World Health Organization

European Region

Strategy considerations for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and other respiratory viruses in the WHO European Region during autumn and winter 2022/23

Protecting the vulnerable with agility, efficiency, and trust

Document number: WHO/EURO:2022-5851-45616-65461.

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Highlights

- During the upcoming autumn and winter seasons, WHO anticipates further surges in severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infections, hospitalizations and deaths with, or without, an increase in influenza or RSV activity.
- The roll-out of effective coronavirus disease 2019 (COVID-19) vaccines in the WHO European Region have protected populations from severe outcomes of SARS-CoV-2 infection, however, older age remains the strongest risk factor for severe outcomes from COVID-19, including death.
- Re-launching mitigation and response efforts now is necessary to be ready to respond to an increased burden on the health-care system. Countries may need to take steps to optimize the use of limited public health resources and ensure that critical health and non-health services are maintained during periods of community-wide transmission of COVID-19.
- To monitor SARS-CoV-2 and measure its impact, strengthened COVID-19 surveillance systems as part of wider population-based surveillance for respiratory viruses are critical.
- To communicate risk and engage communities in public health interventions, encourage the individual and social responsibility of citizens and focus on measures individuals can choose to protect themselves. These can be emphasized and promoted rigorously.
- To control transmission and protect populations, the consistent and sustained application of the pandemic stabilizers will be useful. These include increasing vaccine uptake in the general population; administering additional vaccine doses to priority groups; promoting mask-wearing indoors and in public transportation; ventilating crowded and public spaces; and, applying rigorous therapeutic protocols to those at risk of severe disease.
- To target the protection of vulnerable groups, priority settings, and situations of increased concern, additional public health and social measures should be based on an assessment of the epidemiology and local context. Contact tracing should also be prioritized accordingly.
- Countries are encouraged to strengthen infection prevention and control practices in all health-care and long-term care settings.
- To protect other health services and the health workforce, further disruptions to essential health services need to be prevented by strengthening these services across the continuum of care. Including through increased provision of COVID-19 care as part of primary care.
- To sustain population immunity, COVID-19 vaccination programmes should continue to prioritize high coverage with the primary vaccination series among all eligible people. Countries should administer a second booster dose to immunocompromised people aged 5 and above and their close contacts, and consider a second booster dose for elderly people, health workers and pregnant women, at least three months after their last dose.
- Finally, Post-COVID condition (so called long-COVID) requires urgent attention and action: accelerating research; strengthening surveillance and monitoring; developing multidisciplinary and individualized care; and acknowledging the need and providing long-term rehabilitative and mental health care to support recovery and well-being of people living with the condition.

Executive Summary

This document provides strategic guidance to Member States in the WHO European Region in their decision-making to calibrate interventions in preparing for the autumn and winter of 2022/23. The rationale behind the need for interventions is based on the recent upsurge in coronavirus disease 2019 (COVID-19) cases during the summer; the likelihood of another COVID-19 surge in the autumn and winter; and increased risk of other respiratory virus infections as we enter the autumn season and their co-circulation with COVID-19. A critical component of the response to COVID-19 and other respiratory viruses is the need to protect vulnerable populations.

Since the end of 2021, countries across Europe have seen the spread of more transmissible Omicron variants of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) resulting in increased hospitalizations but lower mortality compared to the previous Alpha and Delta waves. Older age remains the strongest risk factor for severe outcomes from COVID-19, including death. The circulation of other respiratory viruses during the pandemic, particularly influenza and respiratory syncytial virus (RSV) has been atypical, and WHO anticipates this will continue.

The roll-out of effective COVID-19 vaccines in the WHO European Region have protected populations from severe outcomes of SARS-CoV-2 infection with an estimated 469 186 deaths averted in 33 countries up to November 2021. All countries in the Region have rolled out vaccination with COVID-19 vaccines and significant progress has been achieved in vaccine uptake with 63% overall coverage in the Region for a complete primary series and 28% coverage with a booster dose. However, in 24 countries, between 20 to 60% of eligible people are not yet fully vaccinated with the primary series.

During the upcoming autumn and winter seasons, WHO anticipates further surges in SARS-CoV-2 infections, hospitalizations and deaths with, or without, an increase in influenza or RSV activity. The public health impact of these surges will depend upon: the emergence of new SARS-COV-2 variants of concern and influenza strains or sub-lineages; population immunity/susceptibility against infection and severe disease; where and how people are mixing socially; international travel; vaccination uptake for both COVID-19 and influenza vaccines; disruption to other health services and the incidence of post-COVID condition – so called long COVID.

As a result, countries will likely need to re-launch mitigation efforts and be ready to respond to an increased burden on the health-care system. Countries may need to take steps to optimize the use of limited public health resources and ensure that critical health and non-health services are maintained during periods of community-wide transmission of COVID-19 in Member States. During the upcoming autumn and winter, the consistent application of five pandemic stabilizers may be useful in protecting populations:

i. increasing vaccine uptake in the general population;

ii. administering additional vaccine doses to priority groups;
iii. promoting mask-wearing indoors and on public transportation;
iv. ventilating crowded and public spaces (such as schools, bars and restaurants, open space offices and public transportation); and
v. applying rigorous therapeutic protocols to those at risk of severe disease.

Additional public health and social measures applied at the community level should be regularly reviewed and adjusted based on local epidemiology, health system capacity, and population acceptability. A focus should be on targeting measures that will protect vulnerable populations (e.g. within health-care and long-term care settings; where vaccination uptake may be lower; and towards migrant, refugee and other vulnerable populations) as they will continue to be at the greatest risk. Settings that may be drivers for localized outbreaks (e.g. bars, restaurants, public transportation and schools) should be prioritized in implementing precautions to control the spread of COVID-19.

Risk communication and community engagement has been a vital public health intervention during this pandemic, with strategies aimed at increasing COVID-19 prevention measures including vaccine acceptance and uptake; normalization and sustainability of preventive measures; and whole-of-society resilience to health emergencies. Countries may consider how to encourage the individual and social responsibility of citizens and focus on measures individuals can choose to protect themselves. The role of community engagement campaigns will be key to promoting individual choices around respiratory hygiene, mask-wearing, ventilation, hand hygiene and vaccination.

Surveillance strategies in the Region will need to aim at monitoring the spread and intensity of respiratory viruses to control impact and mitigate disruption. There is a need to integrate population-based surveillance systems for influenza, SARS-CoV-2, and other respiratory viruses to monitor the spread and intensity of respiratory viruses in order to control impact. These systems should provide accurate national and regional level estimates of indicators of severity and impact such as hospitalizations, admissions to intensive care units and mortality. Sentinel syndromic surveillance, virological monitoring and reporting to the European Surveillance System should be maintained year-round and may be complemented with environment surveillance as needed.

Case detection through expanded testing, case isolation and targeted contact tracing continue to be key to controlling the spread of COVID-19. However, WHO no longer recommends contact tracing, quarantine and follow-up of all individuals who were in contact with a confirmed or probable case of SARS-CoV-2 infection. Instead, contact tracing and quarantine should be prioritized based on the WHO recommendations for individuals (risk of severe disease), high-risk settings (health care, nursing homes and long-term care facilities), and situations of concern (e.g. emergent variant of interest or concern). For COVID-19 cases, shortening the recommended isolation period based on the resolution of acute symptoms and in combination with one or more negative SARS-CoV-2 test results, may be considered when extreme pressures are felt in the essential workforce.

Countries can consider how they can further strengthen their laboratory capacities to ensure reliable rapid diagnostic SARS-CoV-2 detection and tracking of variants as part of the wider surveillance of COVID-19. In case of high testing demand, and particularly in settings where Nucleic Acid Amplification testing is limited, Antigen Rapid Diagnostic Tests should be prioritized.

COVID-19 vaccination programmes should continue, with the priority of reaching high coverage with the primary vaccination series and a first booster dose among all eligible people. Protection of the most vulnerable people in society should be prioritized in the upcoming autumn season and second booster doses should be considered for those at highest risk of severe disease, hospitalization and death from COVID-19. The co-administration of COVID-19 and influenza vaccines should be considered whenever possible. COVID-19 vaccination should be integrated into primary health care.

Countries are encouraged to strengthen infection prevention and control (IPC) practices in all health-care settings and to take measures to support access to safe water, sanitation and hygiene across all settings. National guidelines and policies should be assessed and disseminated and refresher training on IPC should be provided to all health workers. Adequate supplies of personal protective equipment and other IPC supplies for the autumn need to be available in all health-care and long-term care facilities, including nursing homes.

At the community level, the application of individual protective measures should be emphasized and promoted rigorously. This should include wearing well-fitted masks, which should be used as part of a comprehensive “Do it all!” approach including maintaining physical distancing, avoiding crowded, closed and close-contact settings, ensuring good ventilation of indoor spaces, cleaning hands regularly, and covering sneezes and coughs with a tissue or bent elbow.

Guidelines for clinical management and clinical pathways for COVID-19 and influenza for primary and hospital care should be reviewed and updated prior to the autumn and any barriers should be addressed. Procurements of therapeutics should be made and distributed to ensure that appropriate therapies, including antivirals issued through primary care, can be initiated rapidly for patients at risk of severe disease. Operational research into new therapeutics for COVID-19 and post-COVID condition should also be accelerated.

With regard to international travel during the autumn and winter, an evidence-based and risk-based approach should be considered when implementing travel measures. Travellers should receive advice about public health measures and this information should be communicated to the public regularly by policy-makers and health authorities.

Given the disruptions to health services and to the health workforce during the pandemic, countries will need to consider how to maintain and recover essential health services and prevent further disruptions by strengthening these services across the continuum of care. This can be achieved by increasing staffing; improving productivity, capacity management and demand management; investing in capital, infrastructure, and new community-based models of care; and innovating care pathways that draw on investments in primary health care, skills, and digital tools.

The pandemic has taken an enormous toll on mental health and well-being and interventions should aim at protecting the mental health and well-being of the population at the following levels: the general population and communities; vulnerable groups; within mental health services; and in the health and social care workforce.

Post-COVID condition requires urgent attention and action by countries. WHO/Europe[1] plans to support countries by accelerating research to enhance understanding of the condition; strengthening surveillance and monitoring to facilitate early identification; developing multidisciplinary and individualized care; and acknowledging the need for and providing long-term rehabilitative care and comprehensive mental health care to support recovery and well-being of people living with the condition.

The collective goal is to end the global public health emergency of COVID-19 in 2022. To achieve this, national strategies need to be calibrated and optimized, and operational readiness for the emergence of new threats needs to be strengthened. WHO/Europe will continue to provide guidance and support to Member States to meet these objectives.

[1] WHO/Europe consists of the Regional Office in Copenhagen, Denmark; 39 country, field, liaison, representation offices and sub-offices; three subregional WHO Health Emergencies Programme (WHE) hubs; five geographically dispersed offices (GDOs); one WHO-hosted Partnership and one office for Health Systems Strengthening.

Introduction - why a specific strategy for autumn and winter 2022/23.

The rise in coronavirus disease 2019 (COVID- 19) cases and hospitalizations in the WHO European Region during June 2022 remind us of the seriousness of the disease, particularly in those who are at risk of severe disease or are unvaccinated. The millions of people suffering from post-COVID condition, so called long COVID, are a reminder that the consequences of infection or reinfection are not just acute but may be long-lasting. Having lived with COVID-19 for more than two years, we must recognize that COVID-19 will not simply go away - and that this is a disease which we are likely to have to live with for many years to come, if not forever.

We are therefore not done with COVID-19 yet. With the number of lives and livelihoods that have been lost and the severe disruption of life opportunities that were previously taken for granted, the pandemic has taken an enormous toll on the physical and mental health and well-being of the population. It would be a grave error to assume the pandemic is over as we head into its third autumn.

Right now, as we approach the end of the summer months, it is time to revitalize COVID-19 interventions to prepare for the autumn. The rationale for this is threefold: 1) the likelihood of a further COVID-19 surge in the Region causing excess morbidity and mortality; 2) co-circulation of COVID-19 and other respiratory viruses, in particular influenza and respiratory syncytial virus (RSV); and 3) increased risk of societal disruptions associated with these surges.

As outlined in WHO's Strategic Preparedness, Readiness and Response Plan for 2022, our collective goal is to end the global public health emergency of COVID-19 in 2022. The first objective of this goal is to reduce and control the incidence of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infections. The second objective is to prevent, diagnose and treat COVID-19 to reduce mortality, morbidity, and long-term sequelae (Fig. 1). There is also a need to adapt this global strategic plan to incorporate the current transmission context in the European Region; recent scientific developments that may change the tools we can use; the impact of reinfections; and strengthened surveillance strategies (including environmental surveillance) for the early detection of new variants of concern (VOC).

Fig. 1. Strategic objectives to end the global COVID-19 health emergency.[2]

A critical component of the response to COVID-19 and other respiratory viruses is the need to prioritize actions towards protecting vulnerable groups. For COVID-19, examples of vulnerable populations include people aged ≥60 years and/or with comorbidities that increase risk of serious COVID-19 disease; disadvantaged groups such as marginalized populations, vulnerable migrants and refugees; and those in high density/low resource settings and lower income groups. Other examples of at-risk groups include unvaccinated or not fully vaccinated groups; people in occupations that provide close contact services, including health-care and medical workers. Many of these risk groups are similar for influenza.

At national level, the relative importance of each of the drivers of transmission and disease impact is largely country-specific and dependent on local contextual factors, including local epidemiology; demographics and prevalence of risk factors for disease severity; the fluidity between population immunity (vaccine-derived and infection-derived) and susceptibility; access to use of life-saving tools; leadership and communication; the ability to adapt public health measures dynamically in response to public health intelligence; risk communication and engagement of communities with the response; and the resilience and capacity of health systems to safely respond and surge.

This strategy document provides considerations and guidance to Member States in the WHO European Region in their decision-making to calibrate interventions in preparing for the autumn and winter of 2022/23. This regional strategy document comprises several sections: following a summary of WHO's global strategy to end the global public health emergency caused by COVID- 19, the current impact of COVID-19 and other respiratory virus infections in the WHO European Region is described. Possible COVID-19 and other respiratory virus transmission scenarios for the autumn and winter period and their impact on health are then put forward for consideration. Finally, based on the current state of knowledge and WHO guidance, the strategy outlines key considerations for countries by response pillar.

[2] Strategic preparedness, readiness and response plan to end the global COVID-19 emergency in 2022. Geneva: World Health Organization; 2022 (https://www.who.int/publications/i/item/WHO-WHE-SPP-2022.1, accessed 17 July 2022).

Recent epidemiology of SARS-CoV-2 and other respiratory viruses across Europe

SARS-CoV-2

Since the first detection of SARS-CoV-2 virus in January 2020, the WHO European Region has experienced several waves of SARS-CoV-2 activity. Later waves have been associated with the emergence and spread of new variants of concern (VOC) – first Alpha, then Delta and most recently, several sub-lineages of the Omicron VOC (Fig. 2). Since the end of 2021, countries across Europe have seen the spread of the more transmissible Omicron variants; initially the BA.1 sublineage in many countries, followed by BA.2, and now BA.4 and BA.5.

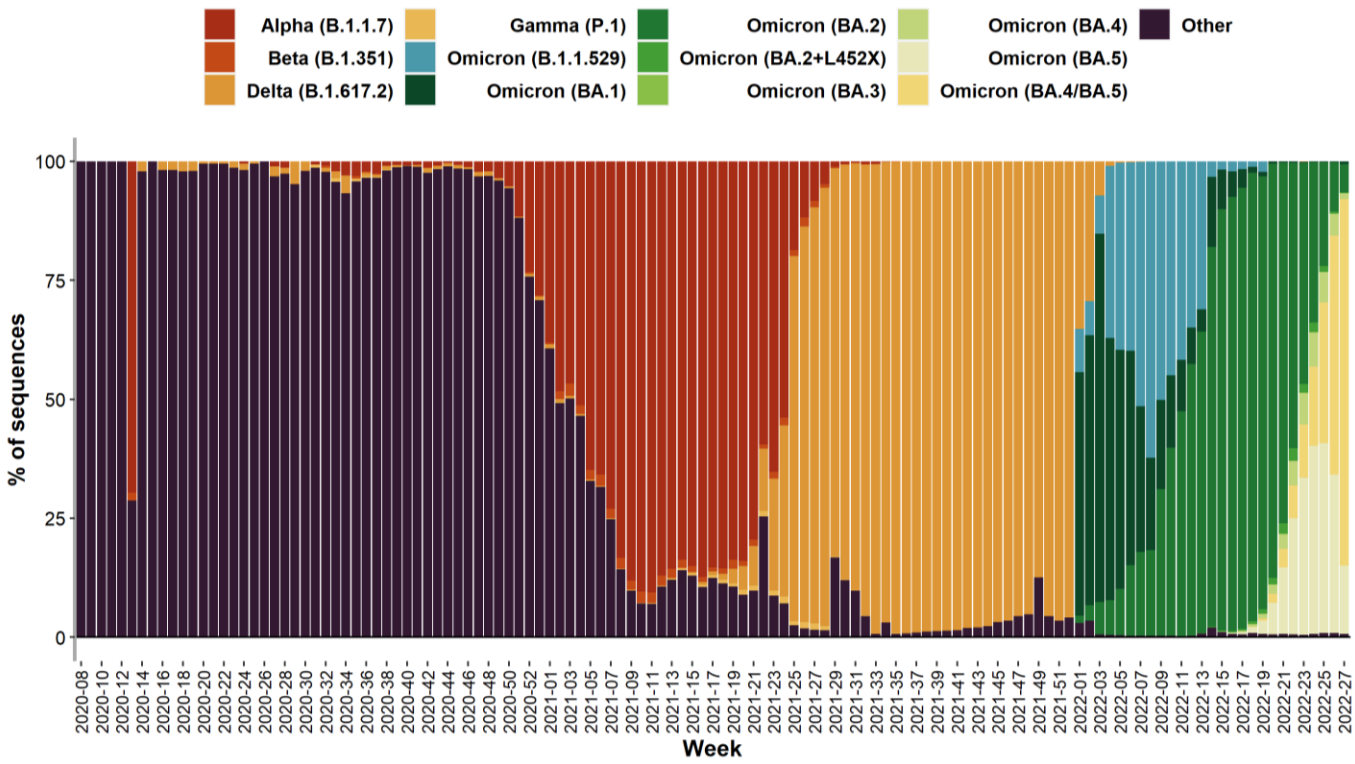
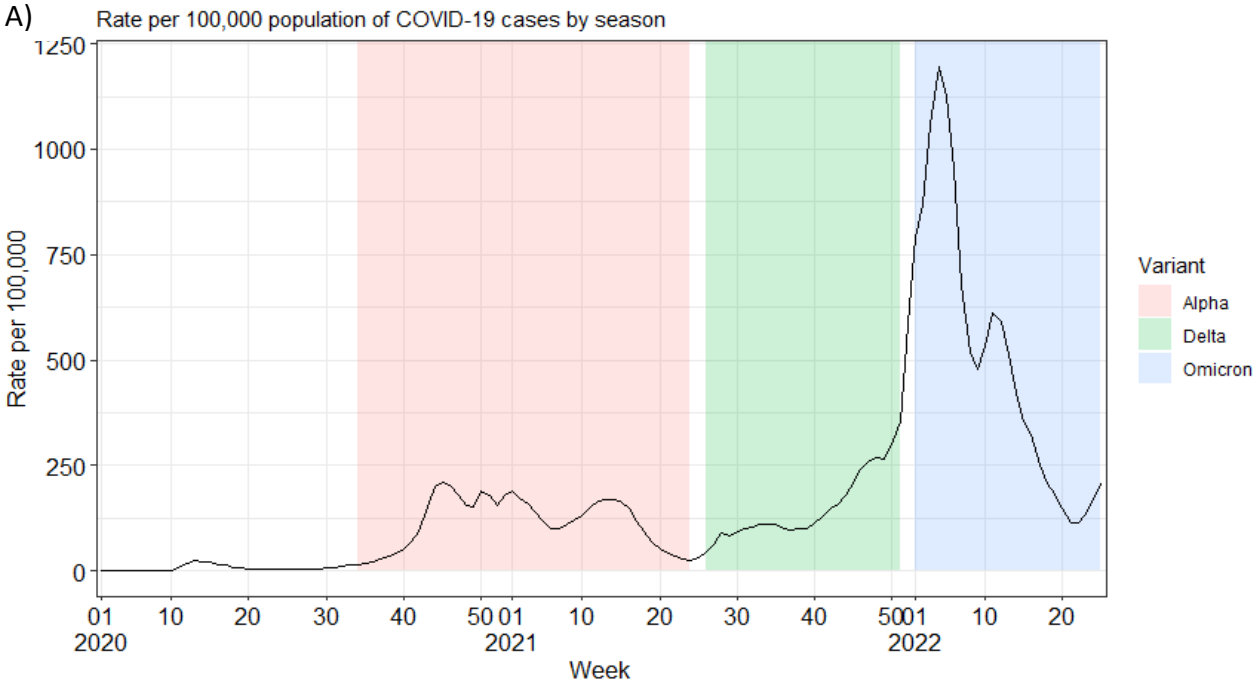


Fig. 2. The percentage of variants that are VOCs per week in the WHO European Region [3]

[3] Joint ECDC-WHO Regional Office for Europe Weekly COVID-19 Surveillance Bulletin (website). Copenhagen: WHO Regional Office for Europe; 2022 (https://worldhealthorg.shinyapps.io/euro-covid19/, accessed 17 July 2022).

The Omicron waves have been associated with an increase in COVID-19 hospitalization at similar levels to previous waves but with mortality rates at lower levels than seen during the Alpha and Delta waves. When examined by income level, lower middle-income countries have observed higher hospitalization and mortality rates during the Omicron wave than during prior waves compared to high-income countries during the same period. In more recent months, age-specific mortality rates continue to be higher with increasing age, with the highest rates in >80 year-olds, followed by 65–79 year-olds and 50–64 years-olds (Fig. 3).

The roll-out of highly effective COVID-19 vaccines has protected vulnerable groups from severe outcomes of SARS-CoV-2 infection in Europe. Indeed, early work by WHO/Europe [4] has shown that the rapid introduction of COVID-19 vaccination of the elderly had averted 469 186 deaths in 33 countries up to November 2021 (saving 51% of 911 302 expected deaths) [5]. Impact by country ranged hugely from 6–93%, depending upon how early vaccination was initiated and the level of uptake achieved.



[4] WHO/Europe consists of the Regional Office in Copenhagen, Denmark; 39 country, field, liaison, representation offices and sub-offices; three subregional WHO Health Emergencies Programme (WHE) hubs; five geographically dispersed offices (GDOs); one WHO-hosted Partnership and one office for Health Systems Strengthening.

[5] Meslé MMI, Brown J, Mook P, Hagan J, Pastore R, Bundle N et al. Estimated number of deaths directly averted in people 60 years and older as a result of COVID-19 vaccination in the WHO European Region, December 2020 to November 2021. Euro Surveill. 2021;26(47):pii=2101021. doi.org/10.2807/1560-7917.ES.2021.26.47.2101021.

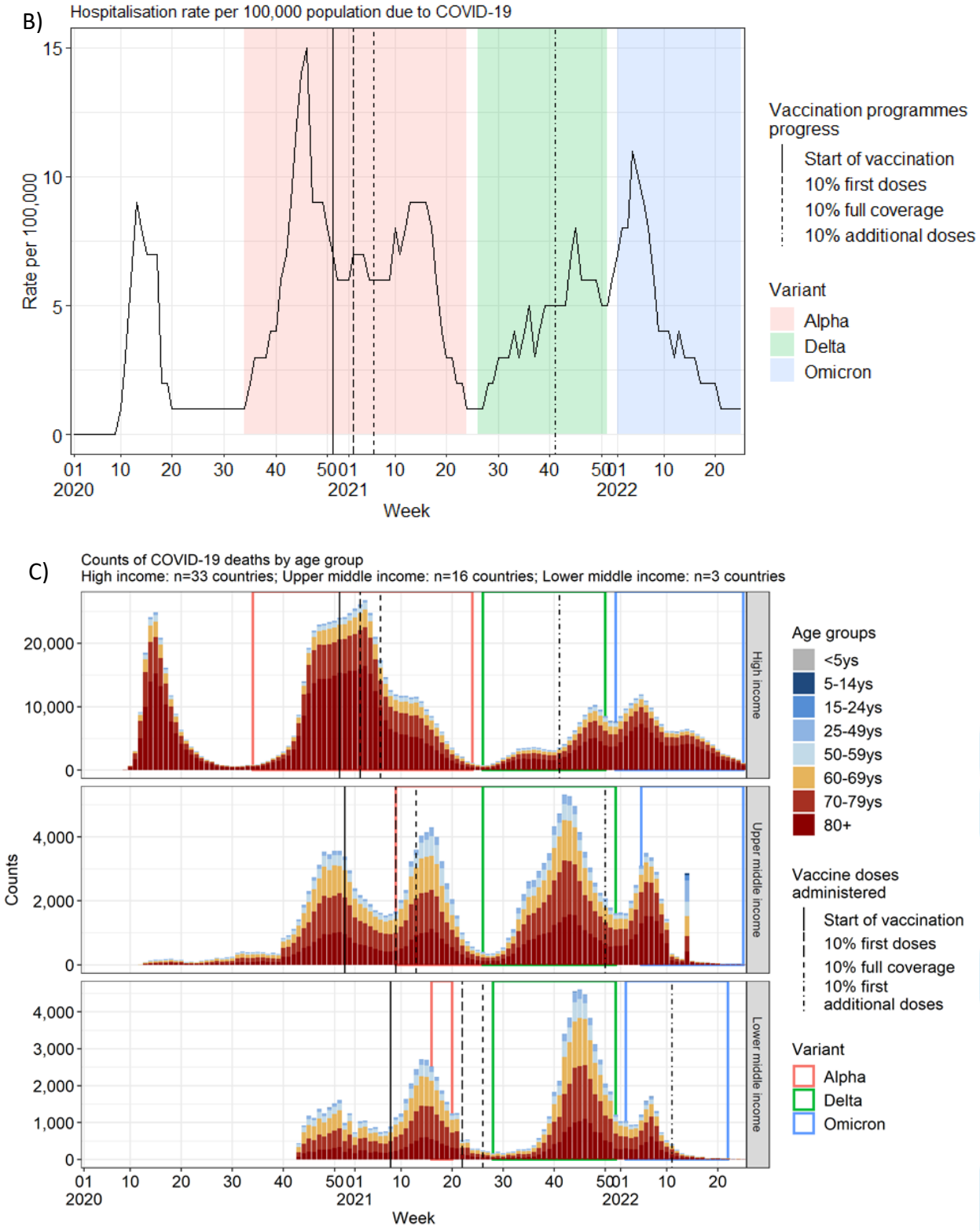


Fig. 3: A) Rate per 100 000 population of COVID-19 cases by season; B) Hospitalization rate per 100 000 population due to COVID-19; C) COVID-19 deaths by age group [6]

[6] Based on data submitted to WHO and to The European Surveillance System (TESSy).

As countries have achieved high levels of COVID-19 vaccine uptake in priority groups and seen reductions in rates of COVID-19 related hospitalizations and deaths, all have started to relax Public Health and Social Measures (PHSM) (see below). These factors, together with the emergence of new VOCs, are leading to profound changes in the epidemiology of SARS-CoV-2, but also for influenza and other acute respiratory viruses.

Influenza and RSV

From March 2020 to the 2021/22 winter season, Europe has been characterized by a dramatic reduction in the incidence of influenza and many other acute respiratory infections (Fig. 4). This is likely a result of the almost universal implementation of PHSM by Member States to suppress SARS-CoV-2 transmission early in the pandemic response, both before and during the roll-out of vaccine programmes.

The 2020/21 influenza season in Europe was the first atypical season recorded, with a total of 58 detections from sentinel sites reported by countries and percentage positivity never exceeding 2%. From late 2021, with the relaxation of PSHM in most countries in the WHO European Region, there was an increased and late circulation mainly of influenza A(H3N2).[7] The 2021/22 influenza season presented another atypical picture compared to pre-pandemic seasons with a peak of percentage positivity in week 52 of 2021, followed by a dip in activity. From week 4 of 2022, a second rise in influenza activity was seen, with a second and more significant peak in weeks 11 and 12 of 2022, reaching 28% positivity before declining again. This represented late activity compared to most previous seasons. The risk of influenza-related severe disease outcomes has been highest in older people, children <5 years of age and groups with underlying clinical risk factors. In the southern hemisphere, Australia is experiencing an unusually early and intense influenza season, dominated by the circulation of A(H3N2) and with high activity reported during May and June 2022.[8]

Furthermore, during the summer months following the 2020/21 influenza season, a high circulation of RSV was detected in both sentinel and non-sentinel surveillance systems. This activity was out of season for a virus whose circulation usually closely follows the temporal patterns of influenza viruses. The summer of 2021 saw the highest percentage positivity of RSV specimens ever recorded, reaching up to 39% positivity in severe acute respiratory infection specimens in week 44 of 2021.[9]

[7] Flu News Europe: Joint ECDC– WHO Europe weekly influenza update (website). Copenhagen: WHO regional office for Europe; 2022 (https://flunewseurope.org/SeasonOverview, accessed 17 July 2022)

[8] Australian Influenza Surveillance Report - No 07 - fortnight ending 03 July 2022. Canberra: Department of Health and Aged Care, Australian Government; 2022 (https://www1.health.gov.au/internet/main/publishing.nsf/Content/ozflu-surveil-no07-22.htm, accessed 17 July 2022)

[9] Joint ECDC-WHO Regional Office for Europe Weekly COVID-19 Surveillance Bulletin (website). Copenhagen: WHO Regional Office for Europe; 2022 (https://worldhealthorg.shinyapps.io/euro-covid19/, accessed 17 July 2022).

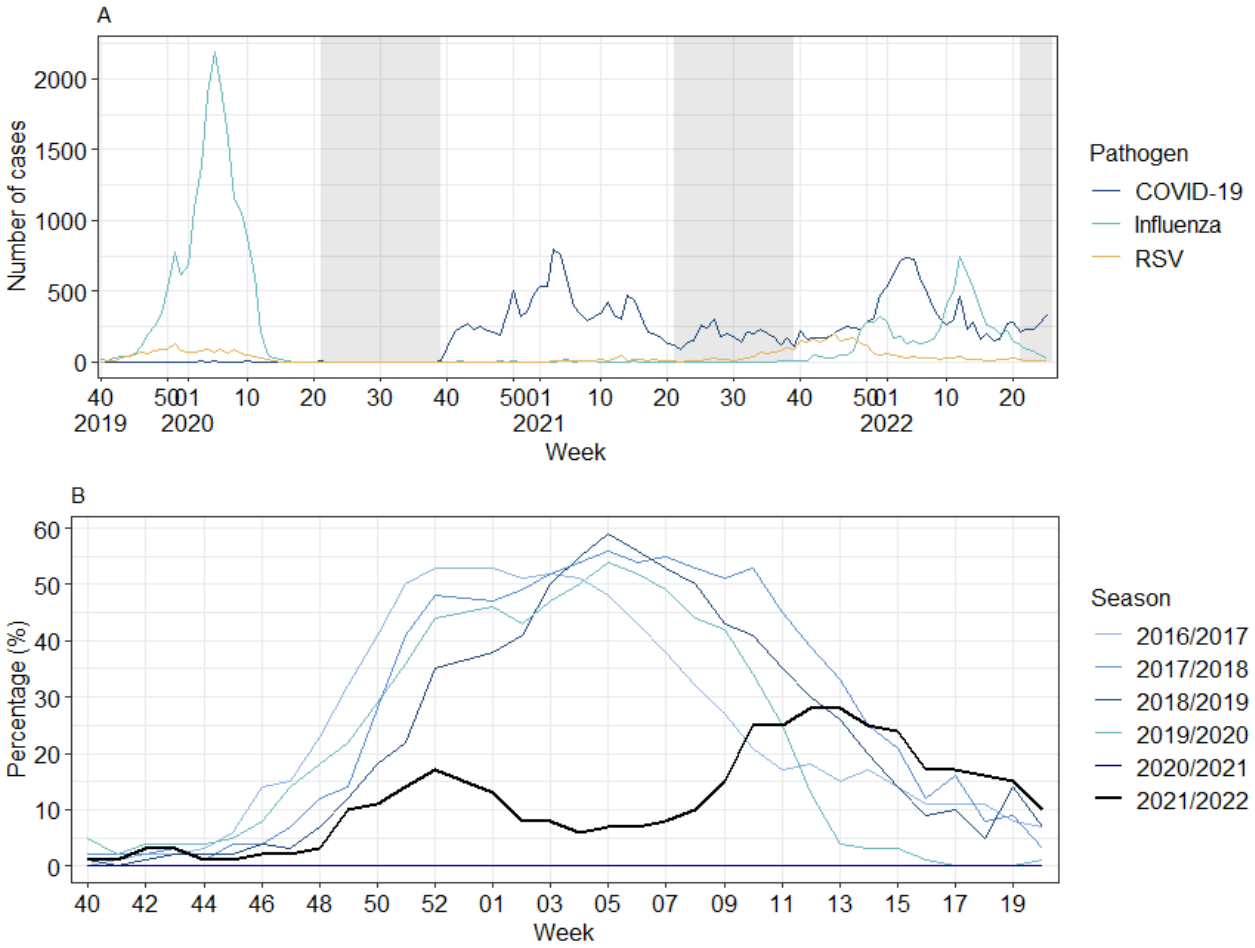


Fig. 4. Sentinel detections of A) COVID-19, influenza and RSV and B) influenza percentage positivity of sentinel samples by season. Grey rectangles represent inter-seasonal periods [10]

Recent trends in the implementation of PHSM

PHSM are preventive and control measures taken by individuals, communities and government institutions at national and local levels to prevent and/or reduce transmission of disease.[11]

Since the beginning of the COVID-19 pandemic, these have been vital in reducing the spread of SARS-CoV-2 and other respiratory viruses. [12] PHSM include both large-scale public health interventions (closing, limiting, or requiring certain activities of institutions in certain settings) and core public health interventions, such as rapidly identifying, isolating, testing, tracing and quarantining all contacts, and using personal protective measures and physical distancing, which form the bedrock of prevention and control activities.

[10] Based on data submitted to WHO and to The European Surveillance System (TESSy).
[11] Considerations for implementing and adjusting public health and social measures in the context of COVID-19: interim guidance. Geneva: World Health Organization; 2021(https://apps.who.int/iris/handle/10665/341811, accessed 17 July 2022).
[12] What are public health and social health measures and why are they still needed at this stage in the COVID-19 pandemic? Copenhagen: WHO Regional Office for Europe; 2021

Since the beginning of February 2022, several countries have gradually lifted some or all PHSM and international travel restrictions related to COVID-19. (Fig. 5). Since then, the volume of international travel has massively increased particularly over the summer period, as has the incidence of COVID-19, mainly caused by the Omicron variant. While some European Union (EU) countries currently have no international travel measures in place, the European Council and Parliament have agreed to extend regulation allowing the continuation of the EU digital COVID certificate until 30 June 2023.

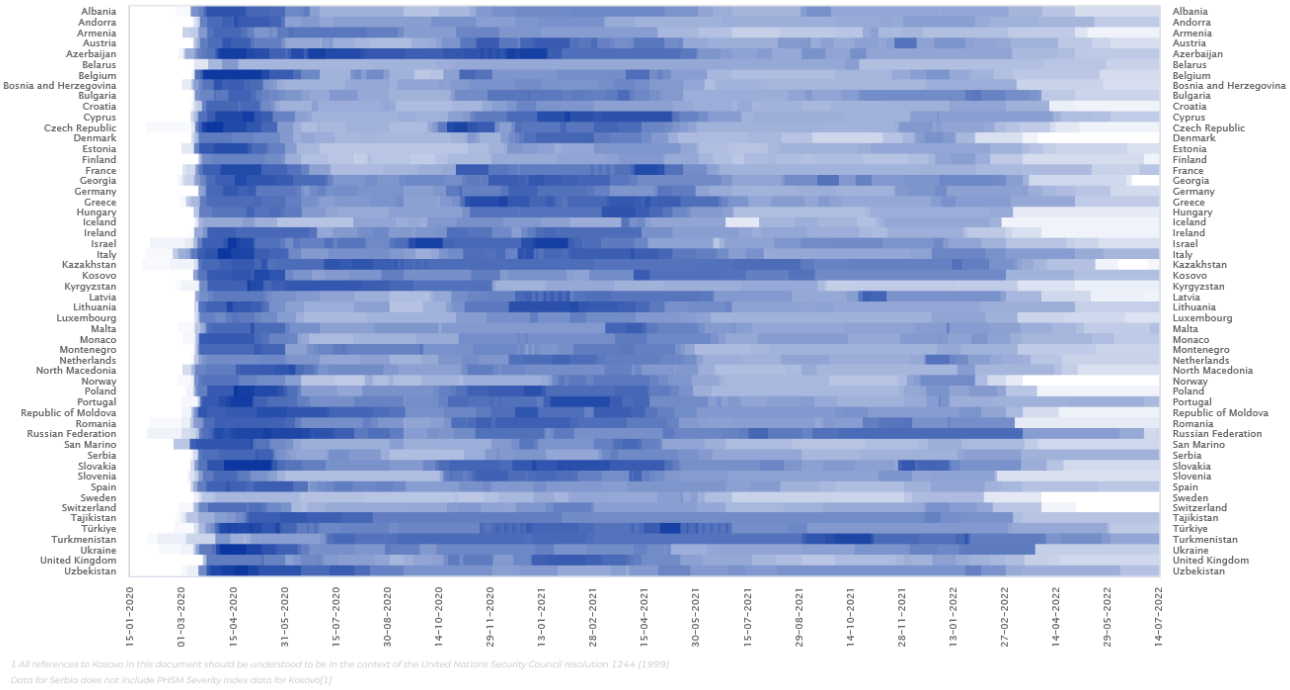


Fig. 5. PHSM severity index applied across the WHO European Region over the course of the pandemic. The darker the colour, the more severe the PHSM applied [13]

Low public adherence to PHSM, their decreased social acceptability, and the lower public risk perception of Omicron and its sub-lineages have affected decisions taken by governments. Concurrent health emergencies in the Region have also contributed to shifting attention away from COVID-19. These dimensions will require focused attention if upsurges occur in the autumn requiring the possible reimplementation of PHSM.

(https://www.who.int/europe/news/item/25-11-2021-what-are-public-health-and-social-health-measures-and-why-are-they-still-needed-at-this-stage-in-the-covid-19-pandemic, accessed 17 July 2022)

[13] A systematic approach to monitoring and analysing public health and social measures in the context of the COVID-19 pandemic: underlying methodology and application of the PHSM database and PHSM Severity Index: updated July 2022. Geneva: World Health Organization; 2022 (https://apps.who.int/iris/handle/10665/357854, accessed 17 July 2022)

Roll-out of COVID-19 vaccination

All countries in the WHO European Region have implemented national COVID-19 vaccination programmes and significant progress has been achieved in this regard. As of June 2022, 37 countries of the WHO European Region offer primary COVID-19 vaccination series for people aged 5 years and older, with vaccination uptake for complete series largely plateauing in late 2021 or early 2022. (Fig. 6). By 13 June 2022, more than 1 500 000 doses of COVID-19 vaccines had been administered, 63% of the Region's population had received the complete primary series of vaccination and 28% of the population had received a booster dose. However, in 24 countries a substantial proportion of eligible people including persons at high risk of severe COVID-19 outcomes remains not fully vaccinated with the primary series, ranging approximately from 20% to 60%.[14]

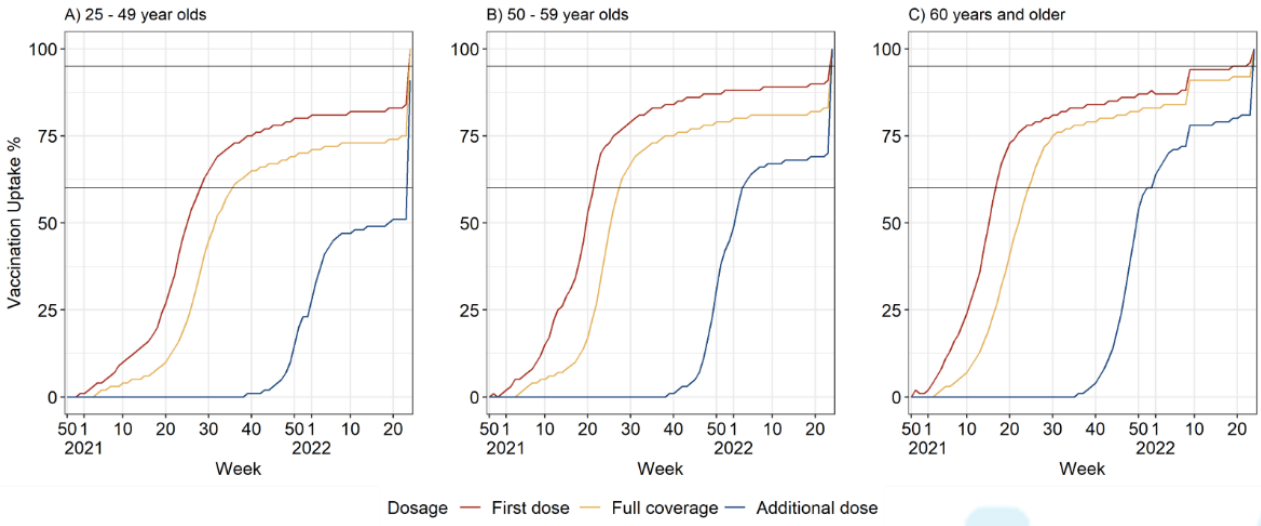


Fig. 6. First, complete series and additional COVID-19 vaccination uptake in the WHO European Region. [15]

The post-introduction evaluations and behavioral insights studies conducted in middle-income countries (MICs) in the Region with WHO support reveal that the main barriers in reaching high vaccine uptake in priority populations in these countries vary between context, but a lack of effective vaccine delivery strategies to reach older adults, as well as concerns about vaccine safety among health-care workers and the public are identified as important barriers across settings. The widespread progressively lower perception of risk of severe COVID-19 and decreasing confidence in vaccines due to low protection against mild disease, have contributed to lower demand for COVID-19 vaccines from populations in both high- and middle-income countries across the Region.

[14] COVID-19 Vaccine Programme Monitor. Copenhagen: WHO Regional Office for Europe; 2022. (https://worldhealthorg.shinyapps.io/EURO_COVID-19_vaccine_monitor, accessed 18 July 2022).

[15] Based on data submitted to WHO and to The European Surveillance System (TESSy).

Maintaining dual-track essential health systems and services

As COVID-19 resurgences have occurred across the Region, health systems have postponed non-emergency procedures to keep capacity available for COVID-19 patients, and to avoid elective patients becoming infected. This has disrupted the delivery of essential health services and led to longer waiting lists and waiting times for important life-changing and life-saving services in almost all countries.

As health systems became overwhelmed and health services were constrained due to the large number of COVID-19 cases and hospitalizations, the focus of health service delivery changed, requiring rapid shifts in priorities and allocation of resources while maintaining a baseline functionality. WHO conducted three pulse surveys on the continuity of essential health services during the COVID-19 pandemic among ministry of health officials in the European Region, covering the period February 2020 to November 2021. All three rounds indicated concerningly high levels of disruption and growing backlogs of essential health services in almost all responding countries. [16]

Transmission scenarios for SARS-CoV-2 and other respiratory viruses for autumn and winter 2022/23

During the upcoming autumn and winter seasons, the combinations of waning SARS-CoV-2 immunity against infection and severe disease; changing mixing patterns; seasonality, and the potential emergence of a new SARS-CoV-2 variant may lead to one or more surges in SARS-CoV-2 activity. This may be co-incident with influenza (and other acute respiratory viruses such as RSV) leading to significantly increased pressure on health-care systems. The public health impact of these surges will depend upon six key factors:

i. **Emergence of new VOCs/influenza strains or sub-lineages:** The potential emergence of a variant with further key phenotypic changes – such as increased transmissibility and/or infection severity could result in a further wave of infections, hospitalizations and deaths. Of the more transmissible Omicron sub-lineages, BA.5 is quickly becoming the dominant virus across many countries in Europe, with other sub-lineages likely to emerge over the next months. This emphasizes the importance of strong genomic surveillance to rapidly detect emerging VOCs, and strong surveillance systems to detect increasing incidence and severity of cases.

[16] Third round of the global pulse survey on continuity of essential health services during the COVID-19 pandemic: November–December 2021. Interim report. Geneva: World Health Organization; 2022. (https://www.who.int/publications/i/item/WHO-2019-nCoV-EHS_continuity-survey-2022.1 ; accessed 18 July 2022)

ii. **Population protection against infection and severe disease**: Population immunity is widespread in most populations – which has resulted in a reduced risk of severe outcomes. However, waning SARS-CoV-2 immunity against infection (both vaccine and naturally acquired) over time is now well recognized and visible in the increased reinfection rates seen with the successive spread of Omicron sub-lineages during 2022.[17] There may also be waning protection against severe disease. Continuing to monitor SARS-CoV-2 population immunity and vaccine effectiveness against infection and severe disease over time will be key to detect early signals of significant reductions in population protection.

iii. **Population mixing patterns**: The summer period in temperate countries is typically characterized by decreased indoor population mixing and the school holiday period. In the autumn, schools and workplaces will likely return to normal occupancy with increased indoor mixing. In addition, almost all countries have lifted PHSM, which will increase the ability of respiratory viruses such as SARS-CoV-2 and influenza to spread in populations across the Region.

iv. **Increased international travel**: The relaxation of PHSM has been accompanied by the re-establishment of international travel. This will provide the on-going opportunity for importation and spread of new SARS-CoV-2 variants (e.g. Omicron sub-lineages including BA.2 and BA.4/5), and influenza variants, particularly from sub-tropical countries where influenza circulation continues all year-round.

v. **Country vaccination uptake for both COVID-19 and influenza vaccines**: Most countries continue to recommend an annual influenza vaccine for older people, those with underlying clinical risk factors and health-care workers. These groups are at greater risk of infection and severe disease and it will be important to ensure they remain protected in autumn 2022. Many countries have not yet made recommendations regarding further doses of COVID-19 vaccine in the coming autumn.

vi. **Incidence of post-COVID condition:** the sustained high rates of SARS-CoV-2 infection and reinfection will lead to an increasing caseload of patients with post-COVID condition and a subsequent burden of disease that remains both poorly understood and, for the most part, unmanaged. Urgent recognition, reporting, research, and rehabilitation programmes are needed as this shadow epidemic continues to grow.

Modelling scenarios

Several teams in the WHO European Region are undertaking mathematical modelling work to explore a range of scenarios of the projected incidence of SARS-CoV-2 infection and severe disease in the Region during autumn and winter 2022/23.

Imperial College London

As part of their work as a WHO collaborating centre, Imperial College London used an individual-based mathematical model of SARS-CoV-2 transmission and vaccination that mirrors a previously published compartmental model. The model has a flexible dose and age-based prioritization strategy with longer-term boosters.

[17] COVID-19 Weekly Epidemiological Update, Edition 99. Geneva: World Health Organization; 2022 (https://www.who.int/publications/m/item/weekly-epidemiological-update-on-covid-19---6-july-2022 accessed on 18 July 2022)

Individual-level antibody titer and decay are used to capture vaccine- and infection-induced immunity – thereby capturing "hybrid immunity". The model captures changes in variants through their effect on past immunity (vaccine and infection), transmissibility and severity. The model assumes no seasonality and no further PHSM. Imperial College London considered five different longer-term vaccination strategies – age-targeted and 6-monthly versus yearly, with 90% uptake, timed September (yearly) and March (6-monthly). The model found that with Omicron there was a gradual dampening of waves of infection as a country moved towards endemic level.

The model projected a greater impact of all-age vaccination but targeting to over 75s was more efficient than over 60s or younger ages, with yearly vaccination more efficient than 6-monthly.

Plausible assumptions for new variants of concern indicate the need to plan for a potential severe autumn and winter epidemic ("worst-case scenario"). Additional immune escape is of concern as this is assumed to reduce direct protection of the highest risk groups. Combined immune escape and return to Delta severity levels could be considered "worst-case scenario" for planning purposes.

London school of Hygiene and Tropical Medicine (LSHTM)

Using a model fitted to more than 2 years of epidemiological data from England, LSHTM projected potential dynamics of SARS-CoV-2 infections, hospital admissions and deaths until December 2022.[18] They considered key uncertainties including future behavioral change and waning immunity and assessed the effectiveness of booster vaccinations in mitigating SARS-CoV-2 disease burden between October 2021 and December 2022. If no new variants emerge, they anticipate that SARS-CoV-2 transmission is expected to decline, with low levels remaining in the coming months. The extent to which projected SARS-CoV-2 transmission resurges in late 2022 depends largely on assumptions around waning immunity and to some extent, behaviour and seasonality.

European Centre for Disease Control and Prevention (ECDC)

The ECDC has recently published a report on the potential role of further additional doses of COVID-19 vaccines.[19] The mathematical modelling carried out suggests that increasing the proportion of the population who have been provided with immunity through a primary course and first booster has a substantial potential to reduce COVID-19 death burden by the end of October 2022. This is particularly relevant for countries where gaps in coverage are still large, and efforts to address these gaps remain a public health priority. With regard to the second booster, modelling shows that its roll-out in some vulnerable groups could avert a substantial proportion of COVID-19 deaths between now and mid-autumn 2022. To reduce future COVID-19 burden through a second booster, the effect per dose is highest when targeting vulnerable populations,

[18] Barnard RC, Nicholas G. Davies NG, Centre for Mathematical Modelling of Infectious Diseases COVID-19 working group, Jit M Edmunds WJ. Behaviour, booster vaccines and waning immunity: modelling the medium-term dynamics of SARS-CoV-2 transmission in England in the Omicron era. medRxiv. Preprint. 2021 [revised 2022 May 20]. doi: 10.1101/2021.11.22.21266584

[19] Public health considerations and evidence to support decisions on the implementation of a second mRNA COVID-19 vaccine booster dose. Stockholm: European Centre for Disease Prevention and Control; 2022 (https://www.ecdc.europa.eu/en/publications-data/public-health-considerations-and-evidence-support-decisions-implementation-second, accessed 17 July 2022).

such as older age groups. The public health benefit of administering a second booster dose is clearest in those aged 80 years and above. Immediate administration of a second booster dose in this population would be optimal in situations of continued high or increasing viral circulation. Alternatively, in situations of low viral circulation, administration of a second booster dose should be considered prior to autumn 2022. The modelling also suggests that a second booster roll-out including those aged 60-79 years who are immunocompetent, in the EU/European Economic Area is likely to be beneficial, although the best timing for the roll-out depends on the highly uncertain future of COVID-19 incidence.

Strategy considerations by emergency response pillar

The two previous autumn and winter seasons in the WHO European Region have been characterized by increased transmission of COVID-19 and increased pressures on health systems, essential health worker absenteeism, and disruptions to health services. These impacted health by increasing both COVID-19 and other causes of morbidity and mortality. In addition, the seasons have seen atypical circulation of other respiratory viruses such as influenza and RSV.

Omicron and its sub-lineages have presented new challenges to public health and societal systems, particularly when rapid surges of infections occur within very short periods of time. Countries need to take steps to optimize the use of limited public health resources and ensure that critical health and non-health services are maintained during periods of community-wide COVID-19 transmission. During the upcoming autumn and winter, a key tactic to protect vulnerable populations is the consistent application of five pandemic stabilizers:

i. increasing vaccine uptake in the general population;
ii. administering additional vaccine doses to priority groups;
iii. promoting mask-wearing indoors and in public transportation;
iv. ventilating crowded and public spaces (such as schools, bars and restaurants, open space offices and public transportation); and
v. applying rigorous therapeutic protocols to those at risk of severe disease.

The following sections outline additional readiness and response actions required by WHO response pillar to put in place the resilience needed to absorb potential shocks that may occur.

Risk communication and community engagement (RCCE)

COVID-19 has underscored the centrality of RCCE. The RCCE COVID-19 autumn and winter 2022 strategy aims to contribute to the triple objective of controlling the acute phase of the pandemic, recovering, and building back better from it. Some of the challenges observed during the pandemic have been exacerbated during the third year of the response:

- **Pandemic fatigue**

The easing of COVID-19 restrictions in most countries of the European Region follows over two years of communication from public health officials on protective measures, and on changing and adapting behaviours to curb the spread of COVID-19. In the context of this protracted health emergency, many countries have reported general sentiments of pandemic fatigue.

- **Reduced compliance with preventive measures**

Measures, such as wearing face masks and physical distancing are no longer mandated in many countries. Coupled with pandemic fatigue and the summer months, the number of people practicing these behaviours has fallen sharply.

- **Vaccine hesitancy**

Persuading the un- or under-vaccinated to receive the full course of COVID-19 vaccine is challenging at this stage as most of those who are willing to be vaccinated are likely to have already received their vaccinations. There remains however a vaccine-hesitant population to be identified and targeted.

RCCE objectives

The RCCE strategy for COVID-19 aims to contribute to the increasing of COVID-19 preventive measures including vaccination – acceptance and uptake (response objective); normalization and sustainability of preventive measures (recovery objective); and whole-of-society resilience to health emergencies (building back better objective).

<u>Response objective</u>

In this phase of the response, it is important to understand current and context-specific drivers and barriers for COVID-19 protective behaviours through rapid online and offline social listening mechanisms, to leverage the former and address the latter with a very targeted approach. Informed by these data, RCCE strategies can include the following interventions tailored to situations and contexts:

- launch a public “wakeup call” to avoid another winter with high case resurgence and socioeconomic disruption by highlighting the concrete opportunity to end the acute phase of the pandemic by doing what works;
- communicate risks and preventive measures in a realistic manner, based on what is feasible (e.g. in the current circumstances without the reinstatement of preventive measures, people are unlikely to wear masks, or keep physical distance at all times for example, however, they can be engaged to taking preventative measures where and when it matters most);

- leverage the prospect of post-COVID condition as a strong rationale to continue individual preventive measures and vaccination, including through the communication of patient testimonies and the promotion of evidence that vaccination can reduce the impact of post-COVID condition[20], which is a debilitating condition for many;
- target groups more vulnerable to severe disease (e.g. older and immunocompromised people) and those most resistant and that drive transmission (e.g. young people and hard-to-reach communities);
- segment audiences based on their intention to vaccinate (vaccination champions, hesitant and deniers) and target the groups more likely to accept vaccination (e.g. the hesitant through the champions);
- reach out to groups at community level, through the engagement of local authorities, civil society organizations and influencers including, health workers, journalists, health mediators, medical students, peers, religious leaders and COVID-19 survivors who changed their mind on vaccination;
- distribute health information and advice together with preventive measures (e.g. mobile units with health workers providing vaccination and hand hygiene dispensers along with answering questions and concerns);
- communicate the importance of the co-administration of a COVID-19 booster and influenza vaccination during autumn and winter: the choices made to lower the risk to older people are key in preventing the death of the most vulnerable from the so called twindemic (circulation of multiple respiratory viruses).

Recovery objective

Three RCCE approaches are relevant to the recovery objective: normalize protection from COVID-19 as a new accepted way of living; sustain protective measures that will help reduce the spread of both COVID-19 and other disease (e.g. hand hygiene); and support people to re-establish their lives and societies disrupted by the pandemic.

Building back better objective

The RCCE response is expected to have a positive domino effect on the establishment of skills, systems and structures at both national and community level in building resilience to future health emergencies. Countries are advised to leverage the COVID-19 lessons learned in order to set a national roadmap to:

i. establish skilled RCCE resources and sustain them
ii. strengthen capacity on RCCE and infodemic management
iii. establish health literacy for emergency preparedness
iv. establish online and offline social listening systems
v. engage influencers and networks.

[20] See for example: Al-Aly Z, Bowe B, Xie, Y. Long COVID after breakthrough SARS-CoV-2 infection. Nat Med. 2022. doi.org/10.1038/s41591-022-01840-0; Yoo SM, Liu TC, Motwani, Y. et al. Factors Associated with Post-Acute Sequelae of SARS-CoV-2 (PASC) After Diagnosis of Symptomatic COVID-19 in the Inpatient and Outpatient Setting in a Diverse Cohort. J Gen Inter Med. 2022; 37:1988–1995. doi.org/10.1007/s11606-022-07523-3; Xie Y, Bowe B, Al-Aly Z. Burdens of post-acute sequelae of COVID-19 by severity of acute infection, demographics and health status. Nat Commun. 2021;12:6571. doi: 10.1038/s41467-021-26513-3.

Public health and social measures

In the autumn, populations will return to schools, other educational establishments, and workplaces. The colder months will also see recreational activities move to an indoor setting, leading to increased ability of respiratory viruses such as SARS-CoV-2 and influenza to spread in populations across the Region. The following considerations are recommended to Member States, as they assess the need for PHSM during the autumn and winter.

- **Continue applying a risk-based approach**

Policies regarding PHSM should continue to be applied using a risk-based approach. PHSM policies should be regularly reviewed and adjusted based on national and subnational epidemiology data, health system capacity to respond and contextual consideration.

Member States should have contingency plans and clear criteria in place to be able to swiftly adjust measures based on the epidemiological situation, focusing on vulnerable groups and settings such as long-term care facilities, health-care as well as educational and occupational settings with the overall goal to limit closures and disruptions.

- **Back to basics**

PHSM policies and campaigns should continue to encourage the individual and social responsibility of citizens as COVID-19 continues through autumn 2022 and focus on measures individuals can take to protect themselves, such as getting vaccinated or receiving an additional vaccine dose; staying at home when sick and seeking medical advice if at risk of severe disease; maintaining hand and respiratory hygiene; ensuring adequate ventilation and air quality in indoor and closed settings; observing physical distancing and wearing a well-fitted mask.

- **Protecting vulnerable populations and settings**

A further focus should remain on targeted measures for vulnerable populations as they will continue to be most at-risk across the Region. Vulnerable communities and disadvantaged individuals may face immediate challenges in meeting their basic life needs – such as income, shelter, and food – when PHSM are implemented without adequate support. In addition, enhancing IPC practices and testing requirements for priority settings such as hospitals and long-term care facilities, should be considered.

- **Focus on settings that may be drivers for localized outbreaks as a result of increased indoor mixing**

Institutions and businesses should promote and facilitate easy practice of IPC measures by enabling physical distancing, access to hand hygiene stations and clean toilets, and adequate ventilation of indoor settings where possible. A risk-based approach should be taken during the planning and implementation of gatherings in order to further reduce the risk of transmission and strain on the health-care system. Any introduction of contact-reducing measures should be risk-based and based on what is considered adequately proportional in the local context.

While precautions must be taken to control the spread of COVID-19 in the community, including through school-based measures, ensuring that children are able to continue learning and socializing to the greatest extent possible in a safe and clean environment is a priority.[21]

- **Isolation and contact tracing**

It remains a priority that those testing positive for SARS-CoV-2 isolate during their infectious period to avoid further transmission. Ideally, symptomatic COVID-19 cases should isolate for 10 days after symptom onset plus at least 3 additional days without symptoms. Asymptomatic cases should stay isolated for 10 days after a positive test for SARS-CoV-2. Shortening the recommended isolation period based on the resolution of acute symptoms and in combination with one or more negative SARS-CoV-2 test results, may be considered when extreme pressures are felt in the essential workforce. Both Antigen Rapid Diagnostic Tests and Nucleic Acid Amplification Tests, administered by a health professional (e.g., at day 7) may be considered. The shortening of isolation periods warrants stringent use of medical masks to prevent infection from possible extended virus shedding – particularly for those working in high-risk settings such as health-care or long-term care facilities. Contact tracing and quarantining of contacts of COVID-19 cases is recommended for priority groups, settings and situations only, further details can be found below under *Surveillance, outbreak investigation and contact tracing.*

Supporting countries in decision-making and implementation

While the current evidence suggests PHSM in general can reduce the spread of COVID-19, it is still not well understood which individual and combinations of measures are most effective and cost-effective, nor the role of voluntary behavioural changes not accounted for in the tracking of government policies. There is an urgent need for more high-quality prospective studies and it is important to identify the obstacles to research of this kind.

WHO/Europe continues to provide country-level support through an interactive PHSM platform, operational tools, and through facilitating country intra- and after-action reviews.

Surveillance, outbreak investigation and contact tracing

Recommendations for integrated and transitional surveillance

The monitoring of COVID-19 during the pandemic has been largely based on trends in the number of positive cases, deaths, and other indicators. The interpretation of these numbers however, has been made challenging due to a lack of common syndromic case definitions, consistency in testing strategies, and denominators based on well-defined populations under surveillance. There is a need to develop and sustain resilient population-based surveillance systems for SARS-CoV-2, influenza and other respiratory viruses in the Region.

[21] Schooling during COVID-19. Recommendations from the European Technical Advisory Group for schooling during COVID-19. Copenhagen: WHO Regional Office for Europe; 2021 (https://apps.who.int/iris/bitstream/handle/10665/342075/WHO-EURO-2021-2151-41906-59077-eng.pdf, accessed 17 July 2022)

New operational considerations have been outlined jointly by WHO/Europe and the European Centre for Disease Prevention and Control (ECDC). [22]

The objective of respiratory virus surveillance is no longer to interrupt transmission, but to monitor spread and intensity to control impact and mitigate disruption. Well-designed, representative sentinel surveillance systems in primary and secondary care should remain the core surveillance method for acute viral respiratory infections. These systems should provide accurate national and regional level estimates of indicators of severity and impact such as hospitalizations, admissions to intensive care units, and mortality. At the same time, surveillance systems should be sensitive enough to detect variants, accurately follow incidence by type of infection, age and place, and to allow estimation and monitoring of vaccine effectiveness. Genomic monitoring should be integrated into overall respiratory virus monitoring strategies. Sentinel syndromic surveillance, virological monitoring and reporting to the European Surveillance System (TESSy) should be maintained year-round.

Routine diagnostic surveillance for COVID-19 has been augmented with environmental surveillance in wastewater in many locations. Environmental surveillance can provide additional evidence on viruses in circulation at population level including their presence or absence; early warning of increasing or decreasing trends; and information on VOC or interest.[23]

The COVID-19 pandemic has had a lasting impact on existing systems designed for influenza. To establish and maintain systems that are fit for purpose will require considerable political will and priority, sustained financing, and expertise. Until sentinel systems are sufficient in quality and quantity to form the basis of epidemiological and virological monitoring, data from non-sentinel sources, will be an important complement. There is an urgent need to establish robust, integrated surveillance systems that are sustainable and resilient in case of a future pandemic. At the same time, plans for a potential upscaling of testing for both SARS-CoV-2 and influenza should be considered and, if required, in response to the emergence of a new VOC.

Recommendations on contact tracing and quarantine

WHO no longer recommends contact tracing, quarantine and follow-up of all individuals who were in contact with a confirmed or probable case of SARS-CoV-2, but rather for priority individuals, settings and situations (Box 1).[24] New WHO guidance additionally introduces shorter recommended quarantine periods for contacts of cases and the ability to further shorten quarantine through the use of testing. National and local health authorities should use risk-based approaches to contact tracing and quarantine that include a review of and adjustment to their local circumstances including disease epidemiology, population immunity, their health system's capacities, and risk tolerance – considering the challenge of essential worker absenteeism.

[22] Operational considerations for respiratory virus surveillance in Europe. Copenhagen: Copenhagen: WHO Regional Office for Europe; 2022. (https://apps.who.int/iris/rest/bitstreams/1451674/retrieve, accessed 17 July 2022)
[23] Environmental surveillance for SARS-COV-2 to complement public health surveillance – Interim Guidance. Geneva: World Health Organization; 2022 (https://www.who.int/publications/i/item/WHO-HEP-ECH-WSH-2022.1, accessed 17 July 2022).
[24] Contact tracing and quarantine in the context of COVID-19: interim guidance, 6 July. Geneva: World Health Organization; 2022 (https://www.who.int/publications/i/item/WHO-2019-nCoV-Contact_tracing_and_quarantine-2022.1, accessed 17 July 2022).

Box 1: Prioritization of contact tracing, quarantine and follow-up

This box presents the individuals, settings and situations that should be considered by public health authorities as they prioritize contact tracing during autumn and winter 2022/23.

Priority individuals:

- persons older than 60 years;
- persons who are immunocompromised or have multiple co-morbidities;
- pregnant women;
- unvaccinated or partially vaccinated contacts, especially if belonging to the above groups

Priority settings:

- individuals living or working in high-risk settings such as health-care, nursing homes and long-term care facilities.

Priority situations:

- the emergence of a new variant for which characteristics of immune escape and

All individuals who have been exposed to a case of SARS-CoV-2 should be offered access to free or affordable testing for them to know whether they have been infected and to decrease the prospect of further transmission. For contacts that are recommended to quarantine, a negative test on day 5 combined with no symptoms can end the quarantine period.

Member States are encouraged to maintain resources, processes and systems established for COVID-19 contact tracing so that these can be rapidly reactivated when required. In addition, it is recommended that data on contacts is collected and reported to the TESSy platform.

Laboratory detection of SARS-CoV-2 and associated diagnostics

In preparation of the autumn and winter seasons, with the likelihood of both increased circulation of SARS-CoV-2 and of the continued emergence of new variants with increased transmissibility and/or immune escape, WHO/Europe encourages countries to continue strengthening country public health laboratory capacities in order to ensure reliable rapid diagnostic SARS-CoV-2 detection and tracking of variants as part of the wider surveillance of COVID-19.

Significant investment has been spent over the past years to improve laboratory capacities to detect SARS-CoV-2 in all populations and places. These systems need to be at the ready to increase testing capacity. Options to engage other resources, such as private, academic, mobile or veterinary laboratory services should be considered with appropriate and safe sample packaging and transport.

In case of high testing requests and particularly in settings where Nucleic Acid Amplification Tests testing capacity is limited, Antigen Rapid Diagnostic Tests should be prioritized for use in symptomatic individuals meeting the case definition for COVID-19, and to test asymptomatic individuals at high risk of infection. WHO recommends that Antigen Rapid Diagnostic Tests that meet minimum performance requirements can be used for primary case detection, contact tracing, during outbreak investigations and to monitor trends of disease incidence in communities.[25]

With the emergence of several SARS-CoV-2 VOCs over the past year, VOC monitoring requires continuity and further strengthening in countries. [26] To be able to confirm infection with a specific variant, sequencing of the whole SARS-CoV-2 genome – or at least the whole or partial S-gene for the current variants – is required. While countries are building or scaling-up their high throughput sequencing capacities, they should prioritize the rapid availability of test results for patients, as well as the added value from additional genetic analyses. WHO/Europe has been using single nucleotide polymorphisms (SNP) genotyping assays while countries work to expand their whole gene sequencing capacities.

COVID-19 vaccine deployment

The primary series of vaccination and a booster dose of current COVID-19 vaccines continue providing high protection against severe disease from all currently circulating Omicron sub-lineages, but vaccine effectiveness against infection and symptomatic diseases is lower than for other variants and protection declines more substantially over time. Likewise, vaccine effectiveness in moderately and severely immunocompromised people is lower and wanes more rapidly than in non-immunocompromised individuals.

In this regard, evidence suggests that a second booster dose is beneficial in protecting the most vulnerable populations, notably health-care workers and people over 60 years.[27]

Interim Recommendations for Autumn 2022:

- Current COVID-19 vaccines continue to exhibit strong protection against severe disease and death across all virus variants seen to date. Therefore, reaching high coverage with the primary vaccination series and a first booster dose among all eligible people remains a priority.

[25] Antigen-detection in the diagnosis of SARS-CoV-2 infection. Geneva: World Health Organization; 2021 (https://www.who.int/publications/i/item/antigen-detection-in-the-diagnosis-of-sars-cov-2infection-using-rapid-immunoassays, accessed 17 July 2022).
[26] Methods for the detection and characterisation of SARS-CoV-2 variants. Copenhagen: World Health Organization Regional Office for Europe; 2021. (https://apps.who.int/iris/handle/10665/351156, accessed 18 July 2022)
[27] Arbel R, Sergienko R, Friger M, Peretz A, Beckenstein T, Yaron S et al. Effectiveness of a second BNT162b2 booster vaccine against hospitalization and death from COVID-19 in adults aged over 60 years. Nat Med; 2022. doi.org/10.1038/s41591-022-01832-0; and An Advisory Committee Statement (ACS) National Advisory Committee on Immunization (NACI): Initial guidance on a second booster dose of COVID-19 vaccines in Canada. Ottawa: Public Health Agency of Canada. 2022 (https://www.canada.ca/content/dam/phac-aspc/documents/services/immunization/national-advisory-committee-on-immunization-naci/naci-guidance-second-booster-dose-covid-19-vaccines.pdf, accessed 17 July 2022).

- Additional efforts should be undertaken to ensure that all eligible people are up-to-date with their COVID-19 vaccinations in line with national policies. Individuals who have had a SARS-CoV-2 infection still benefit from vaccination because a combination of naturally acquired and vaccine-induced immunity is likely to offer greater protection against reinfection.
- Protection of the most vulnerable people in society will continue to be of primary importance in the upcoming autumn season. To provide additional protection, minimize the risk of severe disease, hospitalization and death from COVID-19 and maximize the resilience of health care provision, it is recommended that:
    - administer a second booster dose to moderately and severely immunocompromised individuals aged 5 years and above and their close contacts (for immunocompromised persons a second booster dose is the fifth dose of COVID-19 vaccine that should be administered after the extended 3-dose primary vaccination series and the first booster dose);
    - consider providing a second booster dose as a precautionary measure in a range of possible scenarios, including potential waning long-term immunity against severe disease, to the following individuals:
        - residents and staff of long-term care facilities;
        - older adults (age specific cut-off should be defined by countries based on local COVID-19 epidemiology);
        - health-care workers;
        - pregnant women;
        - other patient groups at high risk of severe COVID-19 outcomes defined by countries based on local COVID-19 epidemiology.
- The optimal interval between booster doses is yet to be determined. A minimum interval of 3–6 months after the first booster dose could be considered. Heterologous vaccine schedules can be used for the second booster dose.
- The co-administration of COVID-19 vaccines and seasonal influenza vaccines should be considered whenever possible. This will help to reach a higher uptake of both vaccines, increase efficiency, and protect stretched health-care systems, given that the known risk of serious illness for older adults and other priority groups infected either with influenza virus or SARS-CoV-2 is substantial.
- A broader integration of COVID-19 vaccination into primary health care through national immunization programmes should be considered, including common planning, budgeting, joint coordination and integrated vaccine management, service delivery, and programme monitoring.

Public Health Considerations for COVID-19 vaccination strategies in the second half of 2022 have also been issued by ECDC. [28]

[28] Preliminary public health considerations for COVID-19 vaccination strategies in the second half of 2022. Technical Guidance. Stockholm: European Centre for Disease Prevention and Control; 2022. (https://www.ecdc.europa.eu/sites/default/files/documents/Preliminary-public-health-considerations-%20COVID-19-vaccination-2022.pdf, accessed 18 July 2022)

Infection prevention and control

Since the beginning of the COVID-19 pandemic, IPC programmes at national and facility levels had to reduce regular IPC programme efforts to support the COVID-19 response.

The results of the 2021–2022 WHO global survey[29] on IPC minimum requirements revealed important gaps and challenges in the European Region, with less than 50% of participant countries having an active national IPC programme and only 41% having a dedicated budget. Although Members States in the European Region have made significant progress in the last five years, according to the results of the Tripartite Antimicrobial Resistance Country Self-Assessment Survey, 26% of Members States in the Region still have limited or inexistent IPC programmes at national level. [30]

National and facility level IPC programmes are therefore urged to:

1. re-disseminate IPC and water, sanitation and hygiene (WASH) related policies, national guidelines, and training;
2. test and assess exiting IPC and WASH-related policies and national guidelines using different scenarios, and use results to guide relevant revisions;
3. assess surge capacity, identify required resources (financial, logistical and human) for a resurgence of cases and implement contingency plans where needed for alternative service delivery modes, human resources incentives and IPC/PPE supplies (based on PPE burn rate);
4. encourage and promote refresher COVID-19 IPC training for all health workers;
5. maintain a surveillance system and management policies for the detection of exposed and confirmed health worker infection (quarantine and isolation);
6. maintain adequate supplies of PPE and other IPC supplies in all health-care and long-term care facilities, including nursing homes for autumn use.

At the community level, the application of individual protective measures should be emphasized and promoted rigorously. This should include wearing well-fitted masks, which should be used as part of a comprehensive “Do it all!” approach including maintaining physical distancing, avoiding crowded, closed and close-contact settings, ensuring good ventilation of indoor spaces, cleaning hands regularly, and covering sneezes and coughs with a tissue or bent elbow.

[29] Global report on infection prevention and control. Geneva: World Health Organization; 2022 (https://www.who.int/publications/i/item/9789240051164, accessed 17 July 2022).

[30] Tripartite AMR Country Self-Assessment Survey (TrACSS) 2019-2020. Global monitoring of country progress on addressing antimicrobial resistance. Geneva: World Health Organization, Food and Agriculture Organization, World Organization for Animal Health; 2020. (https://www.who.int/publications/m/item/tripartite-amr-country-self-assessment-survey-(tracss)-2019-2020 ; accessed on 17 July 2022)

Clinical management and therapeutics

In anticipation of increased respiratory virus presentations during the autumn and winter, and to facilitate adaptation to local settings and tailoring of evidence-based strategies to local circumstances, it is recommended that national authorities or committees overseeing clinical management for COVID-19 consider the following:

- current relevant guidelines for COVID-19 and influenza and standard operational procedures for primary and hospital care are reviewed and updated prior to the autumn/winter period;
- feedback is sought from clinicians and patients regarding practicability and any barriers to their application are addressed;
- processes for guidance development/updates are optimized and sufficient resources are assigned to the task.

Of specific importance are updates of clinical pathways, which should ensure effective triage and confirm, assess and manage other severe respiratory infections occurring concurrently with COVID-19. As the utilization of clinical pathways are crucial in outbreak and pandemic situations, particularly during an upsurge, it is recommended that:

- the clinical pathways for COVID-19 and other relevant respiratory infections are reviewed and updated for primary and hospital care;
- clinical pathways are age specific, and listed interventions are available/accessible and consistent with standards of care and other policies (e.g. antimicrobial stewardship);
- a monitoring framework is established, if not already present, to ensure equitable delivery of care across the health system and inform decision-makers of any necessary modifications and actions.

The availability of novel COVID-19 antiviral therapeutics calls for the updating of clinical management protocols for primary health care services, specifically for populations identified at an increased risk of a severe course of COVID-19 infection and need for hospitalization.[31] It is recommended that:

- procurements of therapeutics should be made and distributed to ensure that appropriate therapies, including antivirals issued through primary care, can be initiated rapidly where required;
- patients at risk of severe respiratory infections are identified in the catchment area of a primary health centre or in the patient databases of general practitioners;
- COVID-19 and pneumococcal vaccination status is checked in presenting patients at primary care level, and active outreach is pursued to provide any missed doses.
- a communication strategy is in place and information tools are available to patients;
- primary health care services including district nursing and long-term care facilities have access to point of care tests and there is an effective dispatch system for antivirals for the at risk population;

[31] The latest updates on therapeutic management of COVID 19 are available at https://www.who.int/publications/i/item/WHO-2019-nCoV-therapeutics-2022.3

- health-care providers receive essential prescribing information and decision-making tools for antivirals intended for COVID-19 and neuroaminidase inhibitors for influenza, clinical pathways are reemphasized with correct use of antibiotics for community acquired pneumonia, and information is provided on reporting any side effects of therapies to national pharmacovigilance centres.

Poster tools for the use of novel antivirals and other treatments for COVID-19, including clinical indications and contraindications are available for health-care workers at the links below:

- Molnupiravir for COVID-19
- Administration of Molnupiravir for COVID-19
- Safety and monitoring for patients receiving Molnupiravir for COVID-19
- Nirmatrelvir-ritonavir for COVID-19
- Administration of Nirmatrelvir-ritonavir for COVID-19
- Safety and monitoring for patients receiving Nirmatrelvir-ritonavir for COVID-19
- Remdesivir for COVID-19
- Administration of Remdesivir for COVID-1
- Safety and monitoring in patients receiving remdesivir for COVID-19

Points of Entry (PoE) and International travel

In line with the International Health Regulations (2005) (IHR), WHO continues to advise that all measures relating to PoE and international travel should be commensurate with the risk, time-limited and applied with respect to traveller dignity, human rights and fundamental freedoms. There are several considerations for international travel during autumn and winter 2022/23:

- **Apply a risk-based approach to international travel in accordance with IHR**

Blanket travel bans will not prevent the international spread of respiratory viruses, they place a heavy burden on lives and livelihoods, and disrupt the transport of essential supplies, medical equipment and pharmaceuticals. Any applied travel measures need to be defined following a thorough risk assessment process informed by the local epidemiology and public health capacities in departure, transit and destination countries. Measures that are re-introduced need to be well advertised and explained in advance to the public through health authorities and the media to gain trust and support.

- **Reach travellers with travel advice**

All travellers should be reminded to remain vigilant for signs and symptoms of COVID-19, to get vaccinated when appropriate, including with boosters, and to adhere to PHSM regardless of vaccination status, including by using masks appropriately where required, respecting physical distancing, following good respiratory etiquette and avoiding crowded and poorly ventilated spaces.

Travellers should frequently monitor government websites and state media to stay updated with any changes to international travel requirements before travel. National health authorities and policy-makers should regularly publish, and openly and jointly communicate, (re-) introduced travel measures via the media and posters in collaboration with travel industry.

- **Continue strengthening PoE capacities**

National health systems need to be strengthened at or close to PoE by reinforcing and further developing capacity for routine or targeted surveillance systems at as well as regarding international contact tracing. National authorities should ensure minimum IPC standards at PoE, including minimal infrastructure, trained personnel on IPC measures, and uninterrupted access to IPC supplies such as hand hygiene and cleaning and disinfection products, as well as PPE.

Maintaining essential health systems & services

While the exact strategy on maintaining and recovering essential health services will be dependent upon the epidemiological scenario that the Region will experience, health systems should follow a dual-track approach: balancing the demands of COVID-19 and other respiratory viruses with the need to maintain, restore and strengthen the safe delivery of quality essential health services and public health functions.

Responding to and preventing health-care disruption

Key actions to respond to existing, and to prevent further, disruptions to health services while strengthening essential services across the continuum of care, will be required over the coming months. Four key strategies should be considered to maintain and restore essential health services delivery, including tackling backlogs, while strengthening the overall resilience of their health systems and services, and thereby contributing to better overall preparedness.

- **Increase** staffing and workforce supply by introducing new professional roles and competencies; flexible recruitment and training; and improving work conditions, including enhancing mental health support and better compensation to improve staff retention and wellbeing.
- **Improve** productivity, capacity and demand management, which includes separating planned and unplanned care; introducing financial incentives to clear service backlogs; expanding access to telehealth services; implementing demand-side prioritization policies; and better distributing across the available capacity.
- **Invest** in capital, infrastructure, and new community-based models of care, for example, by upgrading health infrastructure and facilities; investing in primary and community care, especially the provision of mental health care; expanding digital infrastructure; and expanding home care and rehabilitative capacity.
- **Innovate** care pathways that draw on the investments in primary health care, skills, and digital tools, and can be flexibly adapted during and post public health emergency phases.

Critical to these strategies and policies that aim at strengthening services and reducing backlogs is the health workforce, and these strategies potentially place additional pressures on already overstretched health and care workers. Therefore, policies to support and protect these workers need to be prioritized alongside improving workforce planning and workforce availability in many countries. It is of equal importance that policies that further rationalize health-care delivery, including by reducing waste and inappropriate care and making increased use of digital solutions, do not increase inequalities in utilization and health.

These strategies and their actions need to be aligned and contextualized at national and sub-national levels for a fully integrated response, that builds on the work done so far to recover and strengthen essential health services across areas and build health systems that emerge from the pandemic stronger.

The pandemic's toll on mental health

With the number of lives and livelihoods that have been lost and the severe disruption of life opportunities that were previously taken for granted, the pandemic has taken an enormous toll on the mental health and well-being of the population. The following considerations aim at protecting mental health and well-being of the population at the following levels:

General population and communities:

- promote and enable access to culturally adapted, evidence-based interventions for mental health and psychosocial support through digital and other means, including interventions to increase resilience and help people cope with stress and loneliness;
- promote, support and embed psychological support initiatives in the workplace, and provide occupational and/or financial support to those prevented from or not working, or in the process of returning to work;
- address the social determinants of mental health, including poverty, unemployment and socioeconomic inequalities, through targeted actions to provide financial support to households in or at risk of impoverishment as a result of income loss or unemployment, including sickness absence payments for those temporarily unable to work;
- monitor changes in mental health at population level through valid, standardized and comparable measures and instruments.

Vulnerable groups:

- promote, communicate and increase access to socioemotional learning, educational support for loss of learning and mental health and psychosocial support in schools and universities, and provide more community support for adolescents and young adults;
- promote and enable access to mental health and psychosocial support for individuals directly affected by COVID-19 disease;
- develop, communicate and put in place emergency preparedness guidance for people with disabilities and in long-term care, and ensure continued access to, and facilitated provision of, quality care and support.

Mental health services:

- strengthen and develop mental health and psychosocial support services as an integral component of preparedness and response to, and recovery from, COVID-19 and other public health emergencies;
- ensure mental health services are legally, operationally and financially safeguarded, and oversee the scaled-up provision of people-centred, community-based services that include innovative modalities of care.

Health and social care workforce:

Health and care workers have been exposed to an increased risk of infection by COVID-19 and many have died. In addition, the pandemic has increased their workload and has exposed health and care workers to increasing levels of mental stress, burnout, depression and even suicide. This has been compounded by the increasing attrition of the health and care workforce. It is important to:

- ensure safe, fair and supportive working conditions for frontline health and care workers, including through the provision of appropriate PPE, revised pay and conditions, and access to mental health and psychosocial training and support;
- provide mental health workers and frontline responders with capacity building opportunities and training in preparedness and response to infectious disease and other public health emergencies, basic psychosocial skills and other tools to mitigate the psychological impacts of COVID-19, both for their clients and themselves.

Post-COVID condition

The complex nature of post-COVID condition requires a multidisciplinary approach, and the vast number of people with the condition who already or will in the future need health care and other forms of psychosocial support, underline the strong impact that it is having on health systems. To prepare and set up systems and services the following key actions are needed:

- recognize the condition as requiring urgent attention and action;
- accelerate research to enhance the overall understanding of the condition, including diagnosis and management, and document and then share findings in a clear and easily accessible format across the Region;
- strengthen surveillance and monitoring to facilitate early identification, recognition and treatment of symptoms;
- develop multidisciplinary and individualized care, ideally through primary health pathways, allowing optimal assessment and need management, informed by real world outcome data and patient experience and preference;
- acknowledge the need for and provide long-term rehabilitative care and comprehensive mental health care, to support the foundations of recovery and well-being for people living with the condition.

This strategy on post-COVID conditions aims to ensure the provision of accessible, affordable, multidisciplinary, and individualised long-term services, including rehabilitative care, that restore the best quality of life for all affected populations and is part of a comprehensive health system response to COVID-19.

Summary and conclusions

With the anticipated surge of COVID-19, along with co-circulation of influenza, RSV, and other respiratory illnesses this autumn and winter, countries will likely need to re-launch mitigation efforts and be ready to respond to an increased burden on their health-care system.

During the first half of 2022, most countries in the Region dramatically scaled down PHSM.

In preparing for and responding to the autumn/winter scenarios for COVID-19 and respiratory viruses, public health authorities across the region to plan interventions across all response pillars. In doing so, countries might take into account the following considerations.

In the application of additional PHSM, apply a risk-based approach, and regularly revie and adjust policies based on local data and health system capacity.

Encourage individual responsibility of citizens and focus on measures individuals can take to protect themselves. A focus should remain on targeting measures for vulnerable populations as they will continue to be at the greatest risk. Settings that may be drivers for localized outbreaks should be prioritized for implementing precautions to control the spread of COVID-19. National strategies for testing, isolation, and contact tracing should also target priority groups.

RCCE has been a vital public health intervention during this pandemic. The RCCE strategy for COVID-19 aims to contribute to increasing prevention measures including vaccine acceptance and uptake, their normalization and sustainability, and whole-of-society resilience to health emergencies.

Surveillance, outbreak investigation, and contact tracing continue to be key to controlling the spread of COVID-19. There is a need to integrate population-based surveillance systems for influenza, SARS-CoV-2, and other respiratory viruses in the Region to monitor their spread and intensity to control impact. These systems should provide accurate national and regional level estimates of indicators of severity and impact such as hospitalizations, admissions to intensive care units and mortality. Contact tracing and quarantine should be prioritized based on the WHO recommendations for individuals, settings, and situations.

Laboratory capacities should be strengthened to ensure reliable rapid diagnostic SARS-CoV-2 detection and tracking of variants as part of the wider surveillance of COVID-19. In case of high testing requests, and particularly in settings where Nucleic Acid Amplification testing capacity is limited, Antigen Rapid Diagnostic Tests should be prioritized for use in symptomatic individuals meeting the case definition for COVID-19, and to test asymptomatic individuals at high risk of infection.

COVID-19 vaccination should continue, prioritizing high coverage with the primary vaccination series and a first booster dose among all eligible people. Protection of the most vulnerable people in society should be prioritized in the upcoming autumn season and second booster doses should be considered for those at highest risk of severe disease, hospitalization and death from COVID-19. The co-administration of COVID-19 and influenza vaccines should be considered whenever possible. COVID-19 vaccination should be integrated into primary health care.

Strengthen IPC practices in all health-care settings and take measures to support access to safe WASH services across all settings. National guidelines and policies should be assessed and disseminated and IPC refresher training should be provided to all health workers.

Review and update guidelines for clinical management and clinical pathways for COVID-19 and influenza for primary and hospital care prior to the autumn and any barriers should be addressed. Actions should be taken to ensure that appropriate therapies can be initiated rapidly and that there is easy access to point of care testing. Quality of care data should also be collected and analyzed.

With regard to international travel during the autumn and winter, an evidence-based and risk-based approach should be applied when implementing travel measures. Provide traveller advice about public health measures.

Strive to maintain and recover essential health services and prevent further disruptions by strengthening essential services across the continuum of care. This can be achieved by increasing staffing; improving productivity, capacity management and demand management; investing in capital, infrastructure, and new community-based models of care; and innovating care pathways that draw on investments in primary health care, skills and digital tools.

The pandemic has taken an enormous toll on the mental health and well-being of the population, either as a result of infection or worry about becoming infected, or the stress brought about by the wider response to the pandemic including lost or reduced employment or income and missed education or social participation. Interventions should aim at protecting the mental health and well-being of the general population and communities; vulnerable groups; within mental health services; and in the health and social care workforce.

Post-COVID condition requires urgent attention and action by countries. WHO/Europe plans to support countries in accelerating research to enhance understanding; strengthening surveillance and monitoring to facilitate early identification; developing multidisciplinary and individualized care; and acknowledging the need for and provision of long-term rehabilitative care and comprehensive mental health care to support recovery and well-being of people living with the condition.

The collective goal is to end the global public health emergency of COVID-19 in 2022. To achieve this, national strategies need to be calibrated and optimized, and operational readiness for the emergence of new threats needs to be strengthened. WHO/Europe will continue to provide guidance and support to Member States to meet these objectives during this challenging time and continue to build resilience and capacity to better respond to future pandemics and emergencies.

The WHO Regional Office for Europe

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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WHO/EURO:2022-5851-45616-65461