Operational considerations for planning and implementing catch-up vaccination in the WHO European Region
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### Abbreviations

<table>
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<th>Abbreviation</th>
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<tr>
<td>AEFI</td>
<td>adverse event following immunization</td>
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<tr>
<td>DTP3</td>
<td>diphtheria-tetanus-pertussis-containing vaccine, third dose</td>
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<tr>
<td>MCV1</td>
<td>measles-containing vaccine, first dose</td>
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<tr>
<td>VPD</td>
<td>vaccine-preventable disease</td>
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<td>NITAG</td>
<td>national immunization technical advisory group</td>
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<td>SIAs</td>
<td>supplemental immunization activities</td>
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Background

Efforts in the WHO European Region (Region) in 2020 to sustain routine immunization services (1, 2) while also responding to the COVID-19 pandemic were largely successful, and the regional average for the third dose of diphtheria-tetanus-pertussis-containing vaccine (DTP3) in 2020 saw a decrease of 1% compared to that of the previous year. While the overall variation was minimal at the regional level in 2020, 11 countries in the Region reported more than a 5% decrease in their national coverage with DTP3 and/or the first dose of measles-containing vaccine (MCV1). Moreover, in nine countries with minimal change in national coverage between the years, a deterioration of coverage level was observed at subnational levels. Although 50 of 53 countries submitted their 2020 national vaccination coverage to WHO (as of January 2022), completeness of subnational level data is limited (only 36 countries reporting). Considering data gaps and that the health systems had implemented restrictive measures as part of COVID-19 response in 2020, it is also possible that similar vaccination gaps at subnational level exist in several countries. A review of the vaccination coverage by income levels of the countries in the Region demonstrated that the middle-income countries in the Region showed a greater decline in vaccination coverage in 2020 than the high-income countries; with 45% of the middle-income countries reporting DTP3 coverage <90% in 2020 compared to 20% in 2019, while only 6% of high-income countries reported <90% coverage in both 2019 and 2020. A similar trend was visible for MCV1 coverage in 2020 in comparison to the 2019 levels; with 65% of the middle-income countries reporting MCV1 coverage <95% in 2020 compared to 30% in 2019. These data reflect that despite the efforts at the national level to sustain routine immunization in 2020 and in 2021, the vaccination service delivery particularly at the subnational levels may have been limited leading to accumulation of vulnerable cohorts of children susceptible to one or more vaccine-preventable diseases (VPDs).

While catch-up vaccination of missed doses in children may be part of the routine immunization strategy in a country, the impact of the restrictive measures of COVID-19 response on delivery of routine immunization services warrants that countries both sustain the routine immunization services and also implement specific modalities to prioritize catch-up vaccination.

This context calls for the WHO Regional Office for Europe to provide technical guidance and support (as needed) to countries to develop country-specific vaccination strategies that will outline modalities for the national immunization programmes to catch up with all routine vaccine doses missed in 2020 and also in 2021 due to any restrictive measures linked to COVID-19 response, but also in otherwise routine immunization contexts, so that no one is left behind and to reduce the chances of any VPD outbreaks in the countries.

The purpose of this operational considerations document is to:

- assist national immunization programmes in establishing and refining a catch-up vaccination strategy, as an essential component of a well-functioning immunization programme, to ensure individuals who have missed their routine vaccine doses can receive their overdue doses at the earliest possible opportunity;
- provide practical guidance in operationalizing the global guidance for planning and implementing catch-up vaccination (3) using a structured algorithm.
1. **Operational (decision-making) considerations at the country level in planning for and implementing catch-up vaccination**

Immunization is an essential health service that should continue without interruption to the maximum extent possible under all circumstances (4). Timely vaccination is key to maintaining population immunity to VPDs, ensuring individuals are fully protected against life-threatening illnesses as early as possible, and preventing VPD outbreaks. Therefore, everyone should fully benefit from vaccination by receiving the recommended vaccines in the national immunization schedule as soon as they are eligible.

However, despite best efforts and intentions, individuals may not always receive all vaccinations in a timely manner as per the recommended age in a national immunization schedule. Those who for whatever reason (e.g. delays, vaccine stockouts, access barriers, hesitancy, service interruptions as during COVID-19 pandemic) have not received vaccine doses for which they are eligible according to the national immunization schedule should have additional opportunities embedded in the immunization strategy to receive those overdue vaccine doses.

To provide such opportunities, a catch-up vaccination strategy should be an essential part of a well-functioning national immunization programme and should be implemented on a continuous basis. No one should miss out on the right to the protection that vaccines offer, simply because they are not able to access services in time or for any other reason. The importance of scaling up implementation of the national catch-up vaccination is more pronounced when there is an extended interruption of routine immunization services (e.g., due to vaccine shortages or system disruptions caused by outbreaks or epidemics, natural disaster, acute conflict, population displacements, insecurity, etc). Planning of a catch-up vaccination strategy should in that case not be based only on the need for catch-up vaccination, but also on in-depth analysis of the situation so that an appropriate catch-up modality can be tailored to address the problem efficiently.

A strong national catch-up vaccination strategy should include the following six elements:

- a catch-up vaccination policy and schedule (or age-group-specific schedules if required) based on scientific guidance of national immunization technical advisory groups (NITAGs) and developed in collaboration with relevant immunization stakeholders;
- an implementation modality and actions for catch-up vaccination (e.g. catch-up vaccination integrated into routine immunization sessions throughout the year; periodic intensification of routine immunization (PIRI)(5); integration of catch-up vaccination with other health services (6), including vaccination checks in schools and other institutions);
- ensured availability of vaccines and supplies for catch-up vaccination in addition to the routine immunization doses;
- sufficient health workers’ knowledge and practice on catch-up vaccination;
- recording and reporting practices, information systems and tools; and,
- targeted communications and community engagement on catch-up vaccination.
2. Implementation modalities of catch-up vaccinations

If not already in place, catch-up vaccination policy and implementation modalities, according to the country setting and scale of service interruption, should be an essential component of the national routine immunization programme. During the period of disruption of immunization services and until the situation allows for their resumption, it is important to monitor the situation and track and document cohorts and individuals who missed routine vaccination doses.

The choice of catch-up vaccination modality will depend on:

- duration and extent of disruption of routine immunization services;
- local epidemiology of outbreak-prone VPDs (e.g. measles, polio, diphtheria);
- size and extent of pre-existing immunity gaps in under-served communities;
- time since last planned preventive campaigns for various outbreak-prone VPDs;
- target population estimate (e.g. age, geography) requiring catch-up;
- available human resources;
- available financial resources;
- availability of home-based records and/or nominal immunization registers;
- availability of track and follow-up system for eligible individuals and defaulters;
- local settings and issues (e.g. security, major political events);
- other specifics related to cause of service disruption (e.g. level of COVID-19 pandemic community transmission, public health and social measures).

In a setting where the service interruption has been relatively short, offering catch-up vaccination through the routine immunization service delivery system is the least resource intensive and most sustainable implementation modality to ensure individuals are able to receive their missed vaccine doses.

In a setting following a significant period of interruption or reduction in services, planning for catch-up vaccination will require additional large-scale intensified and specialized efforts and, additional considerations with regards to certain elements of catch-up vaccination.

These large-scale catch-up vaccination modalities may include:

- intensified catch-up through routine immunization services (e.g. intensified with revised microplans [7], mass call backs, intensive defaulter tracking, extended service delivery hours, expanded outreach, wide-reaching and effective communication campaign and community engagement);
- targeted and selective (PIRI approach) mass vaccination campaigns (that screen for eligibility and record individual doses given as routine immunization), if resources are available;
- supplementary immunization activities (SIAs), if there is greater urgency to vaccinate a large number of susceptible individuals with specific antigens including administration of multiple antigens to maximize benefits.
Planning any of these large-scale catch-up vaccination modalities will require additional considerations with regards to timing and timeframe; coordination and integration with other interventions; identification of those eligible for catch-up vaccination and understanding the acceptance of the interventions by the community. Particular attention should also be paid to the following aspects during the planning phase:

- ensuring highest level of political commitment to resume and/or intensify immunization in the context of several competing priorities and resource constraints;
- possible supply chain constraints for vaccine and immunization supplies due to vaccine supply issues at the global level;
- planning for monitoring of vaccination coverage and intensified VPD surveillance in order to identify gaps, inequalities and vulnerable groups and communities;
- planning for monitoring of adverse events following immunization (AEFIs) and vaccine safety concerns in order to ensure vaccine safety and to maintain trust in vaccination;
- planning for intensified communication and community engagement guided by formative research on vaccine demand and acceptance, including facilitating accessibility to services which may remain low following interruption of services.

A framework for monitoring the implementation performance should be designed at the planning stage consistent with the country’s immunization information system and functional to provide the required data to steer the catch-up vaccination efforts.

A decision-making algorithm to illustrate and facilitate the planning process for catch-up vaccination is provided as an annex to this document.


* All websites were accessed on 26 January 2022.
Annex: Decision-making algorithm for catch-up vaccination planning

1. **Start**
   - Does your national immunization programme have an integrated catch-up vaccination strategy?
     - **Yes**
       - Is the (current) routine catch-up vaccination modality meeting your programme objectives – those who had missed doses of routine vaccines can receive the missed doses in a reasonable timeframe?
         - **Yes**
           - Conduct an in-depth analysis of the situation in order to identify and plan additional (large-scale) catch-up efforts that will meet your programme objectives, considering the factors outlined in the guidance, section 2, box #6.
         - **No**
           - Keep in mind that some implementation modalities are/may be more resource-consuming (i.e. PiRI vs routine catch-up) and make sure that the required resources are secured.
     - **No**
       - Establish a catch-up strategy (as outlined in the guidance section 1).

2. **Yes, but it is inadequate or outdated**
   - Review elements of the catch-up vaccination strategy and strengthen the elements that require improvement.

3. **Are the required resources for the planned large-scale catch-up efforts secured?**
   - **Yes**
     - Maintain the current vaccination strategy as an integral part of your programme and functional to provide opportunities for those to catch-up their missed vaccinations.
     - Implement the planned large-scale catch-up efforts to provide opportunities for those to catch-up their missed vaccinations.
   - **No**
     - Either consider a less resource consuming modality or intensify advocacy efforts to secure the required resources.

4. **Monitor the implementation - effectiveness and adequacy of the catch-up strategy implemented. Make plan adjustments, if required.**

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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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