21st Meeting of the European Technical Advisory Group of Experts on Immunization (ETAGE)

Virtual meeting, hosted in Copenhagen, Denmark
16–18 November 2021
Abstract
The 21st meeting of the European Technical Advisory Group of Experts on Immunization (ETAGE) took place virtually on 16–18 November 2021 to review and discuss immunization activities and developments in the WHO European Region and provide advice to the WHO Regional Office for Europe on appropriate activities. Advice and guidance from ETAGE were sought on resuming and scaling up routine immunization in the WHO European Region. Guidance was also sought on an additional primary dose of COVID-19 vaccines for specific sub-populations, booster doses of COVID-19 vaccines, and co-administration of COVID-19 and influenza vaccines.

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## Abbreviations

- SAGE: Strategic Advisory Group of Experts
- COVID-19: Coronavirus disease 2019
- WHO: World Health Organization

## Executive summary

### Session 1: Regional update: immunization in the WHO European Region – now and in the future

### Session 2: Global updates: SAGE October 2021 meeting recommendations

### Session 3: Resuming and scaling-up routine immunization in the WHO European Region

### Session 4: Reflections on COVID-19 vaccination issues addressed at SAGE October meeting with particular relevance to the WHO European Region:
- Additional primary dose of COVID-19 vaccines for specific sub-populations:
  - For immunocompromised persons
  - For older adults who received two doses of inactivated COVID-19 vaccines
- Booster doses for COVID-19 vaccines
- Co-administration of seasonal influenza and COVID-19 vaccines

## Conclusions and recommendations

- Resuming and scaling-up routine immunization in the WHO European Region
- Expanded primary vaccination series for immunocompromised individuals
- Additional primary dose for older adults who received two doses of inactivated COVID-19 vaccines
- Booster doses of COVID-19 vaccines
- Co-administration of COVID-19 and influenza vaccines

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<tr>
<td>AEFI</td>
<td>adverse events following immunization</td>
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<td>BeSD</td>
<td>behaviour and social drivers</td>
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<td>cVDPV2</td>
<td>circulating vaccine-derived poliovirus, type 2</td>
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<td>DTP3</td>
<td>third dose of diphtheria-tetanus-pertussis vaccine</td>
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<td>EIA2030</td>
<td>European Immunization Agenda 2030</td>
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<td>EIR</td>
<td>electronic immunization registry</td>
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<td>ETAGE</td>
<td>European Technical Advisory Group of Experts on Immunization</td>
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<td>EUL</td>
<td>Emergency Use Listing</td>
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<td>HIC</td>
<td>high-income countries</td>
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<td>IA2030</td>
<td>Immunization Agenda 2030</td>
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<td>ICP</td>
<td>immunocompromised persons</td>
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<td>IPV</td>
<td>inactivated polio vaccine</td>
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<td>IVB</td>
<td>Immunization, Vaccines and Biologicals programme, WHO headquarters</td>
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<tr>
<td>LMIC</td>
<td>lower-middle-income country</td>
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<td>MCV1</td>
<td>first dose of measles-containing vaccine</td>
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<td>NITAG</td>
<td>National Immunization Technical Advisory Group</td>
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<td>nOPV2</td>
<td>novel oral polio vaccine type 2</td>
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<td>SAGE</td>
<td>Strategic Advisory Group of Experts on Immunization</td>
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<td>SIA</td>
<td>supplemental immunization activity</td>
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<td>UMIC</td>
<td>upper-middle income countries</td>
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<td>VPD</td>
<td>vaccine-preventable disease</td>
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<td>VPI</td>
<td>Vaccine-preventable Diseases and Immunization Programme of the WHO Regional Office for Europe</td>
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<td>WHA</td>
<td>World Health Assembly</td>
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<td>WPV</td>
<td>wild poliovirus</td>
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Executive summary

The 21st meeting of the European Technical Advisory Group of Experts on Immunization (ETAGE) was held virtually on 16–18 November 2021 to review and discuss immunization activities and developments in the WHO European Region and provide advice to the WHO Regional Office and its Member States.

Advice and guidance from ETAGE were sought on resuming and scaling up routine immunization in the WHO European Region. Guidance was also sought on an additional primary dose of COVID-19 vaccines for specific sub-populations, booster doses of COVID-19 vaccines, and co-administration of COVID-19 and influenza vaccines.

ETAGE recommends that Member States systematically assess the impact of the COVID-19 pandemic on routine immunization services and aim to close any immunity gaps identified. ETAGE encourages the use of available guidance to refine each country’s specific catch-up strategy and recommends that Member States should prioritize mobilization of required resources to implement catch-up efforts. The WHO Regional Office for Europe should provide technical guidance and support to Member States to integrate catch-up strategies into routine immunization programmes and ETAGE requests reports on progress achieved in closing any identified immunity gaps during upcoming meetings.

ETAGE concurred with the Strategic Advisory Group of Experts on Immunization (SAGE) recommendations on an expanded COVID-19 primary series for immunocompromised persons. Countries may use the case definition suggested by SAGE to identify moderately and severely immunocompromised persons. ETAGE re-emphasizes that vaccination of immunocompromised persons, who are at high risk of developing severe COVID-19 outcomes, should be prioritized in all countries. Immunocompromising conditions and immunosuppressive therapy are not contraindications to vaccination and vaccination should be offered to immunocompromised persons as soon as possible. Routine testing for antibodies is not recommended prior to or following the administration of the additional dose.

ETAGE concurs with the SAGE recommendation that individuals aged 60 years and above who received two doses of inactivated COVID-19 vaccines Sinovac-CoronaVac or Sinopharm-BIBP should be offered an additional (third) primary dose 3–6 months after the second dose to enhance vaccine-induced protection. Countries should consider COVID-19 vaccine coverage and COVID-19 vaccine supply when deciding on the introduction of a third dose for older adults who received these two vaccines. Doses should be recorded in the COVID-19 vaccination certificates to document the updated vaccination status of the individual.

ETAGE recommended that the primary public health objective of COVID-19 vaccination programmes in every country should remain to reduce severe disease and deaths and to maintain essential health care services. Therefore, primary vaccination of vulnerable populations and health care workers should remain a priority. Countries should undertake efforts to increase coverage with a primary COVID-19 vaccination series and strive to reach global and regional targets by mid-2022. Countries should also make efforts to identify areas or population groups with low vaccination uptake, understand the reasons for low uptake and tailor strategies to address them.

In the context of declining protections against SARS-CoV-2 infection and threat of COVID-19 resurgence, ETAGE suggests that countries should take a precautionary position and consider offering a booster dose to high-risk population groups to maximize their protection and prevent increases of severe COVID-19 disease. Countries should also consider offering a booster dose to health workers, whose absence from work may put the functioning of the health system at risk. Countries should consider the following criteria while making a decision on introduction of a booster dose: epidemiology of COVID-19, coverage with primary vaccine doses in priority population groups, and current and predicted vaccine supply and programmatic capacity. ETAGE will continue to monitor and review evolving evidence to provide further advice on a booster dose for the wider adult population.

ETAGE concurs with the SAGE consideration that coadministration of an inactivated influenza vaccine and any dose of a COVID-19 vaccine is acceptable despite limited available evidence, given that the known risk of serious illness of those infected with influenza virus or SARS-Cov-2 is substantial.
Introduction

ETAGE meets annually to advise VPI on specific issues and to be informed of regional progress towards vaccine-preventable disease prevention goals. The 21st meeting of ETAGE was conducted virtually on 16–18 November 2021. The chairman of SAGE, Dr Alejandro Cravioto, representatives from selected national immunization technical advisory groups (NITAGs) together with representatives from immunization partner agencies and organizations attended the meeting. The meeting was chaired by Professor Adam Finn, ETAGE Chair.

Scope and purpose

Objectives of the meeting were to request advice and guidance from ETAGE members on the following key topics and issues:

- resuming and scaling-up routine immunization in the WHO European Region: identifying the magnitude of the problem and understanding the underlying factors; issues to be considered while planning the resuming and scaling-up; development of country action plans and monitoring the implementation performance;
- COVID-19 vaccination issues addressed at the SAGE October 2021 meeting with particular relevance to the WHO European Region: additional primary dose of COVID-19 vaccines for specific sub-populations; co-administration of seasonal influenza and COVID-19 vaccines.

Opening remarks

The meeting was opened by Professor Adam Finn who announced he will continue in his role as Chair of ETAGE for another year. Meeting participants were welcomed on behalf of the WHO Regional Office by Dr Siddhartha Datta, Regional Advisor, Vaccine-preventable Diseases and Immunization programme (VPI), WHO Regional Office for Europe (Region).

Dr Hans Kluge, WHO Regional Director for Europe, opened day three of the meeting, expressing appreciation to the ETAGE for its work during this challenging time and thanked Adam Finn for agreeing to continue to serve as Chair. It is important to tailor COVID-19 recommendations to the European Region and he looked forward to the ETAGE conclusions and recommendations.
Session 1: Regional update: immunization in the WHO European Region—now and in the future

Dr Datta provided an update on immunization in the Region. Progress has been made toward the goals of the European Immunization Agenda 2030 (EIA2030). COVID-19 vaccination is currently underway in all 53 countries in the Region. To date, 1.05 billion doses of COVID-19 vaccine have been administered in the Region, with 58.8% of the total population having received one dose and 52.9% having received a complete series (1). Vaccine uptake in people ≥60 years of age is 73% for a complete series and among those less than 60 years of age 56% have received a complete series. There is a wide variation in vaccination uptake over time and by income level of countries. Implementation of COVID-19 vaccination strategies will require a closer look to protect vulnerable populations such as the elderly. The overall rate of COVID-19 vaccination must accelerate to meet the targets set by ETAGE and more support is needed for upper middle-income countries and low- and middle-income countries to meet these targets.

There have been recent outbreaks of circulating vaccine-derived poliovirus (cVDPV), type 2 (cVDPV2) in the Region, in Tajikistan and Ukraine. There has also been detection of wild poliovirus type 1 (WPV1) in Afghanistan near the border with Tajikistan. Tajikistan has had great success in responding to its outbreak and achieved high vaccination coverage during three rounds of vaccination. Ukraine’s response has also been exemplary with vaccination in place now as part of their outbreak response.

The WHO Regional Committee for Europe adopted the European Immunization Agenda 2030 (EIA2030) by resolution at its 71st session in September 2021. By strengthening immunization systems EIA2030 will help to: reduce mortality and morbidity caused by vaccine-preventable diseases, increase equitable access to new and existing vaccines, and strengthen primary health care, thereby contributing to achieving universal health coverage and sustainable development. The key pillars to achieve this are immunization equity, immunization across the life-course and tailored local solutions that address local challenges. An implementation framework will be developed to help countries with implementation; an advocacy framework will be developed with a high-level Immunization Board and progress will be measured through a monitoring and evaluation framework including milestones and a compendium. A meeting will be scheduled with Member States to discuss this in the near future.
Session 2: Global updates: SAGE October 2021 meeting recommendations

Dr Joachim Hombach, Immunization, Vaccines and Biologicals, WHO headquarters, provided an overview of the October 2021 SAGE meeting. There was a focus on inequity in access to vaccination, which has been exacerbated during the COVID-19 pandemic. The COVID-19 vaccine rollout has started in all WHO regions at a variable pace. High-income countries have administered 35 times more vaccine doses than low-income countries. Fifty-six countries, predominantly in the Africa and the Eastern Mediterranean regions, were unable to achieve the 10% target of fully vaccinated by September 2021, due mainly to supply constraints. WHO regional offices and partner agencies are supporting countries to scale up vaccination to reach 70% coverage by June 2022. Childhood immunization programmes have been affected across the world with the poorest countries hit hardest and being slowest to recover.

Operationalization of the Immunization Agenda 2030 (IA2030) framework and the process for monitoring, evaluation and accountability were reviewed. The WHO regional offices have developed regional strategies aligned to IA2030 in collaboration with their Member States and regional stakeholders. SAGE will conduct an annual assessment of progress and provide recommendations for corrective actions to Member States and the relevant working groups. SAGE recommended to conduct country by country analysis of programmatic bottlenecks and challenges to inform corrective actions at global, regional and national levels. SAGE also recommended that countries develop national immunization strategies aligned to the IA2030 and regional frameworks and establish national monitoring, evaluation and accountability processes.

During the polio vaccination session, SAGE discussed two detected cases of WPV1 and 326 cases of cVDPV, predominantly of serotype 2. SAGE acknowledges the desire of countries to use inactivated polio vaccine (IPV)-only schedules and developed recommendations for low-risk countries. Low-risk countries may use a primary 3-dose series of IPV administered beginning at 2 months of age with a minimum 4-week interval between doses. For the primary series beginning earlier than 2 months of age (e.g., at 6 weeks) a booster dose should be given after an interval of 18 months. For the lowest-risk areas, an option is a 2-dose IPV or fractional IPV schedule started at >14 weeks of age with a second dose given ≥4 months later. SAGE agreed that whole cell pertussis (wP) hexavalent vaccine could be administered in the same early schedule currently administered for the pentavalent vaccine. SAGE endorsed the transition from the initial use to wider use of novel oral polio vaccine, type 2 (nOPV2) under WHO Emergency Use Listing (EUL) to allow more countries to initiate a timelier response to cVDPV2 outbreaks with nOPV2.

The Bharat Biotech COVID-19 vaccine, BBV152 (Covaxin), was authorized by the Central Drugs Standard Control Organization in India on 4 January 2021 and has been authorized by 14 countries and jurisdictions for use in adults age 18 years and older and WHO EUL has been granted. The vaccine efficacy is 78% against symptomatic infection, 93% against severe COVID-19 and 65% against the Delta variant. Preliminary results from an effectiveness study in India shows high effectiveness against hospitalization and deaths during a period when the Delta variant was predominant. There have been no serious safety signals in the clinical trials or in safety surveillance but there is limited data for the use of this vaccine in pregnancy.

WHO recommends (2) the use of BBV152 vaccine in a 2-dose schedule in individuals ≥18 years of age. WHO recommends the use of BBV152 vaccine in pregnant women if the benefits of vaccination of the pregnant woman outweigh the potential risks. WHO also recommends an extended primary series including an
additional (third) dose for immunocompromised individuals 18 years of age and older, 1–3 months after the second dose. Safety and immunogenicity data are currently being generated for those aged <18 years and until such data are available, vaccination of individuals in this age group with this vaccine is not recommended. Moderately to severely immunocompromised persons should be offered an additional dose as part of an extended primary series. The additional dose should be given at least 1 month and within 3 months after the primary series, or at the earliest opportunity thereafter. A homologous additional dose should be considered standard practice, but heterologous platforms can be considered depending on supply and access. This recommendation extends to all WHO EUL COVID-19 vaccines.

Emerging evidence shows lower vaccine effectiveness in older persons who have received two doses of the inactivated COVID-19 vaccines manufactured by Sinovac (Coronavac™) or Sinopharm (BIBP-CorV) when compared to younger adults. WHO recommends a third dose in persons aged 60 years and above as an extended primary series, with an interval of 3–6 months between the second and third dose (an extended primary series following the 2 + 1 immunization scheme). The use of the homologous vaccine is recommended for the extended primary series, but a heterologous extended primary series can be considered in case of vaccine supply and access challenges. When administering an additional (third) dose, countries should follow the WHO Prioritization Roadmap and first vaccinate persons age 80 years or older and those age 60 years or older with comorbidities. Countries that have not yet achieved high coverage with the 2-dose primary series in priority-use groups, as per the WHO Prioritization Roadmap, should focus on achieving high 2-dose vaccination coverage before implementing an additional (third) dose in older persons.

The RTS,S/AS01 malaria vaccine was recommended for use in the prevention of P. falciparum malaria in children in regions with moderate to high transmission using a 4-dose schedule in children from the age of 5 months within the context of comprehensive national malaria control plans. There is a possibility for countries to use a 5-dose strategy in areas with highly seasonal malaria or areas with perennial malaria transmission. The vaccine has demonstrated a favorable safety profile, effectiveness and substantial reduction in life-threatening severe malaria even in areas with good coverage with insecticide-treated nets, and access to treatment. The vaccine is able to reach vulnerable children currently not protected by other malaria control interventions.

All countries should consider implementing seasonal influenza vaccination based on the burden and epidemiology of disease, the cost-effectiveness of vaccination, competing public health priorities, and programmatic feasibility. Target groups for influenza vaccination include health workers, individuals with specific chronic medical conditions, older adults and pregnant women. Additional populations to be considered include children and marginalized populations at high risk of severe disease.

Co-administration of seasonal influenza and COVID-19 vaccines was discussed. There is limited information available on co-administration of EUL and non-EUL COVID vaccines with inactivated seasonal influenza vaccines. ComFluCov assessed the safety and immunogenicity of co-administration of different trivalent and quadrivalent influenza vaccines with ChAdOx1 or BNT162b2 vaccines, and safety and reactogenicity were found to be acceptable. Based on these data, SAGE recommended (3) implementation of a robust seasonal influenza vaccination programme. For more programmatic ease and higher uptake of both vaccines, countries can consider administering COVID-19 vaccines and influenza vaccines during the same visit. While only limited evidence exists, coadministration of an inactivated seasonal influenza vaccine and any dose of an EUL COVID-19 vaccine is acceptable. WHO recommends using the contralateral limb for injection, when two vaccines are administered during the same visit.
Behavioural and social drivers (BeSDs) of vaccine uptake were discussed by SAGE. There are new evidence-based tools and guidance to support programmes and to assess and address reasons for under-vaccination. For COVID-19 and childhood vaccination, tools have been developed and field tested. There was a scoping review to identify interventions to increase uptake and an outline was developed on the support to be provided to assist Member States in implementation. SAGE recognized the importance of measuring factors that contribute to low uptake and took note of the evidence-informed framework for measuring BeSDs with the four domains. SAGE recommended the systematic gathering and use of data on BeSDs to assess the reasons for low uptake, for routine tracking of trends and monitoring and evaluation of interventions.

Hepatitis E affects primarily underprivileged populations in low-resource settings and causes high mortality in pregnant women; and despite the availability of a vaccine and a WHO position paper since 2015, the vaccine has barely been used. Manufacturers should proceed as quickly as possible to apply for WHO prequalification, but in the interim the vaccine should be used in outbreak settings. WHO has requested to work with Gavi for inclusion of hepatitis E vaccination for outbreak response and hepatitis E surveillance and diagnostics within its portfolio of support to eligible countries.

The full SAGE meeting report (4) will be published in the Weekly Epidemiological Record on 17 December 2021.

**Discussion on sessions 1 and 2**

The ETAGE Chair reflected on the COVID vaccine situation in the Region including the late arrival and rapid rise of vaccine delivery in low- and middle-income countries and the recent decline in vaccine delivery rates in countries in the Region, many of which are not projected to reach 70% by mid-2022. The issue is not only vaccine supply or the capacity to deliver, but also acceptance of the population to receive this critical public health intervention that will have massive implications for both economic and health benefits. Vaccine demand and acceptance is a critical issue for the Region. Some concern was expressed about whether the demand and acceptance issues around COVID-19 vaccines would be extended to other vaccines.

Clarification was requested from SAGE on the difference between an “additional dose” versus a “booster dose” of COVID-19 vaccine. Dr Hombach explained that there are situations where the primary doses of COVID-19 vaccine do not induce a level of immunity that is acceptable and if you administer an additional dose, you can reach an adequate level of immunity. This is what is referred to as an “additional dose” and is used in the context of immunocompromised persons. This is different from a situation in which the initial immunity is adequate but then wanes over time, in which case a booster dose is later needed to restore immunity level.

Dr Datta shared that the regional coordination group in the European Region has started looking at priority countries to identify plateauing or decreasing COVID-19 vaccination coverage and implement a “data to action” approach to comprehensively understand the reasons behind these numbers in a systematic way. The group is engaging with the Member States to systematically assess factors around demand and acceptance and access to vaccination. Later follow up with Member States will look at whether there has been any impact from the discussion and the actions outlined. This process will be initiated for all priority countries and findings of this project will be shared with ETAGE at a future meeting.
Session 3: Resuming and scaling-up routine immunization in the WHO European Region

Dr Datta reviewed the background and rationale for the operational considerations for catch-up vaccination. The COVID-19 response has had minimal impact on routine immunization coverage at the regional level. However, at the country level there has been impact in the number of countries with greater than 90% coverage with the third dose of diphtheria/tetanus/polio vaccine (DTP3) in 2020. To understand the impact of the COVID-19 response on routine immunization the Regional Office had a dialogue with Member States in April 2020 to understand immunization service delivery at the sub-national and national levels. Accuracy of reporting may be an issue because the target population in high-income and upper-middle-income countries decreased from 2019 to 2020. There was variation in immunization coverage in the Region in 2019 and 2020; nine countries (17%) reported a slight increase in coverage levels of DTP3 and/or the first dose of measles-containing vaccine (MCV1), 27 countries (51%) had ≤1% variation in coverage levels and 11 countries (21%) had a >5% decrease in coverage levels.

The COVID-19 pandemic had an impact on immunization coverage at the subnational levels from 2019 to 2020. In upper-middle-income countries (UMICs), 20% of the second administrative level units had less than 90% coverage in 2020. Many countries are using the same health workforce to deliver COVID-19 vaccines and routine immunizations. Additional efforts will be required for catch-up vaccination to prevent outbreaks in the Region and lower-middle-income countries (LMICs) and UMICs have the greatest share of children that need to be caught up for DTP3. The WHO Regional Office has developed an operational considerations document to assist national immunization programmes to establish and refine a catch-up vaccination strategy and operationalize the global guidance for planning and implementing catch-up vaccination.

Dr Niyazi Cakmak (Regional Technical Officer, Immunization Programme Strengthening, VPI) summarized principles and key elements of planning and implementation of a catch-up vaccination strategy at the country level. Timely vaccination is key to maintaining population immunity against vaccine-preventable diseases (VPDs), ensuring individuals are fully protected against life-threatening illnesses as early as possible and preventing VPD outbreaks. Everyone should fully benefit from vaccination by receiving the recommended vaccines in the national immunization schedule as soon as they are eligible. A catch-up strategy is an essential part of a well-functioning national immunization programme and a strong catch-up policy strategy should include: a catch-up vaccination policy and schedule, an implementation modality for catch-up vaccination, vaccines and supplies for catch-up vaccination, health workers’ knowledge and practice, recording and reporting practices, and targeted communications and community engagement.

Catch-up vaccination practices should be integrated into routine immunization services as an essential component and may be supplemented with periodic intensification of routine immunization (PIRI) wherever needed. Missed opportunities for vaccination can be reduced through integration with other health services or school vaccination checks. When catch-up vaccination need exceeds the capacity of the routine immunization that utilizes above modalities, the programme should consider large-scale efforts such as via targeted and selective mass vaccination campaigns or supplementary immunization activities (SIAs). Factors to be considered in selecting the appropriate modality for catch-up vaccination were reviewed. A decision-making algorithm for planning catch-up vaccination has been developed for use by Member States to provide practical operational guidance in selecting the most appropriate implementation modality.
Dr Roberta Pastore, Team Lead, Immunization and Surveillance Data, VPI, reviewed critical operational considerations related to estimating the target population and recording and reporting issues. Routine immunization tools should be used for small-scale catch-up and a PIRI-like approach and separate tools should be used for SIAs. For countries with a comprehensive and good quality electronic immunization registry (EIR), cohort monitoring for doses missed and catch-up can be used with accurate retrospective adjustment of coverage monitoring. For countries with a poorer quality EIR, cohort monitoring needs to be integrated with other approaches to accurately estimate children missed and develop micro plans. There should be accurate recording of catch-up doses and retrospective adjustment of coverage monitoring. For countries with a paper-based system, there should be individual follow-up and local-level monitoring of children missed and in need of catch-up. Where accurate coverage monitoring may be challenging, surveys and rapid coverage monitoring may be needed.

The target population for catch-up activities may be estimated using several sources of data such as civil registration, census, local enumeration, micro-census, and health-facility-based records. An estimate of possible inaccuracies of local population estimates should be conducted. The selection of the source for estimating children to be caught up is important. The estimated number of children to be caught up can be added to routine immunization micro plans and lists of missed children can be developed based on health facility records, home visits and review of home-based records (HBRs). The main considerations on recording and reporting of catch-up activities include:

- recording all doses administered in the register and HBR for individual-based monitoring;
- reporting administered doses which could be constrained by tools that strictly define age intervals for dose administration;
- instructions for health care workers on how to report doses administered late;
- coverage monitoring with the possible occurrence of “errors” when catch-up activities are intensified such as coverage greater than 100%, negative drop-out rates and large monthly fluctuations in coverage.

Dr Liudmila Mosina, Technical Officer, Immunization Systems Strengthening, VPI, reviewed critical operational considerations related to the catch-up policy and schedule and building health worker knowledge and practice. Each country should develop a catch-up vaccination policy and catch-up schedule and it should be based on NITAG scientific advice and be developed in collaboration with relevant stakeholders. The catch-up policy should cover a range of ages for catch-up, provide delivery strategies and methods for identifying children with missed vaccinations, include a call and recall system, use all opportunities to provide missed doses and have a method for recording and reporting late doses. The NITAG should develop the national catch-up schedule to provide guidance on lower and upper age limits, minimum intervals between doses, interchangeability and co-administration of vaccines, vaccination of children without a reliable history of vaccinations, and vaccination of children who received an invalid dose. WHO has developed recommendations for interrupted or delayed immunizations (5) and a User’s Guide to the Summary Tables (6).

Health care workers should be trained to increase their knowledge and capacity to implement the catch-up policy, improve interpersonal communication skills to negotiate with hesitant people, and enhance their confidence in the benefits of late vaccination, the safety of administering multiple antigens in one immunization session and the safety of multiple injections. There should also be refresher training on contraindications to reduce missed opportunities due to false contraindications.
Dr Cakmak highlighted the critical operational considerations related to ensuring the availability of vaccines and supplies. There should be an assessment of the vaccine stock management and immunization supply chain system performance to identify and address any gaps. Vaccine stock should be monitored and vaccine forecasts and distribution should be adjusted accordingly. Consumption of vaccines may be higher than missed doses, in cases where re-vaccination with some vaccines may be needed. Programmes should pay special attention to expired or damaged vaccines during and following service interruption. Supply management tools should be used to facilitate proper tracking and monitoring of vaccine supply, distribution, utilization and wastage. It should be noted that timely implementation of catch-up vaccination leads to reduced resource needs by avoiding costly non-selective mass campaigns and outbreak response campaigns.

Considerations on vaccine acceptance and demand of catch-up activities were reviewed by Siff Malue Nielsen, VPI. When there is low demand and/or accessibility issues following the interruption of services, the country will need to restore and strengthen confidence in vaccines by developing targeted and tailored interventions including communication and community engagement for specific target groups for catch-up vaccination. In order to influence vaccination behaviour, there should be a focus on knowledge and health literacy, attitudes and intentions, support from social networks, and access to vaccination. It is important to invest in understanding the barriers and drivers to positive vaccination behaviours in the general population and among target groups (e.g., quantitative and qualitative research). The results can inform the development of tailored interventions to increase vaccination uptake. Media and social media monitoring or listening can be used to identify population concerns and attitudes, trending stories and misinformation. Solutions include community engagement and mobilization, training health care workers including on how to communicate with hesitant patients and/or caregivers, ensuring convenient and safe access to vaccination, and tailoring communications to build awareness of eligibility and of the importance of vaccination, explain that vaccination is safe and necessary (even if delayed), encourage utilization of catch-up services, and inform on safety precautions in relation to COVID-19 infection.

Dr Cakmak reviewed the algorithm for decision making about a catch-up vaccination planning process and requested feedback from ETAGE on the operational considerations document.

**Discussion**
A clarifying question was asked about how the regional immunization coverage data can be nearly the same but country and sub-national data show dropping coverage. Dr Datta clarified that there are some countries that had an increase in routine coverage, several countries had coverage that stayed about the same and other countries experienced a drop in coverage. There may be an issue with the denominator data being used in the HICs and UMICs, which can affect coverage rates. Select 2021 data through August show a greater impact on routine immunization coverage because that was when COVID-19 vaccines were being delivered and there was a double burden on the immunization programmes.

There was discussion about the heterogeneity of the reminder/recall systems that exist across countries in the Region. Some countries have good electronic-based recording and can easily generate recalls and reminders for children that are missing doses. For countries with only a paper-based system, they can identify and recall children that have been missed but this is time and labour-intensive. These systems were much less effective during the COVID-19 pandemic. Countries with electronic registries should try to optimize these systems. Countries with paper-based systems may need more human resources to conduct reminder and recall of children who have missed doses.
Countries should be ready to follow-up on adverse events following immunization (AEFIs) in the context of catch-up vaccinations and data on this will be needed. Catch-up vaccination is a very country-specific activity since there is so much variability.

Catch-up vaccination should also include adults throughout the life-course. There may be a need to have more than one catch-up schedule; one for childhood and another for life-course vaccination. Delivery of COVID-19 vaccines is an opportunity to strengthen routine adult vaccination approaches. This is an opportunity to check immunization records and recommend other vaccinations. Health care workers are one of the primary sources of trusted information for parents and the population so training of health care workers on catch-up vaccination will be important.

Trust in government is an important issue to consider. In the Region, there was already varying degrees of public distrust of government before COVID-19 vaccines were introduced. Governments should be honest and not promise that vaccination will solve everything. In countries where there is high mistrust in the government, the public has shown less willingness to follow government recommendations related to COVID-19, including vaccination. Trusted messengers such as church and community leaders may in such contexts be more effective messengers of information about vaccines. Health experts should also communicate with the public. Accurate information from trusted sources is needed. Communication should be tailored to the country and to certain communities especially those that have higher distrust in authorities and vaccines. Strategies are needed to protect people from misinformation and deal with false information about vaccines. The COVID-19 pandemic provides an opportunity to better understand and measure vaccine acceptance. Access and service delivery of vaccines also has an impact on vaccine acceptance.

Some areas have seen decreased reporting of diseases, so it is important to highlight the importance of surveillance. For measles, it is unclear if cases have decreased because of public health measures or disruptions to surveillance systems.
Session 4: Reflections on COVID-19 vaccination issues addressed at SAGE October meeting with particular relevance to the WHO European Region: additional primary dose of COVID-19 vaccines for specific sub-populations; booster doses; co-administration of seasonal influenza and COVID-19 vaccines

Dr Mosina reviewed the objectives of the session, which were to provide guidance to countries in the European Region on implementing SAGE recommendations for an additional COVID-19 dose for specific sub-populations, co-administration of influenza and COVID-19 vaccines, and advice on booster doses of COVID-19 vaccines. “Additional doses” are part of an extended primary series and are needed for target populations where the immune response rate following the standard primary series is deemed insufficient. The objective of an additional dose is to optimize or enhance the adequate immune response to establish a sufficient level of effectiveness against disease. The “booster dose” is administered to a vaccinated population that has completed the primary vaccine series when, over time, the immunity and clinical protection have fallen below a rate deemed sufficient for that population and there is a need to restore vaccine effectiveness.

Additional primary dose of COVID-19 vaccines for immunocompromised persons

Dr Annelies Wilder-Smith reviewed the SAGE recommendations for an additional dose of COVID-19 vaccine for immunocompromised persons. The primary series is one or more vaccine doses administered to achieve an initial sufficient protective immune response rate in a vaccinated population for a defined period. Certain sub-populations may require an extended primary series with one or more additional doses. Booster doses are one or more vaccine dose(s) administered to restore a sufficient protective immune response rate in a vaccinated population that achieved an initial sufficient response rate but with time (e.g., through waning immunity and/or new variants) has fallen below a rate deemed sufficient in the vaccinated population.

Over 120 articles were reviewed to define immunocompromised persons (ICPs). There was a high degree of homogeneity in conditions considered moderately or severely immunocompromised to be offered a third dose of COVID-19 vaccines including active cancer, transplant recipients, immunodeficiency, people living with HIV, and those on immunosuppressive treatments.

The ICP group is very heterogeneous with regard to COVID-19 vaccine immunogenicity after receipt of mRNA vaccines; those with solid organ transplants had the lowest response. ICPs also experience a reduced antibody response after receipt of viral vector and inactivated vaccines. The overall vaccine effectiveness in ICPs is lower than among non-ICPs. Real-world studies consistently found that vaccine effectiveness is lower in ICPs. One study found that mRNA-vaccinated ICPs made up greater than 40% of hospitalized breakthrough
cases during observational studies in Israel and the United States, despite making up a small fraction of the general population.

Studies found there was an increased immune response after a third dose but still not at the same level of protection as in non-ICPs therefore, ICPs should be advised to continue to use other protective measures along with vaccination. The reactogenicity of a third dose is similar to previous doses with no critical side effects requiring hospitalization.

At this point in time, the optimal timing of an additional dose is unknown. The known significant non-response rate to the primary vaccine series alongside high risk of severe disease in ICPs provides a rationale for a shorter interval of 1–3 months.

In summary, the primary vaccine series offers reduced immunogenicity/vaccine effectiveness in ICPs. An additional dose has a reactogenicity profile consistent with earlier doses and 25–50% of primary series non-responders become seropositive after an additional dose. Key knowledge gaps include a variation in response across specific ICP subgroups, vaccine effectiveness and duration of protection following an additional dose, the optimal timing of an additional dose, and relative benefits of heterologous versus homologous additional doses.

SAGE recommends that moderately to severely immunocompromised persons should be offered an additional dose as part of an extended primary series. This recommendation currently includes those with active cancer, solid organ or stem cell transplants, immunodeficiency, HIV and active immunosuppressive therapy. The additional dose should be given at least one month and within three months after the primary series or at the earliest opportunity thereafter. The best timing should be discussed with the physician (taking into account the epidemiological situation, extent of immunosuppression over time, and natural course of the disease or treatment). A homologous additional dose should be considered standard practice, but heterologous platforms can be considered depending on supply and access. This recommendation extends to all WHO EUL COVID-19 vaccines.

**Discussion**

ETAGE discussed the extra dose recommendation for ICPs. It was noted that in some countries in the Region, ICP is seen as a contraindication for vaccination so this is something that should be addressed. It should be stressed that ICPs are at risk of severe disease so should be vaccinated as soon as possible with the primary series. People who fall into these categories should receive a third dose 1–3 months after their primary series. This recommendation applies to all age groups using a COVID-19 vaccine that has been authorized for the person’s age group. Measuring of antibodies is currently not recommended to measure the vaccine response.
Third dose for older persons who received two doses of inactivated COVID-19 vaccines

Dr Annelies Wilder-Smith presented the SAGE recommendations for a third dose for older persons who received two doses of inactivated vaccines with a focus on Sinopharm and Sinovac vaccines. Vaccine effectiveness studies for inactivated COVID-19 vaccines by age group were reviewed, which showed lower antibody responses and decreased effectiveness against clinical endpoints in older people (i.e., ≥ 60 years of age) when compared to younger adults. Studies showed a good antibody response to a third dose of Sinovac or Coronavac vaccine in healthy adults ≥60 years of age.

SAGE recommends a third dose in persons aged 60 years and above as an extended primary series, with an interval of 3–6 months between the second and third doses. Use of the homologous vaccine is recommended for the extended primary series, but based on preliminary data, a heterologous extended primary series can be considered in the event of vaccine supply and access challenges. When administering an additional (third) dose, countries should follow the WHO Prioritization Roadmap (7) and first vaccinate persons 80 years of age or older and those aged 60 years or older with co-morbidities. Countries that have not yet achieved high coverage with the 2-dose primary series in priority groups, as per the WHO Prioritization Roadmap, should focus on achieving high 2-dose vaccination coverage before implementing an additional (third) dose in older persons.

Dr Mosina reviewed the use of inactivated vaccines in the European Region. Inactivated COVID-19 vaccines (Sinovac and Sinopharm vaccines) are being used in several countries in the Region. The majority of the over 17 million doses of Sinopharm so far have been administered in Hungary, Kyrgyzstan and Serbia; and the majority of the over 26 million doses of Sinovac were administered in Azerbaijan, Tajikistan and Ukraine.

Discussion

ETAGE discussed breakthrough infections occurring in countries after receipt of the Sinopharm and Sinovac vaccine series. There was also discussion about the definition of a primary series and whether this will be modified in the future to include three doses rather than two doses for certain COVID-19 vaccines. It is important for the messaging to the general population to be very clear and concise and not to mix up definitions. The primary message should be to get people vaccinated as soon as possible and for those who received inactivated vaccines to get a third dose 3–6 months after the second dose.

Booster doses for COVID-19 vaccines

Dr Mosina presented considerations for booster doses of COVID-19 vaccines. SAGE will discuss booster doses in early December 2021. Conclusions from a WHO meeting on vaccine effectiveness of the primary series of COVID-19 show that initial vaccine effectiveness for some COVID-19 vaccines against some outcomes, including SARS-CoV-2 infection, decline over a period of months. These vaccine effectiveness studies should be carefully evaluated due to potential confounding information. The least biased studies of severe disease endpoints suggest that protection against severe disease, hospitalization and death from the primary series remains high over time.

The WHO meeting also considered data on the immune response, protection and safety of booster doses. Clinical trials demonstrated that booster vaccines increase immune responses. Observational studies from Chili and Israel suggest high short-term relative protection after receiving Pfizer boosters. Clinical trial data
generally support the safety of booster doses. However, not all vaccines have controlled or systemic analysis of post-authorization safety data and risks of serious adverse events are not well understood. Identified research gaps include a systematic collection of real-world safety and effectiveness data, timing of boosting, and a better understanding of how variants affect vaccine effectiveness.

COVID-19 vaccination is ongoing in 54 countries and territories in the Region. Overall vaccination uptake in the Region is 58.8% with one dose and 52.9% with a complete series. However, there are differences in coverage between high-income countries and middle-income countries with coverage being consistently lower in the middle-income countries. For the Region as a whole, coverage among those above 60 years of age is 77% with one dose and 75% with a complete series. Coverage among adults under 60 years is 63% with one dose and 60% with a complete series. These figures are biased towards high-income country coverage because not all middle-income countries report their vaccination coverage broken down by these age groups. About 42 countries in the Region have introduced booster doses and the recommendations vary on who is eligible. The booster dose vaccine coverage uptake in people ≥60 years of age varies widely by country.

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**Co-administration of COVID-19 and influenza vaccines**

SAGE recommends, based on limited evidence that is pending peer-review, that co-administration of COVID-19 vaccines with inactivated influenza vaccine is acceptable in terms of safety and immunogenicity. Administration of COVID-19 and influenza vaccines during the same visit would reduce the number of health care visits and will allow for more programmatic ease and higher uptake of both vaccines.
Conclusions and recommendations

Resuming and scaling-up routine immunization in the WHO European Region

Conclusions
A review of routine immunization programme performance during the COVID-19 pandemic in the WHO European Region found a decrease in DTP3 vaccine coverage of 1% at the regional level in 2020 compared to the previous year. The review also revealed that the coverage decrease was heterogeneous across the Region, with 11 countries reported more than a 5% decrease in their national coverage of DTP3 and/or MCV1. Importantly, greater coverage variation was observed at subnational levels and is most likely affecting more countries. These data indicate that despite efforts at the national level to sustain routine immunizations in 2020 and 2021, reduced immunization service delivery, particularly at the subnational levels, are likely to have resulted in accumulation of vulnerable cohorts of individuals susceptible to vaccine preventable diseases (VPDs). While catch-up vaccination for missed doses in eligible children could be part of the standard national immunization programme strategy in a country, catch-up vaccination strategies may require further refinement and specific vaccination modalities may need to be implemented in many localities.

ETAGE appreciates the Regional Office’s ongoing efforts to analyse vaccination coverage for 2021, using data made available by some countries, in order to understand the pandemic’s impact on routine immunizations in 2021 when many countries have also been implementing new COVID-19 vaccine delivery programmes.

ETAGE recognizes the need to provide technical guidance and support to countries to develop country-specific catch-up vaccination strategies to close any immunity gaps that may have resulted due to the restrictive measures during the COVID-19 pandemic response or other factors. ETAGE also emphasizes the role of timely vaccination in maintaining population immunity against VPDs, ensuring individuals are fully protected against severe and potentially life-threatening illnesses as early as possible, and preventing VPD outbreaks.

In this context, ETAGE acknowledges the need to operationalize global guidance (8) and appreciates the WHO Regional Office for Europe’s efforts in drafting the “Operational considerations for planning and implementing catch-up vaccination in the WHO European Region”, which aims to facilitate the decision-making process at the national level. ETAGE concurs with the guidance outlined in the operational considerations document and requests the WHO Regional Office for Europe to finalize the document as soon as is feasible.

Recommendations
ETAGE recommends that Member States systematically assess the impact of the COVID-19 pandemic on routine immunization services and to aim to close any immunity gaps identified.
ETAGE encourages the use of available guidance to refine each country’s specific catch-up strategy and recommends that Member States should prioritize mobilization of required resources for implementation of planned catch-up vaccination efforts to close immunity gaps (where they exist) as soon as possible.

ETAGE requests that the WHO Regional Office for Europe provide technical guidance and support to Member States (tailored to their needs) to help integrate catch-up strategies into their routine national immunization programmes to provide necessary additional opportunities for individuals to receive overdue vaccine doses.

ETAGE requests that the WHO Regional Office for Europe report to ETAGE on the progress achieved in closing any identified immunity gaps during upcoming meetings.

Expanded primary vaccination series for immunocompromised individuals

Conclusions

A rapid literature review conducted for the SAGE Working Group on COVID-19 Vaccines (9) suggests that immunocompromised persons often fail to mount an adequate response to a primary series of COVID-19 vaccination. Multiple studies have demonstrated lower mean antibody responses and lower effectiveness against symptomatic and severe disease in immunocompromised persons in comparison to people without immunocompromising conditions. According to observational studies conducted in Israel (10) and the United States (11), ≥40% of breakthrough COVID-19 cases were observed in vaccinated immunocompromised people, who comprise only a small fraction of the total population.

- Evidence suggests that an additional dose has a reactogenicity profile similar to that of previous doses and increases immune responses in most immunocompromised persons who have received a primary vaccination series, including induction of immune responses in 25–50% of immunocompromised individuals who failed to respond immunologically to the standard primary vaccination series (12).
- The benefit of an additional dose in an extended primary series administered to immunocompromised people has largely been assessed using the same vaccine product for the initial dose(s) and the additional dose. Evolving evidence in non-immunocompromised people suggests that using a different vaccine (a heterologous series) may sometimes be more immunogenic than a homologous series. Although these heterologous schedules have not been specifically tested in immunocompromised populations, it seems reasonable to expect similar effects in terms of immune responses.

- Some countries in the WHO European Region have policies in place which outline immunocompromising conditions or immunosuppressive therapy as contraindications to COVID-19 vaccination, leaving immunocompromised persons unprotected against COVID-19. Currently there is no contraindication to receiving any of the WHO EUL COVID-19 vaccines (which are all non-live) for people with any of these conditions. On the contrary, immunocompromised people are at significantly higher risk of severe COVID-19 outcomes and should be a priority target group for vaccination.
**Recommendation**

- In the light of available evidence, ETAGE concurs with SAGE recommendations (13) that:
  - the primary vaccination series of all COVID-19 vaccines in moderately and severely immunocompromised persons should be extended to include an additional dose 1-3 months after the last dose in the primary series;
  - using a homologous series (same vaccine product for the initial dose(s) and the additional dose) should currently be considered a standard practice, but an alternative heterologous series (using a vaccine product from a different platform) for the additional dose may also be considered.

- Countries may use the case definition suggested by SAGE (14) to identify moderately and severely immunocompromised persons (active cancer, transplants recipients, immunodeficiency, treatment with immunosuppressives, people living with HIV with a current CD4 cell count of <200 cell//µl, evidence of an opportunistic infection, not on HIV treatment, and/or with a detectable viral load (i.e., advanced HIV disease)) or consider developing their own case definitions.

- ETAGE re-emphasizes that vaccination of immunocompromised persons, who are at high risk of developing severe COVID-19 outcomes, should be prioritized in all countries. Immunocompromising conditions and immunosuppressive therapy are not contraindications to vaccination. On the contrary, vaccination should be offered to immunocompromised persons as soon as possible (15).

- Routine testing for antibodies is not recommended prior to or following the administration of the additional dose.
Additional primary dose for older adults who received two doses of inactivated COVID-19 vaccines

Conclusions

- 18 countries of the WHO European Region have reported using inactivated Sinovac-CoronaVac and/or Sinopharm-BIBP vaccines in their national COVID-19 vaccination programmes.

Evidence to support the need for an additional dose:

- Some published studies, not yet peer-reviewed, report that effectiveness of inactivated Sinovac-CoronaVac and Sinopharm-BIBP vaccines against severe disease and death was lower in older persons than in younger adults. Furthermore, immune responses generated following a complete vaccination series were lower in persons above 60 years of age in whom seropositivity declined more rapidly than in younger persons (16, 17).
- Administration of an additional dose of inactivated Sinovac-CoronaVac or Sinopharm-BIBP vaccine to older adults 3–6 months after the second dose generates peak antibody titers that are higher than the titers generated after the second dose. Unpublished data from Chile showed an increase in vaccine effectiveness in older persons after a third dose was administered.
- Emerging evidence suggests that a heterologous series (using a vaccine product from a different platform for the additional dose) is well tolerated and may be more immunogenic than a homologous series. However, data on safety and effectiveness of heterologous doses are currently limited.

Recommendation

- Based on available evidence, ETAGE concurs with the SAGE recommendation that individuals aged 60 years and above who received two doses of inactivated COVID-19 vaccines Sinovac-CoronaVac or Sinopharm-BIBP should be offered an additional (third) primary dose 3–6 months after the second dose to enhance vaccine-induced protection. The same vaccine product as for the first two doses (homologous doses) should be used for the third dose. Heterologous series (a COVID-19 vaccine from another vaccine platform such as mRNA or viral-vector vaccines) can be used for the additional dose if the vaccine used for primary vaccination is not available.
- Countries should consider the following criteria when deciding on the introduction of a third dose for older adults who have received two doses of inactivated Sinovac-CoronaVac or Sinopharm-BIBP vaccine:
  - COVID-19 vaccine coverage: countries should continue to focus on vaccinating and completing the standard dose series in the entire older population group.
  - COVID-19 vaccine supply: countries should ensure that the available vaccine stock and predicted vaccine supply are sufficient to reach high vaccination coverage in priority population groups as well as to offer the third dose to older adults who have received two doses of inactivated Sinovac-CoronaVac or Sinopharm-BIBP vaccine.
- Any dose of COVID-19 vaccines, when offered, should be recorded in COVID-19 vaccination certificates to document the updated vaccination status of the individual for the continuity of care.
Booster doses of COVID-19 vaccines

Conclusions

Effectiveness of primary series

- Available evolving evidence from the studies with severe COVID-19 disease as endpoints suggest that protection against hospitalization and death from the primary vaccination series of currently available vaccines remains sufficiently high for at least 6 months for most individuals, although the degree of protection varies by vaccine type, age-groups, and setting (including different circulating variants of concern).
- Emerging evidence indicates that the initial vaccine effectiveness achieved after completion of a primary vaccination course for some COVID-19 vaccines against SARS-CoV-2 infection and mild COVID-19 declines over a period of several months.

Immune response from, protection by and safety of booster doses

- Clinical trials have demonstrated that booster vaccines increase immune responses.
- Observational studies from Chili and Israel suggest high relative protection in individuals receiving a Pfizer booster dose. When comparing the effectiveness of the third vaccine dose to two vaccine doses, the reduction of risk of severe outcomes was particularly high in older adults and people with underlying medical conditions (18).
- Identified research gaps include systematic collection of real-world safety and effectiveness data for more vaccines, optimal timing of boosting, and better understanding of vaccine effectiveness against variants of concern.
- Clinical trial data generally support the safety of booster doses: rates of local or systemic adverse events after a booster dose being similar to those following the last dose of a primary vaccination course. No serious adverse events considered related to vaccines were reported for booster doses. However, not all vaccines have a controlled or systematic analysis of post-authorization safety data and the risk of serious adverse events after a COVID-19 vaccine booster dose are therefore not yet well understood.

WHO interim statement on booster doses (19)

- WHO is working closely with countries and researchers to gather sufficient evidence to assess how well vaccine-induced protection is sustained over time and the optimal timing for a booster dose for the wider adult population.
- The focus remains on urgently increasing vaccination coverage with the primary series driven by the objective to protect against severe disease.
- Offering a booster dose broadly to lower-risk population groups may divert limited resources and supply from vaccinating vulnerable populations.

Use of booster doses in the WHO European Region

- Since August 2021, 42 countries of the WHO European Region have introduced booster doses: 36 countries offer booster doses for priority target groups and 6 countries offer boosters to all adults who received a complete primary vaccination series. Most countries offer booster doses regardless of vaccine product used for the primary series, while some countries recommend booster doses only for specific vaccines. The priority population groups for booster vaccination vary between countries.

Recommendation
The primary public health objective of COVID-19 vaccination programmes in every country should remain to reduce severe disease and deaths and to maintain essential health care services. Therefore, primary vaccination of vulnerable populations (i.e., older adults, people with comorbidities and health conditions, socio-demographic groups who are at significantly higher risk of severe COVID-19 diseases and adverse outcomes, and close contacts of immunocompromised people) and health care workers should remain a priority.

All countries should undertake efforts to increase coverage with a primary COVID-19 vaccination series and strive to reach global (70% of total population) and regional (80% of adult population) targets by mid-2022.

All countries should make adequate efforts using all available tools at hand to identify areas or population groups with low vaccination uptake, understand the reasons for low coverage, population demand and acceptance of the vaccines, including potential access barriers, in these areas or population groups and tailor strategies to address them.

Countries that do not collect disaggregated coverage data should undertake urgent efforts to update their immunization information systems to obtain vaccination coverage data for each of the priority population groups.

In the context of declining protections against SARS-CoV-2 infection and threat of COVID-19 resurgence, ETAGE suggests that countries offering a booster dose should focus first on:

- the following high-risk population groups to minimize increases in severe COVID-19 cases:
  - residents and staff of long-term care settings;
  - people aged ≥60 years - starting with the oldest individuals and progressing to younger age categories;
  - adults <60 years with underlying medical conditions that put them at significantly higher risk of severe COVID-19 outcomes;
  - adults who are in close contact with moderately and severely immunocompromised persons;
- and health care workers, to maximize resilience of and safety in health care facilities.

The countries should consider the following criteria while making a decision on introduction of a booster dose:

- epidemiology of COVID-19
- coverage with primary vaccine doses in priority population groups
- current and predicted vaccine supply
- programmatic capacity.

ETAGE, along with SAGE, will continue to monitor and review evolving evidence to provide further advice on a booster dose for the wider adult population.
Co-administration of COVID-19 and influenza vaccines

Conclusions

- Limited evidence suggests that coadministration of COVID-19 vaccines with inactivated influenza vaccine is acceptable both in terms of safety and of immunogenicity (20).
- Administration of COVID-19 and influenza vaccines during the same visit would reduce the number of health care visits needed and will allow for more programmatic ease and potentially increase uptake of both vaccines.

Recommendation

- ETAGE concurs with the SAGE consideration that coadministration of an inactivated seasonal influenza vaccine and any dose of a COVID-19 vaccine is acceptable despite limited available evidence, given that the known risk of serious illness of those infected with influenza virus or SARS-CoV-2 is substantial (20).
- ETAGE recommends that countries implement pharmacovigilance monitoring of coadministration of the two vaccines and report data on any safety events to WHO.
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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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