

# Discussion paper: Transitioning beyond the acute phase of the COVID-19 pandemic

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## Key messages

- This paper is **intended solely to stimulate discussion and to communicate preliminary ECDC priorities** as the EU/EEA transitions beyond the acute phase of the COVID-19 pandemic. **This is a preliminary draft version** and should be viewed as the beginning of an important process of discussion involving SANTE, the Member States, ECDC and partner agencies.
- As many EU/EEA countries currently have or are approaching high levels of population immunity (through vaccination and/or natural infection), there is currently much discussion about **adapting a broad strategy** for addressing the COVID-19 pandemic, **from one combating both transmission and severe outcomes** of SARS-CoV-2 infection **to one focused mainly on combating severe outcomes of COVID-19**.
- EU/EEA countries will gradually enter into a **transition phase** towards a “new normality”, during which SARS-CoV-2 will continue to be a major public health challenge and circulate widely globally. Health systems and citizens in Europe will need to recover from the devastating impacts of the pandemic and new harmonised arrangements will need to be put into place to manage COVID-19 in the future. Such arrangements should be designed so that they also strengthen societal resilience to any future pandemics.
- A key element of the transition phase is signalled by a switch of emphasis from addressing SARS-CoV-2 transmission to instead seeking to minimise severe COVID-19 outcomes. This will require, for example, changes in the national and European surveillance strategies as well as incorporation of COVID-19 vaccination into national immunisation strategies. During this phase, countries will need to balance and agree upon what, on the one hand, are **tolerable levels of residual risk** for COVID-19 hospitalisation and mortality, against what, on the other hand, are **acceptable response measures**.
- SARS-CoV-2 is here to stay and represents a long-term challenge to public health and healthcare systems. The coming years will require high vigilance should new, more severe and transmissible variants of SARS-CoV-2 emerge and become dominant amongst populations with low levels of immunity.
- There is a **perpetual risk of new outbreaks, epidemics and even pandemics emerging, due to SARS-CoV-2, influenza, or another virus**, and it is imperative that lessons from the COVID-19 pandemic are learned and acted upon in a timely manner in order to strengthen public health systems and preparedness.

## About this Document

This Discussion paper is a **draft working document** currently under internal consultation and is intended for the purposes of highlighting key public health issues for consideration during the current and upcoming pandemic context. As the severity of COVID-19 outcomes has been generally declining, principally due to higher levels of population immunity (through vaccination and/or through natural infection), it is time to discuss pivoting to a pandemic **transition phase** where strategies for addressing the pandemic, are carefully refocused from managing both transmission and severe outcomes to principally focusing on severe outcomes of COVID-19. While the extensive preventive measures mandated across the EU/EEA over the past two years have contributed to reductions in COVID-19-related mortality and the burden on health services, they have also exacted heavy societal and economic costs [1]. Full consideration of the topics highlighted here, as well as others not covered, will require extensive deliberation.

As described in ECDC's most recent Rapid Risk Assessment (27<sup>th</sup> January, 2022)[2], given the very high attack rate of Omicron infections in the population, and taking into account the fact that 70% of the EU/EEA population has completed its primary vaccination course, it is expected that at the end of the ongoing Omicron wave the vast majority of the EU/EEA population will have built a degree of cellular immunity against SARS-CoV-2. Although the virus will continue to evolve and new variants will emerge, it is likely that until a major virus genomic shift occurs, most of the EU/EEA population will have a degree of protection against severe illness. This could result in a period during which the COVID-19 impact in the population can be more efficiently managed. During this time, Member States should focus on revamping and strengthening their surveillance, healthcare systems, and overall pandemic preparedness. Meanwhile, researchers and vaccine manufacturers should prioritise the development of variant-independent vaccines and of vaccines that are more protective against infection and that confer longer lasting immunity.

However, it is important to note that at this stage of the COVID-19 pandemic substantial uncertainties remain and high levels of vigilance and investment will be required in the coming years. Ultimately, in the EU/EEA, the future course of the trajectory of the burden of COVID-19 on society will be heavily dependent upon public health and policy decisions, as well as investments that are implemented in the coming years.

## Transitioning beyond the acute phase of the COVID-19 pandemic

### COVID-19 beyond the pandemic

Amidst much discussion about the possibility that SARS-CoV-2 could become "endemic", it is important to clarify that endemicity does not mean that SARS-CoV-2 will naturally eventually disappear, and nor does it mean that it will cease to pose a significant public health challenge. As it has been observed, endemic diseases globally include among others, HIV/AIDS, measles, influenza, and tuberculosis, which continue to be major challenges to European and global public health [3].

There are many uncertainties surrounding the key drivers of the COVID-19 pandemic (**Annex I**). Endemicity typically implies a level of stability and predictability to viral transmission, for example for respiratory viruses such as influenza and RSV, and a clear seasonality in temperate regions. As of early 2022, **endemicity is not a characteristic thus far demonstrated by SARS-CoV-2**. It is still unknown how COVID-19 will evolve in the long term.

Moreover, high levels of global SARS-CoV-2 circulation lead to an elevated risk of viral mutation and it is not necessarily the case that each subsequent SARS-CoV-2 variant will be less virulent than its predecessor [3]. It is still not fully known which mechanisms are most important in driving the emergence of variants of concern, the main hypotheses include prolonged infections in immunocompromised individuals, circulation in a zoonotic reservoir following reverse zoonosis, and circulation in regions with very poor genomic surveillance systems. In addition, higher levels of transmission in the community are very likely to increase the risk of emergence of new variants of concern.

However, a further important point surrounding “endemicity” is that, beyond the acute phase of the COVID-19 pandemic, public health strategies have the opportunity to substantially affect the ultimate toll that COVID-19 places on society. The extent to which COVID-19 will pose a challenge to the health of European citizens will be inversely related to the investments and public health actions that are implemented to mitigate these challenges.

### Towards a principal focus on managing disease severity

The transition beyond the acute phase of the COVID-19 represents an important turning point in the COVID-19 pandemic, but it is important to note that there is no *a priori* definition or criteria for when the pandemic has no longer become acute in the EU/EEA and globally. In many respects, pivoting to a transition phase primarily focused on **managing severe outcomes** is a risk management decision, principally based upon evaluating what levels of **tolerable residual risk** are acceptable to society, weighing the societal impact of COVID-19 control measures with the assumption that the severity of COVID-19 disease at the population level will have generally declined due to high levels of accrued immunity in the population (whether due to vaccines, prior infections, or both). Another important consideration for transitioning away from attempting to manage SARS-CoV-2 transmission is related to healthcare system capacities. Finally, the decision to pursue such an approach should only be initiated once **all eligible persons** have been offered the possibility to undertake a **full vaccination** course.

There are significant public health implications related to such a change in strategy. Firstly, as there will be certain segments of the population that will have declined to have been vaccinated, investments in behavioural research and community engagement to work to increase vaccination coverage in such groups will be paramount.

Another important implication follows from the universal acknowledgement that stringent NPIs have many collateral socioeconomic impacts and implies that many **population-level NPIs** would be principally viewed of as a **last resort**, to be henceforth implemented only during severe outbreaks. It is imperative, however, that the public is aware that it is possible that certain NPIs may need to be reinstated in the future. It could be the case that certain NPI and infection prevention and control measures that had become routine during the pandemic may have longer-term benefits for not only COVID-19 but also for the control of seasonal outbreaks of respiratory and other infectious diseases. So it will be important to maintain the possibility to implement the most effective, cost-effective, and socially tolerable measures when needed. Also, enhanced monitoring of effectiveness and impact of measures will be crucial.

Relatedly, while case isolation should continue to be implemented as it should be for other respiratory viruses such as influenza and RSV, the transition phase may see an adaptation of quarantine guidance for asymptomatic contacts (which may be facilitated by rapid testing). Testing strategies, meanwhile, will move away from widespread PCR screening testing and towards more surveillance, objective-driven and outbreak-specific testing. Current testing rates (10,000 tests per 100,000 population for week 2022-02 at EU/EEA level) may not be sustainable and their cost-effectiveness is unclear. Diagnostic testing, i.e. in individuals with symptoms compatible with COVID-19, will have to focus on diagnostic relevance, such as timely testing of people with compatible symptoms and risk factors for severe COVID-19 who may benefit from early antiviral treatment, testing of people who have contact with vulnerable populations, e.g. healthcare workers in acute and long-term care settings, achieving specific surveillance objectives, such as assessing the level of virus circulation in the community, assessing changes in severity over time, early detection and monitoring of possible seasonal increases of cases, provision of representative samples for earlier detection of virus drifts and shifts that would prompt vaccine updates and pandemic containment measures respectively. Member States should therefore modify and/or build robust sentinel surveillance systems for achieving these objectives which involves a standardised testing strategy in the community through primary healthcare and in hospitals. Good quality surveillance data in the community, would also allow for the targeted implementation of preventive measures in at-risk groups, and for empirical administration of antivirals in risk groups as soon as they develop symptoms. From a clinical perspective, the transition to mitigating and managing severe disease outcomes also increases the importance of early diagnosis and access to new treatments to prevent progression to severe COVID-19, which will be required to further drive down hospitalisation and mortality rates.

In addition, screening testing, i.e. in individuals without symptoms, should be restricted to high risk settings such as healthcare or LTCFs to protect vulnerable populations.

Surveillance systems will need to allow for integrated surveillance of COVID-19, influenza and other respiratory pathogens that are likely to co-circulate in the population [4].

## Key public health actions during the Transition Phase

It should by no means be assumed that Omicron will be the last SARS-CoV-2 variant of concern to emerge. A reasonable assumption is that, during 2022 and the next couple of years, variants will continue to emerge, potentially with different characteristics for transmissibility, immune escape and severity.

Thus, COVID-19 should be anticipated to continue to periodically place significant strain on public health institutes and health systems. This necessitates maintaining high levels of readiness for COVID-19 outbreaks and the emergence of new variants of concern, alongside important areas of work such as increasing vaccination coverage (particularly among risk groups). This work will need to take place in parallel with intensive recovery phases for healthcare systems, and alongside work ensuring that important lessons from the COVID-19 are identified and acted upon.

During the transition phase, and perhaps beyond, many systems, policies, and financing mechanisms will need to be established to handle COVID-19 over the longer-term. While these are being developed and agreed upon at the EU/EEA level, it is nonetheless possible to identify important action areas that will be important both during a transition phase and beyond. Key public health actions during the transition phase are outlined below.

### Enhancing surveillance

The current sentinel ILI/ARI and SARI surveillance systems should be significantly strengthened in order to increase their geographical coverage, sensitivity, and representativeness. Systems will need to include sufficient coverage of sequencing to detect variant trends and will need to be integrated with the surveillance systems for other respiratory diseases. Failing to do so will hamper the possibility to effectively monitor the levels of virus circulation in the community and to protect the most vulnerable. Furthermore, in the absence of such systems, we will be at constant risk of missing or detecting with significant delay, the emergence virus variants. Such systems will allow for the rapid detection of seasonal increases, without the need to test everyone through the year as it is happening now. Surveillance indicators that can be used to inform public health decision making have been defined by ECDC in its COVID-19 surveillance guidance [4].

More investment in sero-epidemiology studies is required as this data is quite scarce both within the EU and globally. Currently, very few studies are able to discriminate between natural or vaccine-induced immunity. Understanding the true contribution of naturally-acquired immunity in the total population is challenging without such studies, as estimates based on reported infection incidence are prone to under-ascertainment.

### Enhancing preparedness and response

- Careful assessments of the effectiveness, cost-effectiveness, and social acceptability of the range of NPIs implemented during the COVID-19 pandemic, to inform future decision-making should time-limited introduction of NPIs be required in the future in response to enhanced viral circulation or outbreaks.
- It is critical to identify thresholds and develop protocols for outbreak identification and management, including contact tracing, with an emphasis on congregate and health care settings.
- Rapid identification and assessment for key epidemiological parameters (including severity, transmissibility, immune escape) for each new variant of interest or variant of concern is vital including:
  - Operational study protocols to quickly assess secondary attack rates, growth rates,  $R_t$  and  $R_0$  are needed to provide reliable risk assessments
  - The ability to rapidly assess severity, including follow-up by age group, previous infection, and vaccination status of cases identified, will be continually important questions that arise with new variants

- Readiness to quickly assess immune escape, including by age group, previous infection, and vaccination status

### **Protection of vulnerable groups**

With increasing vaccine coverage and immunity from natural infection the majority of the population is expected to be protected from severe COVID-19. However, there will be still parts of the population that remain vulnerable to unfavourable outcomes, such as the elderly, people with underlying conditions and the immunocompromised. Efforts should focus on the protection of these people with both pharmaceutical (vaccine boosters if necessary and early access to antiviral treatments) and non-pharmaceutical interventions.

### **Prevention of healthcare-associated COVID-19**

COVID-19 is often transmitted within healthcare settings with often devastating outcomes because it affects people who are already vulnerable to severe disease and death. The optimisation of infection prevention and control practices in both acute and long-term care settings is key in mitigating the effects of COVID-19 in terms of morbidity, mortality and healthcare burden.

### **Healthcare system management and resilience**

- Ongoing refinement of preparedness planning in laboratory and healthcare systems is needed to ensure that staff and resources are able to meet increasing demand.
- Increased focus on the resilience and adaptability of these systems in terms of financial and human resources and allocated goods for healthcare delivery will be important.
- There is an increased need to understand levels of excess mortality during the pandemic, which may also relate to backlogs in non-COVID care.

### **Behavioural and societal aspects**

Two years into the pandemic, there is still insufficient understanding of the behavioural, cultural and societal drivers that impact on population acceptance and adherence to public health interventions, including NPIs and vaccine uptake, or on how these can change over time. The emergence of a new variant, and the resultant potential need to refine intervention approaches exacerbates this uncertainty. Hence there is a need to improve capacity to conduct behavioural insights research regarding vaccine acceptance and various NPIs:

- It can be expected that willingness to adhere to any reintroduced NPI measures or even routine COVID-19 booster doses could decline with time.
- It is unclear how COVID-19 will lead to sustained life-style changes of societies (e.g. from teleworking, seasonal use of NPIs like masks as observed in other parts globally, adapting buildings to become COVID-secure etc.).
- The question of protecting the most vulnerable in society through the adoption of targeted mass vaccination programmes will need to be investigated both in terms of effectiveness and cost-effectiveness.
- Continuing management of mis- and dis-information should be maintained.

### **Ensuring proportional responses**

There are potentially substantial negative societal consequences to reintroduced stringent disease control measures and to travel bans, both directly in terms of impact on population health and livelihoods, but also socially and politically if significant proportions of the population do not accept them. Furthermore, there is a need for continual re-assessment of the risks from new variants balanced against waning immunity will require ensure that measures are proportional to the risk, and neither too stringent nor too relaxed.

### **Vaccine “agility”**

As long as SARS-CoV-2 is circulating widely globally, we may expect new variants to arise. New VOCs may emerge at unpredictable time and with unpredictable characteristics further affecting the immune

response to current vaccine formulations. However, cell-mediated immunity from current vaccines, which is important for protection against severe disease, has shown good cross-protection against different VOCs and seems broadly preserved so far.

It is important to be clear about the objectives of future revaccinations of the general population and of vulnerable groups (e.g. reduce deaths and hospitalisations to an acceptable level, protect vulnerable groups, reduce the overall burden of disease as much as possible, reduce viral circulation). Depending on the objectives and the priorities, and also on the actual added benefit that can be obtained from additional doses, different needs for COVID-19 vaccine development and deployment may arise.

It appears likely that there will be a regular need to develop and manufacture updated vaccines at scale although it may be that the time to develop new formulations in time to have an impact on new VOCs' waves could still take too long; the capacity for doing so could be required for decades as the virus enters an endemic phase, especially given the unpredictability of variant emergence.

Efficiency improvements are required for the full vaccine development cycle, from processes for selecting updated vaccine targets through to manufacturing. This should be done through a governance mechanism that also prioritises equity for strain selection and includes consideration of alternative vaccine strategies such as developing multivalent vaccines or targeting conserved SARS-CoV-2 virus antigens that may offer broader protection against future variants. Long-term vaccination strategies should align with public health priorities for managing COVID-19 burden as the situation (and population immunity) evolves, addressing immunity gaps and protecting the most at-risk populations.

Also vital is the speed with which vaccines can be distributed and administered to citizens at scale. This will require substantial global investments to develop and sustain such capacities, with resources to additionally monitor and respond to acceptance and concordance challenges for recurrent COVID-19 vaccination in all population groups, but particularly in the most vulnerable and at-risk population groups [5].

### **Determine the role of antiviral treatments**

Novel antiviral therapeutics that are orally administered for the prevention of severe disease have the potential to significantly contribute to decreased healthcare burden. It is necessary to define the indications of antiviral agents and, if approved for use, ensure their availability at least for people who are vulnerable to severe COVID-19 and unfavourable outcomes. The potential development of antiviral resistance that can compromise the effect of antiviral agents needs to be taken into account.

### **Sequence capacity and sharing**

It is in the global interest to ensure that all countries have sequence capacity to monitor virus evolution and are incentivized and not disincentivized to exchange information as promptly as possible about any new SARS-CoV-2 variants, as well as any novel virus or health threat generally. Measures to ensure that information sharing from scientific or public health communities on new variants are not met with disproportionate reactions are vital to ensure a globally coordinated response to the pandemic.

### **Global health**

Omicron has intensified existing discussions surrounding global health equity and demonstrates very clearly that no country is safe until all countries are safe. Strategic decisions are required around enhanced investments in global health infrastructure and in bolstering availability of COVID-19 vaccines globally. There is furthermore a need to support countries globally to conduct epidemiologic investigations surrounding new variants of concern.

Improved understanding of possible pathways for virus evolution is needed. During the COVID-19 pandemic, there have been multiple instances of COVID-19 outbreaks among a range of mammalian species, and there is a risk that the novel VOCs could emerge through reverse zoonoses followed by zoonoses. Hence the animal-human interface is a topic deserving of more attention at the global level.

### **Lessons learned and after-action reviews**

The COVID-19 pandemic has had myriad, long-ranging impacts on public health and the world at-large. It is imperative that innovations and good practices that emerged during the pandemic are safeguarded. Lessons learned must be acted upon so as to improve the public health preparedness and response to future large-scale outbreaks and pandemics. An evidence-based approach should inform decision-making during the transition phase. Structured after-action reviews and lessons learned exercises, with

sufficient high-level buy-in to ensure that lessons are acted upon, should be an important activity area during the pandemic transition phase [6].

## **Long-term strategic considerations**

Over the longer-term, through sufficient planning, preparedness, and foresight, the EU/EEA can be better equipped to sustainably handle the additional long-term challenge that COVID-19 has created, which is in addition to numerous other infectious disease threats. In this respect, pandemic preparedness in the EU/EEA needs to be enhanced and coordination in responses between Member States optimised.

In order to achieve this, firstly, the overall strategic objectives for managing COVID-19 in the future must be agreed upon so that there is a commonly understood playing field. Thereafter, operational discussions surrounding the implications for a wide range of public health activities are needed, including but not limited to surveillance, risk communication, pandemic preparedness, early warning, vaccination, medical countermeasures, NPI measures and IPC measures.

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## Annex: Key uncertainties and critical factors

There are substantial uncertainties surrounding possible trajectories for the COVID-19 pandemic. Critical factors which will impact possible trajectories include:

- The frequency, timing and characteristics of newly emerged variants of concern (including a potentially higher evolutionary selection pressure). Four characteristics of spread are particularly important for the impact of new variants: the degree of cross-protection induced by current vaccines and its duration; the degree of cross-protection induced by infection with previous variants and its duration; the inherent transmissibility characteristics of new variants; and the severity of infection with new variants. The emergence of Omicron has demonstrated that these factors play a significant role in the impact that a new variant can have on health and societies.
- As long as the most important mechanisms driving the emergence of variants of concern are not elucidated and addressed, it is likely that we will see many new variants that are closely related to currently circulating variants, occasional variants with no known close relatives that are more likely to become variants of concern, and potentially recombinant variants for which the potential public health impact is still not clear.
- Vaccine uptake, including booster doses in different populations, is uncertain and vaccination fatigue should be considered in those groups of the population who perceive their individual risk as low.
- The degree of population immunity (seroprevalence): monitoring of seroprevalence is required to give a clearer picture of population levels of immunity induced by infection and/or vaccination. Such data is a key input for modelling to predict the growth advantage of a new variant, for projecting the future trajectory of COVID-19 cases and severe disease, and for designing effective and targeted vaccine programmes.
- The duration and extent of protective immunity on severe disease and sterilising immunity from prior infection and/or vaccination in different ages groups and populations are important determinants for the susceptibility of the population to future waves caused by SARS-CoV-2 and for planning vaccine programmes.
- New vaccine formulations may be needed in the next future and their effectiveness against new variants of concern is unknown presently. The current potential options are to adapt the formulation of the current vaccines to meet the current VOCs, to develop multivalent vaccines targeting the spike protein of different variants, to develop new vaccines targeting also more preserved viral epitopes (e.g. pan-sarbecovirus vaccines). Although the last option would be the most desirable and would potentially cover also against other new coronaviruses different from SARS-CoV-2, it is also the most difficult to obtain and also the more long-term option.
- Therapeutics including early administration of antivirals and/or neutralising monoclonal antibodies, and the trade-off in their effectiveness and safety profile (e.g. compared to vaccines) and overall cost-effectiveness needs to be assessed. To achieve this, most countries need to change the model of COVID-19 case management to provide very early access to testing and treatment to high-risk patients at the primary care level as opposed to the current model though secondary or tertiary care. There is still a risk of the development of antiviral resistance that can compromise the effect of antiviral agents.
- Implementation of and adherence to NPIs in response to locally increased incidence. There is a growing consensus from a large number of studies on the effectiveness of different non-pharmaceutical interventions if implemented early and comprehensively in different counties at different times. More studies are needed to examine their impact in a far more vaccinated population and in the presence of new variants.
- The true magnitude and prevalence of the full severity spectrum of COVID-19 remains uncertain. We are currently still learning about the full spectrum of COVID-19 disease severity beyond deaths and hospitalisations (including post COVID-19 condition and other longer-term consequences, particularly with Omicron), and the likelihood of different disease outcomes. A better understanding of this severity pyramid for the Omicron VOC (as well as past and future variants) will be key to describe the burden that SARS-CoV-2 could be posing with different alternative interventions in place. This should include individual benefit-risks and impacts as well as societal impacts (e.g. of productivity losses from absenteeism)
- The interdependency of human behaviour and the viral spread remains to be well-described. On the one hand, there is an increasing pandemic fatigue in the EU/EEA population, which



results in a reduced perception of risk and a lower adherence to NPIs. Therefore, pandemic fatigue enables SARS-CoV-2 to spread more easily. On the other hand, high community transmission may result in overburdening of health care systems, which increases the risk perception in the population. Furthermore, the emergence of new, potentially more severe or more transmissible, variants may trigger more cautious human behaviour. The unprecedented pandemic situation of the past two years only gives limited insight on the future interplay of SARS-CoV-2 transmission and human behaviour remains unclear. Community engagement activities would need to continue during the “transition phase”.

- The contact patterns between individuals are changing over time. The paths of SARS-CoV-2 transmission in the population are determined by the heterogeneous and time-varying physical contacts between individuals, ranging from superspreading events by individuals with many contacts and clustered communities to isolated individuals with only few contacts [7,8]. Accurate data on temporal contact patterns between individuals, for different regions and depending on vaccination status, are crucial to predicting the future course of COVID-19.
- Seasonality and potential interaction with other seasonal (corona-)viruses. Climate and seasonal human behaviour (particularly due to mobility within and across countries) impact temporal patterns of SARS-CoV-2 transmission. Additionally, there are essential uncertainties regarding the interaction with other seasonal coronaviruses (such as cross-protection) as well as with other pathogens (like influenza virus and norovirus), which may occur at a similar period in time (in winter of the Northern Hemisphere).

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