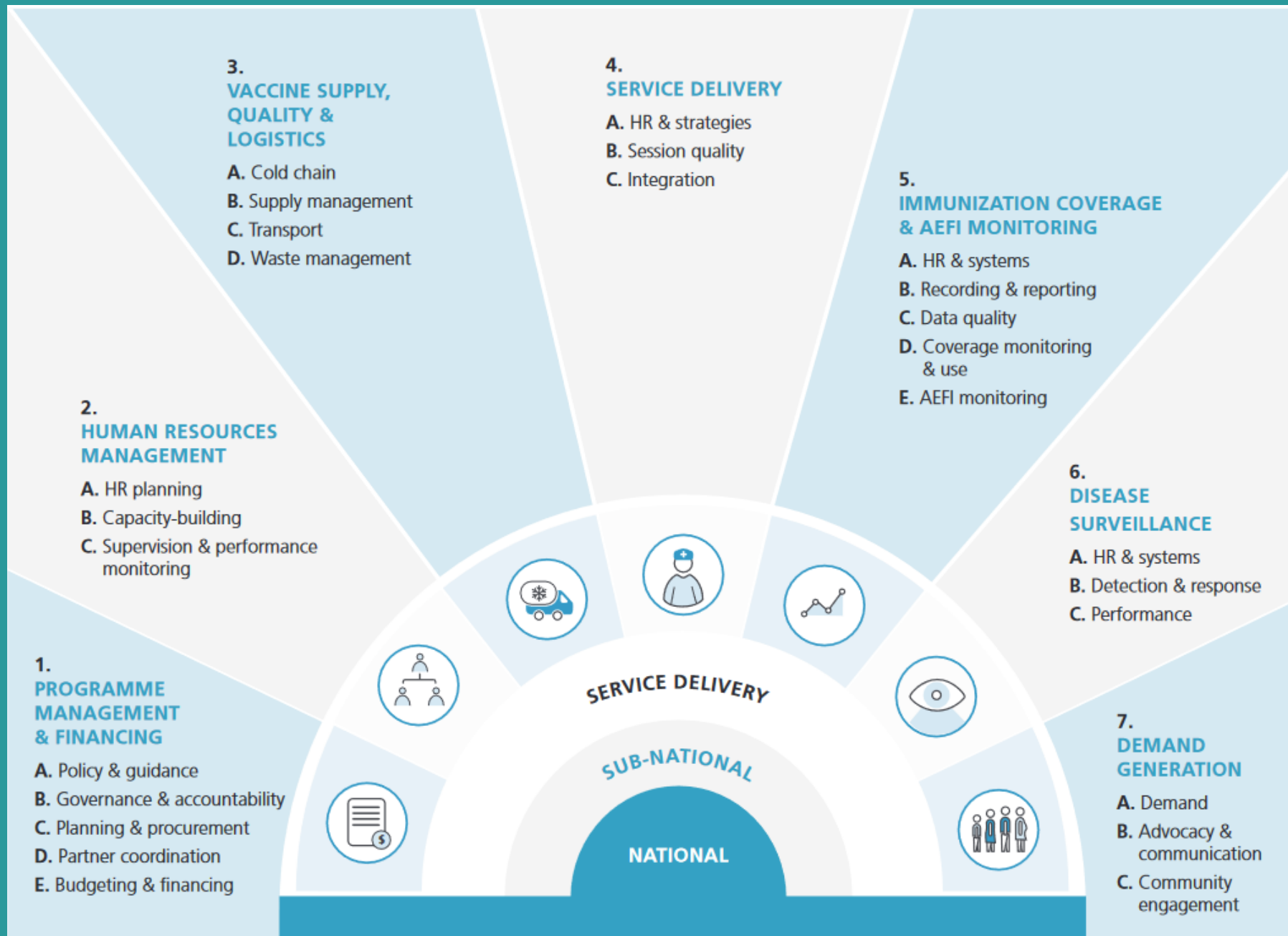
# Definitions

## **Essential immunization systems:**

- A comprehensive structure for ensuring nationally recommended vaccines are delivered in a safe, accessible and predictable manner to aware & engaged communities



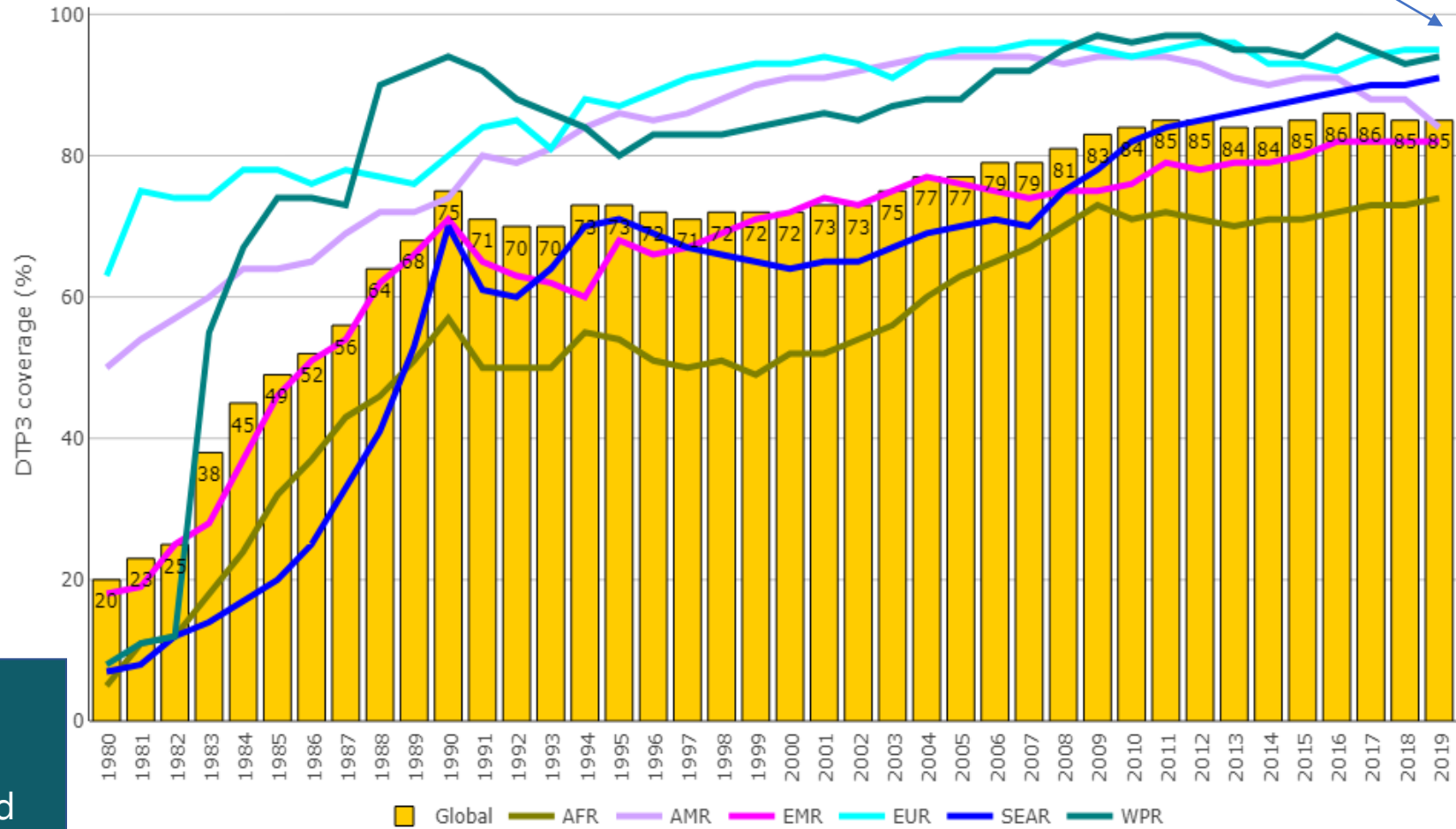
# The major components of a national immunization program



**By 2019, national immunization programs had achieved incredible success in providing recommended vaccinations**

85% of children were being reached with recommended vaccines worldwide in 2019

Most national immunization programs started around 1980





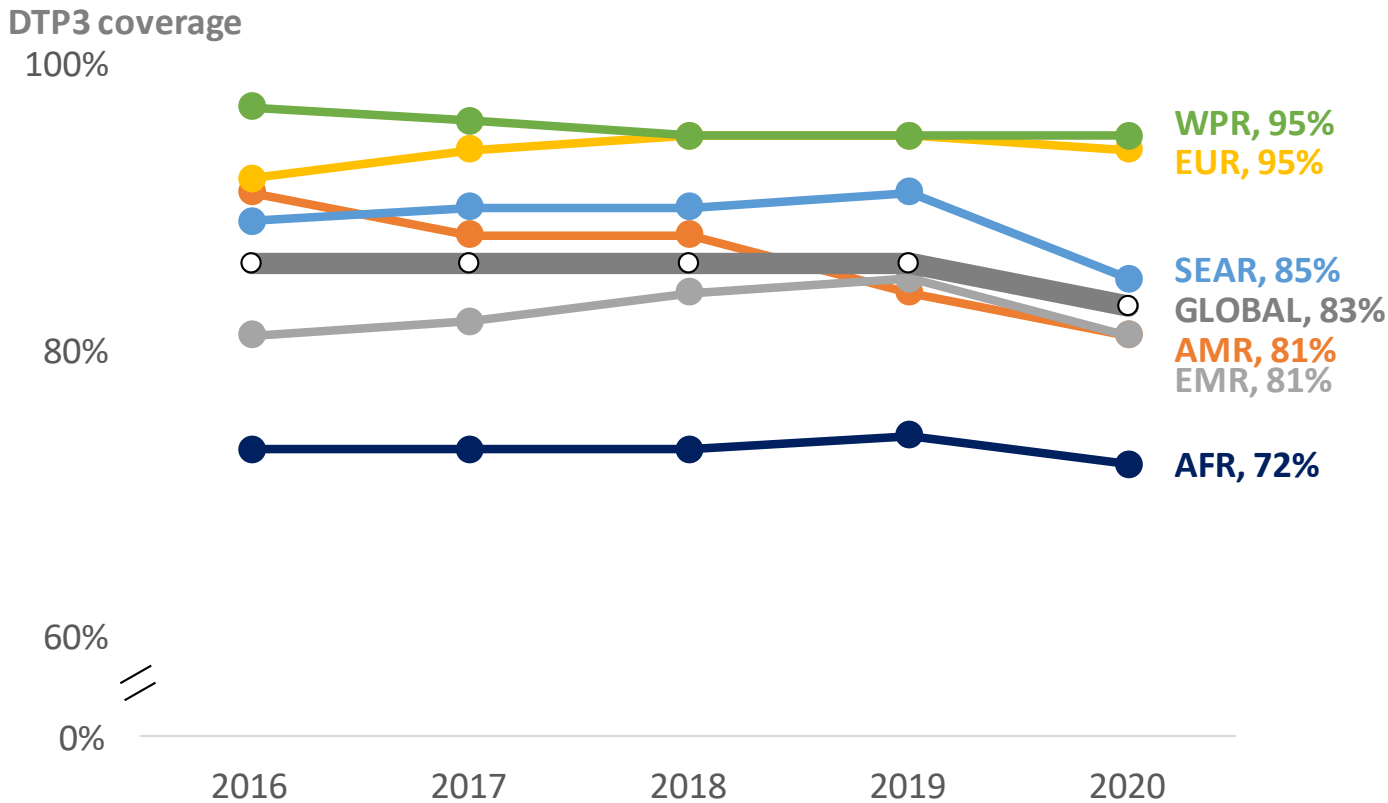


**2020:  
The COVID-19  
pandemic  
causes major  
disruptions to  
health systems  
worldwide**



# Global childhood immunization programs were heavily impacted by COVID-19 pandemic, 2020–2021

Childhood routine immunization coverage in 2020 **decreased** to levels not seen since 2009



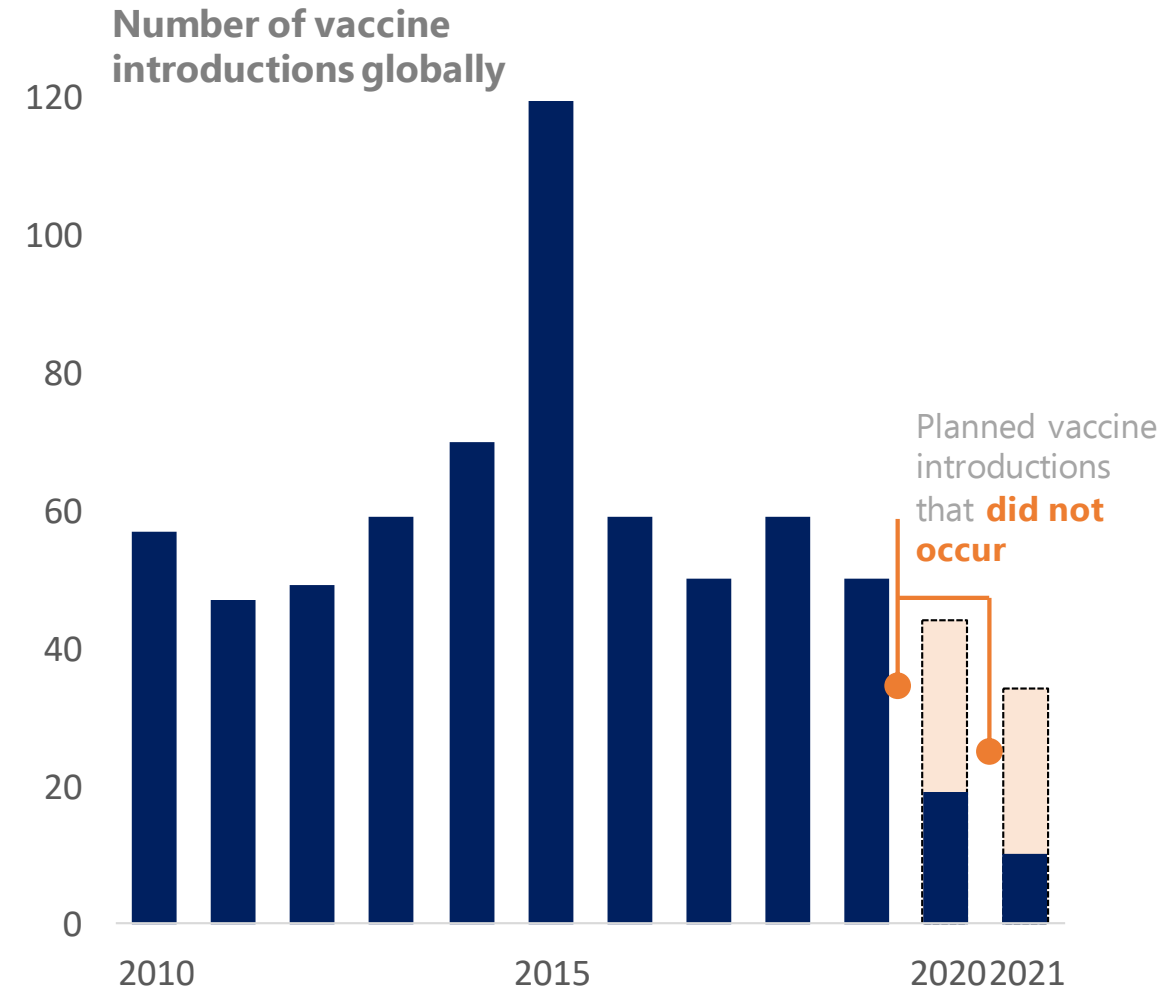
Data source: WHO/UNICEF DTP coverage estimates, released 15-July-2021. \*WPR would also decrease if China coverage not included in 2020

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- **Widespread impacts:** routine immunization coverage decreased in 5 of 6\* WHO regions (>50% of countries) in 2020 vs 2019
- **26% increase** in under-vaccinated in 2020
- 22.7 million total under-vaccinated in 2020, **3.7 million more** than observed in 2019
- >50% of surveyed countries **persistent disruptions** to routine immunization visits through late 2021
- **Increasing risk of vaccine-preventable disease (VPD) outbreaks**

# Life-saving vaccines were not introduced during 2020 and 2021 as planned, impacting morbidity and mortality reduction efforts

- Pneumococcal, rotavirus, measles 2<sup>nd</sup> dose, & human papillomavirus (HPV) vaccine introductions most heavily impacted
  - *Pneumonia and diarrhea* - leading causes of preventable child deaths (~22%)
- Introductions completed in 2021 also appear much more limited than initially planned
- Measles 2<sup>nd</sup> dose introduction delays increase susceptible populations and risk of large and disruptive outbreaks, posing global health security threat
- HPV vaccine delivery for adolescent girls in 2020 doubly impacted due to school & health facility closures - exacerbating gender inequities



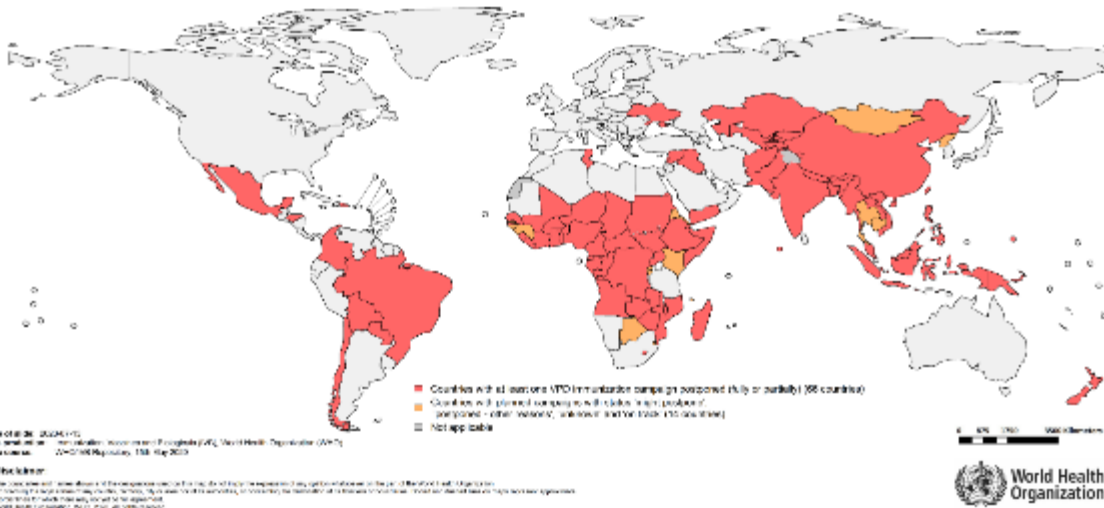
Data source: Planned vaccine introductions in 2020 and 2021 based on WHO estimates as of late 2019. 2020 introduction figure based on WHO estimates as of mid-2021. 2021 introduction estimate based on unofficial WHO tracking.

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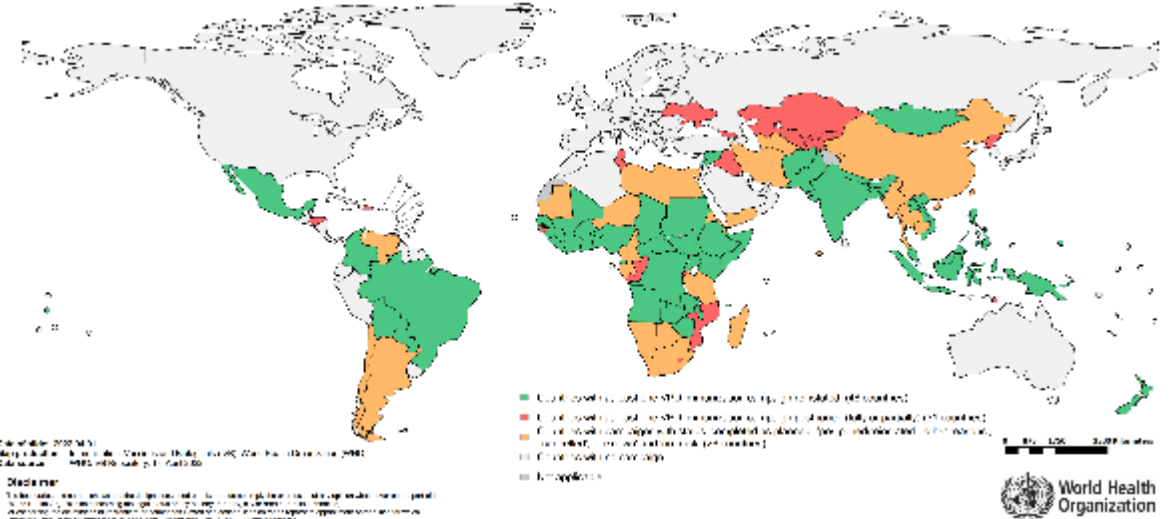
# Many campaigns reinstated after initial disruptions in 2020, but many remain postponed in 2022

15 May 2020



- **66 countries** with at least one VPD immunization campaign postponed due to COVID-19.

1 April 2022



- **31 countries** with at least one campaign postponed due to COVID-19 (**35 campaigns** postponed: estimated target population affected approximately **133 million**).
- **48 countries reinstated 92 campaigns** (preventive or outbreak response). **Of those, 15 countries conducted multi-antigen integrated campaigns** (Sept 2020 – March 2022)

Note: \*Reinstated (Covid-19) = Campaign which was previously postponed due to Covid-19 but have restarted/ completed





# Addressing The COVID-19 Pandemic In the Early Phase: Public Health & Social Measures

- Public Health and Social Measures : A comprehensive COVID-19 mitigation approach
- Risk-based tiering approach dependent on COVID-19 disease spread
- Public health and social measure examples:
  - Social distancing, mask wearing, stay at home, closing non-essential businesses, remote working, cancel mass gatherings

## Considerations for implementing and adjusting public health and social measures in the context of COVID-19

Interim guidance

14 June 2021



### Key Messages

- Public health and social measures (PHSM) have proven critical to limiting transmission of COVID-19 and reducing deaths.
- The decision to introduce, adapt or lift PHSM should be based primarily on a situational assessment of the intensity of transmission and the capacity of the health system to respond, but must also be considered in light of the effects these measures may have on the general welfare of society and individuals.
- Indicators and suggested thresholds are provided to gauge both the intensity of transmission and the capacity of the health system to respond; taken together, these provide a basis for guiding the adjustment of PHSM. Measures are indicative and need to be tailored to local contexts.
- PHSM must be continuously adjusted to the intensity of transmission and capacity of the health system in a country and at sub-national levels.
- When PHSM are adjusted, communities should be fully consulted and engaged before changes are made.
- In settings where robust PHSMs are otherwise in place to control the spread of SARS-CoV-2, allowing the relaxation of some measures for individuals with natural or vaccine-induced immunity may contribute to limiting the economic and social hardship of control measures. Applying such individualized public health measures must take into account a number of ethical and technical considerations.

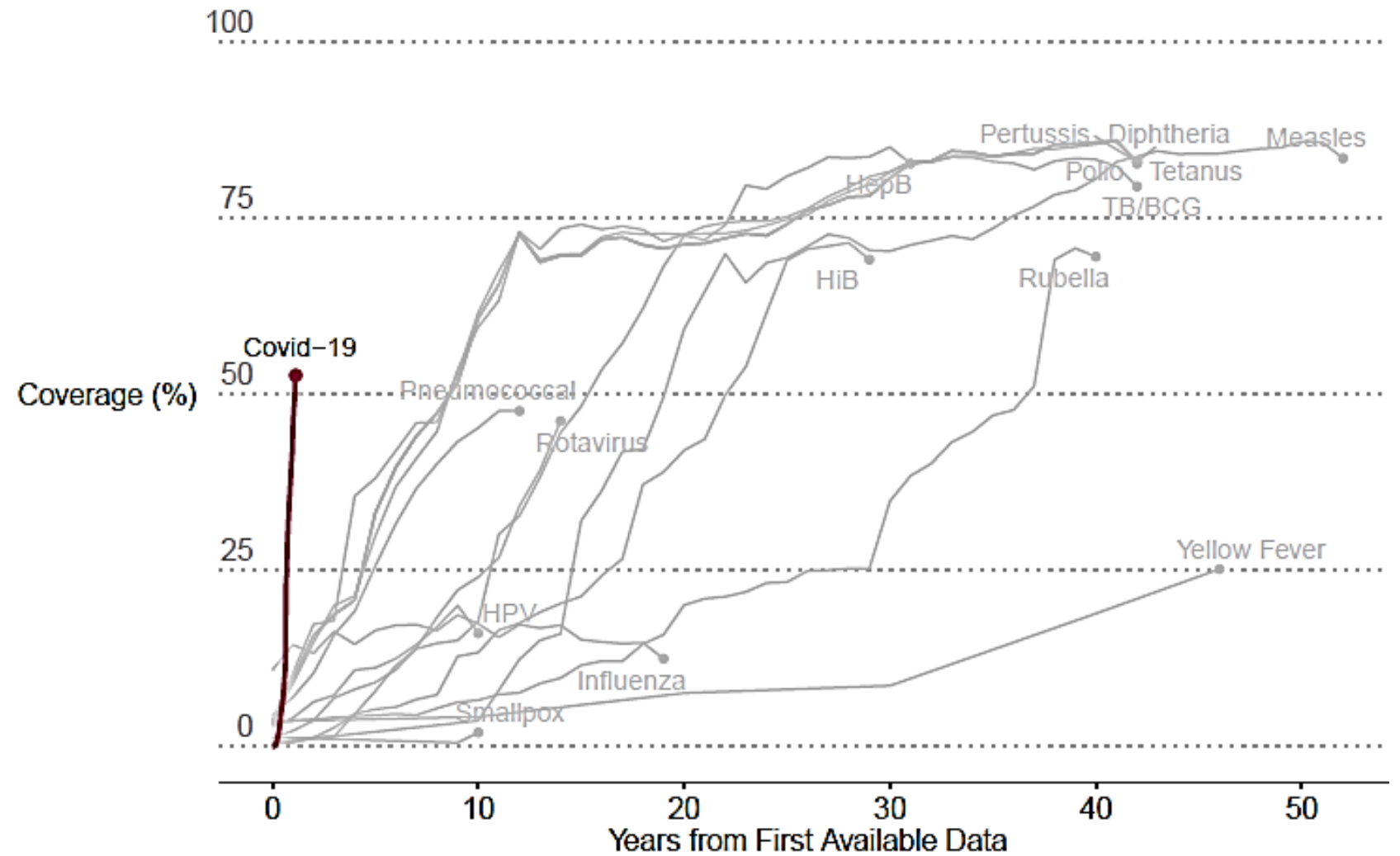
# The Next Big Step: Accelerating Development of a Vaccine Against COVID-19

- Massive investments by countries and companies in covid-19 vaccine development throughout 2020
- By end-2020, first emergency use authorizations given to covid-19 vaccine
- High hopes that widescale vaccination would be the silver bullet to stop the COVID-19 pandemic
  - And could eliminate need for other PHSM measures



# Rapid Covid-19 vaccine introduction - An Impressive Feat

**COVID-19 vaccine has achieved more rapid global rollout in one year than any other vaccine**



Source: Glassman et al. Center for Global Development. COVID-19 Vaccine Development and Rollout in Historical Perspective. Working paper 607 February 2022. <https://www.cgdev.org/publication/covid-19-vaccine-development-and-rollout-historical-perspective>





# Key Hurdles to High COVID-19 Vaccination Coverage & Immunity Emerge

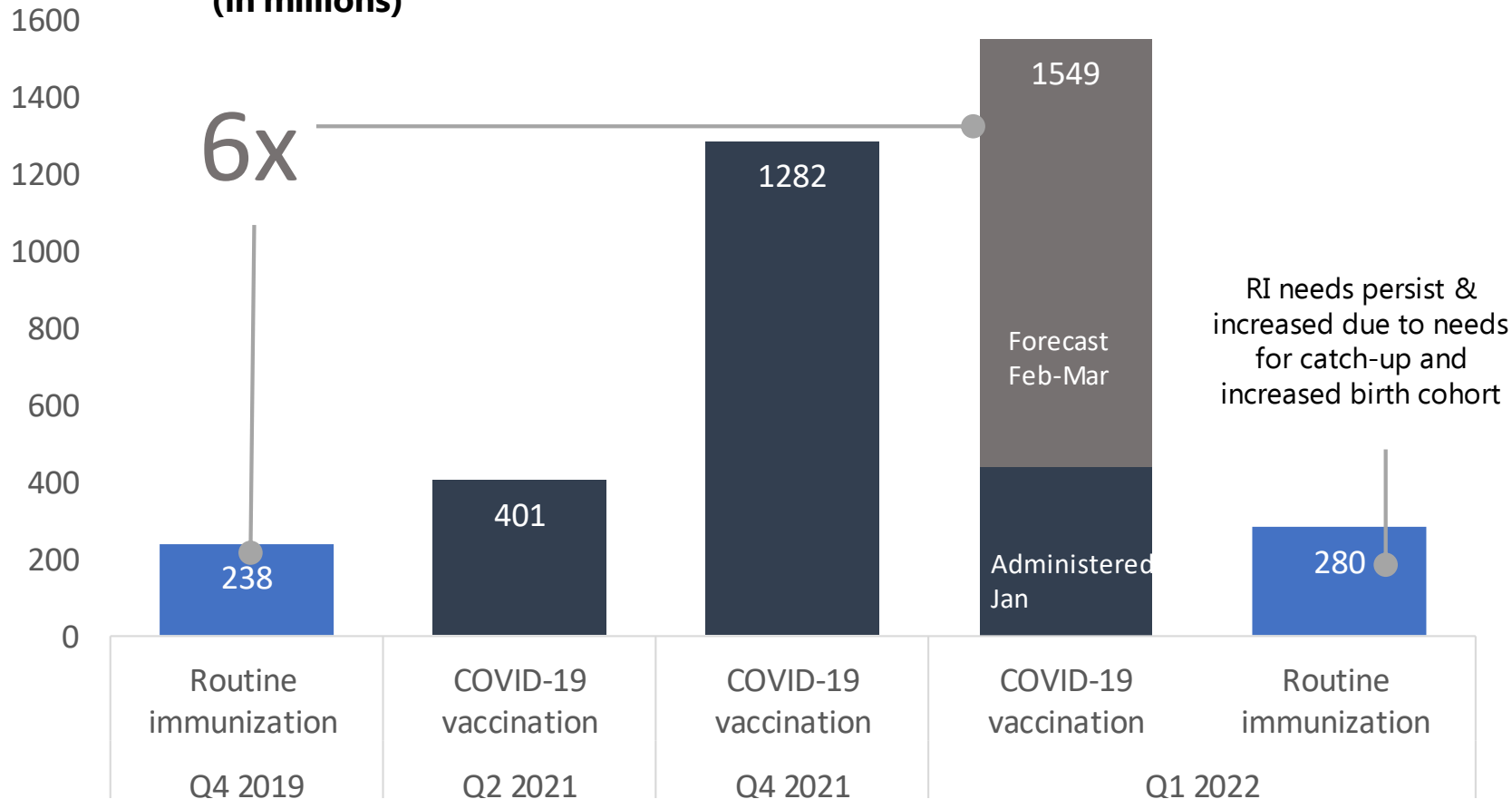
- Vaccine supply: Insufficient supply in early days, particularly for low and middle-income countries
- Funding: Insufficient funds to cover vaccine costs for many countries
- Logistics: Some vaccines had strict cold chain requirements & short expiry dates, reducing ability to easily use vaccine in certain areas
- Demand: Individuals surrounded by misinformation about vaccine safety and effectiveness
- Variants: original vaccine schedules less effective against new covid-19 strains
- Effectiveness: Vaccines very effective against severe illness, but unable to completely stop infection by COVID-19
  - Comprehensive PHSM approach including vaccination becomes key



# Existing immunization systems are straining to ramp-up of COVID-19 vaccination alongside delivery of routine child vaccinations

A **6-fold difference** exists between the number of routine immunization doses administered in Q4 2019 versus COVID-19 vaccines administered in late 2021 / early 2022 in the 92 AMC countries

**Number of doses administered (in millions)**



- **2022: increased strain under continued heavy vaccination demands compared to usual levels**
- To reach 70% goal by mid-2022 AMC countries must administer 555 million doses monthly
- Opportunity cost of COVID-19 vaccination scale-up: resource-constrained countries deciding which services to provide, at risk of future VPD outbreaks

Source: COVID-19 Vaccine Implementation Analysis & Insights (WHO-UNICEF-GAVI), February 16, 2022





# Building Resiliency During COVID-19 Pandemic

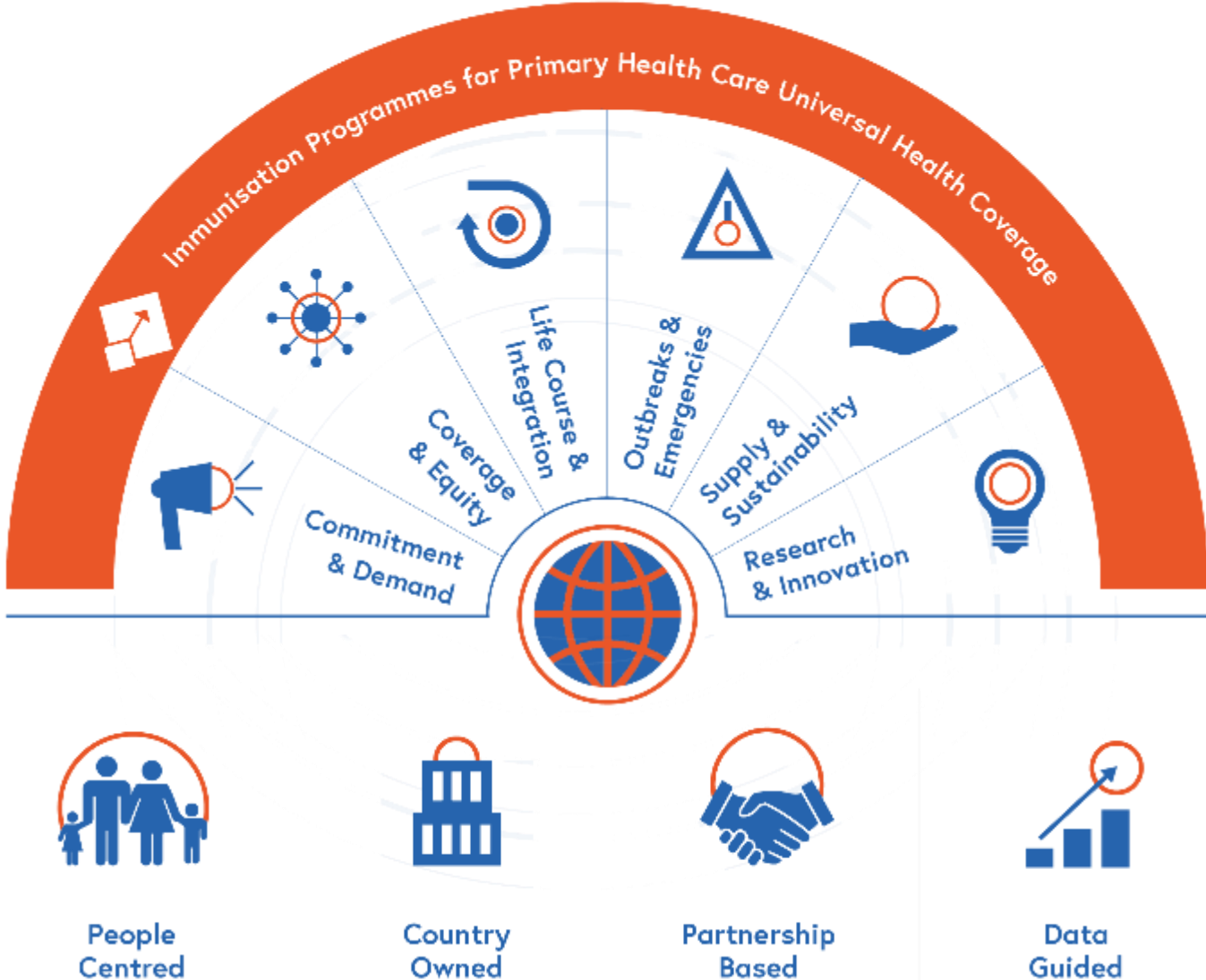


# Immunization Agenda 2030 (IA2030) proposes a strategic framework

## 7 Strategic Priorities

*informed by*

## 4 Core Principles for action



# IA2030 Strategic Priorities and Immunization Recovery



**SP4:** expanding life course vaccination, including COVID-19 vaccination; promoting catch-up vaccination and integration with recovery



**SP5:** outbreak prevention (reinstating postponed campaigns); fragile country recovery



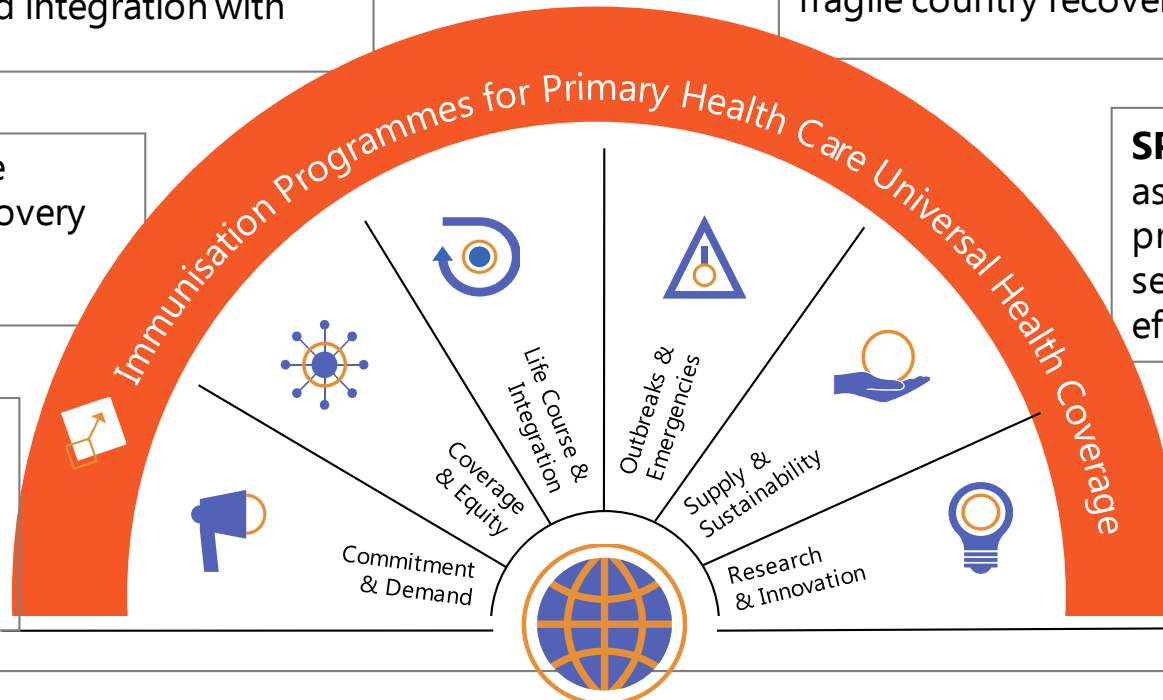
**SP3:** equity and zero-dose children prioritized for recovery and strengthening



**SP6:** adapting vaccine forecasting and assessing global supply; fiscal prioritization of essential health services, including immunization; efficient use of resources



**SP2:** political commitment to immunization; demand generation for routine immunization in midst of COVID vaccine roll-out



**SP7:** leveraging innovations of COVID-19 vaccine introduction toward routine immunizations

**SP1:** reviving routine immunization as part of Primary Health Care, recovery of immunization and PHC services, leveraging opportunities of COVID vaccine rollout to strengthen health systems

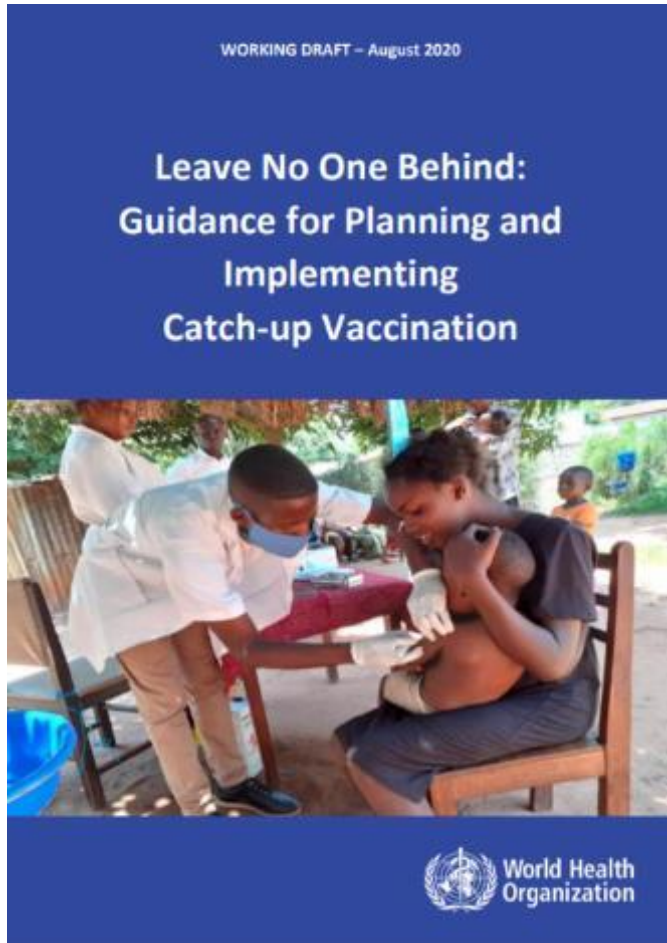




# Guiding Principles for Recovering, Building Resiliency, and Strengthening of Immunization in 2022 and Beyond

- Structure
- Closing Immunity Gaps and Recovering Immunization Programmes
  - Strategies to close immunity gaps
  - Strategies to recover immunization programmes
  - Vaccine preventable disease surveillance
- Strengthening Routine Immunization and Building Resiliency

# Implement Catch-Up Vaccination Guidance



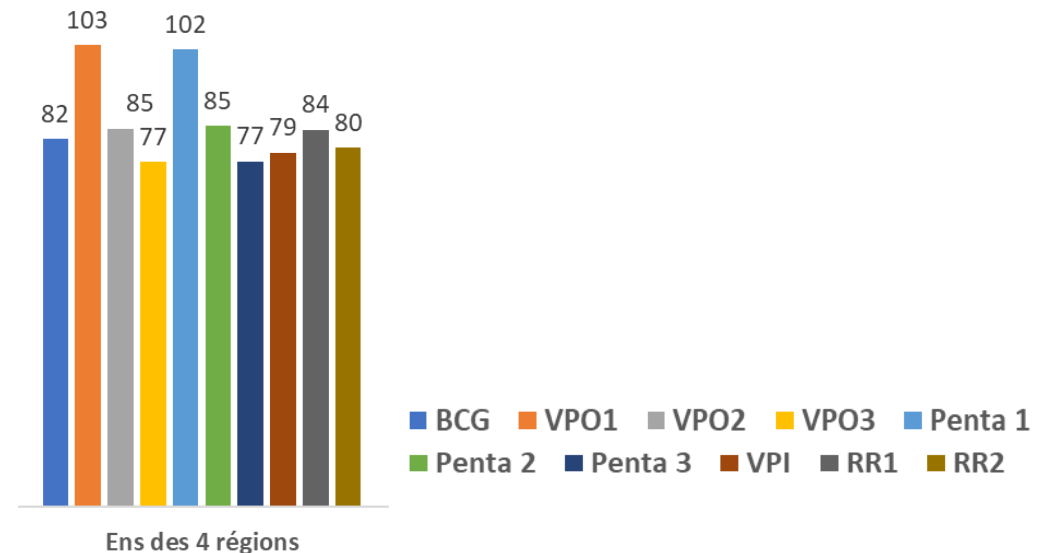
- Published in August 2020
- Strategies:
  - Intensified strategies to close immunity gaps
    - One-time catch-up vaccination campaigns to reach those missed during the COVID-19 pandemic
  - Continuously implementing catch-up vaccination through routine immunization and primary health care

<https://www.who.int/teams/immunization-vaccines-and-biologicals/essential-programme-on-immunization/implementation/catch-up-vaccination>



# Strategies to Close Immunity Gaps: Using Campaigns to Facilitate Catch-Up Vaccination

- **Mexico, Apr-Sep 2021:** used MR campaign to catch up children on routine vaccines (*e.g.* hexavalent)
- **Nepal, Apr 2022:** linking a typhoid conjugate vaccine campaign to identify and reach children who missed vaccination
- **Togo, Jul-Aug 2021:** used campaign of MenAfriVac, Vitamin A, and albendazole to catch up children on routine immunization



Ensemble des 4 régions  
Proportion of incompletely vaccinated children who were vaccinated during the integrated Men A campaign, Togo, Jul-Aug 2021

Plan integrated campaigns to the extent possible: every vaccination campaign should be considered for opportunity to deliver multiple antigens and other health interventions

# VPD campaigns postponed due to COVID-19: 35 campaigns (31 countries) postponed, 1<sup>st</sup> April 2022

<u>Diseases/ Vaccines</u>	<u>No. of campaigns postponed (fully or partially)</u>
Measles (M/MR/MMR)	12
Polio (IPV)	7
Bivalent Oral Poliovirus (bOPV)	6
Meningitis A (Men A)	1
Yellow Fever (YF)	5
Cholera (OCV)	1
<u>Tetanus (Td)</u>	<u>3</u>
<b>Total postponed</b>	<b>35</b>

Among those with dates available, 87% (26/30) originally planned for 2020

Revive postponed or cancelled immunization campaigns with readjustment of planned target areas and target age groups

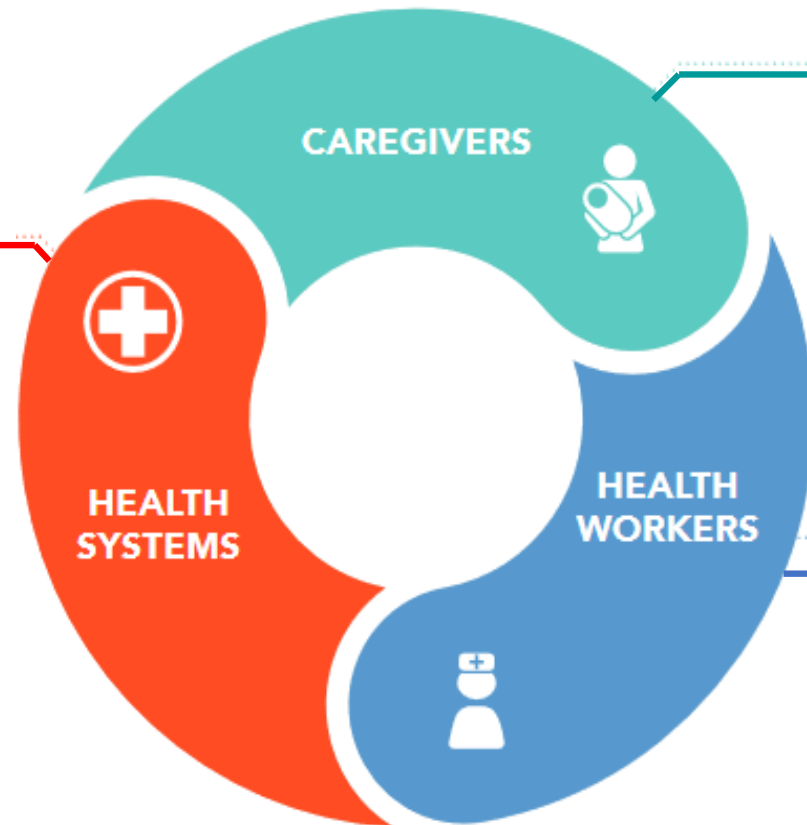


# Strategies to recover immunization programmes: Address restrictive policies and practices

Proportion of Missed Opportunities for Vaccination in low- and middle-income countries:<sup>1</sup>

- 32% (95%CI 27–38%) among children aged 0-23 months
- 47% (95%CI 30–64%) among women of reproductive age

- » Limited hours
- » Shortage and stockouts of vaccines and/or home-based records
- » Lack of integration
- » Poorly-designed records
- » Other adverse policies
- » Restrictive policies on age-limits



- » Low home-based record retention/not bringing home-based record to clinic
- » Lack of awareness of schedule
- » Vaccine hesitancy

- » Failure to screen
- » False contraindications
- » Concern regarding catch-up schedules and eligibility
- » Concern regarding vaccine wastage

<sup>1</sup> Sridhar S, Maleq N, Guillermet E, Colombini A, Gessner BD. A systematic literature review of missed opportunities for immunization in low- and middle-income countries. *Vaccine*. 2014 Dec 5;32(51):6870-6879.

# Guiding Principles for Recovering, Building Resiliency, and Strengthening of Immunization in 2022 and Beyond

- Structure
- Closing Immunity Gaps and Recovering Immunization Programmes
  - Strategies to close immunity gaps
  - Strategies to recover immunization programmes
  - VPD Surveillance
- Strengthening Routine Immunization and Building Resiliency
  - Governance
  - Financing
  - Supply chains
  - Service delivery
  - Demand generation
  - Health information systems

## Guiding Principles for recovering, building resiliency, and strengthening of immunization in 2022 and beyond

### Background

A consequence of the COVID-19 pandemic and COVID-19 vaccine introductions has been the widespread strain on essential health services, including immunizations. COVID-19 related disruptions in 2020, particularly in the second quarter, led to a 3% drop in global DTP3 coverage and an increase of 3.7 million incompletely vaccinated children.<sup>1</sup> Over 95% of these were “zero-dose children”, meaning they did not receive any routine vaccinations. With outreach services and campaigns particularly vulnerable to the initial disruptions in 2020, the populations most dependent on these delivery platforms have been especially impacted.<sup>2</sup> Most countries began to restore immunization services in the second half of the year,<sup>3</sup> but strains to the health system have continued in many countries in 2021 and 2022 due to multiple COVID-19 waves and the efforts to deliver COVID-19 vaccine.<sup>4</sup> In many countries, large numbers of children who missed vaccination during these disruptions have still not been caught up on their needed vaccines and remain susceptible to vaccine-preventable diseases (VPDs). The Immunization Agenda 2030 (IA2030) and Gavi 5.0 priorities to leave no-one behind have become even more urgent.

As immunity gaps persist, and in some cases widen, the short-term risks of outbreaks, medical impoverishment and excess child morbidity and mortality will increase along with the burden on already strained health systems. In the long term, the gaps may have economic impact and lead to increased burden of vaccine preventable cancers and chronic disease (e.g., missed human papillomavirus vaccine (HPV) or hepatitis B vaccine doses).

In November 2020, after endorsement by the WHO Strategic Advisory Group of Experts on Immunization (SAGE), WHO published guiding principles on immunization activities during the COVID-19 pandemic and other times of severe disruption.<sup>5</sup> Those guiding principles focused on the complexity of managing immunization programmes in the context of severe disruptions at a time when COVID-19 vaccines were not available. This document of guiding principles complements the 2020 document and similarly incorporates the IA2030 principles of being people-centred, country-owned, partnership-based

<sup>1</sup> Muhoza P, Danovaro-Holliday CM, Diallo MS, et al. Routine Vaccination Coverage - Worldwide, 2020. *MMWR - Morbidity and Mortality Weekly Report*. 2021; 70(43):1495–1500.

# Leveraging COVID-19 vaccine roll-out to strengthen immunization and primary health care

## Main challenges

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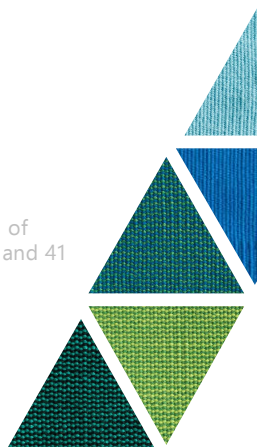
- **Human resources overstretched**
- **Risk of COVID-19 vaccine hesitancy spill over to routine immunization**
- **Public and political pressure to prioritize COVID-19 vaccination over routine immunization**
- **Financial**
  - increased costs of integrated outreach
  - imbalance of funding sources
- **Uncertainty of future (pandemic/COVID-19 vaccine)**

## Key opportunities

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- **Health system using COVID-19 investments**
  - cold chain / vaccine management capacity
  - Strengthened disease and AEFI surveillance
  - social listening/communication capacities
  - real-time monitoring and digital tools
  - engagement with private sector
- **Promote broader immunization agenda**
  - life course immunization
  - integrated service delivery
- **Expanded partnerships**

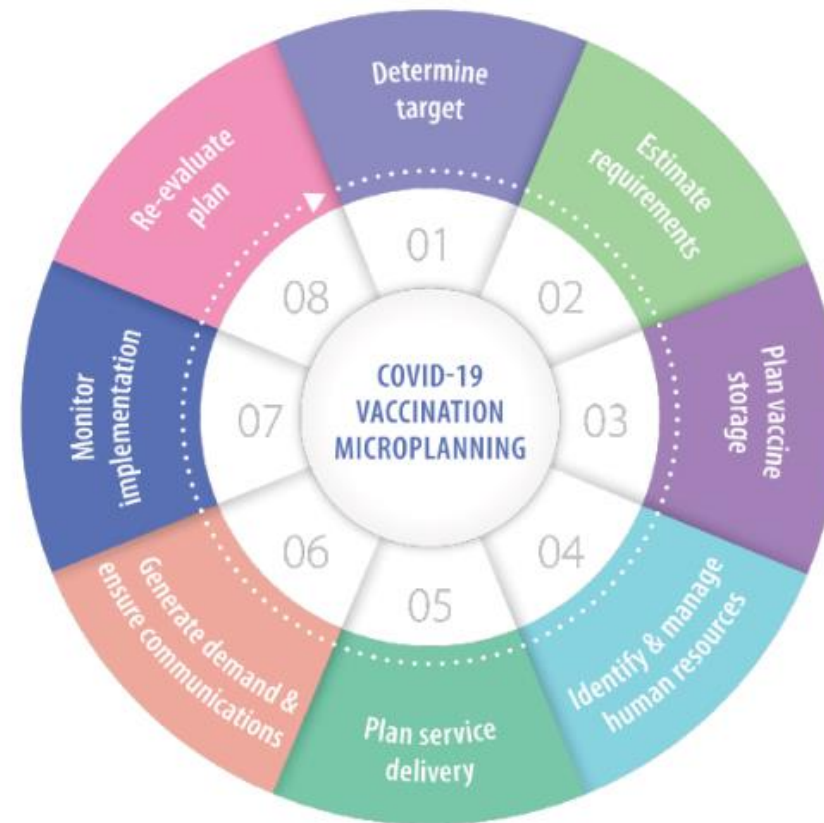
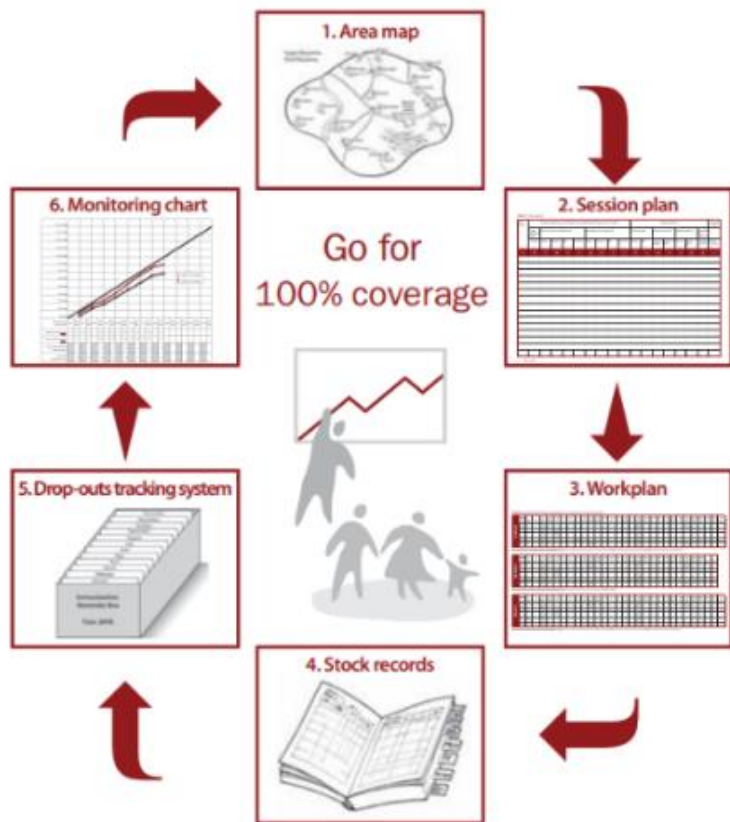
Source: Survey conducted by WHO and UNICEF to explore current status, challenges, and opportunities of Integration of Covid-19 vaccination and RI. WHO: as of February 2022, 48 responses (5 regional offices and 41 country offices). UNICEF: as of December 2021, 54 responses (6 ROs and 34 COs).





# Synergies: Many COVID-19 vaccination tools and guidance are grounded in pre-existing immunization system guidance

Example: COVID-19 vaccination microplanning based on RI microplan guidance



Source: WHO African Region Guidance on Routine Immunization Microplanning: [https://www.who.int/immunization/sage/9\\_Final\\_RED\\_280909.pdf](https://www.who.int/immunization/sage/9_Final_RED_280909.pdf)

# Synergies between COVID-19 vaccination and routine childhood immunization

## Sri Lanka<sup>1</sup> – combined delivery strategies

- RI sessions provided opportunity to screen parents for C-19 booster doses and provide/motivate for vaccination
- Few targeted questions facilitated to identify high risk unvaccinated household individuals (e.g., above 60 years, parents with comorbid conditions, immune suppressed individuals) and get them to community or mobile clinics



## Bolivia<sup>2</sup> – strengthened AEFI surveillance

- Sites of mass vaccination complies with AEFI's technical standards for prevention and care.
- Relying on multidisciplinary perspectives from outside Ministry allowed for more detailed investigation and analysis process of serious AEFI cases

1. SEARO Regional Working Group meeting March 2022. WHO. Sri Lanka country experience on combining routine immunization sessions and COVID-19 vaccination.  
2. Bolivia. Mini-cPIE results. November 2021.

Seek synergies with COVID-19 vaccination delivery to strengthen immunization and primary health care across life course (e.g. school-based vaccination; adolescent and adult vaccination programmes, including health workers, pregnant women, and the elderly; integrate with other immunizations and health services, when feasible).

# Synergies between COVID-19 vaccination and routine childhood immunization

Table A.5. Actions deemed most likely to be continued after the pandemic (N=17)

Region	Africa						Americas	Eastern Mediterranean			Europe	South-East Asia					
Country	Cameroon	Democratic Republic of the Congo	Ethiopia	Nigeria	South Africa	Uganda	Bolivia	Pakistan	Sudan	Yemen	Romania	Tajikistan	Bangladesh	India	Myanmar	Nepal	Timor-Leste
Maintaining MNCAAH commodities	x								x								
Digital and social media channels for health information and risk communications	x						x										
Rescheduling appointment times (e.g. longer intervals)																	
Taskshifting and retraining of health staff																	
Digital health, e.g hotlines, mobile applications, teleconsultations		x	x	x	x			x	x	x	x		x		x	x	x
Online training modules for new clinical protocols		x								x				x	x		
Mobilize TWG with Ministry of Health leadership														x			
Strengthen IPC in all services			x														
Regular management and monitoring of data			x	x	x									x	x	x	
Governance, e.g integrating MNCAAH in COVID-19 response					x				x								

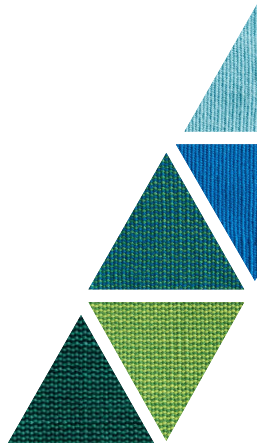
Invest in robust data systems including expansion of digital solutions and electronic information systems

Source: Maintaining the provision and use of services for maternal, newborn, child and adolescent health and older people during the COVID-19 pandemic: Lessons learned from 19 countries. Geneva: World Health Organization; 2021.



# Conclusion

- Over two years of health system strain and disruptions
- Urgent need to close immunity gaps, recover immunization programmes, and prevent risk of outbreaks
- Goal is to build back better and not just return to pre-pandemic levels
- Transformative opportunity to leverage immunization recovery and COVID-19 vaccination toward resiliency and strengthening of primary health care and leave no one behind across the life course



# Extra slides



# Immunization Recovery at Risk: Domestic Financing Setbacks

**52 countries (27% of all countries) will not return to pre-COVID-19 levels of total government spending per capita by 2026 based on World Bank projections<sup>1</sup>**

Income group	Number	Countries of greatest concern
Low	7	Afghanistan, Burundi, Liberia, Mozambique, Sierra Leone, South Sudan, Sudan
Lower-middle	17	Algeria, Angola, Bolivia, Cameroon, Comoros, Republic of Congo, Djibouti, Eswatini, Kiribati, Lesotho, Micronesia, Nigeria, Papua New Guinea, Sao Tome and Principe, Timor Leste, Vanuatu, Zambia
Upper-middle	14	Belize, Botswana, Costa Rica, Dominica, Ecuador, Fiji, Jordan, Maldives, Mexico, Namibia, South Africa, St Lucia, Surinam, Turkmenistan
<u>High income</u>	<u>14</u>	Antigua and Barbuda, The Bahamas, Bahrain, Iceland, Kuwait, Nauru, New Zealand, Oman, Palau, Qatar, Saudi Arabia, St Kitts and Nevis, Trinidad and Tobago, UAE
Total	52	

<sup>1</sup> Kurowski et al. From Double Shock to Double Recovery - Implications and Options for Health Financing in the Time of COVID-19, Technical Update: Widening Rifts. World Bank, September 2021

# Immunization Agenda 2030 (IA2030): sustaining and advancing immunization coverage during the COVID-19 pandemic



## Current context

- Global priority is **rapid and equitable scale-up of COVID-19 vaccines**
- Disruption of **immunization** and other **essential primary health care services** due to pandemic and lockdowns
- **Resources drawn away** from routine vaccination activities
- Risk of Covid-19 vaccine roll-out impact in **vaccine acceptability**
- Countries using **new approaches to target adults**

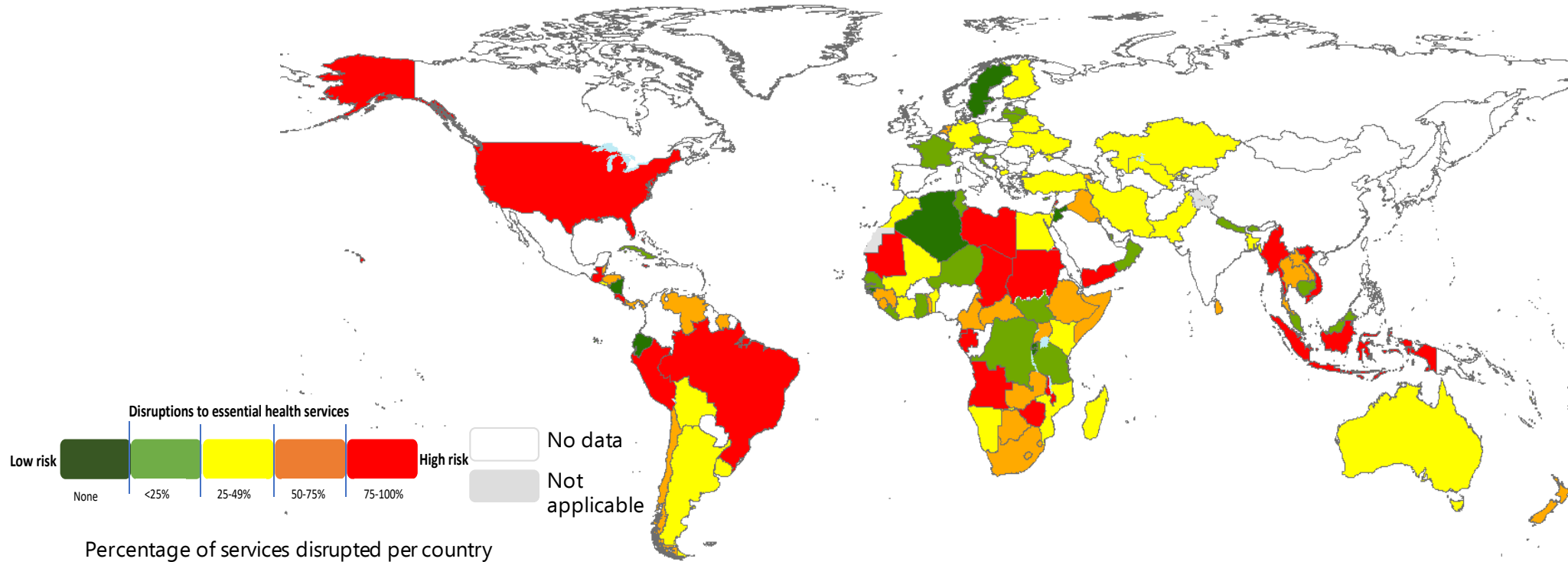
## IA2030 opportunities and focus

- Immunization as a **global priority**
- Strong case for role of vaccine deployment in **economic recovery and global security**
- **Focus on recovery** and do no harm
- **Need for collective action** to rebuild essential services & systems, while reducing number of zero-dose children
- 'Umbrella' **partnership models** emerged (e.g., COVAX, ACT-A,...)
- **Opportunity for life course immunization approach**

Source: <https://www.immunizationagenda2030.org/>



# 92% (117 of 127) countries reported some extent of disruptions in at least one essential health service



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Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

*Source: Round 3 Global pulse survey on continuity of essential health services, Nov-Dec 2021 (reflecting situation during previous 6 months)*

*Denominator:* represents responses from countries/territories that responded to at least one survey section and consented to data sharing a agreement.

Services include 66 services from the following areas: primary care, emergency, critical and operative care, rehabilitation, palliative care, cancer care, community care, and tracer services for reproductive, maternal, newborn, child and adolescent health and nutrition, immunization, communicable diseases, neglected tropical diseases, mental, neurological and substance use disorders, and care for older people

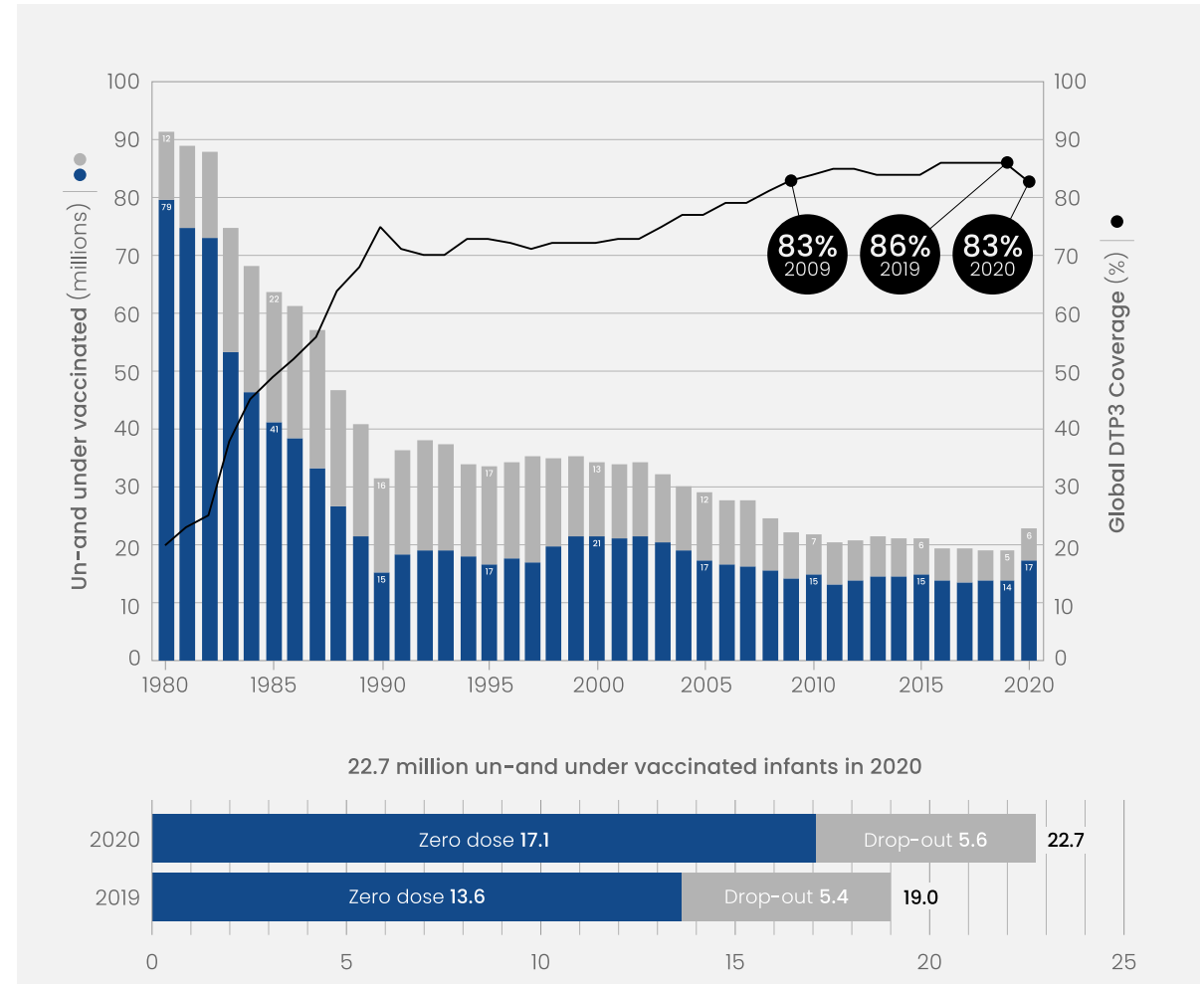


# COVID-19 pandemic led to major backsliding on childhood vaccinations in 2020

- Infant immunization coverage [third dose of diphtheria, tetanus, and pertussis (DTP-3)] dropped back to **2009 levels (83%)**
- **23 million** children missed out on basic vaccines through routine immunization services in 2020 (3.7 million more than in 2019)
- Most of these – up to **17 million children** – did not receive a single vaccine (**zero dose children**\*)

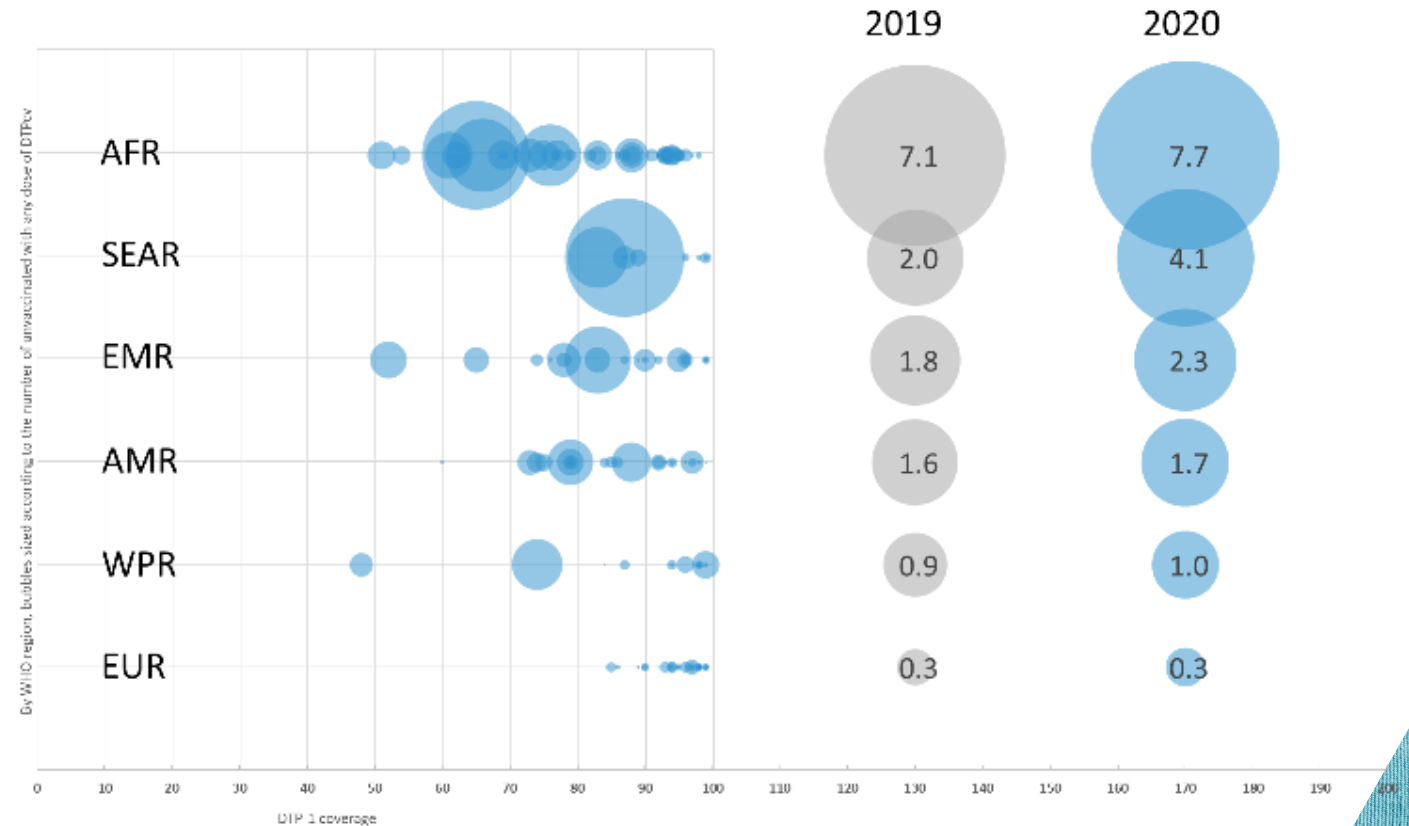
\* Zero dose children defined as those lacking DTP1

Source: 2020 WHO/UNICEF Estimates National Immunization Coverage (WUENIC 2020), 15 July 2021  
<https://www.who.int/news/item/15-07-2021-covid-19-pandemic-leads-to-major-backsliding-on-childhood-vaccinations-new-who-unicef-data-shows>



# Number of “zero-dose children\*” increased across all regions in 2020

- Zero-dose children live disproportionately in the African continent & in countries affected by conflict.
- Largest increase in SEAR (over double)
- Regions with strictest lockdowns experienced largest increases in zero dose children, because service provision & especially outreach were affected.



\* Zero dose children defined as those lacking DTP1  
Source: WUENIC 2020, 15 July 2021. <https://www.who.int/news/item/15-07-2021-covid-19-pandemic-leads-to-major-backsliding-on-childhood-vaccinations-new-who-unicef-data-shows>



# Millions are at increased risk of vaccine preventable diseases due to cancelled or delayed campaigns\* due to COVID-19 since March 2020

The impacts of cancelled or delayed VPD campaigns are expected to first be seen with measles outbreaks as **>75 million children in 25 countries have not received planned measles vaccine.**

## Countries with delayed or cancelled campaigns

**At least one campaign delayed, no campaign incomplete (21)**

**At least one campaign delayed and not conducted, no campaign cancelled or status unknown (60)**

**At least one campaign cancelled or status unknown (8)**

\*Vaccine Preventable Disease Campaigns:  
Polio (IPV, mOPV2, bOPV)  
Meningitis A  
Measles – rubella (M, MR, MMR)  
Cholera (OCV)  
Yellow Fever  
Tetanus (Td)

Source: WHO, Immunization Repository – 2022-02-23

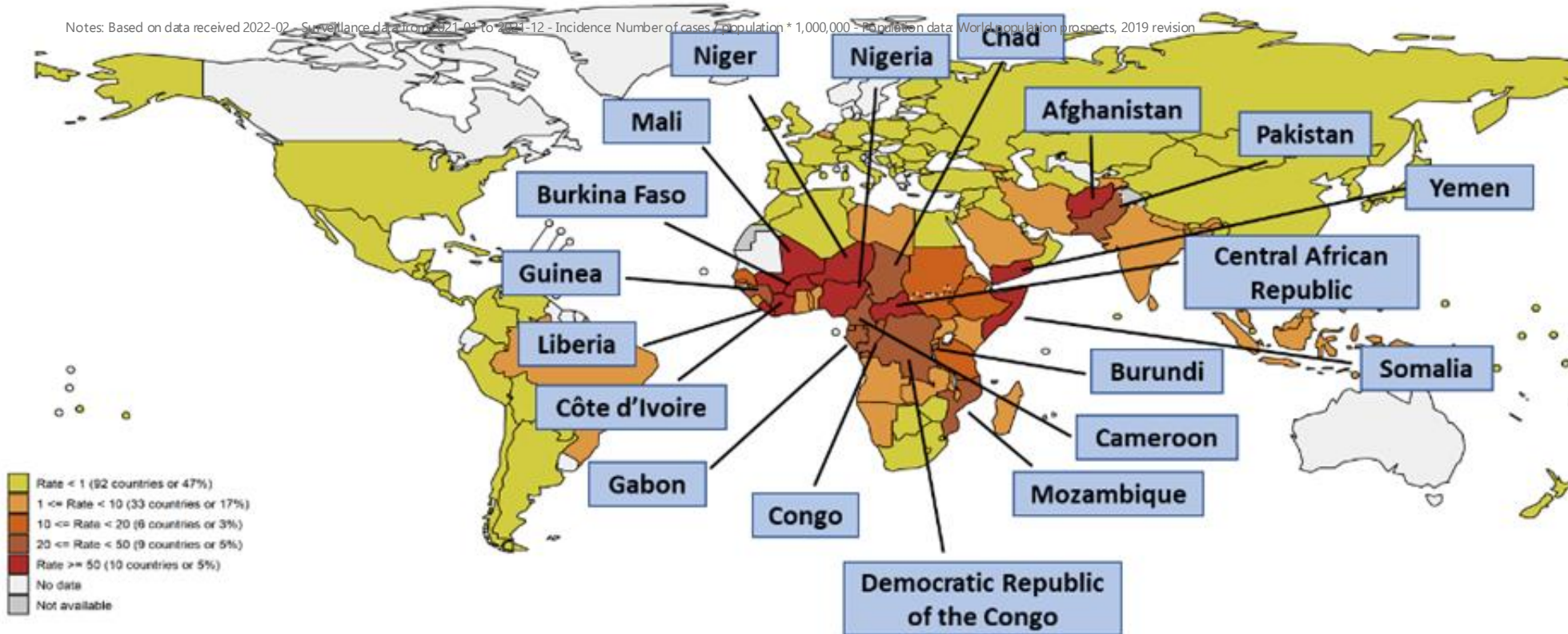


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0 875 1750 3500 Kilometers

# Risk of measles outbreaks are of increasing concern particularly in Africa and South Asia, posing a global health security threat to the US

Notes: Based on data received 2022-02. Surveillance data from 2021-01 to 2021-12 - Incidence: Number of cases / population \* 1,000,000 - Population data: World population prospects, 2019 revision



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Data source: IVB Database

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Country	Cases	Rate/M
Somalia	6,029	369
Yemen	4,340	142
Liberia	462	89
Côte d'Ivoire	2,352	87
Afghanistan	2,957	74
Burkina Faso	1,573	73
Mali	1,357	65
Niger	1,552	62
Central African Republic	285	58
Nigeria	10,782	51
Chad	775	46
Pakistan	9,313	41
Gabon	89	39
Democratic Republic of the Congo	3,447	37
Guinea	456	34
Burundi	370	30
Mozambique	835	26
Congo	145	26
Cameroon	645	24

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