



**Health  
Information  
and Quality  
Authority**

An tÚdarás Um Fhaisnéis  
agus Cáilíocht Sláinte

# **Planned public health measures and strategies to limit the impact of COVID-19 surges: an international review**

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## Version history

<b>Version</b>	<b>Date</b>	<b>Specific updates</b>
V1	18 August 2022	Date of first review
V2	6 October 2022	<p>Restructure of report, including removal of the “Current” measures in place.</p> <p>Inclusion of sections related to risk assessments and frameworks, indicators and indicator thresholds, and the decision-making process for surge plan level selection (Sections 3.1.2 to 3.1.5)</p> <p>Document updated throughout to reflect newly published information including:</p> <ul style="list-style-type: none"><li>▪ COVID-19 winter vaccination plans for Germany and Sweden</li><li>▪ flu vaccination plans for Ireland and Sweden</li><li>▪ updated COVID-19 vaccination groups for Denmark, Finland, Israel, Italy and Portugal.</li></ul>

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The Health Information and Quality Authority (HIQA) is an independent statutory authority established to promote safety and quality in the provision of health and social care services for the benefit of the health and welfare of the public.

HIQA's mandate to date extends across a wide range of public, private and voluntary sector services. Reporting to the Minister for Health and engaging with the Minister for Children, Equality, Disability, Integration and Youth, HIQA has responsibility for the following:

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- **Regulating health services** — Regulating medical exposure to ionising radiation.
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- **National Care Experience Programme** — Carrying out national service-user experience surveys across a range of health services, in conjunction with the Department of Health and the HSE.

## **Table of Contents**

<b>Version history</b> .....	2
List of abbreviations used in this report .....	5
Acknowledgements .....	7
Key points.....	8
1 Background.....	12
2 Methods.....	12
3 Findings.....	13
3.1 COVID-19 public health surge plans.....	13
3.1.1 Potential future scenarios.....	14
3.1.2 Surge plan frameworks and risk assessments .....	15
3.1.3 Indicators for determining surge plan phase or level.....	16
3.1.4 Indicator thresholds.....	16
3.1.5 Decision-making process for surge plan phase or level selection.....	17
3.2 Public health measures within surge plans.....	19
3.2.1 COVID-19 surge vaccination policies and or strategies.....	19
3.2.2 Other respiratory illness vaccination policies and or strategies .....	20
3.2.3 COVID-19 test and trace strategies.....	21
3.2.4 Community healthcare settings.....	22
3.2.5 Face coverings .....	23
3.2.6 Movement of people .....	23
3.2.7 Social or mass gatherings .....	24
3.2.8 Education .....	24
3.2.9 Business activities .....	25
3.2.10 Sporting and recreational activities (amateur and professional).....	25
3.2.11 Religious activities .....	25
3.2.12 Domestic travel (including transport).....	26
3.2.13 Culture, leisure and entertainment .....	26
4 Conclusion .....	67
Appendix 1 .....	78
Appendix 2.....	79
Appendix 3.....	86
Appendix 4.....	88

## List of abbreviations used in this report

<b>ACT</b>	Australian Capital Territory
<b>ATAGI</b>	Australian Technical Advisory Group on Immunisation
<b>CAG</b>	COVID-19 Advisory Group
<b>COVID-19</b>	Coronavirus Disease 2019
<b>ECDC</b>	European Centre for Disease Prevention and Control
<b>FFP2</b>	Filtering Face Piece 2
<b>HAS</b>	Haute Autorité de Santé
<b>HCW</b>	healthcare worker
<b>HIQA</b>	Health Information and Quality Authority
<b>HSE</b>	Health Service Executive
<b>ICU</b>	intensive care unit
<b>IPC</b>	infection, prevention and control
<b>JCVI</b>	Joint Committee on Vaccination and Immunisation
<b>LTCF</b>	long term care facility
<b>NHS</b>	National Health Service
<b>PCR</b>	polymerase chain reaction
<b>RADT</b>	rapid antigen diagnostic test
<b>RIVM</b>	National Institute for Public Health and the Environment

<b>RSV</b>	respiratory syncytial virus
<b>SARS-COV-2</b>	severe acute respiratory syndrome coronavirus 2
<b>SHC</b>	Superior Health Council
<b>VOC</b>	variant of concern
<b>WHO</b>	World Health Organization

## **Acknowledgements**

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### **Conflicts of interest**

None declared.

## Key points

- This review presents a synthesis of planned public health measures and strategies in 21 countries, to limit the impact of COVID-19 surges. The countries included are Australia, Austria, Belgium, Czechia, Denmark, England, Finland, France, Germany, Ireland, Israel, Italy, the Netherlands, New Zealand, Northern Ireland, Norway, Portugal, Scotland, Spain, Sweden and Wales. The results are based on data published up to 20 September 2022.

### **Planned public health measures and strategies to limit the impact of COVID-19 surges:**

- Within the review, public health strategies solely focused on limiting the impact of surges were identified for some countries. For other countries, strategies to deal with surges were identified within overall public health plans for COVID-19. For simplicity, both are referred to as 'surge plans'.
- Broad COVID-19 public health surge plans were identified for Denmark, Germany, Norway, Scotland and New Zealand. More focused plans were identified for Belgium (plan specific to testing, isolation and quarantine) and Spain (plan specific to surveillance and case control). These plans generally include a set of indicators used to determine the threat level posed by COVID-19 and or the appropriate category of response. These indicators relate to circulating variants, the associated infection rate, case severity and or the ability of the variant to evade immunity. Denmark, Scotland and Spain include risk assessment frameworks to support decision-making.
- Indicators included by countries to determine surge plan level relate to:
  - health service capacity (such as 7-day hospitalisation and number of people hospitalised for COVID-19) included by all seven countries
  - the emergence of new virus variants (severity of disease and variant transmissibility), included by Belgium, Denmark, Germany, Norway and Scotland
  - COVID-19 vaccination (vaccination rate and vaccine efficacy) included by New Zealand and Scotland.
- The majority of countries included also outline the need for a comprehensive evaluation to occur, including an assessment of the threat level, taking consideration of the range of factors, as outlined above as well as the testing strategy and the circulation of other respiratory viruses.
- Belgium and Spain were the only countries to outline indicator thresholds, with both outlining thresholds related to hospitalisation and ICU capacity, along with

further thresholds related to GP capacity, test positivity rates, and virus transmissibility (R0).

- Currently, Denmark, Norway and Germany do not have the legal powers in place to introduce restrictive measures. New or additional restrictive measures would therefore require justification and parliamentary approval before the measures could be invoked.
- Proactive and reactive COVID-19 vaccination strategies for autumn/winter 2022 were identified for 20 countries.
  - Proactive: The majority recommend an additional booster dose for specific targeted groups (such as healthcare workers and those living in residential settings). However, Czechia and the Netherlands recommend an additional booster dose for all those aged over 18 years and over 12 years of age, respectively.
  - Reactive: France and Denmark also have surge plans that include additional target groups, and or expedite COVID-19 vaccination, as necessary.
- Influenza vaccination campaigns for 2022 were identified for 18 of the included countries, with eight countries proactively targeting additional groups for vaccination this year. Co-administration of COVID-19 and influenza vaccines is permitted in all countries, except for the Netherlands. Sweden recommends a seven day period between COVID-19 vaccination and any other vaccination in children. Denmark and the Netherlands highlight their pneumococcal vaccination policy within their vaccination plans.
- COVID-19 test and trace surge plans were identified for Australia, Belgium, Denmark, New Zealand and Scotland. These outline different levels of testing approaches, ranging from widespread testing to targeted testing based on situational needs such as the emergence of new variants that are more transmissible and or associated with greater disease severity.
- Plans to avoid a winter surge in community healthcare settings were identified for Australia and Denmark. For Australia this includes further emphasis on influenza vaccination for nursing home residents and staff, and additional infection prevention and control resources. While Denmark recommends routine COVID-19 testing of nursing staff, visitor restrictions for nursing homes may be implemented if required in the event of a surge. Israel previously introduced nursing home restrictions in response to Omicron BA.5 circulation.
- Surge plans on the use of face coverings were identified for Germany, New Zealand, Norway and Scotland. Requirements for face coverings mainly relate

to public indoor settings, particularly when physical distancing cannot be maintained. The strategies will apply as required, at times of higher risk from COVID-19, across business, sporting and recreational, and culture, leisure and entertainment sectors. Germany, New Zealand, Norway and Scotland will also require face coverings to be worn on public transport, at times of higher risk. Both Germany and Norway have also specified face coverings may be required in educational settings to allow for the continuation of face-to-face education.

- Surge plans on the movement of people were identified for Denmark, Norway and Scotland. While guidance in Denmark and Scotland generally relates to the introduction of contact-reducing measures, surge plans for Norway include potential limits on the number of guests which can be received at home, per week.
- Surge plans related to social or mass gatherings were identified for Denmark, Germany, Norway, New Zealand and Scotland. Capacity limits for events will be introduced in New Zealand, Norway and Scotland, in certain circumstances.
- Denmark, Germany, the Netherlands, New Zealand, Norway and Scotland have surge plans for educational settings. Germany, New Zealand, Norway and Scotland outlined the possible introduction of face coverings for students, employees and visitors, and or physical distancing, to ensure continued education. In Norway, a move to blended or online learning may occur, if necessary. The Netherlands outlined a childcare sector plan, including recommendations ranging from the implementation of hygiene measures to childcare opening in “bubbles”.
- Surge plans for business activities were identified for Denmark, Germany, New Zealand, Norway and Scotland. Blended working or working from home will be recommended in certain circumstances in Norway and Scotland, with Norway also outlining the potential closure of non-essential shops and shopping malls.
- Surge plans related to sporting and recreational activities were identified for Denmark, Germany, New Zealand, Norway and Scotland. Capacity limits of 20 people in Norway and 200 people in New Zealand have been specified on indoor sporting events under certain circumstances.
- Only New Zealand specifically refers to religious activities or faith-based gatherings in their surge plan, with face coverings recommended for attendees, and required for workers and or volunteers, if necessary.
- Domestic travel surge plans were identified for Denmark, Germany, New Zealand, Norway and Scotland. These generally included provisions for the

introduction of a face covering requirement on public transport, with Germany specifying that face coverings will be required on flights and on long-distance public transport if nationwide measures are introduced.

- Capacity limits will be used for culture, leisure and entertainment activities in Germany, New Zealand, Norway, and Scotland, in certain circumstances. As part of their surge plan, Norway has also specified the potential closure of entertainment venues and arcades, while in certain circumstances restaurants may only be permitted to operate for take-away business.
- In general, countries will decide the appropriate response to threats based on the risk assessment in conjunction with a rounded, evidence-based judgement. The final decision rests with the government in Denmark, Germany, New Zealand, Norway and Scotland.
- The majority of strategies identified state that any measures being introduced should be proportionate and necessary in relation to the threat, and that the societal and economic impact of measures should be considered.
- The information relating to current, open-ended public health measures and strategies and planned public health measures and strategies, included in this international review is correct as of 20 September 2022, but may be subject to change.

## 1 Background

Since the onset of the coronavirus disease 2019 (COVID-19) pandemic in early 2020, governments across the globe have applied restrictive public health policy measures and strategies, at various stages, and with different levels of intensity, to reduce transmission and mitigate the impact on the population and health services. As autumn and winter 2022 approaches in the Northern Hemisphere, the risk of a COVID-19 surge combined with another respiratory illness (such as influenza or respiratory syncytial virus (RSV)), has led the European Centre for Disease Prevention and Control (ECDC) and World Health Organization (WHO) to recommend that member states develop strategies to limit the potential impact of such surges and to protect the vulnerable.<sup>(1, 2)</sup> The Health Information and Quality Authority (HIQA) has been requested by the Department of Health to undertake an international review of planned public health measures and strategies to limit the impact of COVID-19 surges. This review informed the work of the COVID-19 Advisory Group and assisted with winter planning to mitigate the impact for the population and for the health service in the event of a COVID-19 surge.

## 2 Methods

A detailed summary of the methods used for this review is provided in the protocol: *An international review of planned public health measures and strategies to limit the impact of COVID-19 surges*, available [here](#). In brief, this review presents a synthesis of planned public health measures and strategies (for example, restrictive measures or vaccination policies) in 21 countries to limit the impact of COVID-19 surges. The countries included were selected based on a combination of geographical proximity to Ireland, population size, European Union membership and or availability of documents in English. Information around planned public health measures and strategies was also sought from Ireland, to allow for direct comparison where appropriate. The countries comprise 14 EU/EEA countries (Austria, Belgium, Czechia, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden), the UK (England, Northern Ireland, Scotland and Wales) and Australia, Israel and New Zealand.

Public health measures included, but were not limited to:

- vaccination strategies (including vaccination against COVID-19 as well as other relevant pathogens, for example influenza)
- test and trace strategies (for example, contact tracing)
- community healthcare settings (for example, nursing homes or long-term residential care facilities)

- movement of people (for example, stay at home measures or curfews)
- social or mass gatherings
- education
- business activities
- sporting activities
- religious activities
- domestic travel
- face coverings.

Where information regarding vaccination strategies is identified, it will be outlined if the strategy (or any element within a given strategy) is “Proactive” - implemented to limit the impact of a COVID-19 surge, or “Reactive” - implemented in response to a COVID-19 surge. Information on planned public health measures and strategies to limit the impact of COVID-19 surges was primarily sought from government resources (websites, reports and press releases), with representatives from key national-level organisations contacted if required.

Additionally, broad public health plans for COVID-19 surges, which may include multiple public health measures along with triggers or criteria which guide their implementation, were included. Information on the criteria (or triggers) that will be used in each country to inform a change in public health measures (such as the introduction of additional restrictions or, conversely, the easing of restrictions) were also included.

The review was limited to COVID-19 surge plans developed in 2022, and therefore national plans aimed at living with COVID-19<sup>(3)</sup> and or surge plans developed in 2020/2021 were excluded. Additionally, surge plans related to the delivery of national health services in acute healthcare settings<sup>(4, 5)</sup> were not included, with only community healthcare settings, including nursing homes and long-term residential care facilities, considered within scope.

## **3 Findings**

Within the review, public health strategies solely focused on limiting the impact of surges were identified for some countries. For other countries, strategies to deal with surges were identified within overall public health measures for COVID-19. For simplicity, both are referred to as ‘surge plans’.

### **3.1 COVID-19 public health surge plans**

Broad COVID-19 public health surge strategies were identified for five countries: Denmark (June 2022 until spring 2023),<sup>(6)</sup> Germany (applies from 1 October 2022 to

7 April 2023),<sup>(7)</sup> Norway (5 April 2022 until June 2023),<sup>(8)</sup> Scotland (updated in February 2022 with no end date specified)<sup>(9)</sup> and New Zealand (December 2021 and ended 12 September 2022).<sup>(10)</sup> While New Zealand recently ended their COVID-19 public health surge plan on 12 September, this plan was implemented during their winter season, and therefore, the information contained within this plan is still relevant to northern hemisphere countries.

To inform strategies:

- Denmark and Norway describe potential future scenarios<sup>(6, 8)</sup>
- Denmark and Scotland include risk assessment frameworks<sup>(6, 9)</sup>
- Germany, Norway, New Zealand and Scotland include frameworks describing graded categories of national public health responses that can be implemented if necessary<sup>(7-10)</sup>
- Denmark, Germany, Norway and Scotland state that a set of indicators or triggers will be used to determine the threat level or category of response.<sup>(6-9)</sup>

Denmark and Norway outline specific areas of focus within their surge strategies. Key areas of focus identified by both countries are epidemic surveillance; vaccination (primary series and or booster vaccination); infection prevention (contact reduction measures); entry and exit measures; healthcare capacity; testing, isolation, infection detection and quarantine; and communication.<sup>(6, 11)</sup> Norway also outlines the need to consider supply-critical medicines and infection control equipment.<sup>(11)</sup> Germany, New Zealand and Scotland do not outline specific areas of focus within their broad COVID-19 public health surge plans.<sup>(7, 9, 10)</sup>

While broad COVID-19 public health surge plans were not identified for Belgium and Spain, for Belgium, a testing, isolation and quarantine plan, containing a three-level, two-scenario model, was identified.<sup>(12)</sup> For Spain a COVID-19 surveillance and case control plan which focuses on monitoring the epidemiological evolution of COVID-19 was identified.<sup>(13)</sup>

### **3.1.1 Potential future scenarios**

Denmark and Norway describe potential future scenarios.<sup>(6, 8)</sup> Denmark's strategy is based on three potential scenarios which range from assumed best case to an assumed worst case:<sup>(6)</sup>

- Scenario 1 - Variants similar to Omicron (similar or less severe variant)

- Scenario 2 - Variants similar to Delta (more severe variant)
- Scenario 3 - New variants that significantly evade existing immunity and causes widespread disease (similar to Omicron) and possibly serious illness (new severe variant).

Norway's strategy outlines scenarios similar to those of Denmark,<sup>(8)</sup> but with the addition of a fourth scenario. This scenario is characterised by the emergence of a variant similar to Omicron, but with greater potential for a large wave in autumn or winter.

### **3.1.2 Surge plan frameworks and risk assessments**

Plans from Belgium, Germany, New Zealand, Norway, Scotland and Spain include frameworks which outline categories of public health measures (including those specific to testing, isolation, quarantine and or surveillance) that increase in stringency and can be implemented based on the situation (Table 1).<sup>(7-10, 13, 14)</sup>

Belgium, Germany and New Zealand outline three-level frameworks. Belgium outlines a two-scenario framework with Scenario 1 representing a variant with high circulation (such as Omicron) and Scenario 2 representing a variant of concern with immune escape. Within each scenario, there are three potential levels, with the levels representing an increase in severity or incidence related to their specific indicators (see section 3.1.3).<sup>(12)</sup> Germany outlines a three-tier framework in which the first tier outlines national protective measures, and the second and third tiers outline optional, more far-reaching protective measures which federal states can implement if necessary (Tier 3 requires parliamentary approval).<sup>(7)</sup> New Zealand used a three-level system up until 12 September.<sup>(10)</sup>

Norway and Spain outline five-level frameworks, with Norway's framework detailing five action levels,<sup>(8)</sup> and Spain's framework detailing five alert levels.<sup>(13)</sup> Scotland outlines four categories which each relate to a suite of potential responses which are broadly linked to their risk assessment.<sup>(9)</sup> The responses in each category can be implemented individually or all at once depending on necessity and proportionality. Denmark does not outline a defined framework, however, it lists additional options for escalation if necessary.<sup>(6)</sup>

Denmark, Scotland and Spain outline risk assessments which are used to inform their contingency or surveillance plans. Denmark and Spain use a five-level risk assessment.<sup>(6, 13)</sup> Scotland uses a three-level assessment matrix which combines an assessment of potential disease impact and risk of infection due to variants in circulation.<sup>(9)</sup> If the risk associated with either of these criteria increases, then the

assessed threat is considered to have increased. The highest threat level is assigned when a variant is assessed as having a higher disease burden, an increased risk of infection and that it evades immunity. While Norway states that a risk assessment is conducted by the Norwegian Institute of Public Health, no further details are presented.<sup>(8)</sup>

### **3.1.3 Indicators for determining surge plan level**

Belgium, Denmark, Germany, New Zealand, Norway, Scotland and Spain outline indicators related to health service capacity, including specific indicators related to hospital and ICU (intensive care unit) admission (such as 7-day hospitalisation,<sup>(12)</sup> number of people hospitalised for COVID-19 and the number of new ICU admissions, due to COVID-19, per 100,000 territory inhabitants in seven days) (Table 1).<sup>(13, 15)</sup> More broadly Denmark, New Zealand and Norway outline health service capacity indicators.<sup>(6, 11, 16)</sup> Belgium, Denmark, Norway, Germany and Scotland also make reference to the emergence of new virus variants that are a cause for concern, outlining indicators related to the severity of disease associated with the variant, and to the variant's transmissibility.<sup>(6, 9, 11, 14, 17)</sup> Denmark, Belgium, Germany, Scotland and Spain outline indicators related to rising test positivity rates,<sup>(6, 9, 13-15)</sup> infection rate (R0 basic reproduction number),<sup>(12)</sup> and morbidity.<sup>(9)</sup> Indicators related to mortality associated with COVID-19 were also identified, with Denmark, Scotland and Spain including excess mortality, the infection fatality ratio and mortality rate accumulated in seven days per million inhabitants.<sup>(6, 9, 13)</sup> New Zealand and Scotland also outline indicators related to COVID-19 vaccination, including vaccination rate and vaccine efficacy.<sup>(9, 18)</sup>

Additionally, while the indicators outlined are measured quantitatively, the majority of countries also outline the need for a comprehensive qualitative evaluation to occur.<sup>(6, 9, 11, 14, 17, 19)</sup> This includes an assessment of the threat level having considered the factors outlined above as well as the testing strategy currently in place and the circulation of other respiratory viruses.<sup>(12, 15)</sup> Scotland also mentions monitoring developments internationally, including the WHO and UK Health Security Agency (HSA) designations of variants.<sup>(9)</sup>

### **3.1.4 Indicator thresholds**

Thresholds for key indicators which inform risk assessments and or aid in the determination of surge plan levels were searched for. Fixed thresholds for indicators (for example, the number of cases per 100,000 population) were not identified for the majority of countries. However, Germany outlines that federal governments have the authority to set thresholds for legally regulated indicators, and that these can

differ regionally depending on COVID-19 epidemiology.<sup>(7)</sup> The Scottish government states in its strategy that the implementation of indicator thresholds could risk a disproportionate and unlawful response if all relevant factors are not taken into consideration. For example, a threshold placed on the admissions to hospital or ICU might be disproportionate if there were ample capacity within the health system to cope with such admissions at that time.<sup>(9)</sup>

Both Belgium and Spain outline thresholds for indicators, however, these are linked with their testing, isolation and quarantine, and surveillance and case control plans respectively. These indicator thresholds are not linked to broad public health surge plans.<sup>(12, 13, 20)</sup> Both countries outline indicators and associated thresholds related to 7-day hospitalisation and ICU capacity, however, Belgium's indicators refer to general admission while Spain's indicators refer to COVID-19 specific hospitalisations. The 7-day hospitalisation thresholds in Belgium's three-level risk framework range from < 4 per 100,000 population to 10 per 100,000 population.<sup>(20)</sup> Seven-day COVID-19 hospitalisation thresholds in Spain's five-level framework range from < 5 per 100,000 territory inhabitants to > 50 per 100,000 territory inhabitants, at the highest level of risk. Spain also outlines thresholds related to COVID-19 specific ICU admissions and occupancy including:<sup>(13)</sup>

- 7-day ICU admission due to COVID-19 (ranging from  $\leq 0.5$  per 100,000 territory inhabitants to  $> 3$  per 100,000 territory inhabitants)
- number of ICU beds occupied by COVID-19 cases (ranging from  $\leq 1$  per 100,000 territory inhabitants to  $> 6$  per 100,000 territory inhabitants).

Further indicator thresholds for Belgium and Spain, including those related to GP capacity, test positivity rates, and virus transmissibility ( $R_0$ ), were also identified and are outlined in Appendices 1 and 3.

It is important to note that while Belgium's thresholds were developed in 2021,<sup>(20)</sup> and are linked to the 2022 testing, quarantine and isolation plan, the Belgium "Coronavirus Barometer" (with which these thresholds were also linked) was deactivated in May 2022.<sup>(21)</sup> Therefore, it is unclear if these thresholds remain applicable to the testing, isolation and quarantine plan.

### **3.1.5 Decision-making process for surge plan level selection**

Decision-making for Belgium, Denmark, Norway, Scotland and Spain is informed by risk assessments (based on epidemiological and health utilisation data).<sup>(6, 9, 11, 13, 14)</sup> There is no information available for Germany or New Zealand relating to any formal risk assessment conducted to inform decision making.<sup>(10, 15)</sup> However, decisions to

introduce additional measures in Germany, in excess of the current Tier 1, is a matter for the federal states and must be based on data according to set indicators (Table 1).

The decision process for which level of response is most appropriate is informed by the risk assessment, and carried out in conjunction with a qualitative assessment of additional factors for Denmark, Germany, Norway and Scotland.<sup>(6, 9, 11, 17)</sup> The final decision regarding the escalation of surge plans rests with the government in Denmark, Germany, New Zealand, Norway and Scotland.<sup>(6, 9, 11, 15, 22)</sup> No further information was identified for New Zealand on the decision-making process surrounding their framework, except that there is an established Minister for the COVID-19 response who is further supported by the COVID-19 Independent Continuous Review, Improvement and Advice Group, the Strategic COVID-19 Public Health Advisory Group and a Community Panel.<sup>(10)</sup> However, how these groups relate to one another in the decision-making process is unclear. For Belgium and Spain, decisions on the escalation of surge measures are made by representatives from the health system, with no input from other ministries or sectors.<sup>(13, 14)</sup>

For Denmark, Germany, Norway and Scotland, it is explicitly stated that the proportionality and necessity around potential response measures needs to be considered from a socio-economic perspective, rather than solely from a health system perspective.<sup>(6, 9, 11, 17)</sup> For example, Norway and Scotland outline that the overall benefit of public health measure implementation, versus the consequences for various sectors and society as a whole, must be considered.<sup>(9, 11)</sup> Furthermore, Denmark, Germany, Norway and Scotland outline that cost implications across society must be considered.<sup>(6, 9, 11, 17)</sup> Norway also requires that all decision-making is conducted in open dialogue with the population, the health service, professional environments and across sectors. Additionally, the opportunity for affected parties to comment should be provided.<sup>(11)</sup>

Denmark, Germany and Norway do not currently have legal powers in place, for the introduction of restrictive public health measures.<sup>(6, 9, 11, 15)</sup> As a result, these measures would require justification and parliamentary approval before they can be invoked. For Denmark, any recommendations regarding contact reduction measures, such as capacity limits, closing time and, in extreme cases, bans on gatherings and closures, can only happen if COVID-19 is re-categorised as a socially critical disease; this would also require support from the majority of the Epidemic Committee.<sup>(6)</sup> German federal states are required to meet a set threshold (details have not been identified), as well as being required to seek agreement from federal state parliaments before introducing Tier 3 measures.<sup>(15)</sup> For Norway to introduce national measures, the Ministry of Health would need to change the status of COVID-19, as

the COVID-19 pandemic is no longer defined as a 'serious outbreak of a communicable disease that is hazardous to public health'.<sup>(11, 23)</sup> As a result, Norway states in their strategy that emphasis must be placed on voluntary participation.

For Belgium, the quantitative assessment of the indicators is supplemented by a qualitative assessment of other factors such as an assessment of circulating variants and other respiratory viruses.<sup>(14)</sup> This assessment informs the advice sent to the Risk Management Group (consisting of representatives from the health authorities only and is chaired by the Belgian National Focal Point) who decide which measures are necessary. For Spain, the decision-making is less clear.<sup>(13)</sup> The Autonomous Communities, in coordination with the Ministry of Health, periodically review the epidemiological situation in vulnerable groups to assess the need to propose specific public health control measures. The Autonomous Communities can choose to use indicators that they consider relevant, in their context, to carry out this evaluation depending on the territory and the characteristics of the population being evaluated. An individualised assessment may also include qualitative aspects relating to equity in health (access to healthcare) and social vulnerability.

## **3.2 Public health measures within surge plans**

### **3.2.1 COVID-19 surge vaccination strategies**

#### **Proactive**

Autumn and or winter 2022 COVID-19 vaccination strategies exist for 20 of the 21 countries included in this review. For the majority of countries these strategies include proactive extensions of the target groups for which an additional COVID-19 booster dose is recommended. For example, Austria and the Netherlands have extended their target group for the additional booster dose to all those aged 12 years or older, with priority given to those at highest risk.<sup>(24, 25)</sup> Denmark and France currently recommend an additional COVID-19 vaccine booster dose on a targeted basis, primarily aimed at people who are at high risk of severe illness from infection.

#### **Reactive**

If escalation is required, the Danish plan included the option to roll out the campaign earlier than the scheduled start (on 15 September 2022), and includes the option to widen the target groups to include more of the population (with no further details on which additional groups may be targeted).<sup>(6)</sup> Denmark has also stated that if escalation is required, there would be the capacity to roll out the vaccine strategy to the entire population.<sup>(6)</sup> This can be rolled out in eight weeks, or at an increased pace in five to six weeks. France outlines three vaccination plans based on three

scenarios (that is, Optimistic, Basic and Pessimistic).<sup>(26)</sup> It is currently operating under the Basic scenario (targeted vaccination campaign – for those at risk and HCWs only). The Optimistic scenario would focus only on those who are immunocompromised, while the Pessimistic scenario would aim to provide an additional booster dose to the entire population, with priority given to those most at risk.

### **3.2.2 Other respiratory illness vaccination strategies**

#### **Proactive**

Details for 2022 vaccination campaigns for non-COVID-19 respiratory illness were identified for 18 of the 21 countries, with the majority focusing on influenza vaccination.<sup>(27-43)</sup> Nine countries (Austria, Denmark, England, France, Spain, New Zealand, Northern Ireland, Scotland and Sweden) made changes to their target groups compared with previous years. Changes comprise the inclusion of additional target groups relative to their 2021-2022 influenza campaigns.<sup>(27, 29, 30, 32, 37-39, 43, 44)</sup> While England, Northern Ireland and Scotland recommend vaccination of children, with differences between countries in the specific age groups (see Table 2 for full details),<sup>(29, 30, 43)</sup> this is in line with the extension of the influenza programme planned since 2013, as detailed in the Green Book for vaccinations.<sup>(45)</sup> Scotland added a number of occupational groups, including, but not limited to, teachers, prison staff, and independent health professionals such as non-NHS laboratory staff if working on COVID-19 testing.<sup>(43)</sup> Sweden also made changes to the list of risk groups, with vaccination now recommended after week 12 of pregnancy instead of week 16. Portugal will be proactively offering the influenza vaccine early this season (started 7 September 2022), due to the COVID-19 pandemic.<sup>(31)</sup>

The majority of countries permit co-administration of the influenza and COVID-19 vaccines.<sup>(27, 28, 30-35, 37, 38, 43, 44, 46-48)</sup> The Netherlands does not permit vaccine co-administration and advises a one-week wait period between vaccines, if the COVID-19 vaccine is administered first.<sup>(40)</sup> This should be increased to a two-week wait period if the influenza vaccine is administered first. Sweden permits co-administration in adults.<sup>(44)</sup> However, for children it is generally recommended to separate vaccination against COVID-19 from all other vaccinations, including influenza vaccination, by at least seven days.

Provision of pneumococcal vaccination for selected risk groups is well established in many European countries.<sup>(49)</sup> A number of countries have highlighted their pneumococcal vaccination policy within their autumn winter COVID-19 plans or provided details in relation to co-administration of the vaccine. For example,

Denmark recommends pneumococcal vaccination every six years for those aged 65 years or older, and those living with certain chronic diseases, along with welders.<sup>(27)</sup> Additionally, while the Netherlands previously offered pneumococcal vaccination to specific at-risk medical groups, in 2020 it included those who had lung damage because of COVID-19. In 2021, the recommendation was extended to include older people aged 69 to 73 years, and in 2022, the recommendation was further extended to include also people aged 66 to 69 years. Co-administration with the influenza vaccine is also recommended.<sup>(41)</sup>

## **Reactive**

As a result of the pandemic, Austria has included reactive provisions within their 2022 vaccination calendar, where in the event of an early wave of influenza, the start of the influenza vaccination campaign can be brought forward.<sup>(32)</sup> The campaign usually starts between the end of October and mid-November 2022.

Czechia, Finland, and Norway have not yet published influenza vaccination campaign details for the forthcoming winter 2022/2023 season.<sup>(44, 50, 51)</sup>

### **3.2.3 COVID-19 test and trace strategies**

COVID-19 test and trace surge strategies were identified for Australia, Belgium, Denmark, New Zealand and Scotland.<sup>(6, 9, 14, 16, 52)</sup> Australia and New Zealand both published COVID-19 test and trace strategies during the initial surge of COVID-19 cases resulting from the Omicron variant. Both describe a transition from widespread COVID-19 testing, to a more targeted approach. Australia's strategy is risk-based and aims to capture all COVID-19 cases until the impact of the BA.2 wave on the health system has reduced.<sup>(52)</sup> After that, the strategy transitions to a more targeted approach, focusing on high risk cases only (to identify those that would benefit from early treatment) and household members who are symptomatic. Quarantine for close contacts will also cease. Both the widespread and targeted testing approaches recommend that those with acute respiratory symptoms stay home until symptoms are resolved, regardless of whether they have been tested. New Zealand's strategy describes three phases based on the level of circulation of Omicron in the community.<sup>(16)</sup> As case numbers grow, both testing and isolation approaches will change. There will be a move from test centres for all symptomatic suspected cases, along with full contact tracing and the testing of close contacts, to a more self-managed approach using RADTs and isolation for people considered at lower risk. PCR testing will be focused on priority populations. Contact tracing will be based on a self-serve model using an online portal to allow health and social services to focus on families and communities that have the highest needs.

Belgium's strategy outlines approaches to testing and tracing which are implemented according to the previously outlined risk assessment matrix.<sup>(14)</sup> When healthcare usage is at Level 1 and the severity is low, then the focus is to test vulnerable populations. That means testing only for clinical reasons or persons at risk of severe disease, with RADTs advised for close contacts of those at high-risk of severe disease. Everyone else is encouraged to stay at home if symptomatic and self-test. At all other healthcare usage levels, when the disease severity associated with the variant is low, everyone with COVID-19 symptoms should be tested and isolated unless there is a need to prioritise tests based on indication, in which case RADTs would be allowed (no PCR confirmation needed). When the infection severity to case ratio is high and healthcare usage is at Level 1 or Level 2, the focus is on containment, and self-tests are not recommended; self-tests are considered when healthcare usage is increased (Level 3) when there may be high demand for testing. Contact tracing and quarantine requirements range from their use only in major outbreaks based on analysis by a physician (Level 1 and Low severity) to contact tracing and testing of all close contacts with PCR tests, as soon as possible and on day seven (Level 2 and High severity). At Level 3, regardless of the level of severity, contact tracing continues, but no testing or quarantining is required for close contacts.

Since the end of April 2022, Scotland has been operating under a testing strategy which sets out a graded response, focused on targeted testing for clinical care, surveillance and as part of an outbreak response.<sup>(9)</sup> However, it is stated, but not detailed, that testing can be scaled up again if required for future health threats. Similarly, Denmark is only testing specific risk groups but states that if further escalation is required, then testing can be implemented more broadly to address different scenarios.<sup>(6)</sup> No further details are available on these.

### **3.2.4 Community healthcare settings**

Planned public health measures and strategies related to community healthcare settings were identified for Australia, Denmark and Israel.<sup>(6, 53-55)</sup> In Australia, influenza vaccination is required to be offered to all nursing home staff and recommended for nursing home residents.<sup>(53)</sup> All nursing homes are required to have a dedicated infection prevention and control (IPC) lead with responsibility for on-site clinical leadership.

In Denmark, it is recommended that nursing staff in social and elderly care receive RADTs twice per week, with staff receiving PCR testing every 14 days from 15 August 2022.<sup>(6)</sup> In addition, relatives of nursing home residents over the age of 85 are encouraged to undergo RADTs during visits. In Israel, various measures were

introduced in June 2022 to curb a rise in Omicron BA.5 circulation. These included the requirement for staff to wear face coverings in indoor settings, a renewed emphasis on IPC measures (such as hand hygiene and physical distancing) and testing of residents with symptoms of COVID-19 or who are transferred from hospital settings. In relation to nursing home visits, visitors are required to wear face coverings and must undergo a supervised RADT.

In Australia, back-up mechanisms (for example, additional staff more highly trained in IPC and or remote working capabilities) were recommended during outbreaks in case the IPC lead is unavailable due to the need for isolation, with funding made available for additional staff training. In Denmark, if further escalation is required due to COVID-19 disease impact, the Danish Agency of Patient Safety may issue visitor restrictions for nursing homes, but this would require COVID-19 to be categorised as a “generally dangerous” disease.

### **3.2.5 Face coverings**

Planned public health measures and strategies related to face coverings were identified for Denmark, Germany, New Zealand, Norway and Scotland (Table 1).<sup>(6-10)</sup> Germany, Norway, New Zealand and Scotland will introduce a face covering requirement for public indoor settings (particularly when physical distancing cannot be maintained) and on public transport, when necessary. In Germany,<sup>(7)</sup> face coverings will be required indoors (although exceptions can be made based on COVID-19 diagnosis or vaccination), and outdoors, if 1.5 metres of physical distancing cannot be maintained. Similar requirements will be introduced in Norway,<sup>(8)</sup> New Zealand<sup>(10)</sup> and Scotland,<sup>(9)</sup> as required. Additionally, both Germany and Norway have specified educational settings in which face coverings may be required,<sup>(7, 8)</sup> with Germany identifying their requirement to allow for the continuation of face-to-face education,<sup>(7)</sup> and Norway identifying their potential requirement in kindergarten and elementary schools.<sup>(8)</sup>

While not outlining specific measures or strategies that may be implemented to limit the impact of a COVID-19 surge, Denmark outlines the possibility of reintroducing contact-reducing measures and stricter protocols if necessary.<sup>(6)</sup> This would require the support of the Epidemic Committee and could be introduced within seven to 10 days if required. Furthermore, this would apply not only to face coverings, but also to the wider public health measures identified (movement of people; social or mass gatherings; education; business activities; sporting and recreational activities; religious activities; domestic travel; and culture, leisure and entertainment).

### **3.2.6 Movement of people**

Planned public health measures and strategies related to the movement of people were identified for Denmark, Norway and Scotland (Table 1).<sup>(6, 8, 9)</sup> Denmark will reintroduce contact-reducing measures and stricter protocols if necessary.<sup>(6)</sup> In Norway,<sup>(8)</sup> the number of guests which can be received at home per week will be limited to 10 to 20 guests, when they are at the highest two levels of their five-level plan. In Scotland,<sup>(9)</sup> guidance to reduce social contacts and increase physical distancing where possible will be provided when they are at the highest level of their three-level COVID-19 framework.

### **3.2.7 Social or mass gatherings**

Planned public health measures and strategies related to social or mass gatherings were identified for Denmark, Germany, New Zealand, Norway and Scotland (Table 1) in the event of a surge occurring.<sup>(6-10)</sup> In Germany, New Zealand, Norway and Scotland, as previously mentioned (Section 3.2.5 Face coverings), face coverings will be required for social or mass gatherings in which 1.0 metres or 1.5 metres of physical distancing cannot be maintained. Furthermore, New Zealand and Norway have specified capacity limits for events.<sup>(8, 10)</sup> Norway will limit indoor private events to a maximum of 50 people, and indoor and outdoor public events to a range of capacity limits from 50 to 3,000 people, from level four of their five-level strategy.<sup>(8)</sup> New Zealand, will limit indoor events to a maximum of 200 people when they are at the highest level of their three level system.<sup>(10)</sup> Scotland did not specify a number of people, however, they will introduce a legal limit on social gatherings and events if extensive protection measures are required.<sup>(9)</sup> Denmark will reintroduce contact-reducing measures and stricter protocols, if necessary.<sup>(6)</sup>

### **3.2.8 Education**

Planned public health measures and strategies related to education were identified for Denmark, Germany, the Netherlands, New Zealand, Norway and Scotland (Table 1).<sup>(6-10)</sup> Germany, New Zealand, Norway and Scotland have focused on schools, universities and community colleges, with the aim of introducing public health measures which allow for continued education.<sup>(7, 8, 10)</sup> This includes the potential introduction of face coverings for students, employees and visitors, 1.0 metres or 1.5 metres of physical distancing, and or in Norway a move to blended or online learning where necessary.<sup>(8)</sup> The Netherlands have outlined a childcare sector plan outlining four scenarios, dependent on the impact of COVID-19.<sup>(56)</sup> These scenarios outline recommendations from standard implementation of hygiene measures, to the opening of childcare in “bubbles”. Furthermore, guidance is provided to parents around the use of face coverings, and the dropping off and picking up of children.

Denmark will reintroduce contact-reducing measures and stricter protocols if necessary.<sup>(6)</sup>

### **3.2.9 Business activities**

Planned public health measures and strategies related to business activities were identified for Denmark, Germany, New Zealand, Norway and Scotland (Table 1).<sup>(6-10)</sup> Norway and Scotland have recommended a move to blended working or working from home where necessary,<sup>(8, 9)</sup> with Norway also identifying the closure of non-essential shops and shopping malls at level four of their five-level plan.<sup>(8)</sup> Denmark will reintroduce contact-reducing measures and stricter protocols if necessary.<sup>(6)</sup> Germany have not provided specific guidance around business activities, but have occupational health guidance in place since March 2022.<sup>(7)</sup> New Zealand will introduce a face covering requirement for business activities, at levels two and three of their three level system.<sup>(10)</sup>

### **3.2.10 Sporting and recreational activities (amateur and professional)**

Planned public health measures and strategies related to sporting and recreational activities were identified for Denmark, Germany, New Zealand, Norway and Scotland (Table 1).<sup>(6-10)</sup> In the event of a surge, Germany and New Zealand will introduce face coverings where physical distancing cannot be maintained,<sup>(7, 10)</sup> with New Zealand specifying that only gym staff are required to wear face coverings.<sup>(10)</sup> Capacity limits on indoor sporting events have also been specified, Norway will introduce a limit of 20 people indoors when they are at level four of their five-level plan,<sup>(8)</sup> and New Zealand will introduce a limit of 200 people indoors when at level three of their three-level system.<sup>(10)</sup> While Germany also specified a capacity limit would be introduced for indoor public events, the amount of people allowed was not indicated.<sup>(7)</sup> Denmark will reintroduce contact-reducing measures and stricter protocols if necessary.<sup>(6)</sup>

### **3.2.11 Religious activities**

Planned public health measures and strategies related to religious activities were identified for Denmark, Germany, New Zealand and Scotland (Table 1).<sup>(6, 7, 9, 10)</sup> New Zealand is the only country to specifically refer to religious activities or faith-based gatherings, with face coverings recommended for attendees and required for workers and or volunteers when there are at level two of their three-level system.<sup>(10)</sup> When in level three, indoor religious activities will be limited to 200 people. Germany, New Zealand and Scotland's recommendations and or requirements for

face coverings, particularly in situations in which physical distancing cannot be maintained, also applies to religious activities.<sup>(9, 10)</sup> Denmark will reintroduce contact-reducing measures and stricter protocols, if necessary.<sup>(6)</sup>

### **3.2.12 Domestic travel (including transport)**

Planned public health measures and strategies related to domestic travel were identified for Denmark, Germany, New Zealand, Norway and Scotland (Table 1).<sup>(6-10)</sup> Germany, New Zealand, Norway and Scotland will introduce a face covering requirement on public transport when required. In Norway, face coverings will be required on public transport from level three of their five-level plan,<sup>(8)</sup> in New Zealand face coverings will be required when from level two on their three-level system,<sup>(10)</sup> while in Scotland face coverings will be required when a “Medium Threat” is identified.<sup>(9)</sup> For Germany,<sup>(7)</sup> face coverings are required in air and on long-distance public transport when nationwide measures are introduced, while face coverings are required on local public transport when implemented by federal states or regional authorities. Denmark will reintroduce contact-reducing measures and stricter protocols if necessary.<sup>(6)</sup>

### **3.2.13 Culture, leisure and entertainment**

Planned public health measures and strategies related to culture, leisure and entertainment were identified for Denmark, Germany, New Zealand, Norway and Scotland (Table 1) that will be implemented in the event of a surge.<sup>(6-10)</sup> For Germany, New Zealand, Norway and Scotland, all previously outlined face covering requirements for indoor and outdoor venues will apply to culture, leisure and entertainment activities. Additionally, both Germany and New Zealand have identified that capacity limits will be introduced in indoor venues, if necessary,<sup>(7, 10)</sup> with New Zealand specifying a maximum of 200 people indoors (including children) when at level three on their three-level system. Norway has specified the closure of entertainment venues and arcades at level four of their five-level plan, and restaurants can only operate for take-away at level five.<sup>(8)</sup> Denmark will reintroduce contact-reducing measures and stricter protocols, if necessary.<sup>(6)</sup>

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

EU/EEA	
Austria	
<b>Broad COVID-19 surge plan</b>	None identified.
<b>COVID-19 surge vaccination strategies</b> <sup>(25, 57)</sup>	<p><b>Proactive</b> Austria's Health Minister and National Immunisation Panel recommend an additional COVID-19 booster for the following:</p> <ul style="list-style-type: none"> <li>▪ those aged ≥ 12 years.</li> </ul> <p>Vaccination is currently ongoing.</p>
<b>Other respiratory illness (such as influenza) vaccination strategy</b> <sup>(32, 58)</sup>	<p><b>Proactive</b> Influenza vaccination is distributed annually by the Ministry of Social affairs, health, care and consumer protection, and recommended for the following in 2022/2023:</p> <p><b>Target population:</b></p> <ul style="list-style-type: none"> <li>▪ those with an increased risk as a result of chronic diseases and immune defects</li> <li>▪ hospitalised individuals at increased risk of influenza complications</li> <li>▪ severely overweight people (Body Mass Index ≥ 40)</li> <li>▪ those with Human Immunodeficiency Virus (HIV) or other immunosuppressive diseases</li> <li>▪ pregnant women and women trying to conceive during the influenza season</li> <li>▪ babies ≥ 6 months and small children</li> <li>▪ children/adolescents from 6 months up to 18 years on long-term aspirin therapy (prevention of Reye's syndrome)</li> <li>▪ breastfeeding women and those around newborns</li> <li>▪ those aged ≥ 60 years, with an increased recommendation for those aged ≥ 65 years</li> <li>▪ those with increased risk due to their profession (such as those working in childcare facilities, schools, social, retirement and nursing homes)</li> <li>▪ health and care workers.</li> </ul> <p><b>Additionally, for 2022/2023, influenza vaccination is also recommended for those working in retirement and nursing homes.</b></p> <p><b>Reactive</b> Distribution of the influenza vaccine typically starts at the end of October/Mid-November, however, vaccination start date will depend on the COVID-19 pandemic in 2022/2023. Additionally, simultaneous administration of influenza and COVID-19 vaccinations is possible.</p> <p>Additional to their specific influenza campaign Austria have a 2022 Vaccination Plan covering all recommended vaccinations.</p>
<b>COVID-19 surge test and trace strategy</b>	None identified.
<b>Community healthcare settings</b>	None identified.

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

<b>Remaining public health measures</b>	<b>Face coverings; movement of people; social or mass gatherings; education; business activities; sporting and recreational activities; religious activities; domestic travel; and culture, leisure and entertainment</b> None identified.
<b>Belgium</b>	
<b>Broad COVID-19 surge plan</b>	None identified.  However, a testing, isolation and quarantine plan has been agreed by the Risk Management Group (RMG) and aligns with the 3 Level, 2 Scenario model presented by the Risk Assessment Group (RAG) in "Longer-term perspective of testing, isolation and quarantine". <sup>(12)</sup>
<b>Surge plan levels <sup>(14)</sup></b>	A 3 Level, 2 Scenario matrix was identified.  Three Levels are presented (1, 2 and 3), with the levels representing increasing severity or incidence in relation to "epidemic logic analysis" (linked to indicators below).  The 2 Scenarios presented are: <b>Scenario 1:</b> low ratio disease severity/number of cases (for example high circulation of current Omicron variant) <b>Scenario 2:</b> high or unprecedented disease severity/number of cases (for example new variant of concern with immune escape).  Each Level, Scenario combination is linked to guidance related to testing and isolation, high-risk contact testing and screening.
<b>Indicators for determining surge plan level<sup>(14)</sup></b>	A number of indicators were identified in relation to Level selection:  <b>Hospital indicators (identified as the most important):</b> <ul style="list-style-type: none"> <li>▪ 7-day hospitalisation</li> <li>▪ ICU capacity.</li> </ul> <b>Indicators about the severity of virus circulation (used to determine the number of new infections, trend of evolution and an early indicator of a possible unfavourable evolution):</b> <ul style="list-style-type: none"> <li>▪ GP workload (via the indicator number of consultations/contacts for suspected COVID-19)</li> <li>▪ infection rate</li> <li>▪ positivity ratio14-day incidence of infections.</li> </ul> <p>Additional indicators which will be considered include the number of symptomatic and asymptomatic infections and the distribution of the disease by age group.</p> <p>Qualitative evaluation of the following indicators will also be considered:</p> <ul style="list-style-type: none"> <li>▪ the testing strategy</li> <li>▪ the circulation of variants of concern</li> <li>▪ the circulation of other respiratory viruses.</li> </ul>
<b>Indicator thresholds</b>	Indicators thresholds outlined within the December 2021 document "Thresholds for a new barometer" are identified as acceptable for use within the testing, isolation and quarantine plan (Appendix 1). However, the corona barometer (a scale including 3 phases yellow, orange and red which reflects pressure on the healthcare system) identified within the "Thresholds for a new barometer" document has been deactivated since 23 May 2022 and therefore, it is

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

	<p>unknown if these thresholds are currently applicable to the testing, isolation and quarantine plan. Additionally, while these thresholds are linked to Levels 1, 2 and 3, they do not link with the Scenarios presented within the testing, isolation and quarantine plan.</p>
<p><b>Decision-making process for surge plan level selection</b><sup>(20, 59, 60)</sup></p>	<p>The Belgian system is comprised of 3 entities:</p> <ol style="list-style-type: none"> <li>1. the National Focal Point responsible for international notification</li> <li>2. the RMG (composed of representatives from the ministry of health entitled to decide on the notification and application of the control measures)</li> <li>3. the RAG (composed of permanent representatives from the health authorities and epidemiologists of Sciensano. The RAG coordinators may invite ad hoc experts).</li> </ol> <p>In regards to Belgium's testing, isolation and quarantine plan, the RAG analyses the risk of COVID-19 to the population based on epidemiological and scientific data (previously outlined indicators). A risk assessment is then prepared weekly (based on these indicators), with recommendations for Level and Scenario selection along with actions to be implemented, and made available to the RMG and Governmental Corona Commission. The RMG then takes into consideration the risk assessment performed by the RAG and the advice provided, and decides which measures are necessary to protect public health. The RMG is chaired by the National Focal Point for International Health Regulations.</p>
<p><b>COVID-19 surge vaccination strategies</b><sup>(33, 61)</sup></p>	<p><b>Proactive</b></p> <p>The Interministerial Conference (IMC) Public Health has followed recommendations from the Superior Health Council (SHC) to offer an additional COVID-19 booster. Vaccination will begin in September, and will be offered, based on priority, to the following groups placed in Category A (proactive mass vaccination campaign), Category B (recommended additional booster) and Category C (additional booster possible but not recommended yet by SHC):</p> <p><b><u>Category A (proactive mass vaccination campaign)</u></b></p> <p><b>Target Group 1:</b></p> <ul style="list-style-type: none"> <li>▪ those aged ≥ 65 years or those living in LTCF</li> <li>▪ those that are immunosuppressed</li> <li>▪ those with at least one comorbidity</li> <li>▪ all pregnant women.</li> </ul> <p><b>Target Group 2:</b></p> <ul style="list-style-type: none"> <li>▪ those active in the care sector, inside and outside of care institutions.</li> </ul> <p><b>Target Group 3:</b></p> <ul style="list-style-type: none"> <li>▪ all household members of those in Target Group 1.</li> </ul> <p><b><u>Category B (recommended additional booster)</u></b></p> <p><b>Target Group:</b></p> <ul style="list-style-type: none"> <li>▪ those aged between 50 and 64 with risk factors such as obesity, smoking and or excessive alcohol consumption.</li> </ul> <p><b><u>Category C (additional booster possible but not yet recommended by the SHC)</u></b></p> <p><b>Target Group:</b></p> <ul style="list-style-type: none"> <li>▪ adults &lt;65 years in good health.</li> </ul> <p>Additional COVID-19 booster vaccinations are not yet recommended by the SHC for those aged between 5 and 17 years (unless they are in Category A).</p>

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

<p><b>Other respiratory illness (such as influenza) vaccination strategies<sup>(33)</sup></b></p>	<p>The SHC also recommends that the vaccine campaign is as compact as possible, and completed by the end of September 2022.</p> <p><b>Proactive</b> The SHC provides influenza vaccination recommendations annually, to the National Immunisation Technical Advisory Group, the following is recommended in 2022/2023:</p> <p><b>Category A</b> <b>Target Group 1:</b></p> <ul style="list-style-type: none"> <li>▪ those at risk of complications</li> <li>▪ those aged ≥ 65 years</li> <li>▪ those ≥ 6 months with an underlying chronic condition</li> <li>▪ children from 6 months to 18 years</li> <li>▪ those with at least one comorbidity</li> <li>▪ pregnant women.</li> </ul> <p><b>Target Group 2:</b></p> <ul style="list-style-type: none"> <li>▪ those active in the care sector, inside and outside of care institutions.</li> </ul> <p><b>Target Group 3:</b></p> <ul style="list-style-type: none"> <li>▪ all household members of those at risk in Group 1</li> <li>▪ those living with babies &lt; 6 months old.</li> </ul> <p><b>Category B</b> <b>Target Group:</b></p> <ul style="list-style-type: none"> <li>▪ those aged between 50 and 65 years, although this should be considered on an individual basis, based on discussion with a general practitioner.</li> </ul> <p><b>Category C</b> Routine vaccination of those aged between 18 and 65 years is not recommended by the SHC, but can be done so on an individual basis.</p> <p>While simultaneous vaccination of the COVID and influenza vaccination is possible the SHC recommends the seasonal influenza vaccination campaign begins in mid-October 2022.</p>
<p><b>COVID-19 surge test and trace strategy<sup>(14)</sup></b></p>	<p>A testing, isolation and quarantine plan has been agreed by the Risk Management Group (RMG) and aligns with the 3 Level, 2 Scenario model presented in “Triggers for public health measure implementation”.</p> <p><b>Level 1, Scenario 1</b></p> <ul style="list-style-type: none"> <li>▪ testing and isolation: if symptomatic, stay at home</li> <li>▪ high-risk contact (HRC) testing, quarantine and isolation: testing and quarantine based on existing rules, only when a major outbreak in population at risk occurs</li> <li>▪ screening: not recommended for new residents in residential homes or hospitalisations.</li> </ul> <p><b>Level 2, Scenario 1</b></p> <ul style="list-style-type: none"> <li>▪ testing and Isolation: PCR test/RADT for those with COVID-19 symptoms</li> </ul>

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

	<ul style="list-style-type: none"> <li>▪ HRC testing, quarantine and isolation: no quarantine for household HRC, but strong recommendation for those aged ≥6 years to wear a face covering for 7 days after contact with a confirmed case. Where a face covering cannot be worn, a daily RADT is recommended. Focus on vulnerable populations.</li> <li>▪ screening: screening with PCR before admission to healthcare facilities with clinically vulnerable patients, including long term care facilities (LTCFs).</li> </ul> <p><b>Level 3, Scenario 1</b></p> <ul style="list-style-type: none"> <li>▪ testing and isolation: PCR test/RADT for those with COVID-19 symptoms</li> <li>▪ HRC testing, quarantine and isolation: no quarantine for household HRC, but strong recommendation for those aged ≥6 years to wear a face covering for 7 days after contact with a confirmed COVID-19 case. Where a face covering cannot be worn, a daily RADT is recommended. Focus on vulnerable populations.</li> <li>▪ screening: screening with PCR of all hospital admissions and new residents in LTCFs before admission.</li> </ul> <p><b>Level 1, Scenario 2</b></p> <ul style="list-style-type: none"> <li>▪ testing and isolation: PCR test/RADT for those with COVID-19 symptoms</li> <li>▪ HRC testing, quarantine and isolation: Test and trace all HRC with PCR as soon as possible and on day 7. 10 day quarantine unless a negative test is conducted on day 7. Quarantine exception after a negative test not applied in the case of an outbreak in a residential facility. Information may change with new variant of concern.</li> <li>▪ screening: pre-hospital PCR screening with clinically vulnerable patients, including LTCFs.</li> </ul> <p><b>Level 2, Scenario 2</b></p> <ul style="list-style-type: none"> <li>▪ testing and Isolation: PCR test/RADT for those with COVID-19 symptoms</li> <li>▪ HRC testing, quarantine and isolation: Test and trace all HRC with PCR as soon as possible and on day 7. An assessment is needed to determine who can exit quarantine on day 7 (with a negative test). Quarantine exception after 1 negative test not applied in the case of an outbreak in a residential facility.</li> <li>▪ screening: PCR screening for all hospital admissions and new residents in LTCFs.</li> </ul> <p><b>Level 3, Scenario 2</b></p> <ul style="list-style-type: none"> <li>▪ testing and Isolation: PCR test/RADT for those with COVID-19 symptoms</li> <li>▪ HRC testing, quarantine and isolation: No quarantine for household HRC, but strong recommendation for those aged ≥6 years to wear a face covering for 7 days after contact with a confirmed case. Where a facemask cannot be worn, a daily RADT is recommended. Focus on vulnerable populations.</li> <li>▪ screening: PCR screening for all hospital admissions and new residents in LTCFs.</li> </ul>
<b>Community healthcare settings</b>	None identified.
<b>Remaining public health measures</b>	<b>Face coverings; movement of people; social or mass gatherings; education; business activities; sporting and recreational activities; religious activities; domestic travel; and culture, leisure and entertainment</b> None identified.
<b>Czechia</b>	
<b>Broad COVID-19 surge plan</b>	None identified.

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

<p><b>COVID-19 surge vaccination strategies<sup>(62)</sup></b></p>	<p><b>Proactive</b> In preparation for Autumn/Winter 2022/2023 an additional COVID-19 booster is now available to the following:</p> <p><b>Target population:</b></p> <ul style="list-style-type: none"> <li>▪ those aged ≥ 18 years.</li> </ul> <p>Priority is given to those aged ≥ 60 years and those at risk.</p>
<p><b>Other respiratory illness (such as influenza) vaccination strategies</b></p>	<p>None identified.</p>
<p><b>COVID-19 surge test and trace strategy</b></p>	<p>None identified.</p>
<p><b>Community healthcare settings</b></p>	<p>None identified.</p>
<p><b>Remaining public health measures</b></p>	<p><b>Face coverings; movement of people; social or mass gatherings; education; business activities; sporting and recreational activities; religious activities; domestic travel; and culture, leisure and entertainment</b></p> <p>None identified</p>
<p><b>Denmark</b></p>	
<p><b>Broad COVID-19 surge plan<sup>(6)</sup></b></p>	<p>Denmark's COVID-19 strategy is titled "Speed, efficiency and trust", and applies to 2022 and the 1<sup>st</sup>quarter of 2023. The plan focuses on 8 areas:</p> <ol style="list-style-type: none"> <li>1. (Re) vaccination</li> <li>2. Epidemic surveillance</li> <li>3. Test, isolation and infection detection</li> <li>4. Hospital capacity and treatment</li> <li>5. Infection prevention</li> <li>6. Measures at entry and exit (border control)</li> <li>7. Contact reduction measures</li> <li>8. Communication, trust and well-being.</li> </ol> <p>An escalation plan is outlined for each area.</p> <p>There are also 3 scenarios outlined which will impact public health measure implementation:  <b>Scenario 1:</b> Variants similar to Omicron (not expected to impact healthcare)  <b>Scenario 2:</b> Variants similar to Delta (a higher risk of large disease burden in relation to infection, with effects on healthcare)  <b>Scenario 3:</b> New variants (widespread disease which is possibly severe).</p>
<p><b>Surge plan levels<sup>(6)</sup></b></p>	<p>Risk Levels 1 through 5:</p> <p>Risk Level 1: Potential for very low disease burden in the coming period          Risk Level 2: Potential for low disease burden in the coming period          Risk Level 3: Potential for moderate disease burden in the coming period          Risk Level 4: Potential for high disease burden in the coming period</p>

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

	<p>Risk Level 5: Potential for very high disease burden in the coming period.</p> <p>Risk Levels can vary via region. As of 15 September 2022, nationally and regionally Denmark is at Risk Level 1.</p> <p>Each Risk Level (and the associated escalation plan) is linked to public health measure implementation.</p> <p>Risk level adjustment is determined, using primary indicators, by the Epidemic Commission (see below).</p>
<b>Indicators for determining surge plan level<sup>(6)</sup></b>	<p>Primary indicators for Risk Level adjustment are:</p> <ul style="list-style-type: none"> <li>▪ new virus variants that are cause for concern</li> <li>▪ declining immunity</li> <li>▪ sharply increasing infection pressure</li> <li>▪ challenged hospital capacity</li> <li>▪ rising positivity rates</li> <li>▪ increased excess mortality.</li> </ul>
<b>Indicator thresholds</b>	<p>None identified.</p>
<b>Decision-making process for surge plan level selection<sup>(6, 63, 64)</sup></b>	<p>Separate to the Risk Level and indicators, as detailed above, a risk assessment is first prepared weekly by Statens Serum Institut (SSI) which describes the current spread of COVID-19 in Denmark. As of 15 September 2022, the most recent National risk assessment (Week 34) outlines the following quantitative indicators across Weeks 28 to 33:<sup>(65)</sup></p> <ul style="list-style-type: none"> <li>▪ incidence of COVID-19 per 100,000</li> <li>▪ SARS-CoV-2 waste water concentration</li> <li>▪ the share of positive PCR samples out of the total number of PCR samples (positive percentage)</li> <li>▪ number of new hospitalisations (general admission)</li> <li>▪ share of newly admitted hospitalisations with positive SARS-CoV-2 due to COVID diagnoses</li> <li>▪ number hospitalised Monday morning (following week) (general admission)</li> <li>▪ number admitted to intensive care Monday morning (following week) (general admission)</li> <li>▪ number of registered cases of COVID-19 infection among nursing home residents</li> <li>▪ number of COVID-19 infected staff in the social and health sector</li> <li>▪ number of COVID-19 related deaths.</li> </ul> <p>Informed by the risk assessment by SSI, the Epidemic Commission determines the Risk Level selected (level 1 to 5) with input from the relevant health authorities, using the primary indicators identified and other factors detailed below. This forms the basis for advising the government on the need to escalate the efforts as well as informing business and cultural sectors' contingency plans. The Epidemic Commission consists of 11 members, located within governmental and societal sectors including Heads of Departments from the Ministry of Health and Ministry of Justice, the Director of the Agency for Patient Safety, the CEO of the SSI and the National Police Chief.</p> <p>While no indicator thresholds are identified, the report indicates that weekly trends (increase or decrease week to week) of these quantitative variables are of interest. The assessment also includes further information including the number and size of certain outbreaks in the country, the age distribution among the infected, citizens behaviour, any developments in relation to new virus variants and the well-being of society.</p> <p>The Epidemic Commission then recommends to government which initiatives, measures and restrictions should apply in order to maintain control of the epidemic in Denmark. However, any recommendations regarding contact-reducing measures requires that COVID-19 is categorised as socially critical disease. This also requires the support from the majority of the members on the Epidemic Committee and compensation for reducing a person's movements</p>

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	<p>etc. must be agreed. Furthermore, introducing such measures will depend on proportionality considerations, including as far as possible geographically delimited, for example, in the form of local measures, and how intensive measures must be to contain the infection. These measures can then be introduced within 7 to 10 days if required. Contact measures in this context relate to area requirements, restrictions on participants, closing times in nightlife, etc. and, in extreme cases, bans on gatherings and closures etc. It is also stated that contact-reducing measures are associated with large costs for the population and society, and as a result they should be prevented.</p>
<p><b>COVID-19 surge vaccination strategies</b><sup>(66, 67)</sup></p>	<p><b>Proactive</b> In anticipation of an autumn 2022 COVID-19 surge the Danish Health Authority are recommending the following:</p> <ul style="list-style-type: none"> <li>▪ from 15 September 2022, an additional COVID-19 booster is offered to:             <ul style="list-style-type: none"> <li>○ residents of nursing homes</li> <li>○ those aged ≥ 85 years).</li> <li>○</li> </ul> </li> <li>▪ from 1 October 2022, an additional COVID-19 booster will be offered to:             <ul style="list-style-type: none"> <li>○ those aged ≥ 50 years</li> <li>○ those under the age of 50 who are at increased risk of a serious illness with covid-19 (by individual assessment)</li> <li>○ personnel in the health and care sector as well as parts of the social sector who have close contact with patients at increased risk</li> <li>○ relatives of persons at particularly high risk</li> <li>○ pregnant women.</li> </ul> </li> </ul> <p>While vaccination against COVID-19, influenza and pneumococci can be carried out together, vaccination against COVID-19 should not await the others if necessary.</p> <p><b>Reactive</b> If further escalation is required, there is capacity to roll out COVID-19 vaccination to the entire population in 8 weeks (5 to 6 weeks in a worst case scenario) or rollout to a larger population than described can be completed. Earlier rollout (before 15 September 2022) was also possible if required.</p>
<p><b>Other respiratory illness (such as influenza) vaccination strategies</b><sup>(68, 69)</sup></p>	<p><b>Proactive</b> Influenza vaccination is distributed annually by the Danish Health Authority, with the influenza vaccine recommended for the following in 2022/2023:</p> <p><b>Target population:</b></p> <ul style="list-style-type: none"> <li>▪ those aged ≥ 65 years</li> <li>▪ pregnant women in the 2<sup>nd</sup> or 3<sup>rd</sup> trimester</li> <li>▪ those with a chronic disease or at particular risk.</li> </ul> <p>Additionally, for 2022/2023, the Danish Health Authority is also recommending influenza vaccination for children aged between 2 and 6 years, and healthcare, elderly care and selected social services workers.</p> <p>Distribution of the influenza vaccine will begin from 1 October 2022. Simultaneous administration of influenza and COVID-19 vaccinations is possible but vaccination against COVID-19 does not await the others if necessary.</p> <p>Pneumococcal vaccination is offered every 6 years to those aged ≥ 65 years, and those living with certain chronic diseases, along with welders.</p>

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

<p><b>COVID-19 surge test and trace strategy<sup>(70)</sup></b></p>	<p>Denmark is, as of 20 September 2022, at Risk Level 1 and is therefore implementing the following surge test and trace measures:</p> <ul style="list-style-type: none"> <li>▪ twice a week testing of permanent nursing staff in social and elderly care with RADT</li> <li>▪ PCR testing is recommended, every 14 days, for permanent nursing staff in social and elderly care</li> <li>▪ relatives of those aged ≥ 85 years in a nursing home, or who receive home care, may be given a RADT and are encouraged to take a test during a visit</li> <li>▪ RADTs for use in targeted interventions, for examples testing of staff in geriatric care.</li> </ul> <p>If further escalation is required:</p> <ul style="list-style-type: none"> <li>▪ publicly available PCR tests with flexible test capacity in relation to being able to meet different scenarios</li> <li>▪ escalation up to 30,000 daily PCR tests in the health track</li> <li>▪ escalation with up to 50,000 PCR tests, with 14 days' notice up to a total test capacity of 200,000 PCR tests in the community track</li> <li>▪ stock of RADT for targeted interventions.</li> </ul>
<p><b>Community healthcare settings</b></p>	<p>The following measures have been introduced or are planned:</p> <ul style="list-style-type: none"> <li>▪ twice a week testing of nursing staff in social and elderly care to be tested twice a week with antigen self-tests</li> <li>▪ recommendation for PCR testing every 14 days for nursing staff in social and elderly care</li> <li>▪ relatives of nursing home residents aged ≥ 85 years or who receive home care are encouraged to take a test during a visit to the elderly person and may be given a RADT</li> <li>▪ Danish Agency of Patient Safety may issue visitor restrictions for nursing homes, but this would require COVID-19 to be categorised as “generally dangerous”.</li> </ul>
<p><b>Remaining public health measures<sup>(6)</sup></b></p>	<p><b>Face coverings; movement of people; social or mass gatherings; education; business activities; sporting and recreational activities; religious activities; domestic travel; and culture, leisure and entertainment</b></p> <p>Possibility of reintroducing stricter recommendations and contact-reducing measures. This would require support from the majority of the Epidemic Committee and compensation would need to be agreed. These measures can be introduced within 7 to 10 days if required.</p>
<p><b>Finland</b></p>	
<p><b>Broad COVID-19 surge plan<sup>(71)</sup></b></p>	<p>None identified.</p> <p>However, the Ministry of Social Affairs and Health appointed a working group to investigate the preparedness of Finland for a further epidemic. This working group has released a report titled “Preparation of the social and healthcare service system for a possible next epidemic wave” which outlines 54 proposals for measures to enhance future epidemic preparedness.</p>
<p><b>COVID-19 surge vaccination strategies<sup>(72)</sup></b></p>	<p><b>Proactive</b></p> <p>As of 5 September 2022, the Finnish Institute for Health and Welfare have recommended an additional COVID-19 booster for the following:</p> <p><b>Target population:</b></p> <ul style="list-style-type: none"> <li>▪ those aged ≥ 65 years</li> <li>▪ those aged ≥ 18 years in medical risk groups</li> <li>▪ those age ≥ 12 years with severe immunodeficiency</li> <li>▪ As an exception, those aged ≥ 18 years for special reasons based on individual consideration and risk assessment.</li> </ul> <p>It is not recommended to take the vaccine in September, but rather later in the autumn, at the same time with an influenza vaccine.</p>

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

<p><b>Other respiratory illness (such as influenza) vaccination strategies<sup>(51)</sup></b></p>	<p><b>None identified for 2022/2023.</b></p> <p>However, influenza vaccination is distributed annually through the Finnish national vaccination programme. In 2021/2022 the following groups were recommended for influenza vaccination:</p> <p><b>Target population:</b></p> <ul style="list-style-type: none"> <li>▪ social, healthcare and medical care workers</li> <li>▪ pregnant women</li> <li>▪ those aged ≥ 65 years</li> <li>▪ children aged &lt; 7 years</li> <li>▪ those belonging to at-risk groups because of an illness or treatment</li> <li>▪ those close to a high risk person</li> <li>▪ men starting military service and women starting voluntary military service</li> <li>▪ those living or staying for long periods in institutional establishments, including prisons and reception centres.</li> </ul> <p>No changes have been made (as of 20 September) to the recommended target population for the influenza vaccine in 2022/2023.</p> <p>Distribution of the influenza vaccine typically begins in November.</p>
<p><b>COVID-19 surge test and trace strategy<sup>(73)</sup></b></p>	<p>On 1 July 2022, the Finnish Ministry of Social Affairs and Health updated testing and tracing strategy was adopted. As recommended by the working group report COVID-19 testing (PCR) focused on protecting COVID-19 infection in vulnerable groups or those working with vulnerable groups including:</p> <ul style="list-style-type: none"> <li>▪ those at risk of severe COVID-19 symptoms</li> <li>▪ those belonging to high-risk groups with mild symptoms</li> <li>▪ pregnant women</li> <li>▪ those working in health and social services sectors.</li> </ul> <p>The requirement to scale up COVID-19 testing capacity will be taken into account if necessary, with the private sector engaged where required.</p>
<p><b>Community healthcare settings</b></p>	<p>None identified.</p>
<p><b>Remaining public health measures</b></p>	<p><b>Face coverings; movement of people; social or mass gatherings; education; business activities; sporting and recreational activities; religious activities; domestic travel; and culture, leisure and entertainment</b></p> <p>None identified.</p>
<p><b>France</b></p>	
<p><b>Broad COVID-19 surge plan</b></p>	<p>None identified.</p>
<p><b>COVID-19 surge vaccination strategies<sup>(74)</sup></b></p>	<p><b>Proactive</b></p> <p>The French Government has accepted Haute Autorité de Santé (HAS) recommendations for an autumn 2022 COVID-19 vaccination campaign for an additional COVID-19 booster. This recommendation is based on 3 scenarios:</p> <p><b>Scenario 1: Optimistic – back to normal</b></p> <p>Vaccination recall campaign for immunocompromised people.</p>

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

	<p><b>Scenario 2: Basic Scenario – recovery</b> Vaccination recall campaign for those at risk.</p> <p><b>Scenario 3: Pessimist – emergence of a more virulent variant</b> Vaccination recall campaign for the general population with those at risk prioritised.</p> <p>These are similar to the Scenarios presented by the COVID-19 Scientific Council:<sup>(75)</sup></p> <p><b>Scenario 1: A succession of epidemic waves linked to the emergence of Omicron sub-variants</b></p> <p><b>Scenario 2: Seasonal resumption of circulation of an existing variant or of a variant antigenically close to an existing variant.</b></p> <p><b>Scenario 3: The emergence of a variant X with sufficient immune escape capacity and contagiousness to be responsible for a new epidemic wave.</b></p> <p>HAS has suggested Scenario 2 is followed for autumn/winter 2022 and therefore a COVID-19 booster campaign is recommended for the following:</p> <p><b>Target population:</b></p> <ul style="list-style-type: none"> <li>▪ those most at risk of severe COVID-19 (such as immunocompromised people and their families/contacts)</li> <li>▪ those aged ≥ 60 years</li> <li>▪ those aged &lt; 60 years with comorbidities</li> <li>▪ those working in health</li> <li>▪ pregnant women.</li> </ul> <p>It is also suggested that the COVID-19 and influenza vaccination campaigns are delivered together, with the influenza vaccination campaign beginning 18 October 2022.</p>
<p><b>COVID-19 surge test and trace strategy</b></p>	<p>None identified.</p>
<p><b>Other respiratory illness (such as influenza) vaccination strategies<sup>(46)</sup></b></p>	<p><b>Proactive</b></p> <p>Influenza vaccination is distributed annually by the Ministry of Health and HAS, with the influenza vaccine recommended for the following in 2022/2023:</p> <p><b>Target population:</b></p> <ul style="list-style-type: none"> <li>▪ those aged ≥ 65 years</li> <li>▪ pregnant women</li> <li>▪ people, including children ≥ 6 months, with a pre-existing condition</li> <li>▪ obese people</li> <li>▪ those staying in a follow-up care establishment, as well as those in medico-social accommodation</li> <li>▪ infants &lt;6 months with risk factors for severe influenza</li> <li>▪ those in contact with immunocompromised people</li> <li>▪ those working in healthcare</li> </ul>

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

	<ul style="list-style-type: none"> <li>▪ those working in the travel industry.</li> </ul> <p><b>Additionally, for 2022/2023, influenza vaccination is also recommended for those exposed to porcine and avian viruses at work.</b></p> <p>Distribution of the influenza vaccine will take place between 18 October and 15 November 2022.</p>
<b>Community healthcare settings</b>	None identified.
<b>Remaining public health measures</b>	<b>Face coverings; movement of people; social or mass gatherings; education; business activities; sporting and recreational activities; religious activities; domestic travel; and culture, leisure and entertainment</b> None identified.
<b>Germany</b>	
<b>Broad COVID-19 surge plan<sup>(7)</sup></b>	As of 3 August 2022 Winterplan Corona has been announced by the German Federal Ministers of Health and Justice. This includes a 3-tier legal framework in the Infection Protection Act, which allows the 16 federal states to impose and extend public health measures if required, from 1 October 2022 to 7 April 2023. As of 15 September 2022, Germany's Chancellor has approved legislation underpinning the surge plan, however, it now requires Bundestag approval.
<b>Surge plan levels<sup>(7)</sup></b>	Winterplan Corona is composed of 3 Tiers, with each Tier linked to public health measure implementation.  Tier 1: Nationwide protective measures Tiers 2 and 3: both located within "Optional, more far-reaching protective measures" From 1 October 2022, a federal state can order a number of additional protective measures, with Tier 2 protective measures not requiring parliamentary approval and Tier 3 protective measures requiring parliamentary approval.
<b>Indicators for determining surge plan level<sup>(15)</sup></b>	The amended Infection Protection Act currently includes a number of indicators which should be used by federal states and regional authorities to identify the appropriate Tier and determine the implementation of public health measures and strategies (with parliamentary approval if required).  These are: <ul style="list-style-type: none"> <li>▪ wastewater monitoring</li> <li>▪ the number of new infections with SARS-CoV-2 per 100,000 inhabitants within 7 days</li> <li>▪ the surveillance systems of the Robert Koch Institute for respiratory diseases</li> <li>▪ the number of people for COVID-19 per 100,000 population over a 7-day period</li> <li>▪ inpatient care capacities.</li> </ul> <p>Foreseeable changes in the course of infection, due to more contagious virus variants that place a greater burden on the health system, must also be taken into account.</p> <p>These indicators are selected as they represent a concrete risk to the functionality of the healthcare system or other critical infrastructure if there is (a) a particularly sharp increase in one or multiple indicators, or (b) stagnation of one or multiple indicators at a very high level. This may lead to a serious lack of material or personnel in the healthcare system (or other critical infrastructures) resulting in overloaded capacities.</p>
<b>Indicator thresholds<sup>(15)</sup></b>	None identified, however, state governments can set thresholds for legally regulated indicators. Within states this can be regionally differentiated.
<b>Decision-making process for surge plan level selection<sup>(15)</sup></b>	Limited information is provided regarding the decision-making process for the selection of Tier 1, Tier 2 or Tier 3.  For Tier 1, it is outlined within the amended Infection Protection Act, that Tier 1 implementation (from 1 October 2022) was based on advice from the Federal Governments Expert Council on COVID-19, regarding possible COVID-19 scenarios for autumn/winter 2022. Federal states can then select Tier 2 (without parliamentary approval) or Tier 3 (with parliamentary approval) if they deem these necessary to prevent the spread of COVID-19 and ensure the

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	<p>functionality of the healthcare system or other critical infrastructure. The indicators outlined in the amended Infection Protection Act will be taken into account when decision making.</p> <p>It is also outlined, when making decisions about protective measures, social, societal and economic effects on the individual and the general public must be included and taken into account, insofar as this is compatible with the achievement of the following objectives:</p> <ul style="list-style-type: none"> <li>▪ the protection of life and health by preventing a large number of serious illnesses</li> <li>▪ the protection of vulnerable groups of people</li> <li>▪ the protection of the functionality of the health system and other critical infrastructures.</li> </ul> <p>Furthermore, the special needs of children and young people must be taken into account.</p>
<p><b>COVID-19 surge vaccination strategies<sup>(76)</sup></b></p>	<p><b>Proactive</b></p> <p>The Standing Vaccination Committee (STIKO) in the Robert Koch Institut (RKI) has recommended an additional booster vaccine for the following:</p> <ul style="list-style-type: none"> <li>▪ those aged ≥ 60 years</li> <li>▪ those who live in or receive care in nursing homes</li> <li>▪ at-risk groups in the area of integration assistance for people with disabilities and people with immunodeficiency</li> <li>▪ health workers (especially if they are in direct contact with vulnerable people entrusted to their care)</li> <li>▪ those ≥ 5 years who are subject to an increased risk of severe COVID-19 due to an underlying disease.</li> </ul> <p>As of 20 September 2022, this vaccination is ongoing.</p>
<p><b>Other respiratory illness (such as influenza) vaccination strategies<sup>(42)</sup></b></p>	<p><b>Proactive</b></p> <p>Influenza vaccination in Germany is distributed annually through the national immunisation schedule, developed by the Standing Vaccination Committee (STIKO) in the Robert Koch Institut (RKI). The following groups are recommended for influenza vaccination in 2022/2023:</p> <p><b>Target population:</b></p> <ul style="list-style-type: none"> <li>▪ those aged ≥ 60 years</li> <li>▪ pregnant women in the 2<sup>nd</sup> or 3<sup>rd</sup> trimester</li> <li>▪ those aged ≥ 6 months with an increased health risk resulting from an underlying disease (such as asthma and diabetes)</li> <li>▪ those living in retirement or nursing homes</li> <li>▪ those who might act as a potential source of infection for at-risk patients</li> <li>▪ those at increased risk due to their professions (such as healthcare workers)</li> <li>▪ those at increased risk because of direct contact with poultry and wild birds.</li> </ul> <p>Distribution of the influenza vaccine typically begins in November.</p>
<p><b>COVID-19 surge test and trace strategy</b></p>	<p>None identified.</p>
<p><b>Community healthcare settings<sup>(7)</sup></b></p>	<p>FFP2 face masks are required for:</p> <ul style="list-style-type: none"> <li>▪ employees, patients, and visitors in hospitals, full and semi-inpatient care facilities and comparable facilities</li> <li>▪ employees in outpatient care services and comparable service providers during their work.</li> </ul>



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<p>• <b>Business activities</b></p> <p>• <b>Domestic travel</b></p>	<p><b>Protective measures applicable nationwide:</b> no federal guidance in place other than occupational health guidance since March 2022.</p> <p><b>Protective measures applicable nationwide:</b> masks are required in air and long-distance public transport.</p> <p><b>Optional additional protective measures for federal states or regional authorities:</b> face coverings are required in local public transport</p>
<p><b>Ireland</b></p>	
<p><b>Broad COVID-19 surge plan</b></p>	<p>None identified.</p>
<p><b>COVID-19 surge vaccination strategies<sup>(77)</sup></b></p>	<p><b>Proactive</b></p> <p>As of 23 July 2022, the Minister for Health announced the following recommendations from the National Immunisation Advisory Committee for Ireland's COVID-19 vaccination programme in autumn 2022:</p> <p><b>Target population:</b></p> <p><b>Second booster vaccine</b></p> <ul style="list-style-type: none"> <li>▪ those aged ≥ 65 years</li> <li>▪ those aged 12 to 64 years who are immunocompromised.</li> <li>▪ those aged 50 to 64 years</li> <li>▪ those aged ≥ 12 to 49 years with an underlying condition or are residents of LTCFs</li> <li>▪ pregnant women from 16 weeks</li> <li>▪ those working in healthcare.</li> </ul> <p>Co-administration of the influenza vaccine and COVID-19 booster is recommended.</p> <p>Booster vaccine distribution began on 15 August 2022 with those aged ≥ 60 years and pregnant women from 16 weeks.</p>
<p><b>Other respiratory illness (such as influenza) vaccination strategies<sup>(47)</sup></b></p>	<p><b>Proactive</b></p> <p>The influenza vaccination is distributed annually through the Health Service Executive (HSE). In 2022/2023 the following groups are recommended for influenza vaccination:</p> <p><b>Target population:</b></p> <ul style="list-style-type: none"> <li>▪ those aged ≥ 65 years</li> <li>▪ those aged 2 to 17 years</li> <li>▪ those working in health</li> <li>▪ pregnant women</li> <li>▪ those living in a nursing home or LTCF</li> <li>▪ those in regular contact with pigs, poultry or waterfowl</li> <li>▪ those aged 6-23 months and 13 to 64 years at increased risk due to a pre-existing condition (such as chronic liver disease and diabetes)</li> <li>▪ those that care for or are a household contact of a person at risk due to a pre-existing condition.</li> </ul> <p>No changes have been made (as of 20 September) to the recommended target population for the influenza vaccine in 2022/2023.</p>

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

	Distribution of the influenza vaccine typically begins in September.
<b>COVID-19 surge test and trace strategy</b>	None identified.
<b>Community healthcare settings</b>	None identified.
<b>Remaining public health measures</b>	<b>Face coverings; movement of people; social or mass gatherings; education; business activities; sporting and recreational activities; religious activities; domestic travel; and culture, leisure and entertainment</b> None identified.
<b>Italy</b>	
<b>Broad COVID-19 surge plan</b>	None identified.
<b>COVID-19 surge vaccination strategies<sup>(48, 78, 79)</sup></b>	<b>Proactive</b> The Italian Ministry of Health is recommending an additional COVID-19 booster for the following:  <b>Target population:</b> <ul style="list-style-type: none"> <li>▪ those aged ≥ 60 years</li> <li>▪ health workers</li> <li>▪ those living or working in a residential facility for the elderly</li> <li>▪ pregnant women</li> <li>▪ those aged ≥ 12 years with concomitant/pre-existing conditions which put them at risk (such as diabetes and liver disease).</li> </ul>
<b>Other respiratory illness (such as influenza) vaccination strategies<sup>(36)</sup></b>	<b>Proactive</b> Influenza vaccination is part of the Livelli Essenziali di Assistenza (LEA)-Essential Levels of Care which is delivered through regions and autonomous provinces. The Ministry of Health provides recommendations on those that receive the vaccination annually, with the influenza vaccine recommended to the following in 2022/2023:  <b>Target population:</b> <ul style="list-style-type: none"> <li>▪ pregnant women</li> <li>▪ those aged between 6 months and 65 years of age and at increased risk from influenza complications (such as those with chronic disease)</li> <li>▪ those aged ≥ 65 years</li> <li>▪ children or adolescents on long term treatment with acetylsalicylic acid</li> <li>▪ those living in LTCFs</li> <li>▪ relatives and contacts of individuals at high risk of complications</li> <li>▪ those working in public service, particularly those at increased risk of exposure to flu due to their work activities (such as doctors and police)</li> <li>▪ those who are in contact with animals which could be a source of non-human influenza virus (such as animal breeders and veterinarians)</li> <li>▪ blood donors</li> <li>▪ children aged between 6 months and 6 years.</li> </ul> <p><b>Additionally, for 2022/2023 influenza vaccine is strongly recommended for those aged between 60 and 64 years old.</b></p>

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

	Distribution of the influenza vaccine will begin at the start of October 2022. Simultaneous administration of influenza and COVID-19 vaccinations is possible, if necessary.
<b>COVID-19 surge test and trace strategy</b>	None identified.
<b>Community healthcare settings</b>	None identified.
<b>Remaining public health measures</b>	<b>Face coverings; movement of people; social or mass gatherings; education; business activities; sporting and recreational activities; religious activities; domestic travel; and culture, leisure and entertainment</b> None identified.
<b>The Netherlands</b>	
<b>Broad COVID-19 surge plan</b>	None identified.
<b>COVID-19 surge vaccination strategies<sup>(24)</sup></b>	<b>Proactive</b> The National Institute for Public Health and the Environment (RIVM) has recommended an additional COVID-19 booster, from 19 September 2022, for the following:  <b>Target population:</b> <b>Group 1</b> <ul style="list-style-type: none"> <li>▪ those with increased risk of serious illness and mortality</li> <li>▪ those working in healthcare with patient contact.</li> </ul> <b>Group 2</b> <ul style="list-style-type: none"> <li>▪ those aged ≥ 12 years.</li> </ul>
<b>Other respiratory illness (such as influenza) vaccination strategies<sup>(40)</sup></b>	<b>Proactive</b> Influenza vaccination is distributed annually through the RIVM. In 2022/2023 the following groups are recommended for influenza vaccination:  <b>Target population:</b> <ul style="list-style-type: none"> <li>▪ those aged ≥ 60 years</li> <li>▪ children and adults with certain health problems (such as those with permanent lung damage or a chronic heart disorder)</li> <li>▪ children aged between 6 months and 18 years who are long-term salicylate users</li> <li>▪ women ≥22 weeks pregnant</li> <li>▪ those with an intellectual disability</li> <li>▪ those living in a nursing home (who are not included in one of the above categories).</li> </ul> <p>Distribution of the influenza vaccine will begin in October. It is advised to wait at least 1 week after receiving the influenza vaccine before getting the COVID-19 vaccination, or 2 weeks after receiving the COVID-19 vaccine.</p> <p>Additionally, in the Autumn everyone born between 1/1/1953 and 31/12/1956 will receive an invitation for the pneumococcal vaccine.</p>
<b>COVID-19 surge test and trace strategy</b>	None identified.

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

<b>Community healthcare settings</b>	None identified.
<b>Remaining public health measures<sup>(80)</sup></b>	<p><b>Education</b> The Dutch Ministry of Social Affairs and Employment have released a childcare sector plan outlining four scenarios:</p> <p><b>Scenario 1 – Cold (Childcare fully open without measures)</b></p> <ul style="list-style-type: none"> <li>▪ standard hygiene measures</li> <li>▪ where necessary measures should be taken to ensure good ventilation</li> <li>▪ attention should be paid to the vulnerable.</li> </ul> <p><b>Scenario 2 – Influenza + (Childcare fully open with light, basic measures)</b> Additional to advice from Scenario 1</p> <ul style="list-style-type: none"> <li>▪ hand washing</li> <li>▪ do not shake hands</li> <li>▪ cough into your elbow</li> <li>▪ children should play outside where possible</li> <li>▪ one parent should drop off and pick up the child from childcare</li> <li>▪ childcare workers should undergo a RADT where necessary.</li> </ul> <p><b>Scenario 3 – Continuous battle (Childcare fully open with a light package of measures)</b> Additional to advice from Scenario 1 and 2</p> <ul style="list-style-type: none"> <li>▪ social distancing for adults</li> <li>▪ parents must wear a face covering</li> <li>▪ parents should perform a RADT if displaying symptoms</li> <li>▪ children should stay at home or perform a RADT if displaying symptoms</li> <li>▪ all childcare workers meetings should be virtual</li> <li>▪ walking routes at childcare should be utilised</li> <li>▪ childcare worker and parent interaction should be limited.</li> </ul> <p><b>Scenario 4 – Worst case (Childcare open in bubbles)</b> Additional to advice from Scenario 1, 2 and 3</p> <ul style="list-style-type: none"> <li>▪ minimal external parties within the childcare establishment</li> <li>▪ parents should drop off and pick up children at a designated point</li> <li>▪ childcare should be performed in bubbles, with interaction between bubbles as limited as possible.</li> </ul> <p><b>Face coverings; movement of people; social or mass gatherings; business activities; sporting and recreational activities; religious activities; domestic travel; and culture, leisure and entertainment</b> None identified.</p>
<b>Norway</b>	

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

<p><b>Broad COVID-19 surge plan<sup>(11)</sup></b></p>	<p>In April 2022 the Norwegian Government released a long term COVID-19 strategy titled “The government’s strategy and emergency plan for the handling of the COVID-19 pandemic”. It was assumed that this strategy and emergency plan would apply until June 2023.</p> <p>The strategy outlines key activities relating to pandemic preparedness: epidemic surveillance; vaccination; contact reduction measures; entry and exit measures; testing, isolation, infection tracing and quarantine; supply-critical medicines; healthcare capacity; and communication, infection control equipment. It also stressed that pandemic preparedness needs to take into account the potential for simultaneous events may occur.</p> <p>The strategy is based on 4 scenarios:  <b>Scenario 1:</b> assumed best outcome – moderate infection level. A variant (can be omicron) that spreads well, but causes little serious disease. Small seasonal effect, so that there will be some contagion through the summer of 2022, but then only a moderate autumn or winter wave.  <b>Scenario 2:</b> an optimistic outcome – a little spread of infection. A variant (can be omicron) that spreads well, but causes little serious disease. Significant seasonal effect so that there will be little infection through the summer of 2022, but then a large autumn or winter wave.  <b>Scenario 3:</b> pessimistic outcome – strong wave of infection. A new variant with an even greater ability to spread than the omicron variant, but no greater disease severity. It quickly becomes dominant and causes a very large wave of infection.  <b>Scenario 4:</b> assumed worst outcome – very strong wave of infection with a new variant. A new variant with even greater spreading ability than the omicron variant and at the same time greater disease severity. It quickly becomes dominant and causes a very large wave of infection with many seriously ill.</p>
<p><b>Surge plan levels<sup>(11)</sup></b></p>	<p>The government, in collaboration with the Institute of Public Health, the Directorate of Health and various sectors, have developed an overall framework with public health measures that may be introduced based on outcomes from a risk assessment: “Action levels – Normal, Low, Moderate, Loud, and Very Loud” (Appendix 2).</p>
<p><b>Indicators for determining surge plan level<sup>(11)</sup></b></p>	<p>None explicitly listed. The following variables are mentioned within the long term strategy:</p> <ul style="list-style-type: none"> <li>▪ new virus variant (variant of concern) with high disease severity and high spreading ability</li> <li>▪ severity of the disease and the virus’ ability to spread</li> <li>▪ health service capacity</li> <li>▪ proportionality of any measures, where the overall benefit is assessed against the consequences for various sectors and society as a whole.</li> </ul>
<p><b>Indicator thresholds</b></p>	<p>None identified.</p>
<p><b>Decision-making process for surge plan level selection<sup>(11)</sup></b></p>	<p>The strategy lists principles for decision-making relating to the pandemic:</p> <ul style="list-style-type: none"> <li>▪ society and the economy must function as normally as possible</li> <li>▪ population immunity must be maintained</li> <li>▪ the burden of disease must be kept low</li> <li>▪ vulnerable groups must be protected</li> <li>▪ children and young people must be prioritised</li> <li>▪ society must be prepared for a worsening situation</li> <li>▪ the handling must be knowledge-based</li> <li>▪ the handling must be targeted and coordinated</li> <li>▪ the basis for handling must be open</li> <li>▪ the challenge picture</li> <li>▪ the basis for assessing risk</li> <li>▪ capacity</li> <li>▪ justification for handling and level of measures.</li> </ul>

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

	<p>The Institute of Public Health and the Directorate of Health monitor and evaluate any potential threats. If identified, the Institute of Public Health conducts a risk assessment. The Directorate of Health, the state administrators and the regional health organisations contribute with assessments of current capacity in the health and care service. Any other simultaneous epidemics or events that may affect society and the health service are included in this assessment. The risk assessment is submitted to the Ministry of Health and Care and published online.</p> <p>The Institute of Public Health and the Directorate of Health evaluate whether any changes in the public health response are required. Considerations include the severity of the disease and the virus' ability to spread, as well as the necessity and the proportionality of any measures where the overall benefit is assessed against the consequences for various sectors and society as a whole. If national public health measures are required, advice is provided to the Ministry of Health and Care. In the event of a limited, local outbreak, advice will go to a municipality and/or a health organization.</p> <p>When there is a need for national measures, the government will make the decision based on an overall assessment which takes into account the positive and negative societal effects of the pandemic's development and infection control measures, both health consequences, economic consequences and other welfare consequences. The pandemic response must be developed in open dialogue with the population, the health service, professional environments and across sectors. Where possible, affected parties should be given the opportunity to comment on the measures.</p> <p>To invoke national measures the Ministry of Health would need to change the status of COVID-19 as the COVID-19 pandemic is no longer defined as a 'serious outbreak of a communicable disease that is hazardous to public health',<sup>(23)</sup> pursuant to § 1-3 of the Control of Communicable Diseases Act. However, COVID-19 is currently defined as an infectious disease dangerous to the public so municipalities have the power to introduce local measures.<sup>(81)</sup> However, any measure must have a clear medical justification, be necessary for the sake of infection control and appear useful after an overall assessment. When implementing infection control measures, emphasis must be placed on voluntary participation.</p> <p>Assessments behind public health measure implementation (measures choice and duration) must be made public. Rapid escalation of measures in response to uncertainty must be followed by equally rapid winding down when uncertainty is reduced.</p> <p>Cost-effectiveness of public health implementation will be considered. When the cost of infection control measures are greater than the gain (fewer people becoming infected and sick), it will not be economically viable to introduce measures.</p>
<p><b>COVID-19 surge vaccination strategies<sup>(82)</sup></b></p>	<p><b>Proactive</b></p> <p>As of 12 September, the Norwegian Institute of Public Health is recommending an additional COVID-19 booster to the following:</p> <p><b>Target population:</b></p> <ul style="list-style-type: none"> <li>▪ those aged ≥ 65 years</li> <li>▪ those aged 18 to 64 years with underlying disease</li> <li>▪ those aged 12 to 17 years with a serious underlying illness.</li> </ul>
<p><b>Other respiratory illness (such as influenza) vaccination strategies<sup>(50)</sup></b></p>	<p><b>None identified for 2022/2023.</b></p> <p>However, influenza vaccination is distributed annually through the Norwegian Institute of Public Health. In 2021/2022 the following groups were recommended for influenza vaccination:</p> <p><b>Target population:</b></p> <ul style="list-style-type: none"> <li>▪ those living in care homes and nursing homes</li> <li>▪ those aged ≥ 65 years</li> <li>▪ pregnant women in the 2<sup>nd</sup> and 3<sup>rd</sup> trimesters, and pregnant women in the 1<sup>st</sup> trimester with additional risk factors</li> </ul>

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

	<ul style="list-style-type: none"> <li>▪ premature babies</li> <li>▪ children and adults with increased risk due to a pre-existing condition (such as chronic liver disease and diabetes)</li> <li>▪ those who work in healthcare</li> <li>▪ those in regular contact with pigs</li> <li>▪ those that are in contact with, or are a household contact of, a person who is immunosuppressed.</li> </ul> <p>No changes have been made (as of 20 September) to the recommended target population for the influenza vaccine in 2022/2023.</p>
<b>COVID-19 surge test and trace strategy<sup>(11)</sup></b>	Testing, isolation, contact tracing and quarantine can be introduced individually (such as only testing and recommendations for isolation) or collectively, depending on the situation and the need.
<b>Community healthcare settings</b>	None identified.
<b>Remaining public health measures</b>	
• <b>Face coverings<sup>(83)</sup></b>	<b>Moderate:</b> required on public transport and indoors in public buildings, when 1.0m physical distancing cannot be achieved. <b>Loud:</b> required also for shops and shopping malls, on catering establishments and similar, when 1.0m physical distancing cannot be achieved (except kindergartens and elementary schools).
• <b>Movement of people<sup>(11)</sup></b>	<b>Low to Moderate:</b> no restrictions. <b>Loud to Very loud:</b> a maximum of 20 guests per week received at own home, which may be reduced to a maximum of 10 guests if necessary.
• <b>Social or mass gatherings<sup>(11)</sup></b>	<b>Moderate:</b> mask recommendation where a 1.0m physical distance is unachievable. <b>Loud:</b> maximum of 50 people indoors for a private event. For indoor and outdoor public events a range of options from 50 to 3,000 are outlined <b>Very loud:</b> events must cease, except in situation when it is strictly necessary. Significant number restrictions will be placed on both private and public indoor and outdoor events.
• <b>Education Schools, kindergartens, community colleges and camp schools<sup>(84)</sup></b>	<b>Low to Very loud:</b> continue to operate under a municipality controlled traffic light model. <b>Loud to Very loud:</b> national recommendations can additionally made.
<b>Higher education (university, college and vocational school)</b>	<b>Moderate:</b> 1.0m physical distancing in place. <b>Loud:</b> blended learning in place. <b>Very loud:</b> online learning where possible.
• <b>Business activities Retail<sup>(11, 85)</sup></b>	<b>Loud:</b> avoid shopping at busy times and use of click and collect where possible. <b>Very loud:</b> closure or restriction of non-essential shops and shopping malls. Personal services such as hairdressers can maintain necessary treatment.

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

<i>Work places</i>	<p><b>Moderate:</b> flexible with a recommendation for blended working.  <b>Loud:</b> 50% blended working.  <b>Very loud:</b> 100% home-based working.</p>
<p>• Sporting and recreational activities  <i>Professional sports</i><sup>(86)</sup></p> <p><i>Amateur sports for under 20s</i></p> <p><i>Amateur sports for all other ages</i></p>	<p><b>Very loud:</b> to be decided based on the situation.</p> <p><b>Very loud:</b> limited but continued organised sports and leisure activities. Closure of parks and playgrounds.</p> <p><b>Moderate:</b> possibility of a recommendation of 20 people or less indoors, and consideration of postponing bigger events such as cups.  <b>Loud:</b> recommendation of limiting high intensity training to 20 people or less indoors, and postponing indoor and outdoor events (except outdoors events for children/youth in non-contact sports).</p>
• Religious activities <sup>(87)</sup>	Religious activities are not specifically referenced in the framework.
• Domestic travel <sup>(88)</sup>	<p><b>Loud:</b> avoid public transport when crowded.  <b>Very loud:</b> avoid public transport if not necessary.</p>
• Culture, leisure and entertainment <sup>(89)</sup>	<p><b>Moderate:</b> restaurants must ensure a 1.0m distance is maintained between household members.  <b>Loud:</b> entertainment venues and arcades must close.  <b>Very loud:</b> restaurants must only operate for take-away.</p>
<b>Portugal</b>	
<b>Broad COVID-19 surge plan</b>	None identified.
<b>COVID-19 surge vaccination strategies</b> <sup>(90, 91)</sup>	<p><b>Proactive</b>  A vaccination campaign with the co-administration of COVID-19 and influenza vaccinations is recommended for the following groups:</p> <p><b>Target population:</b></p> <ul style="list-style-type: none"> <li>▪ those living in nursing homes</li> <li>▪ those aged ≥ 60 years</li> <li>▪ those aged ≥ 12 years with at-risk pathologies</li> <li>▪ those working in health (including all nursing home workers)</li> <li>▪ pregnant women ≥ 18 years and diseases defined by the standard published by the Directorate-General for Health.</li> </ul>

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

	Vaccine distribution began on 7 September with the most vulnerable (those in nursing homes, continued care and those aged ≥ 80 years) and aims to be completed in December.
<b>Other respiratory illness (such as influenza) vaccination strategies<sup>(31)</sup></b>	<p><b>Proactive</b> The influenza vaccine began on 7 September and is recommended for the following groups:</p> <p><b>Target population:</b></p> <ul style="list-style-type: none"> <li>▪ those living in nursing homes</li> <li>▪ those aged ≥ 65 years</li> <li>▪ those aged ≥ 18 years who have chronic disease (such as heart failure or severe lung disease)</li> <li>▪ those working in health (including all nursing home workers)</li> <li>▪ pregnant women</li> <li>▪ children aged ≥ 6 months with chronic diseases.</li> </ul> <p>Additionally, simultaneous administration of influenza and COVID-19 vaccinations is possible.</p>
<b>COVID-19 surge test and trace strategy<sup>(92)</sup></b>	COVID-19 testing required for visitors to healthcare settings. During autumn/winter 2022, those who are symptomatic should be tested for influenza A and B viruses, with children also tested for Respiratory Syncytial Virus.
<b>Community healthcare settings</b>	None identified.
<b>Remaining public health measures</b>	<p><b>Face coverings; movement of people; social or mass gatherings; education; business activities; sporting and recreational activities; religious activities; domestic travel; and culture, leisure and entertainment</b></p> <p>None identified.</p>
<b>Spain</b>	
<b>Broad COVID-19 surge plan<sup>(13)</sup></b>	<p>None identified.</p> <p>However, a plan for surveillance and case control measures was identified. The main objectives for this plan are:</p> <ul style="list-style-type: none"> <li>▪ surveillance, prevention and control of active infection by SARS-CoV-2, with special monitoring of the epidemiological evolution in vulnerable areas and groups</li> <li>▪ evaluation of the impact of COVID-19 based on the analysis of serious cases and deaths</li> <li>▪ monitor changes in the epidemiological patterns of the disease, as well as the appearance of new variants that could lead to a worse evolution of the epidemic, in order to be able to take measures early</li> <li>▪ establish monitoring indicators that allow the establishment of appropriate control measures if necessary</li> <li>▪ promote the normalization of healthcare after the acute phase of the pandemic, minimising the risks.</li> </ul> <p>The plan is not specifically linked to any public health implementation measures beyond those related to testing and quarantine.</p>
<b>Surge plan levels<sup>(13)</sup></b>	<p>Five alert levels are established (Alert level 0, 1, 2, 3 and 4) based on the following:</p> <ul style="list-style-type: none"> <li>▪ a composite index derived from epidemiological and healthcare capacity data (provided by the risk assessment and associated indicators)</li> <li>▪ the characteristics and vulnerability of susceptible populations</li> <li>▪ the possibility of adopting prevention and control measures.</li> </ul>

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

	<p>A risk assessment framework is also provided, aimed at detecting changes in the epidemiological situation which may impact the healthcare system. This framework contains 5 risk levels:</p> <ol style="list-style-type: none"> <li>1. Circulation controlled</li> <li>2. Base</li> <li>3. Medium</li> <li>4. High</li> <li>5. Very High</li> </ol>
<p><b>Indicators for determining surge plan level<sup>(13)</sup></b></p>	<p>The risk assessment framework outlines a number of indicators:</p> <p><b>Evaluation of the transmission level</b></p> <ul style="list-style-type: none"> <li>▪ cumulative incidence of cases in those aged 60 or older diagnosed in 14 days</li> <li>▪ cumulative incidence of cases in those aged 60 or older diagnosed in 7 days</li> <li>▪ case trend diagnosed (always interpret in the context of the incidence in the territory) in people older than 60 years.</li> </ul> <p><b>Level of use of care services of COVID-19</b></p> <ul style="list-style-type: none"> <li>▪ bed occupancy of hospitalisation for COVID-19 cases</li> <li>▪ new rate hospitalisations for COVID, per 100,000 inhabitants in 7 days</li> <li>▪ COVID-19 hospital bed occupancy rate for 100,000 inhabitants</li> <li>▪ bed occupancy critical care for cases of COVID-19</li> <li>▪ new rate hospitalisations in COVID ICU, per 100,000 inhabitants in 7 days</li> <li>▪ occupancy rate ICU per 100,000 population.</li> </ul> <p><b>Evaluation of the capacity for early diagnosis of cases</b></p> <ul style="list-style-type: none"> <li>▪ conducted test rate (tests for the diagnosis of active infection such as PCR (polymerase chain reaction) or antigen tests)</li> <li>▪ positivity of COVID-19 tests per week in people over 60 years of age.</li> </ul> <p><b>Severity level assessment</b></p> <ul style="list-style-type: none"> <li>▪ income share due to COVID (number of hospital admissions due to COVID-19 in 7 days / total hospital admissions in 7 days)</li> <li>▪ percentage of hospitalised cases that are admitted to ICU</li> <li>▪ mortality rate accumulated in 7 days per million inhabitants</li> <li>▪ excess mortality due to all causes in the last 2 weeks.</li> </ul> <p><b>Social health centres</b></p> <ul style="list-style-type: none"> <li>▪ social health centres with new outbreaks in the last 7 days</li> <li>▪ cases due to outbreak in social-health centres in the last 7 days.</li> </ul> <p>Calculation formulas and thresholds associated with the above indicators are outlined in Appendix 3.</p>
<p><b>Indicator thresholds<sup>(13)</sup></b></p>	<p>Thresholds for all indicators and risk assessment levels are outlined in Appendix 3.</p>
<p><b>Decision-making process for surge plan level selection<sup>(13)</sup></b></p>	<p>No information was identified on who makes decisions regarding the selection of alert levels or risk levels.</p>

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

	<p>However, the decision to escalate or de-escalate an alert level, and any response actions which may be associated, must be guided by a risk assessment. This risk assessment must be a continuous process that determines what scenario the evaluated territory is in and detects early signs that the scenario may be changing.</p>
<b>COVID-19 surge vaccination strategies</b> <sup>(93, 94)</sup>	<p><b>Proactive</b> The Public Health Commission has approved recommendations from the Committee on the Vaccination Program and Registry for an additional COVID-19 booster in the autumn/winter 2022 for the following:</p> <p><b>Target population:</b></p> <ul style="list-style-type: none"> <li>▪ those aged ≥ 60 years</li> <li>▪ those living in nursing homes</li> <li>▪ those with risk conditions</li> <li>▪ those working in health.</li> </ul> <p>Priority will be given to those living in nursing homes and those aged ≥ 80 years, followed by those working in health, those with risk conditions and those aged between 60-79 years.</p> <p><b>Reactive</b> The COVID-19 booster dose recommendation may be extended to other population groups, if the epidemiological situation or new evidence requires so.</p>
<b>Other respiratory illness (such as influenza) vaccination strategies</b> <sup>(38)</sup>	<p><b>Proactive</b> Influenza vaccination is delivered annually through the Spanish National Health System, with the Public Health Commission recommending the influenza vaccine to the following in 2022/2023:</p> <p><b>Target population:</b></p> <ul style="list-style-type: none"> <li>▪ those aged ≥ 6 months who have been institutionalised for a long period</li> <li>▪ those aged ≥ 65 years, especially those in residential facilities settings</li> <li>▪ those &lt; 65 years and at high risk for complications from the flu (such as pregnant women in any trimester)</li> <li>▪ people who can spread influenza to those at high risk</li> <li>▪ those who work in essential public services</li> <li>▪ those with direct occupational exposure to domestic birds, pigs on farms, poultry or pig farms, and also to wild birds.</li> </ul> <p>Distribution of the influenza vaccine will begin in the 3 week of October/1 week of November 2022. Additionally, simultaneous administration of influenza and COVID-19 vaccinations is possible, at different anatomic sites.</p>
<b>COVID-19 surge test and trace strategy</b> <sup>(95)</sup>	<p>A surveillance and control strategy against COVID-19 after the acute phase of the pandemic has been outlined. This is not linked to the Alert Levels previously mentioned but outlines:</p> <ul style="list-style-type: none"> <li>▪ mandatory reporting of confirmed cases and outbreaks of 3 or more cases linked to vulnerable areas</li> <li>▪ PCR testing required for those who are medically vulnerable, or related to vulnerable settings, or symptomatic and require hospitalisation, or have spent time (14 days) in an area with a VOC.</li> </ul>
<b>Community healthcare settings</b>	<p>None identified.</p>

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

Remaining public health measures	Face coverings; movement of people; social or mass gatherings; education; business activities; sporting and recreational activities; religious activities; domestic travel; and culture, leisure and entertainment None identified.
<b>Sweden</b>	
Broad COVID-19 surge plan	None identified.
COVID-19 surge vaccination strategies <sup>(96)</sup>	<p><b>Proactive</b> From 1 September, the Swedish Health Authorities are recommending an additional booster dose in autumn/winter 2022 for the following:</p> <p><b>Target population:</b></p> <ul style="list-style-type: none"> <li>▪ those aged ≥ 65 years</li> <li>▪ those aged ≥ 18 years in an at-risk group.</li> </ul> <p>Additionally, all adults aged 18 – 64 years who want to receive an additional booster dose may do so.</p>
Other respiratory illness (such as influenza) vaccination strategies <sup>(44, 97)</sup>	<p><b>Proactive</b> The Public Health Agency recommends for 2022/2023 the following groups for influenza vaccination:</p> <p><b>Target population:</b></p> <ul style="list-style-type: none"> <li>▪ those aged ≥ 65 years</li> <li>▪ pregnant women after pregnancy week 12</li> <li>▪ medical risk groups &lt; 65 years of age</li> <li>▪ health and care staff</li> <li>▪ household contact of people with severely weakened immune systems.</li> </ul> <p>Vaccine distribution will begin on 8 November with priority given to at risk groups. In autumn of 2022 those with certain underlying diseases, as well as those aged ≥ 75 years will be offered pneumococcal vaccinations.</p> <p><b>Reactive</b> From 5 December other groups can be offered the influenza vaccination if required. While standard-dose flu vaccine and COVID-19 vaccine can be given to adults at the same time, for children, it is generally recommended to separate vaccination against covid-19 from all other vaccinations, including influenza vaccination, by at least 7 days.</p>
COVID-19 surge test and trace strategy	None identified.
Community healthcare settings	None identified.
Remaining public health measures	Face coverings; movement of people; social or mass gatherings; education; business activities; sporting and recreational activities; religious activities; domestic travel; and culture, leisure and entertainment None identified.
<b>NON EU/EEA</b>	
<b>Australia</b>	

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

<p><b>Broad COVID-19 surge plan</b> (52)</p>	<p>None identified. However, brief considerations were outlined in an announcement relating to testing, quarantining and residential care facilities.</p>
<p><b>COVID-19 surge vaccination strategies</b><sup>(98, 99)</sup></p>	<p><b>Proactive</b> The Australian Technical Advisory Group on Immunisation (ATAGI) is currently recommending an additional COVID-19 booster for the following:</p> <p><b>Target population:</b></p> <ul style="list-style-type: none"> <li>▪ those aged ≥ 50 years</li> <li>▪ those living in an aged care or disability care facility</li> <li>▪ Aboriginal or Torres Strait Islander and aged ≥ 50 years</li> <li>▪ those aged ≥ 16 years and with a medical condition that increases the risk of severe COVID-19 illness</li> <li>▪ those aged ≥ 16 years with disability, with significant or complex health needs, or multiple comorbidities which cause increased risk.</li> </ul> <p>Those aged 30 to 49 years can also receive an additional COVID-19 booster if they wish, although this group is currently not within the target population outlined by the ATAGI.</p> <p>A 5 COVID-19 vaccination (3 booster) is also recommended for those who are severely immunocompromised.</p>
<p><b>Other respiratory illness (such as influenza) vaccination strategies</b><sup>(100)</sup></p>	<p><b>Proactive</b> Influenza vaccination is delivered annually through the National Immunisation Programme, with the following recommended for influenza vaccination in 2022/2023:</p> <p><b>Target population:</b></p> <ul style="list-style-type: none"> <li>▪ Aboriginal and Torres Strait Islander people aged ≥ 6 months</li> <li>▪ children aged 6 months to under 5 years</li> <li>▪ pregnant women</li> <li>▪ those aged ≥ 65 years</li> <li>▪ those aged ≥ 6 months with medical conditions that place them at high risk (such as cardiac disease or chronic respiratory conditions).</li> </ul> <p>Distribution of the influenza vaccine began in April 2022, simultaneous administration of influenza and COVID-19 vaccinations is possible.</p>
<p><b>COVID-19 surge test and trace strategy</b><sup>(52)</sup></p>	<p>Maintain current testing (PCR or RADT) of symptomatic cases until the impact of the Omicron BA.2 subvariant on the health system has reduced. A transition should then occur to focus PCR testing of the following:</p> <ul style="list-style-type: none"> <li>▪ symptomatic people at risk of severe disease</li> <li>▪ symptomatic people who live with or care for people at risk of severe disease</li> <li>▪ household contacts of those with COVID-19 who are at risk of severe illness</li> <li>▪ any others who would benefit from early diagnosis and treatment.</li> </ul> <p>Symptomatic people otherwise not at risk of severe illness disease are strongly recommended to isolate until symptoms resolve and have a RADT for COVID-19.</p> <p>All testing providers should support the targeted testing of multiple respiratory pathogens simultaneously (e.g. multiplex nucleic acid amplification), where clinically indicated.</p>

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

	A nationally consistent, risk-based transition is recommended for the removal of the requirement for close contacts of COVID-19 cases to quarantine and replaced with reduced interaction with others and mask wearing.
<b>Community healthcare settings</b>	<p>All residents and staff are strongly recommended to receive an influenza vaccination.</p> <p>All aged care homes are required to have a dedicated IPC Lead as part of their nursing staff to provide clinical leadership on site. Aged care homes need to consider back-up mechanisms (such as additional staff more highly trained in IPC and or remote working capabilities) should the aged care home's IPC Lead need to isolate for any reason during an outbreak. Aged care homes should consider training additional IPC leads to provide backup. Funding will be available during 2022-2023 to pay for the costs associated with training for additional IPC Leads.</p> <p>Providers must ensure staff training, including that related to IPC, is up to date and remains contemporary, and support staff to take up additional training as needed. Facility staff should draw upon the expertise of the IPC Lead to assist them to enact suitable IPC procedures and improve their knowledge. Where appropriate, providers should consider additional or refresher IPC training for staff to support potential outbreak management situations.</p>
<b>Remaining public health measures</b>	<p><b>Face coverings; movement of people; social or mass gatherings; education; business activities; sporting and recreational activities; religious activities; domestic travel; and culture, leisure and entertainment</b></p> <p>None identified.</p>
<b>England</b>	
<b>Broad COVID-19 surge plan</b>	None identified.
<b>COVID-19 surge vaccination strategies<sup>(101)</sup></b>	<p><b>Proactive</b></p> <p>The Joint Committee on Vaccination and Immunisation (JCVI) has recommended an autumn 2022 COVID-19 vaccination campaign for an additional COVID-19 booster for the following:</p> <p><b>Target population:</b></p> <ul style="list-style-type: none"> <li>▪ those living in a care home for older adults and those working in a care home for older adults</li> <li>▪ frontline health and social care workers</li> <li>▪ those aged ≥ 50 years</li> <li>▪ those aged 5 to 49 years in a clinical risk group, including pregnant women</li> <li>▪ those aged 5 to 49 years who are household contacts of those with immunosuppression</li> <li>▪ carers aged 16 to 49 years.</li> </ul> <p>Vaccination distribution began for care home residents and housebound people on 5 September. It is recommended the autumn COVID-19 vaccination campaign is completed by the start of December 2022.</p>
<b>Other respiratory illness (such as influenza) vaccination strategies<sup>(30)</sup></b>	<p><b>Proactive</b></p> <p>Influenza vaccination is delivered annually through the NHS Influenza Immunisation Programme, with the JCVI and National Health System (NHS) England recommending the following for influenza vaccination in 2022/2023:</p> <p><b>Target population:</b></p> <ul style="list-style-type: none"> <li>▪ all children aged 2 or 3 years on 31 August 2022</li> <li>▪ all primary school aged children (from reception to Year 6)</li> <li>▪ those aged 6 months to &lt; 65 years in clinical risk groups</li> <li>▪ pregnant women</li> </ul>

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

	<ul style="list-style-type: none"> <li>▪ those aged ≥ 65 years</li> <li>▪ those in LTCFs</li> <li>▪ carers</li> <li>▪ close contacts of immunocompromised individuals</li> <li>▪ frontline staff employed by the following types of social care providers without employer led occupational health schemes:             <ul style="list-style-type: none"> <li>○ a registered residential care or nursing home</li> <li>○ registered domiciliary care provider</li> <li>○ a voluntary managed hospice provider</li> <li>○ Direct Payment (personal budgets) or Personal Health Budgets, such as Personal Assistants.</li> </ul> </li> </ul> <p>Distribution of the influenza vaccine began in September 2022, simultaneous administration of influenza and COVID-19 vaccinations is possible.</p> <p>Once influenza vaccination is delivered to the target population, the following will be eligible for influenza vaccination in 2022/2023 (beginning in mid-October 2022):</p> <ul style="list-style-type: none"> <li>▪ those aged 50 to 64 years not in clinical risk groups (including those who turn 50 years by 31 March 2023)</li> <li>▪ secondary school children in Years 7, 8 and 9, who will be offered the vaccine in order of school year (starting with the youngest first).</li> </ul>
<b>COVID-19 surge test and trace strategy</b>	None identified.
<b>Community healthcare settings</b>	None identified.
<b>Remaining public health measures</b>	<b>Face coverings; movement of people; social or mass gatherings; education; business activities; sporting and recreational activities; religious activities; domestic travel; and culture, leisure and entertainment</b> None identified.
<b>Israel</b>	
<b>Broad COVID-19 surge plan</b>	None identified.
<b>COVID-19 surge vaccination strategies<sup>(102)</sup></b>	<p>None identified for autumn/winter 2022.</p> <p>However, Israel has responded to the latest wave of COVID-19 with a COVID-19 vaccination strategy which began in July 2022. An additional booster dose is currently being administered to the following:</p> <p><b>Target population:</b></p> <ul style="list-style-type: none"> <li>▪ at risk groups</li> <li>▪ immunosuppressed individuals</li> <li>▪ patients and workers in all geriatric health and social service facilities included in the “Magen Avot v’Imahot” programme</li> <li>▪ those &gt; 60 years of age</li> <li>▪ Healthcare workers</li> <li>▪ those aged ≥ 18 years with pre-existing conditions and risk factors for severe COVID-19 illness, and their caregivers</li> <li>▪ those with a high risk for exposure to a confirmed COVID-19 patient in their line of work.</li> </ul> <p>News reports indicate that the updated COVID-19 booster will be offered to all those aged ≥ 12 years and at least 3 months from a previous shot or COVID-19 illness.<sup>(103)</sup></p>

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

<p><b>Other respiratory illness (such as influenza) vaccination strategies<sup>(35)</sup></b></p>	<p><b>Proactive</b> The Israeli Ministry of Health recommend the influenza vaccination in 2022/2023 for everyone aged <math>\geq 6</math> months. The following are identified as vulnerable and further targeted for vaccination:</p> <p><b>Target population:</b></p> <ul style="list-style-type: none"> <li>▪ those with long term disease (such as congestive heart failure or diabetes)</li> <li>▪ women who intend to become pregnant, pregnant women, and postnatal women</li> <li>▪ children aged 6 months to 6 years, and especially up to the age of 2 years</li> <li>▪ children ages 6 months up to 18 years old that receive long term Aspirin therapy</li> <li>▪ school children</li> <li>▪ those aged <math>\geq 50</math> years, and especially those aged <math>\geq 65</math> years</li> <li>▪ those living in non-open or semi-open institutions (such as nursing homes and psychiatric hospitals)</li> <li>▪ medical staff</li> <li>▪ indispensable persons in key positions in various organisations.</li> </ul> <p>Distribution of the influenza vaccine typically begins at the start of October, simultaneous administration of influenza and COVID-19 vaccinations is possible.</p>
<p><b>COVID-19 surge test and trace strategy</b></p>	<p>None identified.</p>
<p><b>Community healthcare settings<sup>(55)</sup></b></p>	<p>As of 15 June 2022, in light of Omicron BA.5 sub variant circulation, new rules around community healthcare settings were implemented:</p> <ul style="list-style-type: none"> <li>▪ face coverings must be worn</li> <li>▪ proof of a negative COVID-19 test result is required (RADT accepted)</li> <li>▪ staff and visitors must wear a face covering in any closed area where a resident is staying, and recommended in all other parts of the facility</li> <li>▪ staff are tested weekly using RADT, with PCR confirmation tests for positive results</li> <li>▪ residents transferring from a hospital setting must be COVID-19 tested (PCR or RADT).</li> </ul> <p>Family visits will continue as usual with no restrictions.</p>
<p><b>Remaining public health measures</b></p>	<p><b>Face coverings; movement of people; social or mass gatherings; education; business activities; sporting and recreational activities; religious activities; domestic travel; and culture, leisure and entertainment</b></p> <p>None identified.</p>
<p><b>New Zealand</b></p>	
<p><b>Broad COVID-19 surge plan<sup>(10)</sup></b></p>	<p>The Traffic Lights COVID-19 Protection Framework was implemented from December 2021 to 12 September 2022 and used Green, Orange and Red traffic lights to signal the extent to which COVID-19 was impacting the community and healthcare system, and what public health measures and strategies were implemented. The Traffic Light framework aimed to:</p> <ul style="list-style-type: none"> <li>▪ help people protect one another from the virus</li> <li>▪ keep hospitalisation rates as low as possible and avoid overwhelming the health system</li> <li>▪ minimise the impact of large outbreaks</li> <li>▪ reduce the need for lockdowns.</li> </ul>
<p><b>Surge plan levels<sup>(104)</sup></b></p>	<p>Three stages were identified in the Traffic Light Framework:</p>

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

	<p><b>Green</b></p> <ul style="list-style-type: none"> <li>▪ limited community transmission and a responsive healthcare system</li> <li>▪ government-mandated restrictions were removed</li> <li>▪ guidance only</li> <li>▪ the least restrictive level of the Framework.</li> </ul> <p><b>Orange</b></p> <ul style="list-style-type: none"> <li>▪ further COVID-19 community transmission, risk to vulnerable people and pressure on the healthcare system</li> <li>▪ public health restrictions were limited to only those needed to slow the spread of COVID-19 and ensure pressure on the health system and other essential services remained manageable.</li> </ul> <p><b>Red</b></p> <ul style="list-style-type: none"> <li>▪ action required to protect vulnerable people and the healthcare system</li> <li>▪ broad-based public health restrictions were implemented in response to an outbreak, or imminent risk of an escalating outbreak</li> <li>▪ the most restrictive level of the Framework.</li> </ul> <p>Each stage was linked to public health guidance and or public health measure implementation.</p>
<p><b>Indicators for determining surge plan level</b><sup>(18, 105, 106)</sup></p>	<p>No government resources were identified outlining the indicators which determined the Traffic Light framework response selected, however, the following have been identified in various news reports:</p> <ul style="list-style-type: none"> <li>▪ vaccination rates</li> <li>▪ vulnerable populations within regions</li> <li>▪ the state of the health system</li> <li>▪ testing, contact tracing and case management capacity</li> <li>▪ the rate and effect of COVID-19 transmission</li> <li>▪ scenario modelling.</li> </ul>
<p><b>Indicator thresholds</b></p>	<p>None identified.</p>
<p><b>Decision-making process for surge plan level selection</b><sup>(22)</sup></p>	<p>No information was identified as to the decision-making process surrounding the Traffic Light Framework, however, there is an established Minister for the COVID-19 response who is further supported by the COVID-19 Independent Continuous Review, Improvement and Advice Group, the Strategic COVID-19 Public Health Advisory Group and a Community Panel.</p> <p>A review of the phase selected within the Traffic Light Framework was undertaken every 2 weeks, with the previously outlined indicators taken into consideration. Final decision-making rests with government.</p> <p>Within the previous Alert Framework implemented within New Zealand, risk assessment was conducted by the Cabinet, informed by the Director General of Health.</p>
<p><b>COVID-19 surge vaccination strategies</b><sup>(107)</sup></p>	<p><b>Proactive</b></p> <p>Currently an additional COVID-19 booster is available to the following:</p> <p><b>Target population:</b></p> <ul style="list-style-type: none"> <li>▪ those aged ≥ 65 years</li> <li>▪ Māori and Pacific peoples aged ≥ 50 years</li> </ul>

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

	<ul style="list-style-type: none"> <li>▪ those living in care and disability facilities</li> <li>▪ severely immunocompromised people who received a 3-dose primary course and a 4<sup>th</sup> dose as a 1<sup>st</sup> booster (this would therefore be a 5<sup>th</sup> dose)</li> <li>▪ those aged ≥ 16 years with a disability, significant or complex health needs, or multiple comorbidities</li> <li>▪ those aged ≥ 16 years with a medical condition that increases the risk of severe COVID-19.</li> </ul> <p>Following this, the additional COVID-19 booster is also available to:</p> <ul style="list-style-type: none"> <li>▪ those aged ≥ 50 years</li> <li>▪ those working in health and care, aged ≥ 30 years.</li> </ul>
<p><b>Other respiratory illness (such as influenza) vaccination strategies<sup>(37)</sup></b></p>	<p><b>Proactive</b> Influenza vaccination is delivered annually by Manatū Hauora Ministry of Health, with the following groups recommended for the influenza vaccination:</p> <p><b>Target population:</b></p> <ul style="list-style-type: none"> <li>▪ those aged ≥ 65 years</li> <li>▪ Māori and Pacific people aged ≥ 55 years</li> <li>▪ pregnant women</li> <li>▪ those with a long-term medical condition (such as like diabetes or asthma).</li> </ul> <p>Additionally, for 2022/2023 influenza vaccine is recommended for Tamariki (Māori children) aged 3 to 12 years and those with serious mental health or addiction needs.</p> <p>Additionally, simultaneous administration of influenza and COVID-19 vaccinations is possible.</p>
<p><b>COVID-19 surge test and trace strategy<sup>(16)</sup></b></p>	<p><b>Phase One</b></p> <ul style="list-style-type: none"> <li>▪ full contact tracing</li> <li>▪ isolation (14 days if you are a positive COVID-19 case, and 10 days if you are contact)</li> <li>▪ anyone who is symptomatic is tested at a community testing station or at a primary health provider.</li> </ul> <p><b>Phase Two</b></p> <ul style="list-style-type: none"> <li>▪ PCR testing of symptomatic people and close contacts</li> <li>▪ reduce the isolation period for positive COVID-19 cases to 10 days, and close contacts to 7 days</li> <li>▪ household contacts will be actively managed by contact tracing services, with close contacts requiring a PCR test on day 5</li> <li>▪ widespread use of COVID-19 testing for the return-to-work policy, where asymptomatic contacts in critical workforces can go to work with a negative RADT.</li> </ul> <p><b>Phase Three</b></p> <ul style="list-style-type: none"> <li>▪ more emphasis on supported self-service for contact tracing, RADT for diagnosing COVID-19 and a self-service tool to enable identification of high-risk contacts</li> <li>▪ the definition of contacts will change to household and household like contacts only</li> <li>▪ clinical care will focus on people with high needs.</li> </ul>
<p><b>Community healthcare settings</b></p>	<p>None identified.</p>

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

Remaining public health measures <sup>(10)</sup>	Traffic Light System
<ul style="list-style-type: none"> <li>• <b>Face coverings</b></li> </ul>	<p><b>Green:</b> none identified.  <b>Orange:</b> face coverings required in many indoor settings.  <b>Red:</b> face coverings required in all indoor settings only.</p>
<ul style="list-style-type: none"> <li>• <b>Movement of people</b></li> </ul>	<p><b>Green:</b> none identified.  <b>Orange:</b> none identified.  <b>Red:</b> none identified.</p>
<ul style="list-style-type: none"> <li>• <b>Social or mass gatherings</b></li> </ul>	<p><b>Green:</b> none identified.  <b>Orange:</b> no limit for indoor or outdoor gatherings. Face coverings only required for workers or volunteers at gatherings.  <b>Red:</b> indoor gatherings are limited to 200 people. At all gatherings, people do not need to physically distance. Face coverings not required for outdoor gatherings, or when the gathering is the only one using the defined space.</p>
<ul style="list-style-type: none"> <li>• <b>Education</b></li> </ul>	<p><b>Green:</b> none identified.  <b>Orange:</b> all open. Encouraged to wear a face covering indoors. All students aged ≥ 12 years must wear face coverings on public and school transport.  <b>Red:</b> all open. Students and teachers in Year 4 and up must wear a face covering indoors. Staff, parents/caregivers and visitors to education services must wear a face covering indoors.</p>
<ul style="list-style-type: none"> <li>• <b>Business activities<sup>(108)</sup></b></li> </ul>	<p><b>Green:</b> face coverings and hygiene practices are encouraged.  <b>Orange:</b> face coverings are required in most of the same indoor settings as for red.  <b>Red:</b> face coverings are generally required indoors but are not required outdoors. Capacity limits apply to many indoor settings.</p>
<ul style="list-style-type: none"> <li>• <b>Sporting and recreational activities</b></li> </ul>	<p><b>Green:</b> none identified.  <b>Orange:</b> none identified.  <b>Red:</b> indoor sports events are limited to 200 people. Swimming pools can open. Gym staff must wear a face covering, except when they are instructing a class and can maintain a 2m distance from others.</p>
<ul style="list-style-type: none"> <li>• <b>Religious activities<sup>(109)</sup></b></li> </ul>	<p><b>Green:</b> none identified.  <b>Orange:</b> face coverings encouraged. Workers and volunteers at gatherings must wear face coverings — unless they are exempt.  <b>Red:</b> indoor limited to 200 people. Outdoor faith-based gatherings have no limit. Face coverings not required for outdoor gathering, or when the gathering is the only one using the defined space. Workers and volunteers must wear face coverings — unless they are exempt.</p>
<ul style="list-style-type: none"> <li>• <b>Domestic travel<sup>(110)</sup></b></li> </ul>	<p><b>Green:</b> none identified.  <b>Orange:</b> face covering must be worn on public transport.</p>

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

<p>• Culture, leisure and entertainment</p>	<p><b>Red:</b> same as orange.  <b>Green:</b> none identified.  <b>Orange:</b> none identified.  <b>Red:</b> up to 200 people indoors, including children. Seated and separated from other groups allowed only. Face coverings must be worn by customers and customer facing employees.</p>
<p>Northern Ireland</p>	
<p><b>Broad COVID-19 surge plan</b></p>	<p>None identified.</p>
<p><b>COVID-19 surge vaccination strategies<sup>(111)</sup></b></p>	<p><b>Proactive</b>  The JCVI has issued recommendation of an autumn 2022 COVID-19 vaccination campaign for an additional COVID-19 booster for the following:</p> <p><b>Target population:</b></p> <ul style="list-style-type: none"> <li>▪ those living in a care home for older adults and staff working in care homes for older adults</li> <li>▪ frontline health and social care workers</li> <li>▪ all adults aged ≥ 50 years</li> <li>▪ those aged 5 to 49 years in a clinical risk group, including pregnant women</li> <li>▪ those aged 5 to 49 years who are household contacts of people with immunosuppression</li> <li>▪ those aged 16 to 49 years who are carers.</li> </ul> <p>Vaccine distribution began on 19 September with care home residents and staff the initial target group. All COVID-19 vaccinations will be offered to those eligible by the start of December 2022.</p>
<p><b>Other respiratory illness (such as influenza) vaccination strategies<sup>(29)</sup></b></p>	<p><b>Proactive</b>  Influenza vaccination is delivered annually through the NHS Influenza Immunisation Programme, with the JCVI and Health and Social Care Northern Ireland recommending the following for influenza vaccination in 2022/2023:</p> <p><b>Target population:</b></p> <ul style="list-style-type: none"> <li>▪ those aged ≥ 50 years</li> <li>▪ all preschool children aged 2 to 4 years on 1 September 2022</li> <li>▪ all primary and secondary (up to Year 12) school children</li> <li>▪ those aged 6 months to 49 years in clinical risk groups</li> <li>▪ pregnant women</li> <li>▪ those in LTCFs</li> <li>▪ carers, healthcare professionals and social workers</li> <li>▪ close contacts of immunocompromised individuals</li> <li>▪ frontline health and social care workers employed by: <ul style="list-style-type: none"> <li>○ Health and Social Care Trusts</li> <li>○ community Health and Social Care providers including general practitioners, pharmacies, dentists</li> <li>○ registered independent sector residential care or nursing home</li> <li>○ registered domiciliary care providers</li> <li>○ voluntary managed hospice provider.</li> </ul> </li> </ul>

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

	All influenza vaccinations will be offered to those eligible by the end of December 2022.
<b>COVID-19 surge test and trace strategy</b>	None identified.
<b>Community healthcare settings</b>	None identified.
<b>Remaining public health measures</b>	<b>Face coverings; movement of people; social or mass gatherings; education; business activities; sporting and recreational activities; religious activities; domestic travel; and culture, leisure and entertainment</b> None identified.
<b>Scotland</b>	
<b>Broad COVID-19 surge plan<sup>(9)</sup></b>	The COVID 19 Scotland's Strategic Framework (last updated February 2022) outlines measures which can be scaled depending on the severity of COVID-19.
<b>Surge plan levels<sup>(9)</sup></b>	<p>A COVID-19 threat matrix is used in which disease impact is assessed (low to high) and risk of infection is assessed (low to high) (Appendix 4). The assessed threat is then rated as Low, Medium or High:</p> <p><b>Low Threat:</b> A variant with low impact and low transmissibility.  <b>Medium Threat:</b> A present variant that was either significantly more transmissible or significantly more severe (but not both) than the current dominant strain (if that strain were assessed as a low threat).  <b>High Threat:</b> A present variant that was both significantly more transmissible and significantly more severe, with the threat level increasing further to the extent that the variant evades immunity.</p> <p>Suites of measures are described which relate to 4 categories of response. They broadly relate to the threat assessment. However, the measures listed as well as the corresponding threat level are stated to be only for illustration purposes and are not set rules. The categories of responses are:</p> <p><b>Routine Measures</b> (no legal measures)  <b>Baseline Protective Measures</b>  <b>Targeted Protective Measures</b>  <b>Extensive Protective Measures</b></p> <p>Key elements of the Strategic Framework:</p> <ul style="list-style-type: none"> <li>▪ vaccination</li> <li>▪ testing and surveillance</li> <li>▪ treatment</li> <li>▪ deploying Protective Measures when necessary</li> <li>▪ supporting positive behaviours and adaptation</li> <li>▪ helping to manage COVID-19 internationally</li> <li>▪ supporting people at highest risk and reducing health inequalities</li> <li>▪ mitigating broader harms and supporting recovery.</li> </ul> <p>Each assessed threat rating is linked to public health measure implementation.</p>

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

<p><b>Indicators for determining surge plan level<sup>(9)</sup></b></p>	<p>Indicators that are considered during decision making:</p> <ul style="list-style-type: none"> <li>▪ numbers of cases of the variant in Scotland and elsewhere in the UK</li> <li>▪ COVID-19 hospital and ICU admissions</li> <li>▪ numbers of COVID-19 deaths, the infection fatality ratio and morbidity</li> <li>▪ vaccine efficacy.</li> </ul> <p>Further consideration is also given to:</p> <ul style="list-style-type: none"> <li>▪ monitoring developments internationally, including through WHO and UKHSA designations of variants</li> <li>▪ monitor epidemiological intelligence from areas or countries that already have experience of relevant variants.</li> </ul>
<p><b>Indicator thresholds<sup>(9)</sup></b></p>	<p>None identified.</p> <p>Judgement about the nature and likely impact of any future risks will be key. The Scottish Framework outlines that thresholds which automatically trigger public health responses would likely risk a disproportionate response and be unlawful at the time of implementation. This is because decisions related to public health need to take into account all relevant factors.</p>
<p><b>Decision-making process for surge plan level selection<sup>(9)</sup></b></p>	<p>A decision to introduce or remove public health measures is first informed by a threat assessment performed by the following organisations:</p> <ul style="list-style-type: none"> <li>▪ Public Health Scotland National Health Service (NHS) Scotland</li> <li>▪ Chief Medical Officer, NHS Clinical Director, Chief Social Policy Adviser, Chief Economic Adviser</li> <li>▪ COVID-19 Advisory Group (when activated)</li> <li>▪ National Incident Management Team (when activated)</li> <li>▪ International and UK advisory bodies WHO, UK Health Security Agency/Joint Biosecurity Centre, Scientific Advisory Group for Emergencies (SAGE), Joint Committee on Vaccination and Immunisation (JCVI) etc.</li> </ul> <p>An assessment of the necessary and proportionate response to a new variant will take account of the available evidence on transmissibility and severity. If transmissibility or severity were assessed to have significantly increased, then that would likely increase the assessed threat. An assessment would also take account factors such as the broader resilience to a more harmful variant (for example, current NHS capacity, the likelihood of concurrent risks, such as flu, the adequacy of adaptations, and waning immunity).</p> <p>The framework (outlined previously) has been developed for planning purposes and can be applied with flexibility so that chosen responses are appropriately targeted to the situation. As it is acknowledged that not all potential threats will be uniform in their impacts and a chosen response must take account of all relevant factors. The objective is to be targeted and proportionate.</p> <p>Deciding what level should apply and what public health measures are required involves both an assessment of data (quantitative) and the application of judgement (qualitative).</p> <p>Judgements around the reintroduction of measures will also take into account the need for stability (to avoid frequently changing rules and advice concerning protective measures). It will depend on a rapid assessment both of the transmissibility and severity of the variant and of the current state of resilience to the virus. In some circumstances no escalation of response may be judged necessary for a given threat; in other circumstances, additional temporary baseline protective measures may be necessary and proportionate. If measures are reintroduced, it is stated that relevant COVID indicators as well as broader health, social and economic indicators will be monitored to ensure these protective measures are eased as soon as it is appropriate to do so.</p>
<p><b>COVID-19 surge vaccination strategies<sup>(112)</sup></b></p>	<p><b>Proactive</b></p> <p>The JCVI has issued recommendation of an autumn 2022 COVID-19 vaccination campaign for an additional COVID-19 booster for the following:</p>

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

	<p><b>Target population:</b></p> <ul style="list-style-type: none"> <li>▪ those living in a care home for older adults and staff working in care homes for older adults</li> <li>▪ frontline health and social care workers</li> <li>▪ all adults aged ≥ 50 years</li> <li>▪ those aged 5 to 49 years in a clinical risk group, including pregnant women</li> <li>▪ those aged 5 to 49 years who are household contacts of people with immunosuppression</li> <li>▪ those aged 16 to 49 years who are carers.</li> </ul> <p>Vaccine distribution began on 5 September, with vaccines offered to care home residents first, followed by health and social care workers. All COVID-19 vaccinations will be offered to those eligible by the start of December 2022.</p>
<p><b>Other respiratory illness (such as influenza) vaccination strategies<sup>(43)</sup></b></p>	<p><b>Proactive</b></p> <p>Influenza vaccination is delivered annually through the NHS Influenza Immunisation Programme, with the JCVI and NHS Scotland recommending the following for influenza vaccination in 2022/2023:</p> <p><b>Target population:</b></p> <ul style="list-style-type: none"> <li>▪ those aged ≥ 50 years</li> <li>▪ all preschool children aged 2 to 4 years on 1 September 2022</li> <li>▪ all primary and secondary (up to year 12) school children</li> <li>▪ those aged 6 months to 49 years in clinical risk groups</li> <li>▪ pregnant women</li> <li>▪ those in LTCFs</li> <li>▪ carers, healthcare professionals and social workers</li> <li>▪ close contacts of immunocompromised individuals</li> <li>▪ nursery, primary and secondary school teachers and support staff</li> <li>▪ prison population, prison officers and support staff.</li> </ul> <p>All influenza vaccinations will be offered to those eligible by the end of December 2022.</p>
<p><b>COVID-19 surge test and trace strategy<sup>(9)</sup></b></p>	<p><b>Transition to steady state - move from population symptomatic testing to testing for clinical care, surveillance and outbreak response</b></p> <ul style="list-style-type: none"> <li>▪ Move from population level symptomatic testing to targeted testing for clinical care.</li> <li>▪ Groups eligible for testing to support clinical care will access tests through the home order channel.</li> <li>▪ General public will no longer be advised to seek a test if symptomatic – at this stage we will move instead to general public health guidance to stay at home if unwell.</li> <li>▪ Test sites will close at the end of April.</li> <li>▪ Population level contact tracing, isolation and support will end and we will stop using the Protect Scotland proximity contact tracing app (but retain it for future use if required).</li> <li>▪ Surveillance and contingency infrastructure for outbreak response will remain in place.</li> <li>▪ Ongoing routine asymptomatic testing in health and social care workforces will continue – with this kept under regular clinical review.</li> </ul> <p>Anyone visiting a care home or hospital will still be advised to do a lateral flow test in advance - though this will be kept under regular clinical review.</p>
<p><b>Community healthcare settings</b></p>	<p>None identified.</p>



**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

<p><b>Extensive Protective Measures</b> <i>Baseline and targeted measures plus</i></p>	<p><b>Social or mass gatherings; sporting and recreational activities; religious activities; domestic travel and culture, leisure and entertainment</b></p> <ul style="list-style-type: none"> <li>▪ proportionate restrictions on certain higher risk settings and activities</li> <li>▪ protective measures in other higher risk settings</li> <li>▪ guidance to reduce social contacts and increase physical distancing where possible</li> <li>▪ certification required in a wider range of settings.</li> </ul> <p><b>Business activities</b></p> <ul style="list-style-type: none"> <li>▪ requirement to work from home where possible</li> <li>▪ proportionate restrictions on certain higher risk settings and activities</li> <li>▪ protective measures in other higher risk settings</li> <li>▪ guidance to reduce social contacts and increase physical distancing where possible</li> <li>▪ certification required in a wider range of settings.</li> </ul> <p><b>Education</b></p> <ul style="list-style-type: none"> <li>▪ proportionate restrictions on certain higher risk settings and activities</li> <li>▪ protective measures in other higher risk settings</li> <li>▪ guidance to reduce social contacts and increase physical distancing where possible.</li> </ul> <p><b>Face coverings</b> No additional.</p> <p><b>Movement of people</b> No additional.</p> <p><b>Social or mass gatherings and religious activities</b> Legal limits on social gatherings and events.</p> <p><b>Education</b> Targeted protective measures.</p> <p><b>Business activities; sporting and recreational activities; domestic travel and culture, leisure and entertainment</b></p> <ul style="list-style-type: none"> <li>▪ legal limits on social gatherings and events.</li> <li>▪ potential closure (or limited opening) of further non-essential settings and services.</li> </ul>
<p><b>Wales</b></p>	
<p><b>Broad COVID-19 surge plan</b></p>	<p>None identified.</p>
<p><b>Triggers for public health measure implementation</b></p>	<p>None identified.</p>
<p><b>COVID-19 surge vaccination strategies<sup>(113)</sup></b></p>	<p><b>Proactive</b></p>

**Table 1** Identification and summary of planned public health measures and strategies to limit the impact of COVID-19 surges (as of 20 September 2022)

	<p>The Welsh Governments “Winter respiratory vaccination strategy: Autumn and winter 2022 to 2023” follows recommendation from the JCVI of an autumn 2022 COVID-19 vaccination campaign for an additional COVID-19 booster for the following:</p> <p><b>Target population:</b></p> <ul style="list-style-type: none"> <li>▪ those living in a care home for older adults and staff working in care homes for older adults</li> <li>▪ frontline health and social care workers</li> <li>▪ all adults aged ≥ 50 years</li> <li>▪ those aged 5 to 49 years in a clinical risk group, including pregnant women</li> <li>▪ those aged 5 to 49 years who are household contacts of people with immunosuppression</li> <li>▪ those aged 16 to 49 years who are carers.</li> </ul> <p>Vaccine distribution began on 1 September, with care home residents and staff first offered vaccines. All COVID-19 vaccinations will be offered to those eligible by the end of November 2022.</p>
<p><b>Other respiratory illness (such as influenza) vaccination strategies<sup>(34)</sup></b></p>	<p><b>Proactive</b></p> <p>Influenza vaccination is delivered annually through the NHS Influenza Immunisation Programme and can be co-administered, with the JCVI and NHS Wales recommending the following for influenza vaccination in 2022/2023:</p> <p><b>Target population:</b></p> <ul style="list-style-type: none"> <li>▪ those aged ≥ 50 years</li> <li>▪ staff in nursing homes and care homes with regular client contact</li> <li>▪ staff providing frontline NHS/Primary care services, healthcare workers with direct patient contact</li> <li>▪ staff providing domiciliary care</li> <li>▪ people aged 6 months to 49 years in a clinical risk group</li> <li>▪ individuals experiencing homelessness</li> <li>▪ pregnant women</li> <li>▪ carers</li> <li>▪ people with a learning disability</li> <li>▪ people with a severe mental illness</li> <li>▪ children aged 2 and 3 years</li> <li>▪ children in primary school from reception class to Year 6 (inclusive)</li> <li>▪ children and young people in secondary school Year 7 to Year 11 (inclusive)</li> <li>▪ people aged 6 months to 49 years in a clinical risk group.</li> </ul> <p>All influenza vaccinations will be offered to those eligible by the end of December 2022.</p>
<p><b>COVID-19 surge test and trace strategy</b></p>	<p>None identified.</p>
<p><b>Community healthcare settings</b></p>	<p>None identified.</p>
<p><b>Remaining public health measures</b></p>	<p><b>Face coverings; movement of people; social or mass gatherings; education; business activities; sporting and recreational activities; religious activities; domestic travel; and culture, leisure and entertainment</b></p> <p>None identified.</p>

## 4 Conclusion

As winter approaches in the Northern Hemisphere, the risk of a COVID-19 surge combined with another respiratory illness (such as influenza or respiratory syncytial virus), has led the ECDC and WHO to recommend that member states develop strategies to limit the potential impact and to protect the vulnerable.<sup>(1, 2)</sup> The current review presents a synthesis of planned public health measures and strategies (for example, restrictive measures or vaccination policies), to limit the impact of COVID-19 surges in 21 countries including Ireland. Each country has outlined a strategy of some form, whether it is focused on the rollout of COVID-19 booster vaccines,<sup>(24, 114)</sup> extended access to vaccines for non-COVID-19 respiratory illness,<sup>(30, 37)</sup> updated test and trace strategies,<sup>(14)</sup> or infection, prevention and control (IPC) measures.<sup>(8, 115)</sup> Countries are at different stages of planning and implementation, with some of these COVID-19 surge plans already underway. For example, COVID-19 winter vaccination plans are currently underway in Austria, Ireland, Portugal and Wales,<sup>(25, 77, 90, 113)</sup> while New Zealand's Traffic Light System has ended to coincide with the end of their winter season.<sup>(104)</sup>

Broadly speaking, across the 21 included countries, proactive plans generally recommend additional COVID-19 booster vaccines for specific target groups (such as those most at risk of severe illness due to COVID-19, HCWs and those living in residential settings) and a wider rollout of vaccines for non-COVID-19 respiratory illnesses (such as influenza). Updated test and trace strategies were also identified. These described the 'stepping down' or transition towards testing only those most at risk of requiring clinical care, or those that would benefit from early treatment. Further escalation plans for scaling up testing to meet increased demand were also identified. The use of enhanced IPC measures such as the requirement for face coverings, physical distancing and capacity restrictions in a variety of healthcare, social care, business, sporting, cultural and leisure settings were less frequently identified across the included countries.

Five countries (Denmark, Germany, New Zealand, Norway, and Scotland) have published broad COVID-19 Public Health surge plans which describe frameworks developed to provide graded categories of national public health responses that can be implemented, if necessary.<sup>(6-10)</sup> These frameworks generally involve scenarios in which triggers dictating the appropriate threat level or category of response are specified. These triggers generally relate to particular scenarios, such as the potential emergence of a variant of concern or a sharp rise in COVID-19 morbidity, which may lead to an escalation of public health restrictions.<sup>(6)</sup> To inform monitoring of the evolving COVID-19 epidemiological situation, the plans reported by Denmark

and Scotland also include risk assessment frameworks.<sup>(6, 9)</sup> These risk assessment frameworks combine the risk of infection due to variants in circulation and the potential disease impact.<sup>(6, 9)</sup>

Indicators used to inform the surge plan levels or risk assessments were identified and generally relate to the impact COVID-19 is having on the health service and the emergence of a variant of concern (and its related severity and transmission). New Zealand and Scotland also acknowledge the impact vaccination may have on COVID-19 surges,<sup>(9, 18)</sup> including COVID-19 vaccination rate and vaccine efficacy as indicators. While countries indicated that epidemiological indicators are used to inform decision-making regarding the implementation of public health measures, only Belgium and Spain outline indicator thresholds which may be used to trigger a public health response.<sup>(12, 13)</sup> The majority of strategies state that the proportionality and necessity of proposed measures must be considered in relation to the threat.

Countries appear to be considering the impact of public health measures on their national economies, with Norway and Scotland the only countries within the current review to specify the closure of specific venues, if necessary.<sup>(8, 9)</sup> Norway specifies the closure of non-essential shops, shopping malls, parks and playgrounds, entertainment venues and arcades at level four and five of their five-level plan,<sup>(8)</sup> while Scotland specifies the closure of non-essential shops at the highest level of their proposed measures.<sup>(9)</sup> Denmark does not specify any individual public health measure that may be implemented, indicating only that any introduction would be proportional to the impact of COVID-19 on society and would require majority support of its Epidemic Committee.<sup>(6)</sup>

There are limitations relevant to this report that should be noted. It is anticipated that further public health COVID-19 surge plans and related documents will become available in the coming weeks. For example, as of 20 September 2022, influenza vaccination campaign information for Czechia, Finland and Norway has not been published. While it is acknowledged that winter 2022 COVID-19 surge plans for acute healthcare settings are currently available, they were not within scope in the current report. Although a comprehensive search of international resources was undertaken it is possible that the sources identified in this review are not current, could be subject to minor translation error, or do not accurately capture all public health measures and strategies that are being undertaken. It is recognised that the public health measures adopted by countries to limit the spread of COVID-19 are subject to constant change. As such, the review may have missed relevant information that was just (or about to be) published at the time of the review. To the best of our knowledge, the review is accurate as of 20 September 2022.

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## Appendix 1

### Indicator thresholds identified as acceptable for use in the Belgium testing, isolation and quarantine plan.<sup>(20)</sup>

Level	7-day hospitalisation (per 100,000 population)	ICU capacity (occupied beds/total number of beds expressed as a percentage)*	GP workload (number of consultations/contacts for suspected COVID-19) (per 100,000 population)	Positivity ratio (number of positive tests / number of total tests expressed as a percentage)*	Infection rate (R value)*	14-day incidence of infections (per 100,000 population)
Level 1	< 4 (i.e. < 65 nh/d)	< 15%	< 50	0-5%	0-1	< 200
Level 2	4 - 9 (i.e. 65-149 nh/d)	15-24%	50-99	5-9%	1-1.2	200 - 499
Level 3	10 (i.e. ≥ 150 nh/d)	25% (i.e. ~500 beds)	≥100	10%	1.3	≥500

Note: nh/day = new hospitalisations a day.

\*Information on the calculation of ICU capacity, positivity ratio and infection rate were not provided within the associated document and were therefore derived from similar documentation to provide clarity.

## Appendix 2

### Norway: Action packages with national infection control measures<sup>(11)</sup>

Action level	Normal weekday	Low	Moderate	Loud	Very loud
Category					
<b>Superior</b> Infection prevention		Operation must follow <b>general</b> infection control recommendations*	Statutory requirements for proper operation in terms of infection control.  General recommendation of 1 meter distance in the community in addition to general infection control recommendations*		
<b>Vaccination</b>	Follow current recommendations in the vaccination strategy.				
<b>Private homes and social contact</b>	No limitations	No limitations	No limitations	Quantity limitation of 10-20 guests home away from home own household.  Kindergarten children and elementary school students (own cohort) except.  Reduce the number close contacts, but don't isolate yourself.  Meet others outdoors when possible.	As in high level, or further number limitation (eg until 5 guests), possibly 10 total per week.
<b>Mouth mask</b>	No recommendation	No recommendation	Use of a mask by collective transport where man cannot keep 1 meter distance.  Masks can recommended to others places indoors i the public space where you cannot keep 1 meter distance.	As moderate level, in addition, use of a mask indoors in it public spaces, i shops and shopping malls, on catering establishments and similar where man cannot keep 1 meter distance, except kindergartens and elementary schools.	Like high level.
<b>collective transportation</b>	Normal operation	Normal operation	Normal operation	Avoid use of public transport at crowding.	Avoid use of public transport if it is not strictly necessary.

<p><b>shops,</b> shopping malls, <b>trade fairs,</b> <b>library, museums</b> <b>and temporary</b> <b>markets</b></p>	<p>Normal operation</p>	<p>Normal operation</p>	<p>Normal operation</p>	<p>As a low level, but avoid shopping at busy times and calls for the use of online shopping/click and picked up.</p>	<p>Close or restrict use of non-essential shops and shopping malls.</p>
<p><b>restaurants,</b> cafes and nightlife</p>	<p>Normal operation</p>	<p>Normal operation</p>	<p>Evaluate table service at bestowal of alcohol.</p> <p>The place of service must ensure that everyone can keep a 1 meter distance other than household members and correspondingly close.</p>	<p>As moderate level, but consider pour stop after a given time.</p>	<p>Close serving for guests, however retain option for take-away.</p>
<p><b>Arrangements</b></p>	<p>Normal operation</p>	<p>Normal operation</p>	<p><b>Private gathering on public place</b> Organizer must arrange for infection control specialist proper implementation.</p> <p>Recommend use of mask if there are areas where distance is difficult.</p> <p><b>Public arrangement</b> Requirements for infection occupational safety sound operation, but not nationally regulated number limitation.</p> <p><u>Alternative wood need for higher level of action:</u> Use of up to 50% capacity indoors and 75% outdoors.</p>	<p><b>Private gathering on public place</b> <u>Indoors</u> : up to 50 people. <u>Outdoors;</u> as in moderate level.</p> <p><b>Public arrangement</b> <u>Indoors:</u> Requirements infection control specialist proper operation, but not nationally regulated number restriction</p> <p><u>Alternative wood need for higher level of action:</u> Up to 50-200 people without permanent references places and 50% capacity at fasting assigned seating. If one want more reduction in risk at large arrangement can one assesses</p>	<p>Close for events, except strictly necessary private and public events both indoors and outdoors with significant number restrictions</p>

			<p>No number limitations of events connected organized cultural, sports and leisure activities for children/youth under 20 years or so participants at outdoors exercise run.</p>	<p>maximum number of 1,500 people.</p> <p><u>Outdoors:</u> Requirements infection control specialist proper operation, but not nationally regulated number limitation.</p> <p><u>Alternative wood need for higher level of action:</u> up to 200-600 people without permanent references places and 50% capacity at fasting assigned places. If one want less risk you can consider maximum number of 3,000 people. Presupposes infection control specialist proper operation.</p> <p>No number limitations of outdoors events connected organized cultural, sports and leisure activities for children/youth under 20 years or before participants at outdoors individual competitive sports for adults.</p>	
<p><b>School</b> (primary schools, high school schools and adult training),</p>	Normal operation	Normal operation	Local assessment of measures according to the traffic light model.	Local assessment of measures according to the traffic light model. In light of the infection situation, it can considered about it must be given national	Local assessment of measures according to the traffic light model. In light of the infection situation, it can considered about it must be given national

<p>Kindergartens and Kindergarten</p>				<p>recommendations about level after the traffic light model.</p>	<p>recommendations about level after the traffic light model.</p>
<p>Higher education (university, college and vocational school)</p>	<p>Normal operation</p>	<p>Normal operation</p>	<p>Strive for full physicality instruction.  Distance recommendation can be waived where necessary completion of teaching, or where you sit down in larger teaching halls. This also applies in reading rooms and libraries.</p>	<p>Arrange for digital instruction. Offer about <b>partial</b> <small>physical</small> present teaching, for example around half physical presence. Local risk assessment should be done for decision of scope of digital vs. physical instruction. Prioritize physical teaching for students and fellows who are dependent on implement <small>attempt i</small> laboratories or skills training. Distance recommendation can be waived where necessary completion of instruction.  Make arrangements for the exam and compulsory courses, either digital or physically where it is practically possible <small>good protection against infection.</small>  Libraries, reading rooms and similar should be kept open with general infection control measures.</p>	<p>Arrange for digital instruction. Everyone students should get offer of <b>something</b> <small>physical</small> present teaching, for example less than half <small>physical</small> presence. Local risk assessment should be done for decision of scope of digital vs. physical instruction. Prioritize physical teaching for students and fellows who are dependent on carry out experiments in laboratories or skills training.  Make arrangements for the exam and compulsory courses, preferably digital, possibly physically where it is practically possible with good infection prevention.  Libraries, reading rooms and similar should be held open with general infection control measures.</p>

<p><b>Working life</b></p>	<p>Normal operation</p>	<p>Normal operation</p>	<p>Flexibility in use of home office, but recommendation about partial use. To further lower risk can one evaluates until 50% presence.</p> <p>Where it is not possible home office must employer implement reinforced infection control measures I according to relevant supervisor.</p> <p>For others infection control measures directly related to the workplace follows working life the measures described in relevant industry supervisors.</p>	<p>As moderate level, but up to 50% presence.</p> <p>Employers should ensure that employees can work from home if this is desirable for the individual, practicable and not in the way of important and necessary business on the workplace, among other things business in order to look after children and vulnerable groups. It can be done individual assessments.</p> <p>Home office and mask applies not for services where this prevents that employees can perform necessary and statutory tasks in the meeting with vulnerable groups and children/youth.</p>	<p>As high level, but 100% home office there it is possible and not an obstacle the execution of the work.</p>
<p><b>Sports and leisure activities (including leisure clubs)</b></p>	<p>Normal operation</p>	<p>Normal operation</p>	<p>Children and young people under 20 years: As in low level.</p> <p>Adults over 20 years of age: <u>Indoors</u>: No number limit, alternatively group size of about 20 persons. The activity can carried out with contact where necessary. By high intensity training</p>	<p>Children and young people under 20 years: As in moderate level.</p> <p>Adults over 20 years of age: <u>Indoors</u>: Group size inside is recommended to about 20 persons.</p> <p><u>Outdoors</u>: Can exercise or have others organized leisure activities,</p>	<p>Children and young people under 20 years: Limit organized sports and leisure activities <u>indoor/ outdoors</u> through e.g. number of limitations (until 10-20 participants or class/cohort) and possible distance recommendation for children/youth over</p>

			<p>it should arranged for 2 meter distance.</p> <p><u>Outdoors:</u> Organized sports and leisure activities can take place as normally, with contact where necessary.</p> <p><b>Top sports:</b> Top sports can carried out as normally.</p> <p>Bigger events as cups etc. can be considered postponed/cancelled depending on it current the infection situation.</p>	<p>but it is recommended to be about 20 persons. High-intensity training as in moderate level.</p> <p><b>Top sports:</b> Top sports can carried out as normally.</p> <p>Leisure activities should be carried out outdoors so far it is possible.</p> <p>Recommended to postpone/cancel completion of events both outside and indoors, like matches and tournaments, and others organized leisure activities on across different groups for both children and adults.</p> <p>The exception is outdoors events for children/youth in sports that don't requires close contact, given that this is possible within event the regulations. Groups with up to 100 people can replaced by ita. the event.</p>	<p>primary school age.</p> <p>Adults over 20 years of age: Recommend to cancel completion of organized sports and leisure activities <u>indoor/outdoors</u> .</p> <p><b>Top sports:</b> Topical to limit top sport dependent on the situation.</p>
<p><b>gyms, swimming pools and bowling alleys</b></p>	<p>Normal operation</p>	<p>Normal operation</p>	<p>Normal operation</p> <p>See also recommendations to organized</p>	<p>Normal operation</p> <p>See also recommendations to organized</p>	<p>Limit businesses to only to offer individual services such as</p>

			sports and leisure activities.	sports and leisure activities.	rehabilitation and treatment.
entertainment parks, playgrounds, arcades and the like businesses	Normal operation	Normal operation	Normal operation <u>Alternatively:</u> can keep open with 50% capacity. Outdoors you can consider a higher one percentage.	Like moderate level.	Closing off the businesses.
Hairdressers, skin care	Normal operation	Normal operation	Normal operation	Normal operation	Greatly reduced offer. Maintain necessary treatment.
TABLE	<p><b>Testing:</b>On clinical indication, assessed by doctor</p> <p><b>Insulation:</b>Advice about holding on home when you are sick</p> <p><b>Infection tracking:</b> No</p> <p><b>Quarantine:</b> No.</p> <p>Own advice applies to health and care the services.</p>	See separate table with TISK measures			
The health service	Follow the general advice described under the various health services, i.a. basic infection control routines**		Enhanced infection control measures**		
Corona certificate	Use of a corona certificate will be considered as documentation when introducing various infection control measures that are listed in the table.				

\* In accordance with recommendations/requirements on infection control for the measure level, see row 2 of the table. "General infection control measures" means staying at home when you are sick, good hand and cough hygiene, good cleanliness and good ventilation.

\*\* Compare advice for healthcare services in the corona guide.

## Appendix 3

### Risk assessment framework for Spanish surveillance and control strategy.<sup>(13)</sup>

Table 1. Indicators for the assessment of risk Indicators		Calculation formula	risk assessment					Source of information
			Circulation controlled	Bass	Medium	Tall	Very tall	
<b>Evaluation of the transmission level</b>								
T2	Cumulative incidence of cases with 60 or more years diagnosed in 14 days <sup>1</sup>	Cases ≥ 60 years confirmed (by date of diagnosis) in 14 days * 100,000 / number of inhabitants ≥ 60 years	≤250	> 250 to ≤500	> 500 to ≤1500	> 1500 to ≤2500	> 2500	Statement individualized mandatory (YES)
T4	Cumulative incidence of cases with 60 or more years diagnosed in 7 days <sup>1</sup>	Cases ≥ 60 years confirmed (by date of diagnosis) in 7 days * 100,000 / number of inhabitants ≥ 60 years	≤100	> 100 to ≤250	> 250 to ≤750	> 750 to ≤1250	> 1250	Statement individualized mandatory (YES)
<b>Level of use of care services by COVID-19</b>								
A1	bed occupancy of hospitalization for COVID-19 cases <sup>two</sup>	Number of hospital beds occupied by COVID cases / Total number of hospital beds in functioning	≤2%	> 2% to ≤5%	> 5% to ≤10%	> 10% to ≤15%	> 15%	Statement to Ministry of healthcare for the CC.AA.
A1'	new rate hospitalizations for COVID, per 100,000 inhabitants in 7 days	number of new hospital admissions for COVID in 7 days * 100,000 / Number of inhabitants in the territory	≤5	> 5 to ≤15	> 15 to ≤30	> 30 to ≤50	> 50	Statement to Ministry of healthcare for the CC.AA.
A1''	Occupancy rate hospitable for 100,000 inhabitants	Number of hospital beds occupied by cases of COVID * 100,000 / Number of inhabitants in the territory	≤10	> 10 to ≤20	> 20 to ≤30	> 30 to ≤40	> 40	Statement to Ministry of healthcare for the CC.AA.
A2	bed occupancy critical care for cases of COVID-19 <sup>two</sup>	Number of critical care beds occupied by COVID cases / Number of total critical care beds in operation	≤5%	> 5% to ≤10%	> 10% to ≤15%	> 15% to ≤25%	> 25%	Statement to Ministry of healthcare for the CC.AA.
A2'	new rate hospitalizations in COVID ICU, per 100,000 inhabitants in 7 days	number of new ICU admissions due to COVID in 7 days * 100,000 / Number of inhabitants in the territory	≤0.5	> 0.5 to ≤1.5	> 1.5 to ≤2.5	> 2.5 to ≤3	> 3	Statement to Ministry of healthcare for the CC.AA.
A2''	Occupancy rate ICU per 100,000 population	Number of ICU beds occupied by COVID cases * 100,000 / Number of inhabitants in the territory	≤1	> 1 to ≤2	> 2 to ≤4	> 4 to ≤6	> 6	Statement to Ministry of healthcare for the CC.AA.

<sup>1</sup>These IAs must be calculated with consolidated data, subtracting the days on which said consolidation is considered insufficient. For the date of diagnosis, the date of the positive result of the PDIA will be used.

<sup>two</sup>The Territorial Unit for this indicator will be the province, island or autonomous community as established in each territory. For the calculation of beds in operation, only structural and operational hospitalization and ICU beds for immediate use by COVID-19 patients will be taken into account at the time of the evaluation as communicated to the Ministry according to the Resolution of June 19, 2020 establishing the information on care capacity and material resource needs of the health system.

Note: The phase titles "Tall" and "Very Tall" are a translation error using machine translation by Google and are represented correctly within the text as "High" and "Very High". CCAA = The Autonomous Communities; PDIA = PCR and antigen tests. SIVIES = Spanish Surveillance System; SERLAB = COVID-19 Diagnostic Test Lab.

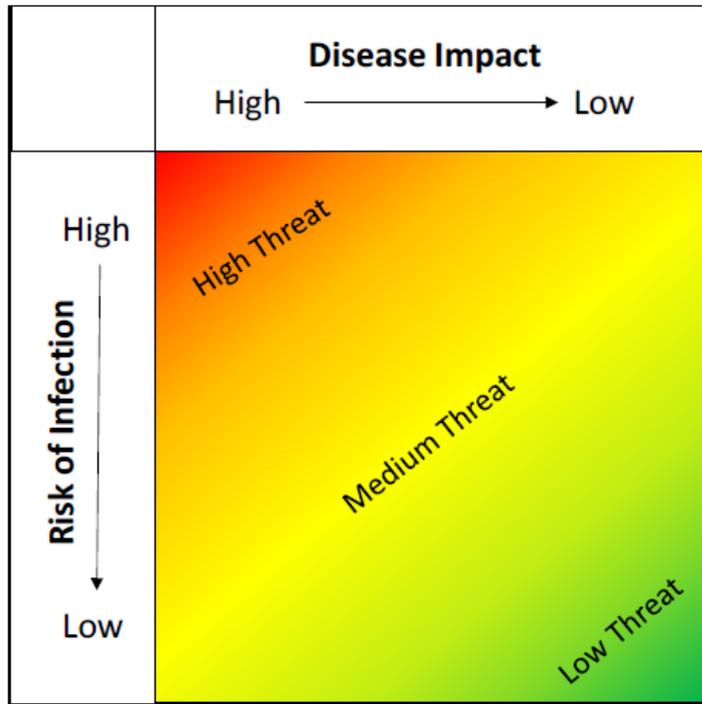
Indicator	Calculation formula	risk assessment					Source of information
		Circulation controlled	Bass	Medium	Tall	Very high	
<b>Evaluation of the transmission level</b>							
Case Trend diagnosed (always interpret in the context of the incidence in the territory) in people older than 60 years	Number of confirmed cases on days 1 to 7 before date - number of confirmed cases on days 8 to 14 before date * 100 / Number of confirmed cases on days 8 to 14 before the date	Falling or stable the last 4 weeks	oscillates without increments sustained	increments bass sustains level (<20%)	increments sustained intermediate (20-40%) or punctual increase important (>50%)	increments raised sharps (>40%) or increase punctual very important (>100%)	Compulsory individualized declaration (SIVIES)
<b>Evaluation of the capacity for early diagnosis of cases</b>							
Test Rate* made	Total number of tests carried out *100,000 / Total number of inhabitants	≥1,500	<1,500 to ≥1,000	<1,000 to ≥800	<800 to ≥600	<600	Laboratory notification (SERLAB)
Positivity of PDIA per week in people over 60 years of age	Number of tests with positive results in 7 days in ≥ 60 years *100 / Number of tests performed in 7 days in ≥ 60 years	≤5%	> 5 to ≤10%	> 10 to ≤20%	> 20 to ≤30%	≥30%	Laboratory notification (SERLAB)
<b>Severity level assessment</b>							
income share due to COVID	Number of admissions hospital admissions due to COVID in 7 days*100/Total hospital admissions in 7 days	≤1%	> 1 to ≤5%	> 5 to ≤10%	> 10 to ≤20%	≥20%	Declaration to the Ministry of Health by the Autonomous Communities.
Percentage of cases hospitalized that admitted to ICU	Number of confirmed cases that have been admitted to the ICU * 100/ total cases hospitalized for COVID (assessed at 7 days)	≤5%	> 5 to ≤10%	> 10 to ≤20%	> 20 to ≤30%	≥30%	Compulsory individualized declaration (SIVIES). Information from the CCAA.
Mortality rate accumulated in 7 days per million inhabitants	Confirmed COVID cases that have died in 7 days * 1,000,000 / Number of inhabitants in the territory	≤5	> 5 to ≤10	> 10 to ≤30	> 30 to ≤50	> 50	Compulsory individualized declaration (SIVIES)
Excess mortality due to all causes in the last 2 weeks*	* Considers any day of excess mortality from all causes identified in the last 2 weeks, which may be included in a period of excess mortality according to the MoMo criteria	≤1%	> 1 to ≤3%	> 3 to ≤13%	> 13 to ≤25%	> 25%	Daily Mortality Monitoring System (MoMo)
<b>Social health centers</b>							
Social health centers with new outbreaks in the last 7 days	Social health centers with new outbreaks in the last 7 days *100/ number of social health centers	≤1%	> 1 to ≤3%	> 3 to ≤5%	> 5 to ≤10%	> 10%	weekly information of outbreaks, ad hoc information
Cases due to outbreak in social-health centers in the last 7 days	Number of confirmed cases of residents / number of outbreaks in centers sociosanitary last 7 days	≤5	> 5 to ≤10	> 10 to ≤15	> 15 to ≤20%	> 20%	weekly information of outbreaks, ad hoc information

\* Tests for the diagnosis of active infection (PDIA, included in the diagnostic strategy) such as PCR or antigen tests

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## Appendix 4

### Scotland: COVID 19 Threat Matrix.<sup>(9)</sup>



Note: All threat assessments will reflect balanced judgements of all relevant factors at the time. They will assess what would likely happen in Scotland in the near future in the absence of an effective response to a threat.

An example of a 'medium threat' might be a variant being identified in Scotland/UK that was either significantly more transmissible or significantly more severe (but not both) than the current dominant strain (if that strain were assessed as a low threat).

An example of a 'high threat' might be a variant being present that was both significantly more transmissible and significantly more severe, with the threat level increasing further to the extent that the variant evades immunity.

### Scotland: Potential Responses Categories for Future Threat Levels.<sup>(9)</sup>

Assessed Threat	Potential Response Categories (types of protective measure)	
Low threat	<b>Routine Measures: Vigilance, Preparedness and Resilience (no legal measures)</b> <ul style="list-style-type: none"> <li>High immunity sustained through vaccination programme</li> <li>Access to effective treatments in line with clinical advice</li> <li>Behaviours and settings adapted to reduce spread (e.g. improved ventilation, appropriate guidance on face coverings)</li> <li>Hybrid working when possible and appropriate encouraged</li> <li>Effective and responsive local outbreak management</li> <li>Targeted testing and surveillance ongoing</li> <li>Travel measures may apply (e.g. set by other countries)</li> </ul>	Note: Protective measures would not apply in law but may still be good practice and retained in guidance.
Medium threat	<b>Baseline Protective Measures = Routine plus:</b> <ul style="list-style-type: none"> <li>Testing guidance in place for people when symptomatic or asymptomatic</li> <li>Guidance to self isolate when positive in place</li> <li>Face coverings required in indoor public places and on public transport</li> <li>Guidance on reasonable measures to reduce risk in premises</li> <li>Travel measures may apply</li> <li>Certification required in a narrow range of settings</li> </ul>	Note: Measures would be selected from this response category that were necessary and proportionate – not all may be required at the same time.
High Threat	<b>Targeted Protective Measures = Baseline measures plus:</b> <ul style="list-style-type: none"> <li>Requirement to work from home where possible</li> <li>Proportionate restrictions on certain higher risk settings and activities</li> <li>Protective measures in other higher risk settings .</li> <li>Guidance to reduce social contacts and increase physical distancing where possible.</li> <li>International travel requirements and restrictions may apply in relation to some countries.</li> <li>Certification required in a wider range of settings</li> </ul>	Note: Measures would be selected from this response category that were necessary and proportionate – not all may be required at the same time.
(E.g. variant with significant immune escape that increases disease severity)	<b>Extensive Protective Measures = Baseline and targeted measures plus:</b> <ul style="list-style-type: none"> <li>Potential closure (or limited opening) of further non-essential settings and services</li> <li>Legal limits on social gatherings and events.</li> </ul>	Note: 'Extensive protective measures' will only ever be considered as a last resort in the most serious of circumstances

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