Guidance on developing national COVID-19 vaccination policy and integrating COVID-19 vaccination into national immunization programmes and broader health care delivery mechanisms in the WHO European Region

August 2023
Abstract

The epidemiological situation of COVID-19 has evolved considerably over the past three years, with the emergence of new variants and the development of population-level immunity due to vaccination, infection-induced immunity or both (hybrid immunity). While SARS-CoV-2 virus continues to circulate, the third year of the pandemic has seen a marked reduction in rates of hospitalization, admission to ICU and deaths across all age groups, globally. Certain population groups continue to be at greater risk of severe disease. Aligned with the updated recommendations from the WHO Strategic Advisory Group of Experts on Immunization (SAGE), this document outlines considerations for the countries of the WHO European Region in developing their national COVID-19 vaccination policy, and planning, implementing and monitoring integration of COVID-19 vaccination into national immunization programmes and broader health systems. The efforts of the countries to integrate COVID-19 vaccination within their broader health systems will lay the grounds to operationalize the strategic priority of life-course vaccination of the European Immunization Agenda 2030.
Corrigendum

Guidance on developing national COVID-19 vaccination policy and integrating COVID-19 vaccination into national immunization programmes and broader health care delivery mechanisms in the WHO European Region

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1. The health system building blocks ‘Access to essential medicines (including quality vaccines)’ and ‘Monitoring and evaluation’ were added into Annex 2.

These corrections were incorporated into the electronic file on 24 April 2023.
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### Abbreviations

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<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>AEFI</td>
<td>adverse event following immunization</td>
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<tr>
<td>ANC</td>
<td>antenatal care</td>
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<tr>
<td>CCE</td>
<td>cold chain equipment</td>
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<tr>
<td>CHW</td>
<td>community health worker</td>
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<td>EIA2030</td>
<td>European Immunization Agenda 2030</td>
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<tr>
<td>ETAGE</td>
<td>European Technical Advisory Group of Experts on immunization</td>
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<tr>
<td>FDA</td>
<td>United States Food and Drug Administration</td>
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<tr>
<td>HMIS</td>
<td>health management information system</td>
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<tr>
<td>HR</td>
<td>human resources</td>
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<tr>
<td>NIP</td>
<td>national immunization programme</td>
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<tr>
<td>NITAG</td>
<td>national immunization technical advisory group</td>
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<tr>
<td>PHC</td>
<td>primary health care</td>
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<tr>
<td>PHEIC</td>
<td>Public Health Emergency of International Concern</td>
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<td>SAGE</td>
<td>WHO Strategic Advisory Group of Experts on Immunization</td>
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<td>TAG-CO-VAC</td>
<td>WHO Technical Advisory Group on COVID-19 Vaccine Composition</td>
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<tr>
<td>UNICEF</td>
<td>United Nations Children's Fund</td>
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<tr>
<td>VM</td>
<td>vaccine management</td>
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<tr>
<td>VPD</td>
<td>vaccine-preventable disease</td>
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Rationale of this document

The epidemiological situation of COVID-19 has evolved considerably over the past three years, with the emergence of SARS-CoV-2 virus variants and the development of population-level immunity due to vaccination, infection-induced immunity or both (hybrid immunity). The countries of the WHO European Region have lifted most or all public health and social measures. While SARS-CoV-2 virus continues to circulate, the third year of the COVID-19 pandemic, saw a marked reduction in rates of hospitalization, admission to ICU and deaths across all age groups, globally. However, certain population groups continue to be at greater risk of severe disease and account for most of the ongoing COVID-19 related mortality; thus, even a minor decrease in vaccine effectiveness with time in the vulnerable population groups could translate into a rise in cases of severe disease and death.

In March 2023, the WHO Strategic Advisory Group of Experts on Immunization (SAGE) published an updated Roadmap on uses of COVID-19 vaccines in the context of OMICRON and substantial population immunity (1). The Roadmap addresses the evolving public health needs in the context of the Omicron variant and its sub-lineages dominating the circulation globally and in the WHO European Region, and in the context of high population-level immunity, using a base case scenario that assumes that the SARS-CoV-2 virus will continue to evolve but cause less severe disease with possible surge in infections that will require periodic booster doses to protect the vulnerable population groups.

Given the evolving epidemiology of the COVID-19 pandemic and considering the trend of COVID-19 vaccination uptake in recent months, countries in the WHO European Region have taken steps to revise their COVID-19 vaccination strategies with particular emphasis on integrating COVID-19 vaccination within their broader health systems. This is in line with the recommendation of the European Technical Advisory Group of Experts on Immunization (ETAGE) of the WHO European Region (2), WHO and UNICEF global guidance (3), and the WHO Director-General recommendations to States Parties (4).

In line with the above context and global guidance, this document outlines considerations for the countries of the WHO European Region in:

- developing their national COVID-19 vaccination policy in line with the updated SAGE recommendations on priority population groups;
- planning, implementing and monitoring integration of COVID-19 vaccination into national immunization programmes (NIPs) and broader health systems aligned with the goals of the European Immunization Agenda 2030 (EIA2030) (5).
Developing national COVID-19 vaccination policy

Background

The COVID-19 pandemic was declared a Public Health Emergency of International Concern (PHEIC) on 30 January 2020. In the past three years it has had devastating effects on individuals, families, communities and economies. As of 1 May 2023, over 270 million COVID-19 cases and 2.2 million deaths were reported by countries in the WHO European Region (6).

Since the roll-out of COVID-19 vaccines, more than 602 million people in the WHO European Region have received the complete primary vaccination series and 320 million people have received at least one booster dose. Twenty out of 53 countries of the WHO European Region have achieved more than 70% coverage with the primary vaccination series among the adult population. However, 33 countries did not reach this target and eight of them vaccinated less than 40% of their adult populations (7).

While vaccine shortages were a challenge in the initial stages of COVID-19 vaccine access and roll-out, as of July 2023, all countries in the Region have access to adequate supplies through either direct procurement, bilateral arrangements (linked to donations) and/or access through the COVAX Facility.

On 4 May 2023, the International Health Regulations (2005) Emergency Committee on the COVID-19 pandemic highlighted a significant decrease in the global morbidity and mortality associated with COVID-19, driven primarily by increasing population-level immunity from infection, vaccination, or both, as well as the similar level of severity observed in the currently circulating Omicron SARS-CoV-2 descendant lineages and improved clinical case management. The Committee advised of the need to transition to long-term management of the COVID-19 pandemic. Based on this advice, the WHO Director-General determined that COVID-19 was now an established and ongoing health issue which no longer constituted a public health emergency (4). The WHO Director-General also made recommendations to countries including to sustain their national capacity gains and prepare for future events, and to integrate COVID-19 vaccination into life-course vaccination programmes.

The lifting of the status of PHEIC for the COVID-19 pandemic signalled the start of a new phase of global response and recovery, and the WHO Regional Office for Europe embarked accordingly on a shift towards a longer-term programmatic approach to COVID-19. A comprehensive roadmap for transitioning from the acute phase of the COVID-19 pandemic towards a sustained response and recovery (8) was developed, guiding countries and partners to strategically and sustainably invest in resilient health systems capable of responding to emergencies and maintaining essential services at all times.

While the acute phase of the international public health emergency has ended, the COVID-19 pandemic continues to take a significant toll on public health. SARS-CoV2 continues to cause substantial morbidity and mortality, particularly among older adults, persons with underlying disease conditions and those who are immunocompromised. COVID-19 vaccines continue to be the most effective tool to prevent serious illness, hospitalization and death from COVID-19, although there is evidence of waning protection against severe disease over time following vaccination. COVID-19 vaccination also remains important for pregnant people for their own protection and that of their infants, and for health care workers to maintain the resilience of health care systems. Building upon the lessons learned in the roll-out and administration of COVID-19 vaccines, countries should continue to use COVID-19 vaccines to protect the most vulnerable groups against severe disease and death and should undertake additional efforts to increase COVID-19 vaccination uptake.
**WHO SAGE recommendations on priority use of COVID-19 vaccines**

Based on an extensive evidence review including systematic reviews and meta-analyses, SAGE updated its Roadmap on uses of COVID-19 vaccines in the context of OMICRON and substantial population immunity (1). The Roadmap outlines updated recommendations for primary series and booster doses for new priority-use population group categories.

SAGE defined the following new priority-use groups:

- **high priority-use groups**: people aged 6 months and older with moderately and severely immunocompromising conditions; older adults (with age cut-off to be decided by countries); younger adults with significant comorbidities or severe obesity; pregnant adults and adolescents; and frontline medical workers;
- **medium priority-use groups**: healthy younger adults; children and adolescents aged 6 months to 17 years with severe obesity and comorbidities that put them at higher risk of severe COVID-19;
- **low priority-use groups**: healthy children and adolescents aged 6 months to 17 years.

SAGE recommended that the high and medium priority-use population groups should receive a primary series of COVID-19 vaccination and a booster dose 6–12 months after completion of the primary series. In addition, people in the high priority-use groups should receive additional vaccine booster doses. The recommended interval between an additional booster dose and the previous dose of COVID-19 vaccine varies by sub-groups: 6 months for people with immunocompromising conditions, oldest adults and pregnant people and 12 months for the remaining sub-groups.

The benefits and cost-effectiveness of vaccinating healthy children and adolescents is substantially lower compared to that of vaccinating other priority-use groups. Therefore, SAGE does not recommend continuing to vaccinate this group against COVID-19. However, countries may consider provision of a primary COVID-19 vaccination series to healthy children and adolescents based on their local considerations: disease burden, number of people who need to be vaccinated to prevent a hospitalization or death, cost-effectiveness and other health or programmatic priorities and opportunity costs.

**Use of bivalent vaccines**

As of March 2023, the following variant-containing vaccines have been authorized for use as a booster vaccine: the original/BA.1 and original/BA.5 bivalent mRNA vaccines by Pfizer-BioNTech and Moderna; and the monovalent Sanofi-GSK Vidprevtyn Beta (CoV2 preS dTM-AS03 (B.1.351)) vaccine (1). Countries can also consider using BA.5 bivalent mRNA vaccine for the primary series.

WHO recommends using any of the WHO Emergency Use Listed COVID-19 vaccines or authorized mRNA bivalent variant-containing vaccines for booster vaccination. When deciding which vaccine to use as a booster, each country needs to take into account access to different vaccines and costs. Countries should not delay implementing booster doses in anticipation of having access to another vaccine type. Bivalent variant-containing vaccines used as booster doses may have modestly enhanced vaccine effectiveness over monovalent variant-containing vaccines at a time of circulating Omicron sub-lineages. However, there are no head-to-head comparisons to determine the extent to which vaccine effectiveness is enhanced with bivalent mRNA vaccines compared with other platforms or heterologous schedules.

There is increasing evidence that boosters using a different COVID-19 vaccine platform from that used for the primary series (heterologous boosting) may provide superior immunogenicity to use of a homologous booster.
Updated COVID-19 vaccines
On 18 May 2023, the WHO Technical Advisory Group on COVID-19 Vaccine Composition (TAG-CO-VAC) issued a Statement on the antigen composition of COVID-19 vaccines (9). The TAG-CO-VAC recognized and reiterated that currently approved COVID-19 vaccines, including those based on the index virus, continue to provide substantial protection against severe disease and death, which is the primary objective for COVID-19 vaccination. Currently approved COVID-19 vaccines should continue to be used in accordance with the current (March 2023) SAGE Roadmap. As of May 2023, XBB.1 descendent lineages dominate SARS-CoV-2 circulation globally. To improve protection, in particular against symptomatic disease, new formulations of COVID-19 vaccines should aim to induce antibody responses that neutralize XBB descendent lineages (1).

The European Centre for Disease Control and Prevention and the European Medicines Agency issued a joint statement on additional booster doses of COVID-19 vaccines (10, 11). It recommends that monovalent XBB-containing vaccines could be considered a reasonable choice for autumn 2023 vaccination campaigns to enhance vaccine-induced immune responses to circulating SARS-CoV-2 variants based on current epidemiology and the high level of immunity already present against ancestral and previously circulating strains.

The United States Food and Drug Administration (FDA)’s Vaccines and Related Biological Products Advisory Committee met on 15 June 2023 to discuss strain selection for updated COVID-19 vaccines (12). Based on the totality of the evidence presented, the FDA advised manufacturers to develop updated COVID-19 vaccines with a monovalent XBB.1.5 composition.

Considerations for national COVID-19 vaccination policy
Priority groups
National immunization technical advisory groups (NITAGs) should make or update their recommendations for national COVID-19 vaccination policy by adapting the latest (March 2023) SAGE recommendations to their countries’ programmatic and operational context. In deciding on the COVID-19 primary and booster vaccination policy, NITAGs should take into account the following:

- Given the robust evidence that currently available vaccines still demonstrate substantial impact in averting severe disease and deaths, vaccination of the most vulnerable populations, who are at high risk of severe disease, hospitalization and death, should remain the highest priority.
- COVID-19 vaccination improves outcomes for pregnant people, their pregnancies and their infants; therefore, COVID-19 vaccines should also be prioritized for maternal and fetal benefit.
- Vaccination of health workers, particularly of frontline health workers with direct patient contact and those working in long-term care facilities, should be maintained to ensure the resilience of the health care system. A booster dose of COVID-19 vaccine to health workers will help to prevent infection and reduce sickness absenteeism, although the effect will likely be modest and short-term.

Doses and interval
Countries may face programmatic, operational and communication challenges in implementing COVID-19 booster dose strategies which contain different dose intervals for different target population groups and sub-groups. Evaluations from the COVID-19 vaccine roll-out showed that some countries in the WHO European Region faced challenges in identifying and reaching people with comorbidities to deliver COVID-19 vaccination. Instead, these countries strategized and implemented COVID-19 vaccination by age groups (progressing from older to younger age groups) to reach the priority target population as quickly as possible. In addition, in some contexts (13), the public had difficulties in understanding...
messages about complex vaccination strategies and the reasons behind them, which contributed to reduced vaccine uptake and a growing “vaccine fatigue”.

To improve feasibility of implementation and public understanding of COVID-19 vaccination policy, NITAGs may consider recommending for most individuals a 12-month interval between a COVID-19 vaccine booster dose and the previous dose. A shorter interval (6 months) should be recommended for the groups that are at highest risk of severe COVID-19 outcomes, such as immunocompromised individuals, people with multiple significant co-morbidities and/or obesity, very old adults, residents of long-term care facilities and pregnant people. For severely immunocompromised individuals, this interval can be as short as 4 months (1).

NITAGs should encourage the national immunization programmes (NIPs) to develop effective communication strategies to inform their populations about the updated policy and recommendations.

This regional guidance on defining national COVID-19 vaccination policy is interim. As the COVID-19 pandemic continues to evolve, new evidence on COVID-19 vaccines and new SAGE recommendations become available, it will be updated accordingly.
Integrating COVID-19 vaccination into NIPs and broader health care delivery mechanisms

In line with the ETAGE recommendations (2), countries in the WHO European Region have initiated the process of integrating COVID-19 vaccination into their NIPs and broader health systems. While the countries in the Region take steps to institutionalize integration of COVID-19 vaccination into their NIPs and broader health systems, the delivery of COVID-19 vaccines to the vulnerable populations should continue following the COVID-19 vaccination deployment and scale-up modalities developed by the Ministries of Health since early 2021. Based on the lessons learned from the roll-out of COVID-19 vaccination linked to opportunities, innovations and service delivery platforms, countries are exploring appropriate vaccination service delivery platforms for vaccination of identified high-risk and vulnerable population groups, as per their settings. This paves the way towards institutionalizing and implementing appropriate service delivery mechanisms for vaccination and other health services across life-course as envisioned in the EIA2030.

This section lays out key programmatic considerations for the ministries of health to integrate COVID-19 vaccination into routine immunization programmes and broader health care delivery mechanisms in 2023 and beyond. The main objective of this section is to guide countries to operationalize integration of COVID-19 vaccination at national and subnational level, including assessing readiness, developing a plan and identifying short-term capacities and investment needs.

The target audience of this section is public health planners and immunization programme managers at the national and subnational levels responsible for COVID-19 vaccination and/or routine immunization and those overseeing broader health systems and programme delivery.

Key programmatic aspects of integrating COVID-19 vaccination are outlined below.

**Rationale for integrating COVID-19 vaccination**

1. The epidemiological pattern of the COVID-19 pandemic continues to evolve, and it is likely that periodic booster doses of COVID-19 vaccines for vulnerable population groups will be needed.
2. Ministries of health should leverage COVID-19 vaccination roll-out investments, innovations and tools to strengthen immunization programmes, health care delivery services and pandemic preparedness.
3. Integrated delivery of vaccination and health services to vulnerable population groups will create efficiencies and ensure sustainability.
4. Integration will help ensure a people-centred approach in delivering packages of health services to vulnerable population groups that better respond to users’ needs across their life course, aligned with the goals of the EIA2030 (5).

**Definition and principles of integrating COVID-19 vaccination**

Acknowledging that integration can have different meanings linked to different objectives of the broader health systems, within the context of EIA2030, integration of COVID-19 vaccination is defined as incorporating COVID-19 vaccination into NIPs and broader health care delivery mechanisms, beyond the programmatic aspects of co-delivery of vaccines to the relevant population groups, with an aim of improving programme efficiency and sustainability, including enhancing demand and improving user satisfaction, achieving and maintaining satisfactory coverage, and addressing any identified inequities.
The following facets will inform the integration process at the country level:

1. Integration can have various dimensions and implications at different administrative levels in a country, for different stakeholders and for different programme components.

2. WHO’s identification of six building blocks of health systems (14) provides a useful framework for countries to consider how to plan integration and/or coordination between COVID-19 vaccination, routine immunization programmes and the broader health systems.

3. In many countries, some form of integration is already happening, and countries should build on progress underway and address existing gaps in planning and implementation.

**Benefits and risks of integrating COVID-19 vaccination into national immunization programmes**

By integrating COVID-19 vaccination, health systems will reap several benefits, including:

- achieving greater efficiencies and performance, by
  - providing a package of services, especially in the face of competing health priorities;
  - sharing costs and resources in resource-constrained settings;
  - ensuring that services reach the most vulnerable population groups;
  - lessening the strain on the health workforce in the longer term;
  - integrating COVID-19 immunization components within components of broader health system as a way of strengthening the health system in general, i.e., supply chain;
  - encouraging enhanced collaboration among stakeholders and sectors;
  - incorporating funding for COVID-19 vaccine procurement and vaccination in the routine health budget.

- capitalizing on COVID-19 investments and innovations and ensuring sustainability of national immunization programme by:
  - providing appropriate technological upgrades for managing routine immunization programmes and other health care service delivery;
  - strengthening the existing governance structures;
  - engaging with new partners and stakeholders including community-based and civil-society organizations, as appropriate;
  - expanding the vaccine supply chain and its management;
  - strengthening capacity for operational research studies;
  - enhancing the vaccine safety system and its management;
  - strengthening use of formative research and the capacity to conduct it;
  - improving information systems, monitoring, and use of data for action;
  - providing effective and efficient training and performance management skills for the health workforce.

- achieving greater demand for and access to health services across the population of all ages by:
  - engaging with other service providers to broaden service delivery platforms;
  - strengthening partnerships and community engagement;
  - enhancing capacity of service providers to address specific needs of individuals, population groups and communities;
  - building trust in immunization and health services in the longer term.

- improving user outcomes and experiences through a people-centred approach by:
  - developing life-course integrated delivery platforms and strategies to reach the targeted individuals/population groups who are at increased risk with age-appropriate vaccines.
Integrating COVID-19 vaccination also entails the following risks.

- Multiple vaccine delivery strategies to reach different target groups may lead to logistical challenges.
- Integrating services may increase demand on an outstretched health system from the fatigue of health workforce from the COVID-19 pandemic response and paucity.
- Issues around COVID-19 vaccine acceptance may impact demand and acceptance for broader vaccination in settings where the COVID-19 response has led to erosion of trust in (health and other) authorities.
- Access to, supply chain and logistics for COVID-19 vaccines and commodities may be inadequate.
- Performance of health information systems may be negatively impacted by the increased reporting burden.
- Financial challenges may result due to a decrease in funding for COVID-19 vaccination and funding needs linked to planned introduction of other new vaccines.
- The future of the COVID-19 pandemic is still uncertain, which may have implications regarding the future need for COVID-19 vaccination.

**How to operationalize integration of COVID-19 vaccination at national and subnational levels**

Countries are advised to consider undertaking the following actions as they plan, implement, and monitor integration of COVID-19 vaccination. Depending on the current level of integration, countries can choose the appropriate steps and proposed actions relevant to their context.

**Step 1. Initiation/building on the integration process**

- Establish or repurpose a multi-sectoral governing structure (including a technical working group or a task force consisting of immunization policy planners, other health programmes dealing with vulnerable population groups as older adults and immunocompromised individuals, and antenatal care and other health care service planners and providers) to plan the integration through a consultative process, and then to coordinate implementation and monitor the progress.
- Conduct a situation analysis to assess the readiness of national and subnational levels for integration (Annex 2).

**Step 2. Planning and preparation**

- Develop a national COVID-19 vaccination integration plan that:
  - defines national policy for COVID-19 vaccine booster doses and interval (*elaborated in the first section of this document*);
  - identifies and maps high-risk population groups, groups that have never been vaccinated and/or those who have not completed their primary series, and outlines an integration mechanism to reach them;
  - defines other interventions that can be provided with COVID-19 vaccination, including co-administration of influenza and other relevant vaccines included in the NIPs (SAGE recommends that COVID-19 vaccines be given concomitantly with, or any time before or after, other adult and adolescent vaccines);
  - defines a combination of service delivery strategies to provide COVID-19 vaccination and other health services, using an appropriate service delivery modality, i.e., routine and/or campaign mode (*for further guidance on proposed service delivery strategies for COVID-19 vaccination with different levels of integration, please refer to Table 1*);
  - identifies key actions/investments needed.
Annex 1 provides a list of short-term capacity/functionality and priority investments that may be needed to integrate COVID-19 vaccination into NIPs and broader health care delivery mechanisms. It should be noted that it is a comprehensive list, and requirements can be highly context specific and may vary from country to country. Therefore, it is recommended that each country identify the country-specific key actions and investments required for integration.

**Step 3. Implementation and monitoring**

Effective integration of COVID-19 vaccination into routine immunization and broader health systems should include addressing critical programme areas such as regulatory frameworks linked to vaccines used in the target population groups, immunization service delivery modalities, vaccine and supply chain financing and management, health workforce and security, functional vaccination data and health information systems to monitor COVID-19 vaccination uptake together with other vaccines in the national immunization schedule, vaccine safety monitoring, and demand generation, community engagement and communication. The established or repurposed governance structure should oversee progress on implementation and monitoring of COVID-19 vaccination integration. It is highly recommended to define indicators for monitoring progress at the planning phase, such as COVID-19 vaccine coverage with primary series and booster dose among high-risk groups; percentage of health facilities and/or districts that have integrated COVID-19 vaccination. Existing immunization programme performance indicators should be closely monitored to assess positive and negative impacts of integrating COVID-19 vaccination into NIPs and broader health care delivery mechanisms.

**Step 4. Post-integration follow-up actions**

Integration is a process, and it may not necessarily have a defined beginning and end. However, the overall process will need to be guided by continuous review, learning and improvement. Considering the importance of learning and adaptation to improve programme success, it will be important to consider key implementation parameters while integrating COVID-19 vaccination, such as, enablers and barriers at different levels that affect integration; outcomes of different integrated approaches; acceptability of the vaccines by the population groups; trends in COVID-19 and routine vaccination coverage; efficiency and cost-effectiveness of COVID-19 vaccination, and sustainability.

A post-integration evaluation may be considered 6 months after initiation of the process of integrating COVID-19 vaccination. Findings from such an evaluation will provide lessons and examples of delivery approaches for other countries yet to undertake integration and for future integration processes with the implementing country.
References


## Annex 1: Capacity/functionality required and priority investments

<table>
<thead>
<tr>
<th>Health system building blocks</th>
<th>Capacity/functionality required</th>
<th>Actions/investments required</th>
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<tr>
<td><strong>Leadership and governance</strong></td>
<td>Establish a temporary technical working group or a task force to plan for integration (could be done by repurposing one of the existing structures, if convenient).</td>
<td>Strengthen multisectoral approaches and engagement with non-traditional immunization partners.</td>
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<td><strong>Health systems financing</strong></td>
<td>Estimate future costs of procuring COVID-19 vaccine products and ancillaries.</td>
<td>Estimate costs of procuring COVID-19 vaccine products based on demand forecasts (applicable for self-procuring countries).</td>
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<td>Estimate health worker costs (in case additional human resources (HR) are needed).</td>
<td>Estimate health worker costs for expanded service delivery within the existing and/or new service points/platforms.</td>
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<td></td>
<td>Budget for COVID-19 vaccination delivery costs (including HR, capacity building, updating country guidance and tools, devices, cold chain equipment and ancillary equipment as well as cold chain maintenance, demand promotion, etc.).</td>
<td>Map costs of COVID-19 vaccine delivery and of integration and the need for catalytic funding to streamline processes. Adjust financing mechanisms as necessary. Estimate technical assistance needs for the process of integration.</td>
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<td><strong>Demand and community engagement</strong></td>
<td>Understand the beliefs, perceptions and experiences of vaccination recipients to inform the design, implementation and evaluation of targeted demand-related strategies and ultimately to help ensure more equitable access to quality services.</td>
<td>Build and strengthen research and evidence on behavioural and social drivers and barriers of vaccination – for any vaccine; can also be done within or beyond the immunization programme. Ensure listening mechanisms are in place to understand and respond to communities’ health and primary health care (PHC)-related concerns. Engage communities in microplanning and co-create local solutions to address barriers to uptake of health services.</td>
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<td>Increase demand for and acceptance of vaccination by leveraging broader health access points, community engagement and outreach, and invest in new/existing two-way communication channels and identifying community influencers targeting the different population groups.</td>
<td>Explore leveraging front-line health workers to promote demand for/acceptance of COVID-19 vaccination and other health interventions. Consider additional or adapted demand generation and communication and community outreach activities and channels to target groups through existing/new delivery platforms and continue to reinforce vaccination as a social norm. Engage local community-based organizations, faith-based actors, community leaders, public health associations and local champions to promote an integrated communication and outreach approach at family and community level.</td>
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<td>Service delivery</td>
<td>Advocate for adequate HR and financial resources for integrated demand promotion.</td>
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<td>Adapt service delivery strategies – shift away from vertical COVID-19 mass vaccination campaigns to integrated service delivery, fixed-site or health-facility based vs outreach, leveraging periodic intensification to reach more communities with vaccines and PHC services.</td>
<td>Map existing services/programmes/community structures for high-risk priority populations. Identify and analyse health interventions with high potential for integrated delivery, guided by considerations regarding context, compatibility of potential interventions to be integrated, feasibility and equity impact.</td>
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<td>Define existing or new service delivery entry points and platforms for high-risk groups (e.g., antenatal care (ANC) for pregnant people, HIV clinics for people living with HIV/AIDS, noncommunicable disease clinics at primary care and/or hospital level for people with co-morbidities).</td>
<td>Prioritize, design and test new delivery strategies in line with selected integration approaches. Define/update patient flow/pathways for delivery of joint services. Update/develop multidisciplinary team approach, including clear roles and responsibilities.</td>
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<td>Look at existing mechanisms for quality of care planning, assurance and improvement to identify where COVID-19 vaccination considerations could be incorporated.</td>
<td>Illustrative actions include incorporating COVID-19 vaccination within performance reporting and contracting mechanisms, supportive supervision checklists and processes, risk management and adverse event following immunization (AEFI) reporting systems, and existing platforms for community engagement.</td>
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<td>Build optimal profile (e.g., determine skills needed/type of personnel) and quantity of health workers (e.g., medical doctors, clinical officers, nurses, pharmacists, other staff as relevant) to perform COVID-19 vaccination on top of existing workload.</td>
<td>Estimate HR needs for expanded service delivery within the existing and/or new service points/platforms. Hire additional HR as needed. Where possible, consider redeploying COVID-19 staff to NIP.</td>
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<td>Build capacity of existing staff on: • COVID-19 vaccination • identifying, reaching/referring and monitoring the vaccination status of COVID-19 high-risk groups • interpersonal communication • waste management • vaccination registration systems • AEFI management and reporting.</td>
<td>Strengthen capacity to identify target high-risk populations, among other areas. Design and implement capacity-strengthening activities for providers in line with service delivery strategy (e.g., engage with ANC seekers on COVID-19 vaccination). Enhance interpersonal communication capacities of the health workforce to respond to the needs of communities. Provide supportive supervision and mentoring.</td>
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<td>Define the role of compensation mechanisms/incentives.</td>
<td>If relevant, design/revise the incentive policy.</td>
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<tr>
<td>Engage community health workers to generate demand for COVID-19 vaccination and other relevant interventions.</td>
<td>Estimate community health worker needs and build capacity according to the selected delivery approach.</td>
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<tr>
<td>Health information systems</td>
<td>Integrate health monitoring information systems (records, registers, electronic systems covering the whole data pipeline, performance monitoring dashboards to inform actions). The extent of integration may differ in different settings.</td>
<td>Redesign monitoring systems to identify and register vaccination of adult high-risk groups. Leverage COVID-19 data platforms for NIP and other services. Expand or scale up promising health monitoring information systems to improve routine monitoring.</td>
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<tr>
<td>Integrate reporting systems for COVID-19 vaccination (e.g., electronic) and routine immunization (e.g., paper based).</td>
<td>In situations where routine (e.g., paper based) and COVID-19 vaccine reporting systems (e.g., electronic) are different, the co-delivery of both interventions might require planning to shift to electronic platforms.</td>
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<tr>
<td>Strengthen vaccine-preventable disease (VPD) surveillance.</td>
<td>Leverage COVID-19 disease surveillance to strengthen VPD surveillance and vice versa.</td>
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<tr>
<td>Strengthen AEFI and adverse event of special interest systems.</td>
<td>Leverage pharmacovigilance improvements for COVID-19 to strengthen them for other vaccines.</td>
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<tr>
<td>Access to essential medicines (including quality vaccines)</td>
<td>Strengthen vaccine storage and cold chain, distribution planning (e.g., cold chain equipment (CCE) and ultra-cold chain requirements, temperature monitoring, vaccine vile monitor (VVM)/short expiry) and waste management.</td>
<td>Estimate storage, cold chain and distribution capacity needs for delivery of additional vaccines and increased wastage. Explore leveraging investments made in electronic logistics management information systems to be extended to essential vaccines. Consider private sector engagement (e.g., third-party logistics) for training on different vaccine management (VM) aspects related to COVID-19 vaccine roll-out, also strengthening regular VM activities for routine immunization (e.g., stringent temperature management, including controlled storage room temperatures). End-to-end supply chain planning (e.g., strengthened vaccine stock management, CCE inventory management and digital reporting platforms, and waste management).</td>
</tr>
<tr>
<td>Integration of immunization supply chain components.</td>
<td>Ensure preventive and corrective maintenance of cold chain equipment. Improve last-mile delivery of bundled essential PHC supplies, including vaccines.</td>
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<tr>
<td>Share COVID-19 vaccination costs and resources with other health interventions (e.g., HR, capacity building, updating country guidance and tools, cold chain equipment maintenance).</td>
<td>Map costs of COVID-19 vaccine delivery and integration as well as the need for catalytic funding to streamline processes. Adjust financing mechanisms as necessary. Estimate technical assistance needs for the process of integration.</td>
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</tbody>
</table>
Annex 2: Checklist for the COVID-19 vaccine integration readiness assessment

<table>
<thead>
<tr>
<th>Health system building blocks</th>
<th>Questions</th>
<th>Yes/No</th>
<th>If no, specify action/investment required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership and governance</td>
<td>Does the proposed integration of COVID-19 vaccination have high-level support among relevant government leadership (e.g., COVID-19 task force, national managers of NIP and PHC programmes)?</td>
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<td></td>
<td>Is integration planning linked with relevant country policy and strategy documents (e.g. national health strategic plans, National Deployment and Vaccination Plan, national health promotion strategy)?</td>
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<td></td>
<td>Has a working group or equivalent been defined to oversee the integration planning and implementation, including participation from relevant programmes? If yes, specify.</td>
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<td></td>
<td>Have you agreed on a timeline for integration?</td>
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<tr>
<td>Health systems Financing</td>
<td>Have costs of procuring COVID-19 vaccine products, supplies, cold chain equipment, and supplies and ancillaries been estimated and sourced, including mapping of both current and future sources?</td>
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<td></td>
<td>Have costs of HR, training, outreach and communication needs been estimated and sourced, including mapping of both current and future sources?</td>
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<td></td>
<td>Do you have an estimate of the funding needed to streamline processes to integrate COVID-19 vaccination into NIP and PHC?</td>
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<td>Have opportunities for cost sharing across interventions and resource mobilization been identified?</td>
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<td></td>
<td>Have health budgets and expenditure changes been analysed to consider where inefficient resource use may be occurring due to lack of COVID-19 vaccine integration?</td>
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<tr>
<td>Demand and community engagement</td>
<td>Do data exist on the behavioural and social drivers of COVID-19 vaccination and its relationship to routine immunization and other health care services? / Is there a need to gather additional data?</td>
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<td></td>
<td>Have learnings from this data on behavioural and social drivers of vaccination been considered in the design of the integration plan?</td>
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<td><strong>Have strategies for integrated demand generation in target groups through existing platforms been identified?</strong></td>
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<td><strong>Is there a plan to engage community representatives and community-based networks/groups?</strong></td>
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<td><strong>Have groups to be targeted for COVID-19 boosters been defined according to WHO recommendations?</strong></td>
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<tr>
<td><strong>Have existing health services and programmes, including in other sectors and services which interface with high-risk groups (e.g., aged care) and COVID-19 vaccination been mapped?</strong></td>
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<td><strong>From the programmes identified in mapping, have the approaches most appropriate and feasible for integration been identified?</strong></td>
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<td><strong>Is there a plan for testing/piloting integrated COVID-19 vaccine delivery with those services?</strong></td>
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<td><strong>Have patient flows been defined and updated, and has this been properly communicated to workers at delivery sites? (Take into account patient waiting times and possibility of joining multiple queues.)</strong></td>
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<td><strong>Have roles and responsibilities for all workers at service sites been specified and understood by those workers?</strong></td>
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<td><strong>Has the availability of infrastructure at service sites been assessed and a plan created for any needed upgrades?</strong></td>
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<td><strong>Has a mapping of HR capacity to accommodate absorption of COVID-19 vaccination into NIP and PHC been done? If not, is there a plan to hire additional HR or redeploy staff from COVID-19 activities to the service targeted for integration? (Consider available financing and need for advocacy.)</strong></td>
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<td><strong>Has a capacity building and training plan been developed for workers newly involved in COVID-19 vaccination or whose role will be impacted by integration?</strong></td>
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<tr>
<td><strong>Are there plans to conduct integrated microplanning sessions for COVID-19 vaccines as part of NIP, PHC and any other relevant health services?</strong></td>
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<td><strong>If community health workers (CHWs) will have a critical role in COVID-19 vaccination, have considerations (including training needs) for integrating COVID-19-related</strong></td>
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<tr>
<td><strong>Health information systems</strong></td>
<td>functions into the CHW package of services been defined?</td>
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<td>Are there existing structures for supportive supervision which could be expanded to include COVID-19? If not, is there a plan to implement supportive supervision?</td>
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<td></td>
<td>Can pre-existing health management information systems (HMISs) be updated to identify and register vaccination of high-risk groups? OR Can data platforms deployed for COVID-19 be expanded to cover reporting for the integrated service?</td>
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<td>Will disease surveillance conducted for COVID-19 be aligned and leveraged to strengthen VPD surveillance?</td>
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<td>Has it been defined how COVID-19 will be included in the AEFI surveillance system or how COVID-19 may be used as an opportunity to strengthen this system?</td>
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<td></td>
<td>Are there plans for training at national and subnational level to ensure workers can meet changed responsibilities for reporting to the HMIS and/or for disease and AEFI surveillance?</td>
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<tr>
<td><strong>Access to essential medicines (including quality vaccines)</strong></td>
<td>Has a joint routine immunization and COVID-19 comprehensive forecasting and supply planning exercise been completed based on stock management and inventory data?</td>
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<td>Have the resources and additional capacity needed for storage, cold chain and distribution of COVID-19 vaccines been estimated?</td>
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<td>Have the logistics scopes of purposes been adapted to include COVID-19 vaccines?</td>
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<td>Has the possibility to bundle COVID-19 vaccine supply with other essential PHC supplies been explored? (Consider particularly in the context of last-mile access.)</td>
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<td>For any dual-temperature, ultra-low-temperature freezers deployed at subnational level in smaller/medium-size countries, has retaining and operating them as regular freezers (e.g. -20°C to -40°C) in the EPI programme been considered? For any additional ultra-low-temperature freezers, has dual-temperature equipment (e.g., operating at -86°C and -20°C to -40°C) been considered for future integration into the EPI programme?</td>
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<td>Have opportunities to incorporate digital platforms (e.g., electronic Logistics Management Information System, analytic</td>
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<td>Monitoring and evaluation</td>
<td>dashboards, warehouse management systems) covering COVID-19 and any commodities at integrated service sites been identified?</td>
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<td>Have preventive and corrective maintenance plans, including staff training, for cold chain equipment been established?</td>
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<td>Are a robust integrated waste management plan, governance mechanism, wastage tracking and reverse logistics (for redistribution) in place to minimize wastage?</td>
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<td>Is there a strategy for capturing and adopting lessons learned on integrating COVID-19 vaccination, including impacts on coverage and equity for COVID-19 vaccines, essential immunizations and PHC services?</td>
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<td>Have a monitoring and evaluation plan for integration and responsibility for implementing this plan been assigned?</td>
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<tr>
<td></td>
<td>Have the scopes of purposes for monitoring and supervision visits been revised to include COVID-19 vaccination?</td>
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The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

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