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Rapid review of public health guidance on protective measures for vulnerable groups in the context of COVID-19

Updated on: 17 December 2021

Version history*

Version	Date	Specific updates
V1	23 March 2020	Date of first rapid review
V57	12 October 2021	Updated to reflect change in the definition of high risk groups: <ul style="list-style-type: none"> ▪ Australia ▪ Denmark Updated research: <ul style="list-style-type: none"> ▪ Denmark ▪ Scotland Added: <ul style="list-style-type: none"> ▪ Two tables detailing national recommendations and definitions relating to boosters and third doses of vaccines
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*Complete record of the version history is available in Table 6 Version history

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Key points

- A variety of protective measures are being taken to protect vulnerable groups who are at high risk of severe illness from COVID-19 in all countries included in this review. In general, people who are considered vulnerable to more severe illness are those that are of an older age, with chronic conditions if not well-managed or are in receipt of therapies that weaken the immune system.
- Belgium, Canada, Finland, Germany, Sweden, Switzerland, and Wales have a single grouping for vulnerable people. Australia, Northern Ireland, Norway and Scotland distinguish between those considered at 'highest risk' and those at 'increased risk'. Denmark stratifies according to age groups and the US stratifies according to the certainty in the evidence underpinning each risk group.
- Some countries have published additional factors that increase risk, although these do not always necessitate inclusion in the vulnerable group category. These risk factors include ethnicity, smoking, high BMI and pregnancy in conjunction with another condition. Germany includes people with psychiatric illnesses (for example, dementia) in their high-risk groups, and added pregnant women to the high risk groups in November 2021. The CDC, US added chronic liver disease, pulmonary embolism (blood clot in the lungs), tuberculosis, mental health conditions including depression and schizophrenia spectrum disorders to the high risk group. The CDC stated that pregnant people (at least 42 days following end of pregnancy) are at an increased risk compared to non-pregnant, while overall the risk of severe illness is low, also for those who have COVID-19 during pregnancy they are at increased risk for preterm birth (delivering the baby earlier than 37 weeks) and stillbirth and might be at increased risk of other pregnancy complications.
- Advice for vulnerable groups typically includes stay at home, practice hand hygiene, physical distancing and avoid contact with others. In Northern Ireland, England, Scotland and Wales those previously shielding are advised they can return to the workplace, if unable to work from home and attend educational institutions in-person. On 24 September 2021 the Shielding Programme ended in England and risk groups are no longer published. Denmark advises that pregnant women and other fully vaccinated people at higher risk should not be treated or cared for in A&E, on a COVID-19 ward or similar. Since 18 November 2021, all people in Germany regardless of their COVID-19 vaccination status must show a negative PCR or rapid antigen COVID-19 test result before entering a nursing home or health clinic. Germany advises visitors to people who are elderly or in a risk group to conduct a quick test before visiting. Norway has reinstated public health measures and advised people in risk groups to shield.
- England, Denmark, Finland, Scotland and Wales have advised children and young people that the risk for severe illness is very low. Studies using registry collected data in Denmark, Norway and the UK were used to support this

advice. On 22 September 2021 Sciensano (Belgium) published an updated evidence summary which aligned with this advice.

- Denmark, Finland, Germany, Norway, Sweden and the US have published exemptions to public health measures for those fully vaccinated that relate to quarantining after close contact with a confirmed case, serial testing in the community and workplace, returning to work and maintaining a physical distancing between others. Recently due to high circulation of the Delta, the US recommends that fully vaccinated people wear a mask in public indoor settings in areas of substantial or high transmission. Norway and Sweden have also published exemptions that apply for those who received just one dose.
- Immunocompromised people are advised in Denmark, Ireland and the US to consult their healthcare provider about vaccine exception, even if fully vaccinated. Additionally, the US advised that encouragement should be given to close contacts of immunocompromised people to get vaccinated against COVID-19 to help protect these people. Germany has advised that a booster vaccination with a mRNA vaccine will be offered at least six months after the first series of vaccinations for people with immunodeficiency or immunosuppression as well as those in need of care in their own home and the very elderly (from 80 years). A number of countries included in this review have recommended booster doses for people who are immunocompromised because of a condition or treatment (Table 4 and Table 5).
- As of 12 December 2021, the overall epidemiological situation in the EU/EEA is characterised by a high and rapidly increasing overall case notification rate and a slowly increasing death rate. Increasing case notification rates and an epidemiological situation of high or very high concern are now observed, particularly in western and northern parts of the EU/EEA. This situation is largely driven by the high transmissibility of the Delta variant, which has limited the reduction in transmission achieved by the COVID-19 vaccination roll-out in the EU/EEA.

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Background

In Ireland, protective measures are being taken to protect vulnerable groups who may be at risk of severe illness from coronavirus disease (COVID-19), in particular extremely medically vulnerable groups. On 27 March 2020, the Health Protection Surveillance Centre (HPSC) issued guidance on 'cocooning' for these groups, which is a practice used to protect or shield those who may suffer the most from coming into contact with the virus.⁽²⁾ The [very high risk groups](#) (extremely vulnerable), defined by the Health Service Executive (HSE) in Ireland, include:⁽³⁾

- are over 70 years of age - even if you are fit and well
- have Down syndrome
- have cancer and are being treated with chemotherapy or similar drugs other than hormone therapy
- have lung or head and neck cancer and are having radical surgery or radiotherapy
- are having radical radiotherapy for lung cancer or head and neck cancer
- are having certain complex cancer surgery, for example, surgery for lung cancer, head and neck cancer or oesophageal cancer
- have advanced cancer or cancer that has spread to another part of the body
- are on dialysis or have end-stage kidney disease and an eGFR less than 15
- have a condition affecting the brains or nerves that has significantly affected your ability to breathe, meaning you require non-invasive ventilation (such as motor neurone disease or spinal muscular atrophy)
- have unstable or severe cystic fibrosis, including people waiting for a transplant
- have severe respiratory conditions including Alpha-1 antitrypsin deficiency, severe asthma, pulmonary fibrosis, lung fibrosis, interstitial lung disease and severe COPD
- have uncontrolled diabetes
- have had an organ transplant or are waiting for a transplant
- have had a bone marrow or stem cell transplant in the last 12 months, or are waiting for a transplant
- have a rare condition that means you have a very high risk of getting infections (such as APECED or errors in the interferon pathway)
- sickle cell disease
- have been treated with drugs such as Rituximab, Cyclophosphamide, Alemtuzumab, Cladribine or Ocrelizumab in the last six months
- have certain inherited metabolic disorders (such as Maple Syrup Urine Disease)
- have obesity with a body mass index (BMI) greater than 40.

On 27 March 2020, the specific advice given to these groups was to stay at home at all times and avoid any face-to-face contact with others. Since April 2021, restrictions have been easing with advice changing so that those who have the full

protection of the COVID-19 vaccine may visit indoors or meet outdoors with others outside who are also fully protected from their household.^(4, 5) For older people and others at risk of severe disease on reducing risk of COVID-19 infection it is recommended to use a surgical mask rather than a cloth face covering when situations where a mask is required. In addition, it is [advised](#) that it is generally safe to attend work on site if this is essential when fully vaccinated.⁽⁶⁾ This also applies to going into shops and using public transport for essential purposes. However, even when fully vaccinated it is advised to continue to be very careful especially if you have a problem with your immune system.

Similar measures have been implemented in other settings to protect vulnerable groups. The ECDC recommends public health authorities implement strategies to protect persons at risk of severe COVID-19 disease.^(7, 8) This includes helping them to avoid crowded places, both indoors and outdoors, and providing infection prevention and control support, logistic and mental support, access to testing for specific groups, support to enable them to telework, and so on.

We undertook a rapid review of the advice and recommendations that have been issued internationally to protect vulnerable groups in the context of COVID-19.

Methods

The review was first undertaken on 23 March 2020, in line with the 'Protocol for the identification and review of new and updated relevant COVID-19 public health guidance', available on www.hiqa.ie. The review is currently updated every two weeks. On 19 November 2020 the structure of the results section was reformatted. Two additional countries (i.e., Belgium and Denmark) were added to the review and two countries were removed due to no longer being relevant (i.e., New Zealand achieved zero COVID) and not clearly reported (i.e., unclear definition of criteria in Singapore with protective measures not sufficiently reported). A detailed account of the methods used in this review is provided in the protocol.

Results

A number of protective measures have been undertaken in different health care settings to protect vulnerable groups who may be at high risk of severe illness from COVID-19. Table 1 provides a 'live' overview of the protective measures that are being undertaken across different countries. A variety of names have been used to describe the measures which ultimately resemble 'cocooning' and involve strict isolation advice. These include 'shielding' and 'protective self-separation'. The specific measures that have been undertaken to protect vulnerable groups, as identified in this rapid review, are summarised separately per country under the following headings: organisation, high risk groups, cited evidence-base, current ECDC risk assessment, current protective measures and supports, and previous highest level of protective measures during the first wave. Table 2 provides sources for vaccine priority schedules for the included countries. Table 3 provides an

overview of exceptions to infection protection and control measures for fully vaccinated person. Table 4 and 5 provide details and definitions on booster and third dose vaccination recommendations. A full record of the version history is provided in Table 6 Version history.

The neighbouring countries of Ireland are presented first, including England, Northern Ireland, Scotland and Wales, followed by Australia, Belgium, Canada, Denmark, Finland, Germany, Norway, Sweden, Switzerland and the United States.

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England, UK Health Security Agency (UKHSA), formally Public Health England (PHE)

Background

On 21 March 2020, PHE published guidance on 'shielding' and protecting people who are clinically extremely vulnerable, including children.⁽⁹⁾ Additional guidance was also published by PHE on 16 March aimed at the general population which included specific advice to groups categorised as clinically vulnerable, however, this is no longer in use.⁽¹⁰⁾ As of 20 September 2021 the Shielding Programme has ended and risk groups are no longer listed by PHE. The guidance is now published by [UK Health Security Agency](#).^(11, 12)

Criteria

Clinically extremely vulnerable (no longer published).⁽¹³⁾

- People who are solid organ recipients
- People with specific cancers:
 - People with cancer who are undergoing active chemotherapy
 - People with lung cancer who are undergoing radical radiotherapy
 - People with cancers of the blood or bone marrow such as leukaemia, lymphoma or myeloma who are at any stage of treatment
 - People having immunotherapy or other continuing antibody treatments for cancer
 - People having other targeted cancer treatments which can affect the immune system, such as protein kinase inhibitors or PARP inhibitors
 - People who have had bone marrow or stem cell transplants in the last 6 months, or who are still taking immunosuppression drugs.
- People with severe respiratory conditions including all cystic fibrosis, severe asthma and severe chronic obstructive pulmonary (COPD)
- People with rare diseases that significantly increase the risk of infections (such as severe combined immunodeficiency (SCID), homozygous sickle cell)
- People on immunosuppression therapies sufficient to significantly increase risk of infection
- Problems with your spleen, e.g. splenectomy (having your spleen removed)
- Adults with Down's syndrome.
- Adults on dialysis or with chronic kidney disease (stage 5)
- Women who are pregnant with significant heart disease, congenital or acquired
- Other people have also been classed as clinically extremely vulnerable, based on clinical judgment and an assessment of their needs. GPs and hospital clinicians have been provided with guidance to support these decisions.

For children

An evaluation of recent clinical studies up to September 2021 indicated that children and young people are at very low risk of serious illness if they catch COVID-19.⁽¹³⁾ As

a result, children and young people under the age of 18 were no longer considered to be clinically extremely vulnerable and were advised to continue to follow the general advice for everyone. A very small number of children and young people will have been advised to isolate or reduce their social contact for short periods of time by their specialist, due to their general risk of infection rather than because of the COVID-19 pandemic.

For pregnancy

Women who are pregnant with significant heart disease, congenital or acquired are considered at highest risk while pregnant women in general are considered at high risk.⁽¹³⁾

Evidence-base

The clinically extremely vulnerable and the clinically vulnerable groups were initially based on a subset of the criteria for the UK annual flu vaccine for adults, defined by the Chief Medical Officer (CMO) on 16 March 2020 with input from expert doctors.⁽¹⁴⁾ On 5 November 2020, adults with Down's syndrome was added based on evidence arising from the development of the QCOVID prediction tool and a [study](#) using the same dataset –the Qresearch population-level primary care database.^(15, 16) The QCOVID tool estimates a person's risk of being admitted to hospital and of dying from COVID-19 based on information about the person such as their age, gender, ethnic group or whether they have long standing illnesses.⁽¹⁷⁾ Adults on dialysis or with chronic kidney disease (stage 5) were also added with no justification reported. On 2 December 2020, those with problems related to splenectomy were added to the clinically extremely vulnerable group, with no justification reported for the change. On 16 February 2021 PHE announced that the University of Oxford's [QCovid® risk prediction model](#) is now also used to identify people who should be on the shielding list, as well as the criteria and individual clinical judgment, as listed above.⁽¹³⁾ The risk prediction tool combines a number of factors such as age, sex registered at birth, ethnicity, BMI and specific health conditions and ongoing treatments to estimate the risk of a person catching coronavirus and becoming seriously unwell. On 3 September 2021 it was announced that, based on recent studies, children and young people with conditions previously associated with the clinically extremely vulnerable groups are now understood to be at very low risk of serious illness.⁽¹³⁾ No studies were cited.

ECDC country level risk assessment

No recent updates available.

Current protective measures and supports

Shielding was paused on 1 April 2021 and the Shielding Programme was [formerly ended](#) on 20 September 2021.^(13, 18) This means that people who were previously considered clinically extremely vulnerable will not be advised to shield in the future or follow specific national guidance. Since 19 July 2021, the guidance for clinically

extremely vulnerable people has been to follow the same advice as the rest of the population, with the suggestion of additional precautions people may wish to take. Research and evaluation for some individual clinical groups will continue.

Advice to those at highest risk is to continue to follow the general guidance as a minimum, alongside advice from their health profession and could consider additional precautions:

- considering waiting until 14 days after everyone's second dose of a COVID-19 vaccine before being in close contact with others
- considering continuing to practice social distancing
- asking friends and family to take a rapid lateral flow antigen test before visiting
- asking home visitors to wear face coverings
- avoiding crowded spaces.

An [open data file](#) is available which includes emergency admissions, mortality and positive COVID-19 tests for a [subset](#) of patients on the English [Shielded Patient List](#) compared with an age-matched sample of the general population for analysis, modelling and planning to aid the response to the coronavirus pandemic.⁽¹⁹⁾

Previous highest level of protective measures for the first wave

Shielding began on 22 March, where those at the highest risk were strongly advised to stay at home at all times and avoid any face-to-face contact, to not attend any gatherings or go out to go shopping, participate in leisure activities or travel.⁽⁹⁾ People living with someone shielding were advised to minimise the time spent in shared spaces, maintain physical distancing, sleep in a different bed and use separate bathroom and toilet where possible. Essential care from friends or family members could continue. The advice also applied to extremely vulnerable children in mainstream and special schools.

Northern Ireland, Public Health Agency (PHA)

Background

From 23 March, the PHA has [published](#) criteria⁽²⁰⁾ and advice for clinically vulnerable and clinically extremely vulnerable which were identical to PHE.^(21, 22)

Criteria

Clinically extremely vulnerable:

- solid organ transplant recipients
- people with specific cancers:
 - people with cancer and are having chemotherapy
 - people with lung cancer and are having radical radiotherapy
 - people with cancers of the blood or bone marrow such as leukaemia, lymphoma or myeloma who are at any stage of treatment
 - people having immunotherapy or other continuing antibody treatments for cancer
 - people having other targeted cancer treatments which can affect the immune system, such as protein kinase inhibitors or PARP inhibitors
 - people who have had bone marrow or stem cell transplants in the last 6 months, or who are still taking immunosuppression drugs.
- people with severe respiratory conditions including all cystic fibrosis, severe asthma and severe COPD
- people with Motor Neurone Disease
- people with rare diseases and inborn errors of metabolism that significantly increase the risk of infections (such as SCID, homozygous sickle cell)
- people on immunosuppression therapies sufficient to significantly increase risk of infection
- women who are pregnant with significant heart disease, congenital or acquired
- people who have had a splenectomy
- those undergoing renal dialysis
- adults with Down's Syndrome
- adult patient with kidney impairment (Stage 5 Chronic Kidney Disease).

Clinically vulnerable:

- age 70 or over
- chronic (long-term) respiratory diseases, such as asthma, chronic obstructive pulmonary disease (COPD), emphysema or bronchitis
- chronic heart disease, such as heart failure
- chronic kidney disease
- chronic liver disease, such as hepatitis
- chronic neurological conditions, such as Parkinson's disease, multiple sclerosis (MS), a learning disability or cerebral palsy
- diabetes
- a weakened immune system as the result of conditions such as HIV and AIDS, or medicines such as steroid tablets or chemotherapy

- being seriously overweight (a body mass index (BMI) of 40 or above).

For children

A small number of children who would routinely be advised not to attend school due to the risk of infections other than COVID-19 are advised by their clinical team not to attend an educational setting.

Evidence-base

The PHA groups were initially based on the PHE groups.⁽¹³⁾ On 23 April, upon advice from Northern Ireland's CMO, two additional conditions were added to the *clinically extremely vulnerable* groups. This was the first instance where the PHA criteria differed from PHE. These included those undergoing renal dialysis and those with Motor Neurone Disease, with no evidence-base cited. On 15 May, people who have had a splenectomy were added to the *clinically extremely vulnerable* criteria, with no justification reported. On 6 June, people who have motor neurone disease and people who have problems with the spleen were removed from the *clinically vulnerable* person criteria, but remain on the *clinically extremely vulnerable* criteria, with no justification reported. At the end of November (date not reported), adults with Down's syndrome and adult patient with kidney impairment (Stage 5 Chronic Kidney Disease) were included in the 'at the highest risk' group (clinically extremely vulnerable), with no justification provided. However, this is in line with PHE guidance (see above).⁽¹³⁾

ECDC country level risk assessment

No recent updates available.

Current protective measures and supports

Shielding for clinically extremely vulnerable people has been paused since 31 July 2020.⁽²³⁾ Since 11 April 2021, those who are unable to work from home are advised to attend the workplace provided the employer has taken the proper measures to ensure social distancing in the place of work, and traveling to work can be done in a way which allows for social distancing measures. They are advised to avoid public transport as much as possible particular during peak hours, walk or cycle if possible and avoid sharing a car with people outside of their immediate household or support bubble. Others living in a household with someone who is clinically extremely vulnerable are advised to continue to stringently follow the guidance on physical distancing, face coverings and hand hygiene.

A small number of children who would routinely be advised not to attend school due to the risk of infections other than COVID-19 are advised by their clinical team not to attend an educational setting.⁽²⁴⁾ Pupils previously shielding or with a family member who was previously shielding due to being identified as 'clinically extremely vulnerable' can continue to attend school.

Previous highest level of protective measures for the first wave

In May, people in an extremely vulnerable group were advised to stay at home at all times and avoid all face-to-face contact for at least 12 weeks.⁽²²⁾ People living with someone shielding were advised to minimise the time spent in shared spaces. Supports were provided, aimed at helping those shielding access food and medicine. Clinically extremely vulnerable children were asked to shield and not attend school or crèche. The advice to those identified as vulnerable was to strictly follow advice for the general public.⁽²¹⁾

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Scotland, Health Protection Scotland (HPS)

Background

From 23 March, Scotland was following PHE's guidance for people who are clinically extremely vulnerable and at the highest risk of severe illness. From 3 April, the Safer Communities Directorate began [publishing](#) its own criteria closely based on the PHE groups but with additional details that relate to the specific definition for each PHE risk group.⁽²⁵⁾

Criteria

- Solid organ transplant recipients - includes people who have had a transplant of kidney, liver, pancreas, islet cell, heart, lung, stomach or other part of intestine. This is because of the medication taken to stop rejection of the transplanted organ(s).
- People with specific cancers:
 - who are undergoing active chemotherapy or have had radical radiotherapy for lung cancer
 - of the blood or bone marrow who are at any stage of treatment including cancers such as leukaemia, lymphoma or myeloma
 - who are having immunotherapy or other continuing antibody treatments
 - who are having specialised, cancer treatments that can affect the immune system, such as protein kinase inhibitors or PARP inhibitors
 - who have had bone marrow or stem cell transplants in the last six months, or who are still taking immunosuppression drugs.
- People with severe respiratory conditions. This includes all cystic fibrosis, severe asthma and severe Chronic Obstructive Pulmonary Disease (COPD), severe bronchiectasis and pulmonary hypertension. People in this group include:
 - People with cystic fibrosis
 - People with lung conditions which require home oxygen
 - People with severe asthma requiring regular inhaler use and long-term steroid tablets to control your asthma. For example, Prednisolone or regular injections.
 - Severe non-cystic fibrosis bronchiectasis
 - Pulmonary hypertension
 - People with severe COPD. This usually means being on several different inhaler medications in the last year. This must include two long acting preventers as well as a steroid inhaler. For example, Long Acting Beta Agonists and Long Acting Anti-Muscarinic Antagonists. Severe COPD means that:
 - too breathless to walk 100 yards
 - have two or more lung infections a year, or
 - require oxygen to help with breathing
- People with rare diseases including all forms of interstitial lung disease or sarcoidosis. This includes inborn errors of metabolism that significantly increase the risk of infections. For example, SCID, homozygous sickle cell disease and adults with Down's syndrome.

- There are many conditions classed as a rare disease. Not everyone with a rare disease will be at a higher risk of severe illness from COVID-19. Treating clinician will add people to shielding list if appropriate.
- People on immunosuppression therapies that significantly increase risk of infection or who have had their spleens removed.
 - In some cases these treatments may put people into the highest risk group. Your clinician can tell you if your medications put you in this group:
 - on high dose corticosteroid treatment (equal to Prednisolone 20mg or more) for more than four weeks
 - on specific single therapies, for example Cyclophosphamide. These medications are usually prescribed by specialists in hospitals
 - on lower dose of corticosteroids for more than 4 weeks in combination with other disease modifying medication
 - on disease modifying medications who also have other chronic medical conditions.
 - who take some medication and are otherwise healthy may not need to be in the shielding groups. This includes single Disease Modifying medications (DMARD). It also includes Biologic medications such as Methotrexate, Azathioprine, Cyclosporin, Leflunomide plus others. This is to be discussed with a specialist or GP if unsure.
- People who are pregnant with significant heart disease, congenital or acquired
 - If you are being supported by a specialist heart clinic during your pregnancy then you fall within this group.
- People who have had their spleen removed, receiving or starting renal dialysis treatment, people who have chronic kidney disease stage 5, or liver cirrhosis (Child-Pugh class B and C). If you're planning to receive a liver or kidney transplant from a living donor, both you and your donor will be asked to isolate yourselves for 2 weeks before your transplant.

[Specific medical advice](#) is provided for those with specific medical conditions, including: cancer; diabetes; heart disease; IBD; chronic kidney and liver disease; dermatological; neurological; (specific) ophthalmic respiratory and rheumatic conditions; chronic pain, and rare diseases.⁽²⁶⁾

For children

Children are at much lower risk of severe illness from coronavirus than adults and are less likely to transmit the virus to other people.⁽²⁷⁾ However, some children and young people with pre-existing conditions or receiving treatments may be considered at highest risk. This should be assessed by GP or hospital team. The advice is for children and young people on the highest risk list to follow the same advice as the rest of the population. This includes attending nursery, school, college and university, unless their clinician has advised them otherwise individually.

Evidence-base

Initially it was reported that the four CMOs of Scotland developed the criteria based on the evidence available, knowledge of other infectious respiratory diseases and taking a precautionary approach.⁽²⁸⁾ SIGN regularly updates a [rapid review](#) aimed to inform primary care (review was assessed in July and the update made on 2 February 2021 is still current. Next review will take place in November 2021).⁽²⁹⁾ On 23 February 2021, people with liver cirrhosis (Child-Pugh class B and C) was added. Notably in this update, chronic liver disease was changed from 'evidence of association is unclear' to 'associated with severe disease', with the addition of a study published in September 2020.⁽³⁰⁾ Public Health Scotland published an [evaluation report on shielding](#) (updated 26 April 2021) during the first wave of coronavirus which looked at how well shielding worked, and how many people followed the shielding advice.⁽³¹⁾ A recent [study](#) based on phone interviews was published reporting on the experiences of high risk individuals and their feelings about returning to the workplace, the future of the highest risk list, and their trusted information sources.⁽³²⁾

ECDC country level risk assessment

No recent updates available.

Current protective measures and supports

Scotland has been easing restrictions since 5 April 2021. From 19 April 2021, people at highest risk from COVID-19 (formally the shielding list) were advised to follow the same advice as the rest of the population unless their clinical team advise otherwise.⁽³³⁾ This does not apply to those who live or work in an area that is in Level 4. Since 9 August 2021, Guidance has been updated to reflect the move beyond Level 0 (lowest level).⁽²⁵⁾ Key changes include lifting requirements to physically distance and limits on the size of social gatherings. However, people are advised to continue these measures- especially when indoors. That is, keeping some distance from people in other households and avoiding crowded places.

The Chief Medical Officer has written to everyone who falls into the shielding category, this letter can be used as evidence for employers.⁽³⁴⁾ In the event of returning to the workplace, those at highest risk are advised to carry out an individual risk assessment with their employer including the use of the [COVID-Age tool](#) to calculate their individual risk from COVID-19. [Additional advice](#) is provide to ensure risk is minimised at the workplace.⁽³⁴⁾ This advice applies to those who are fully vaccinated. One-to-one [support](#) for up to 18 months is available for people who are at highest risk and unemployed to help overcome any barriers to work and to help find a suitable job.⁽²⁵⁾ Once employed the support continues for 12 months.

People planning to receive or donate a liver or kidney transplant from a living donor are advised to shield for two weeks in advanced of the transplant.

Previous highest level of protective measures for the first wave

Those shielding [were asked](#) to stay at home and minimise non-essential contact with the other people in their household.⁽³⁵⁾ They were asked not to go out for exercise, to go shopping, or for leisure or travel. Other people in their household were not asked to shield. Essential carers and informal carers were allowed to continue to provide support in person to someone shielding. Up to 11 August, all children who had been shielding were advised not to attend formal childcare or school settings. Children over 11 living with someone who was shielding were advised to physically distance from other children.

Supports were provided including free food and essential supplies organised by an automated mobile text service or through a local authority helpline. Prescription delivery was also provided. On 28 April, there was an estimated 150,000 clinically vulnerable people shielding in Scotland ([link](#)).⁽³⁶⁾

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Wales, Welsh Government

Background

Since 24 March, the Welsh government has published criteria identical to PHE's clinically extremely vulnerable groups with an additional risk group identified as children up to the age of 18 with significant heart disease, congenital or acquired.^(37, 38)

Criteria

- Solid organ transplant recipients
- People with specific cancers:
 - People with cancer who are undergoing active chemotherapy or radical radiotherapy for lung cancer
 - People with cancers of the blood or bone marrow such as leukaemia, lymphoma or myeloma who are at any stage of treatment
 - People having immunotherapy or other continuing antibody treatments for cancer
 - People having other targeted cancer treatments which can affect the immune system, such as protein kinase inhibitors or PARP inhibitors
 - People who have had bone marrow or stem cell transplants in the last six months, or who are still taking immunosuppression drugs
- People with severe respiratory conditions including all cystic fibrosis, severe asthma and severe Chronic Obstructive Pulmonary Disease (COPD)
- People with severe single organ disease (e.g. Liver, Cardio, Renal, Neurological).
- People with rare diseases and inborn errors of metabolism that significantly increase the risk of infections (such as Severe Combined Immunodeficiency (SCID), homozygous sickle cell).
- People on immunosuppression therapies sufficient to significantly increase risk of infection.
- Adults with Down's syndrome.
- Pregnant women with significant heart disease, congenital or acquired.

For children

On 25 August, it was [reported](#) that following a comprehensive review of evidence and studies commissioned by the UK Government with regard to susceptibility to COVID-19 infection, that children and young people, including those originally considered to be clinically extremely vulnerable to the disease, are at very low risk of becoming seriously unwell or dying from infection with the virus.^(38, 39) The review also considered the damage that isolation can cause, including the inability to meet with friends and family and not being able to attend school. It noted that, even when the advice to shield is paused, being described as 'clinically extremely vulnerable' can be very worrying. Although the review was not cited, [an evidence summary](#) on children, young people and education settings was identified which was published in July 2021 and may have been used to inform this decision.⁽⁴⁰⁾

As a result, the four UK CMOs recommended that children (<18 years of age up to 31 December 2021) are no longer considered clinically extremely vulnerable, and are to be removed from the shielding patient list. There remains a small number in this group who may have been advised by their own specialists to isolate or reduce their social contact because of their medical condition or treatment. All children and young people on the shielding patient list will receive a letter from the CMO with additional information.

For pregnant women

People who are pregnant with significant heart disease, congenital or acquired are considered at highest risk, as listed above.

Evidence-base

No evidence base is reported, however the criteria appears to be based on PHE's highest risk groups. On 19 November adults with Down's syndrome were added, while children up to the age of 18 with significant heart disease, congenital or acquired was removed. No justification for these changes was reported.⁽³⁸⁾

Current ECDC risk assessment

No recent updates available.

Current protective measures and supports

Wales began easing restrictions on 27 March 2021 and the advice to follow shielding measures was paused on 31 March 2021.⁽⁴¹⁾ Since 1 April 2021 those that are clinically extremely vulnerable are advised they can attend work or school in-person.⁽³⁸⁾ People who were on the shielding patient list are asked to follow the same rules as the rest of the population in Wales. Since 7 August 2021, there are no legal limits on the number of people who can meet, including in private homes, public places or at events. In addition all businesses and premises can open. People who are fully vaccinated must continue to follow the general public health rules and guidance.

Previous highest level of protective measures for the first wave

From 23 March, people of all ages who are clinically extremely vulnerable were advised to stay at home at all times and not to go shopping, exercise, attend school or crèche in person, or meet other households.⁽³⁷⁾ Gatherings were to be avoided. Essential and informal carers were allowed to continue essential care.

Australia, Department of Health

Background

Since 24 March, the Department of Health publishes criteria and protective measures for people at greater risk of more serious illness with COVID-19. These were initially aimed at people over the age of 60, and Aboriginal and Torres Strait Island people over the age of 50, including people in care facilities. This was later updated to a more [comprehensive criteria](#) which outlines specific conditions and treatments according to high risk or moderate risk of severe illness from COVID-19.⁽⁴²⁾

Criteria

High risk:

- aged 70 years and older
- have had an organ transplant and on immune suppressive therapy
- have had a bone marrow transplant
- on immune suppressive therapy for graft versus host disease
- have had blood cancer, for example, leukaemia, lymphoma or myelodysplastic syndrome
- non-haematological cancer diagnosed within the past five years or on chemotherapy, radiotherapy, immunotherapy or targeted anti-cancer therapy (active treatment or recently completed) or with advanced disease regardless of treatment
- survivors of childhood cancers
- chronic inflammatory conditions requiring medical treatments
- primary or acquired immunodeficiency
- chronic renal (kidney) failure
- heart disease (coronary heart disease or failure)
- chronic lung disease (excludes mild or moderate asthma)
- a non-haematological cancer (diagnosed in the last 12 months)
- diabetes
- severe obesity with a BMI ≥ 40 kg/m²
- chronic liver disease
- some neurological conditions (stroke, dementia, other)
- poorly controlled blood pressure (may increase risk)
- pregnant people
- significant disability requiring frequent assistance with activities of daily living
- severe mental health conditions.

Other factors might affect risk:

- having two or more conditions might increase your risk, regardless of your age. If your condition is severe or poorly controlled, this might also increase your risk of serious illness from COVID-19. Speak to your doctor about your risk.
- age - risk increases with age, even for those under 70
- being male
- poverty
- smoking.

For children

The DoH [advises](#) having two or more conditions (listed above) might increase risk of serious illness from COVID-19, regardless of age.⁽⁴²⁾ If a condition is severe or poorly controlled, this might also increase the risk.⁽⁴³⁾ These people are advised to consult their doctor.

Evidence-base

No evidence-base reported. On the 23 April specific examples of hematologic neoplasm and additional details for disease-modifying anti-rheumatic drugs were included in the criteria for those at high risk. On 6 July, an updated criteria included a [two category risk system](#) that is current in use.⁽⁴⁴⁾ On 12 October, all risk groups previously considered as moderate risk were added to the highest risk category as and removing time bound limits for bone marrow transplant and blood cancers

Current ECDC risk assessment

Not available.

Current protective measures and supports

Follow general advice which includes social distancing measures and hand hygiene.⁽⁴⁵⁾ Where there are cases of COVID-19 in the community, those at higher risk are advised to continue to stay at home, avoid contact with people from other households and continue to avoid non-essential travel. It is suggested that those at an increased risk may consider developing an [individual COVID-19 action plan](#) to help weigh up their risk relating to certain activities and places.⁽⁴⁶⁾ The plan lists potential actions to take when there is: no COVID-19 cases in the community; low numbers of COVID-19 cases in the community; or increasing numbers of COVID-19 cases in the community. It was [announced](#) at Ministry of Health press conference on 18 February that a ring vaccination strategy could be activated by the Australian Health Protection Principal Committee when a significant outbreak occurred in a particular part of a city, with no further detail available from official sources.⁽⁴⁷⁾ This was reported by the media to involve rerouting vaccine doses to protect vulnerable people at the centre of a coronavirus outbreak.⁽⁴⁸⁾ This strategy was outlined in a 2005 [infectious disease outbreak guideline](#).⁽⁴⁹⁾

Supports are available for people over 65 years, or over 50 years for Aboriginal and Torres Strait Islanders, which include home delivery of prepared meals, food staples and essential daily items. As well as priority grocery shopping by ordering via phone or online.⁽⁵⁰⁾

Previous highest level of protective measures for the first wave

Those at highest risk were advised to stay at home and avoid non-essential travel, contact with others and public gatherings.

Belgium, Federal Public Service (FPS) Health, Food Chain Safety and Environment

Background

The FPS has been [publishing](#) since 10 March criteria and advice on protective measures for people more at risk.⁽⁵¹⁾

Criteria

- People over 65
- Diabetics (type 2), in combination with obesity and or problems with heart, lungs or kidneys
- People with heart, lung or kidney disease
- People with weakened immune system.

For children

According to the data presently available, children play a limited role in the transmission of the coronavirus and are less likely to develop serious illness.⁽⁵²⁾

For pregnant women

FPS state that in their view there is no scientific evidence that pregnant women are more vulnerable to this infection or to its consequences.⁽⁵²⁾ There is no evidence that an infection during pregnancy has a negative effect on the foetus or that the virus can be transmitted from mother to child during pregnancy.

Evidence-base

The Epidemiology of Infectious Diseases Unit of Sciensano, a subsidiary of the FPS, have produced an [evidence summary](#) which is regularly updated that may have been used to inform the Belgium high risk groups.⁽⁵³⁾ These include summaries for risk groups (last updated 6 February 2021), children (last updated 22 September 2021), pregnant women (last updated 4 February 2021) and other special populations (last updated 6 February 2021).

Current ECDC risk assessment

The epidemiological situation for Belgium is categorised by the ECDC as of **high concern**, down from of very high concern last week.⁽¹⁾ This is based on a composite score based on the absolute value and trend of five weekly COVID-19 epidemiological indicators.

Current protective measures and supports

Stay home as much as possible.⁽⁵²⁾ Avoid contact with others outside the family and follow all hygiene measures carefully. Family members (and presumably members of the household) are asked to consider avoiding contacts with other people. It is mandatory that everyone works from home.⁽⁵²⁾ Crèches and schools are open but no specific advice is provided for vulnerable children or children of households with a

vulnerable person. There may be regional variant, for example Flanders or Wallonia Brussels.

Previous highest level of protective measures for the first wave

Similar to the current advice (above).⁽⁵¹⁾

DRAFT

Canada, Public Health Agency of Canada

Background

Since 23 March, the Public Health Agency of Canada [publishes](#) criteria and advice for people who are at high risk for severe illness from COVID-19.⁽⁵⁴⁾

Criteria

- Older adults (increasing risk with each decade, especially over 60 years).
- People of any age with chronic medical conditions including:
 - lung disease
 - heart disease
 - hypertension (high blood pressure)
 - diabetes
 - kidney disease
 - liver disease
 - dementia
 - stroke.
- People of any age who are immunocompromised, including those:
 - with an underlying medical condition (for example, cancer)
 - taking medications that lower the immune system (for example, chemotherapy).
- People living with obesity (BMI of 40 or over).

For children

No specific reference to children although criteria says chronic conditions that increase risk relate to all ages.⁽⁵⁵⁾

Evidence-base

Not reported.

Current ECDC risk assessment

Not available.

Current protective measures and supports

If possible those at increased risk are [advised](#) to stay at home and only leave for essential medical appointments.⁽⁵⁵⁾ Avoid contact with others, especially those who have travelled or been exposed to the virus. If contact with others cannot be avoided keep interactions brief. Avoid crowds and large gatherings. Avoid cruises and non-essential travel outside of Canada. No specific supports reported.

Previous highest level of protective measures for the first wave

Same as current protect measures (see above).⁽⁵⁴⁾

Denmark, Danish Health Authority

Background

The Danish Health Authority publishes [criteria](#) and advice on protective measures for people who are at higher risk of severe illness from COVID-19.⁽⁵⁶⁾

Criteria

Age:^(57, 58)

- 80 years or older:
Whether you are healthy and well or have chronic diseases and conditions, you are at increased risk
- 65-79 years old:
Many healthy people in this age group are not at higher risk. but if you have chronic diseases or mental and physical illnesses may cause you to be at higher risk
- Under 65 years old:
Although very few are at higher risk, people in this age group are thought to be at higher risk if they have certain chronic diseases or chronic diseases that are difficult to manage, a BMI of 35 or over,^(59, 60) and/or with impaired immune systems.⁽⁶¹⁻⁶³⁾ For the majority of the younger people in this group, there is a less increased risk because, due to their young age, they have a lower risk of a serious disease course. This means that younger people with a disease or condition should not compare themselves with older people who have the same or other diseases. They should instead compare themselves to healthy peers.

Residents in nursing homes/assisted living facilities:^(64, 65)

- Residents in nursing homes, etc. are at higher risk of severe illness from COVID-19 as they are often elderly and have chronic diseases, functional decline and fragile health.

Certain children and young people with chronic illness:

- Children and young people who may have an increased risk are typically children who before the COVID-19 pandemic were already subject to special precautions.

Pregnant women^(64, 66-68)

- Based on a precautionary principle, pregnant women and their unborn children are considered to be at higher risk.

For children

The children and young people who may be at increased risk are typically the children where special precautions were in place before the COVID-19 epidemic, for example, special conditions in connection with schooling or day care.⁽⁵⁶⁾ These children are typically followed in specialist outpatient clinics, and thereby receive individual assessment and counselling. Even seriously ill children will typically have a mild disease course if they become ill with COVID-19.

For pregnant women

Based on a precautionary principle, pregnant women and their unborn children are considered to be at higher risk.^(56, 64, 66-68) As a rule, women should not be reassigned and or sent home from week 28 of a pregnancy if fully vaccinated.⁽⁶⁹⁾ However, based on a precautionary principle, if a woman is pregnant, treatment or care should not be performed in A&E, on a COVID-19 ward or similar.

Evidence-base

On 4 May 2020, the National Board of Health commissioned a [rapid review \(translation\)](#) about conditions and diseases that entail an increased risk of a long-term or serious course of disease of COVID-19 (last updated 12 March 2021).⁽⁷⁰⁾ An update on 12 March 2021 included details on the increased risk for adults with Down syndrome.

Current ECDC risk assessment

The epidemiological situation for Denmark is categorised as of **high concern** for the last five weeks.⁽¹⁾ This is based on a composite score based on the absolute value and trend of five weekly COVID-19 epidemiological indicators.

Current protective measures and supports

Since after the update on 9 July, Denmark no longer provides specific advice to those at highest risk of illness from COVID-19.

Previous advice included:

People at higher risk are [advised](#) to follow general advice including attending work, participating in leisure activities and caring for grandchildren.⁽⁵⁶⁾ For those who are at higher risk of an infection (non-COVID-19), such as those with a weakened immune system, precautions similar to the previous wave are recommended. People at higher risk who are fully vaccinated can have physical contact with close friends and family, participate in activities with several people and use public transport outside of off-peak times.⁽⁷¹⁾

Housemates, relatives, friends and colleagues can engage with one another in social settings but are advised to maintain physical distancing with those at higher risk who are not fully vaccinated. Those that live with someone at higher risk are advised they can go to work and attend school or crèche. People who are employed in healthcare, elderly care or the social services and also live with someone who is high risk, are advised to not participate in the care or treatment or have close contact with persons with either suspected or confirmed COVID-19, and should be reassigned to another task or function, regardless of vaccination status.⁽⁷²⁾ For all other occupations it is advised to resume work as before. Relatives of someone at higher risk do not have to be reassigned to other less risk related tasks – if either the person at higher risk or the relative has been fully vaccinated.⁽⁷¹⁾

Treatment or care for people at higher risk should not be provided in A&E, on a COVID-19 ward or similar which includes fully vaccinated people at higher risk.⁽⁶⁹⁾ [report \(translated to English\)](#) by the Danish Health Authority published on 4 October 2021 details considerations of the research conducted on receiving an alternative COVID-19 vaccine product following initial schedule (cross-vaccinated).⁽⁷³⁾

Selected relatives of persons at significantly increased risk of severe illness from COVID-19 or relatives who are indispensable as carers are included in the [vaccine priority list](#).

Previous highest level of protective measures for the first wave

People in these groups were previously advised to stay at home and avoid close contact with others, as much as possible.⁽⁷⁴⁾ To avoid larger gatherings and public transportation, especially during rush hour, and to consider using gloves when going out.

Finland, Finish Institute of Health and Wellness (THL)

Background

Since 16 March 2020, the THL has [published](#) criteria and protective measures aimed at people more susceptible to severe coronavirus infections.⁽⁷⁵⁾

Criteria

- Persons over 70 years of age

The risk of serious coronavirus infection may also be increased by those underlying diseases that significantly impair lung or heart function or the body's resistance, such as:

- Severe heart disease
- Lung disease that is not clinically stabilised
- Diabetes that involves organ damage
- Chronic liver or kidney failure
- Diseases that weaken the immune system, such as leukaemia or lymphoma that is currently undergoing cytostatic treatment (not maintenance therapy)
- Medication which significantly weakens the immune system (for example, high-dosage cortisone therapy).

Other factors that generally impair lung functioning and may increase the health risk of a coronavirus infection include morbid obesity (BMI over 40) and daily smoking.

Hereditary or acquired susceptibility to occlusion (blocked or closing blood vessels or organs) does not increase the risk of developing a serious coronavirus infection.

However, a coronavirus infection involves a greater risk of venous thrombosis than other respiratory infections, as the coronavirus infection activates the coagulation system. Conditions that increase the risk of occlusion are [provided](#).⁽⁷⁶⁾

A more detailed [list of illnesses and conditions](#) with references to studies is available and is used for the vaccine prioritisation process (last updated 2 July 2021).⁽⁷⁷⁾

For children

It is stated that severe cases are extremely rare in children.⁽⁷⁵⁾ The risk of severe COVID-19 is low in children and adolescents whose underlying disease, such as asthma or heart disease, is in balance, and for those who suffer from diabetes without significant additional diseases.⁽⁷⁸⁾ The risk of developing the disease is generally not increased in children who need immunosuppressive medication. Instead, it is advised that, stopping the medication can be dangerous. It is advised that if a child or adolescent in need of such medication develops symptoms consistent with a coronavirus infection, the caregiver should contact the specialist care unit where the child or adolescent is being monitored for their underlying disease. In August 2021, the THL investigated persistent symptoms by means of a survey directed at chief paediatricians in non-university central hospitals.⁽⁷⁸⁾ According to the responses, 13 out of 16 central hospitals had treated a total of 21

patients under 16 years of age with a COVID-19 diagnosis in an inpatient ward during the entire pandemic. In approximately one third of these patients COVID-19 was an incidental finding that did not affect the decision to admit the child or young person to the hospital. None of the central hospitals that responded to the survey had treated children or young people at an outpatient clinic or in an inpatient ward due to a suspected case of Long Covid. A UK report on Long Covid by the Office for National Statistics is [cited](#).⁽⁷⁹⁾ A more detailed study in Finland is under way.

Evidence-base

Based on monitoring statistics of the THL and extensive documentation of the European Centre for Disease Prevention and Control (ECDC), age is a significant risk factor for a severe case of COVID-19.

Current ECDC risk assessment

The epidemiological situation for Finland is categorised as of **high concern** for the last five weeks.⁽¹⁾ This is based on a composite score based on the absolute value and trend of five weekly COVID-19 epidemiological indicators.

Current protective measures and supports

The [current advice](#) is to follow the general guidelines.⁽⁸⁰⁾ Supports listed include help with getting food and visiting the pharmacy by the local municipality and authorising someone else to collect a prescription. In advance of attending events, people over the age of 70 and at-risk people are recommended to find out about the possibilities to maintain social distance and about the use of face masks at the event.

Fully vaccinated grandparents are advised they can meet their own unvaccinated children and grandchildren if the children and grandchildren are healthy and do not belong to an at-risk group for severe coronavirus disease.⁽⁸¹⁾

Previous highest level of protective measures for the first wave

From 19 March 2020, the Finnish Government [imposed an obligation](#) on those over 70 years of age to avoid close contact and movement outside their homes.⁽⁸²⁾ Non-essential visits to anyone over 70 and in other risk groups were also to be avoided. On 16 June, the THL published a [press release](#) relating to risk groups and the health hazards of hot weather. People within this group were advised to avoid using a fan in common areas with more than one person present or confined spaces with poor ventilation.⁽⁸³⁾ No other protective measures were reported.

Germany, Robert Koch Institute (RKI)

Background

Since 6 March, the RKI has published [risk groups](#) for severe illness from COVID-19 in German only.⁽⁸⁴⁾ The Federal Ministry of Health publishes [advice](#) for these risk groups.⁽⁸⁵⁾

Criteria

- Older people (with a steadily increasing risk of severe course from around 50 to 60 years; 86% of those who died from COVID-19 in Germany were 70 years old or older [median age: 82 years])
- Male gender^(86, 87)
- Smokers⁽⁸⁸⁻⁹⁰⁾ (weak evidence)
- Obese (BMI > 30) and very obese people (BMI > 35)^(87, 91)
- Pregnant women⁽⁹²⁾
- People with Down syndrome (trisomy 21)^(15, 93)
- People with certain pre-existing medical conditions, no ranking:⁽⁹⁴⁻⁹⁶⁾
 - The cardiovascular system (for example, coronary heart disease and high blood pressure)
 - Chronic lung diseases (for example, COPD)
 - Chronic kidney and liver diseases
 - Psychiatric illnesses (for example dementia)
 - Patients with diabetes mellitus
 - Patients with cancer
 - Patients with a weakened immune system (for example, due to a disease that is associated with an immune deficiency or due to regular use of medication that can influence and reduce the immune system, such as cortisone).

For children

RKI [states](#) in German that according to limited evidence prevalence appears to be lower in children and young people, and they appear less susceptible than adults.^(97, 98) The Standing Committee on Vaccination recommended on 24 June 2021 to include children and adolescents aged 12-17 years with a chronic lung disease, in their vaccination advice, as they are considered to be particularly at risk if the chronic lung disease with persistent impairment of lung function is below the 5th percentile, defined as a z-score value < -1.64 for the forced one-second capacity (FEV1) or vital capacity (FVC).⁽⁹⁹⁾ Well-controlled bronchial asthma is not an indication for vaccination.

For pregnant women

RKI state that a high fever during the first trimester of pregnancy can increase the risk of complications and malformations.⁽⁹⁷⁾ RKI added pregnant women to the high risk groups in November 2021. A [webpage](#) was cited which outlines the benefits and

risks of vaccination during pregnancy, with no justification given for the addition to the high risk groups.⁽⁹²⁾

On 7 May, a summary of current evidence on pregnancy and associated risk was published by the RKI. This is presented below with references to relevant studies where cited:

For pregnant women:

Acquisition of infection - There is currently no data on susceptibility to SARS-CoV-2 infection in pregnant women. Due to the physiological adaptation and immunological changes during pregnancy, an increased susceptibility to infections by SARS-CoV-2 cannot be excluded.

Clinical presentation- Pregnant patients seem to develop symptoms less frequently, corresponding to a low manifestation index. In a screening study of 215 women in the third trimester, 33 women (15%) tested positive, but only 4 (12%) of the 33 women tested positive had symptoms.⁽¹⁰⁰⁾ Another study showed that pregnant women had fewer fevers than the control group. The indication for examination for SARS-COV-2 can therefore be made generously in pregnant patients.

Severity of the course of the disease in pregnant women - There are only a few studies to date, in which pregnant women with COVID-19 were examined.⁽¹⁰⁰⁻¹⁰³⁾ These available studies and the results of the report of the "WHO-China Joint Mission on Coronavirus Disease 2019"⁽¹⁰⁴⁾ provide no indication of a more severe course of COVID-19 in pregnant women compared to non-pregnant women. Deaths seem to occur very rarely, individual cases have so far been reported.⁽¹⁰⁵⁾ It is possible that an increased risk of a severe course can only be reliably examined in population-based studies.

Since COVID-19 can be associated with hypercoagulability and there is also physiological hypercoagulability during pregnancy, the indication for thromboprophylaxis should be carefully examined.⁽¹⁰⁶⁾

For unborn children:

There is little data on this question, especially no long-term data, so no valid statements can be made about this question. Basically, high fever during the first trimester of pregnancy can increase the risk of complications and malformations.

Evidence-base

References to supporting evidence evaluated by RKI are provided for groups (see above). On 11 May 2020, people who are very obese were added to the high-risk groups. People who are obese were added on the 8 January 2021, this is in addition to the existing very obese category, with no further evidence cited. People with Down's syndrome were also added with two cited studies, one conducted in the UK

the other in the US.^(15, 93) People with psychiatric illnesses (for example dementia) was added to on 17 June 2021, with no justification provided.

Current ECDC risk assessment

The epidemiological situation for Germany is categorised as of **high concern**, down from of very high concern last week.⁽¹⁾ This is based on a composite score based on the absolute value and trend of five weekly COVID-19 epidemiological indicators.

Current protective measures and supports

As the incidence level across Germany is high, there is a general call by federal and state governments for reduced contact. Other [advice](#) calls for reduced contact, keeping the number of people regularly met as small and constant as possible. Maintaining a 1.5 metre physical distance and wearing a face mask (FFP2 or KN95 / N95 standards) when this is difficult to achieve, especially on local transport and shopping,^(85, 107) and when visiting people who are elderly and people in the high risk groups. In principle, families can meet up with their grandparents again, provided that appropriate protective measures are observed. Visitors are advised to take a rapid antigen test or self-test before their visit.⁽⁸⁵⁾ It is advised to limit the length of visits and meet outside where possible. If meetings occur indoors, ensure rooms have good air circulation. The federal and state governments advise visits to grandparents to be avoided if unnecessary. If they do meet, adults should wear a FFP2 or KN95/N95 mask and children and adolescents between the ages of six and 16 should wear a medical mask when visiting their grandparents. From 18 November 2021, all people regardless of their COVID-19 vaccination status who enter nursing homes and health clinics [must](#) be able to show a negative PCR or rapid antigen COVID-19 test result.⁽¹⁰⁷⁾

The German Government provides FFP2 masks to those with certain pre-existing conditions and also provides FFP2 masks to people aged 60 years and older.⁽¹⁰⁷⁾

Previous highest level of protective measures for the first wave

No specific measure or advice was identified relating to high risk groups.

Norway, Norwegian Institute of Public Health (NIPH)

Background

The NIPH first published information about groups at higher risk of serious illness from COVID-19.⁽¹⁰⁸⁾ Since 21 May, [information for risk groups](#) is provided based on two tiers of risk groups; those at slightly increased risk and those at moderate to high risk.⁽¹⁰⁹⁾ Protect measures are further stratified by rate of transmission in the respective community.

Criteria

People at moderate/high risk include:

- Residents of nursing homes
- Over 70 years of age^a
- Severe health condition, regardless of age*:
 - solid organ transplant
 - immunodeficiency
 - hematologic (blood) cancer in the last 5 years
 - people with active cancer, ongoing or recently discontinued treatment for cancer (especially immunosuppressive therapy, radiation therapy to the lungs or chemotherapy).
 - neurological or muscular disease with impaired coughing strength or lung function (for example, ALS, cerebral palsy)
 - Down's syndrome
 - chronic kidney disease and renal failure

a There is an exponential increase in risk from 70 years and over. Age is the most important independent risk factor.

**Other serious and or chronic diseases that are not mentioned may also increase the risk of serious illness and death from COVID-19. This is assessed individually by a doctor.*

** Some serious health conditions are included in this list as a precautionary principle, even though there are no current studies indicating a higher risk of severe progression for the diseases.*

People at slightly/moderately increased risk include those:

- Aged 65 to 69 years
- Aged 50 to 64 years with one of the following chronic diseases:
 - chronic liver disease
 - immunosuppressive therapy with autoimmune diseases
 - diabetes
 - chronic lung disease, including severe asthma that has required the use of high dosage inhalation steroids or steroid tablets during the last year
 - obesity (BMI \geq 35)
 - dementia
 - cardiovascular disease (except high blood pressure)

- stroke

People under 50 years of age have a lower risk of developing severe COVID-19 disease. However, some people with poorly-regulated chronic conditions or a combination of several chronic diseases might be at increased risk.

Additional [information](#) is provided on specific risk groups.

For children

[According](#) to the NIPH children with chronic diseases have a very low risk of severe COVID-19 disease.⁽¹¹⁰⁾ Adolescents with severe and complex neurological diseases or congenital syndromes or with any of the following disease or conditions are currently being offered vaccination: organ transplant; immunodeficiency; hematologic (blood) cancer in the last five years; other active cancer; ongoing or recently finished treatment for cancer (especially immunosuppressive therapy, radiation therapy to the lungs or chemotherapy); Down Syndrome; or have a neurological or muscular disease with impaired coughing strength or lung function (for example, ALS and cerebral palsy).⁽¹¹¹⁾ On 19 August 2021, the NIPH reported that so far studies show that there is little risk of long-term effects of mild COVID-19 among children and adolescents, even though there is still a lack of knowledge.⁽¹¹⁰⁾ Most of the studies are small and deal primarily with children and young people who have been admitted to hospital. Norwegian registry data show that for mild COVID-19 in children and adolescents, few need contact with the health service after infection. The analyses included all tested children and adolescents under the age of 18 in Norway, who were compared with randomly selected controls, approximately 700,000 people in total. Danish registry data show similar findings. On 7 September 2021, NIPH updated [text](#) to highlight that as vaccination coverage increases in the adult population, transmission among children and adolescents will become less common because there will be less infection in circulation.⁽¹⁰⁹⁾ NIPH state this has already been seen in countries that are further along in the vaccination rollout, such as the UK, the USA and Israel.

Evidence-base

Earlier assessment is reported to be based on evidence from China including a [systematic review](#) (25 March 2020) examining risk groups in older patients hospitalised from 17 January to 12 February 2020 with nosocomial infection accounting for over 40% of the sample of 393.⁽¹¹²⁾ On 17 April 2020, the NIPH amended its [high-risk groups](#),⁽¹⁰⁹⁾ moving the majority of conditions into a category for 'those that may be at risk of severe COVID-19 disease'. These groups included those aged over 65 years, cardiovascular disease (including high blood pressure), and diabetes. This was based on a rapid review examining risk factors for hospital admission, severe disease and death conducted by NIPH. The [fourth update](#) was published 19 May 2021.⁽¹¹³⁾ Only peer-reviewed population-based studies with more than 5,000 laboratory test positive cases were included. On 1 December, the heading 'moderate and high risk' was changed to 'high risk', and several groups from

this category were moved to the category 'slightly increased risk'. Dementia and stroke were also added to the list of slightly increased risk.

On 23 December 2020, chronic kidney disease and renal failure was moved from slightly/moderately increased risk to high risk and a new definition of asthma as a chronic disease was inserted. A note was added highlighting a UK study which suggests that Down syndrome increases risk of severe COVID-19 among people over 18 years of age, although it was also noted that the risk probably varies considerably within the group.⁽¹⁵⁾ Down syndrome was subsequently added to the highest risk group which now includes a clarification that this applies to adults only (>18 years) on 1 February 2021. On 29 April 2021, Down syndrome was changed to a separate group under 'Groups with moderate or high risk'. On 13 January 2021 a definition for asthma was included. On 10 March 2021, cerebral palsy was added, and cystic fibrosis was removed as an example under chronic lung diseases from the groups associated with a slightly or moderately increased risk. As the majority in Norway are vaccinated the advice and table on various infection risk levels in society was deleted on 24 September 2021, however risk groups remain.

Current ECDC risk assessment

The epidemiological situation for Norway is categorised as of **high concern**, down from of very high concern for the previous five weeks.⁽¹⁾ This is based on a composite score based on the absolute value and trend of five weekly COVID-19 epidemiological indicators.

Current protective measures and supports

Norway has reinstated public health measures and advised everyone to follow social distancing measures, reduce contacts and meet people outside when possible.⁽¹¹⁴⁾ People in risk groups are now [advised](#) to shield.

Previous highest level of protective measures for the first wave

People in these groups were advised to avoid unnecessary contact with people with respiratory symptoms, unnecessary travel and large events with many participants.⁽¹¹⁹⁾ They should continue to attend planned check-ups and appointments unless directly requested not to and advised to work, go outside or to other places while maintaining physical distance with others. Where possible, were to work or continue education remotely from home. They should avoid looking after small children and if someone in the household is feeling unwell it was advised to stay and sleep in a different room and use a different bathroom and toilet. When there was reported local transmission the advice was updated to stay at home as much as possible. These are in addition to general physical distancing measures. NIPH had [recommended](#) healthcare workers who are not in a risk group to take samples and treat potentially infected patients, where possible.⁽¹⁰⁸⁾

Sweden, Public Health Agency of Swedish (FoHM)

Background

The National Board of Health and Welfare is responsible for identifying risk groups, aged 18 to 67 that are at the greatest risk of becoming seriously ill from COVID-19.⁽¹²⁰⁾ The FoHM publishes [criteria](#) aimed at help individuals understand their risk of becoming seriously ill.⁽¹²¹⁾

Criteria

The risk of becoming seriously ill gradually increases with increasing age:

- Those who are 60 to 70 years old have twice as high a risk of becoming seriously ill, compared with someone who is 50 to 60 years old. New Swedish data show that it is mainly after the age of 65 that the risk begins to increase significantly, this is why the age group of older people who are given priority for vaccination in February 2021 was lowered from 70 to 65 years.⁽¹²²⁾
- Those who are 70 to 80 years old have a six times higher risk of becoming seriously ill, compared with those who are 50 to 60 years old.
- The risk is greatest for those over 80 years of age, with the risk of becoming seriously ill 20 times higher than for a person who is 50 to 60 years old.

Other risk factors:

- organ transplantation
- blood cancer diseases, existing and past
- neurological diseases that affect respiratory functions
- obesity (increased risk with increased levels of obesity)
- diabetes (reduced risk if well managed)
- ongoing cancer treatment
- chronic lung disease
- stroke or dementia
- other immunosuppressive disease or treatment
- liver disease
- impaired renal function
- cardiovascular disease including hypertension
- Down syndrome.

Asthma only gives a small increase in risk if it is difficult to treat and unstable.

For children

Children are not considered to be at risk of serious illness even those who have any of the conditions or illnesses listed above.

For pregnant women

An analysis made by the National Board of Health and Welfare shows that women in pregnancy week 22-36 who get a covid-19 infection have a higher risk of giving birth prematurely.⁽¹²³⁾ While the data also suggests there is nothing to suggest that covid-19 during early pregnancy increases the risk of premature birth or other

complications. As there is up to a two-week incubation period from infection to illness, the National Board of Health and Welfare recommends to not be exposed to infection from week 20 of pregnancy. This is because a respiratory infection during late stages of pregnancy can pose a risk for the woman. Pregnant women with risk factors such as high blood pressure, diabetes, and obesity should be extra careful, consult with the midwife or physician, and limit close contact with people outside the household.

Evidence-base

A comprehensive list of risk groups is updated based on the recommendations by expert panel informed by Swedish National Board of Health and Welfare data including the patient registry, ICU registry, data come from results published in scientific journals as well as assessments and recommendations published by a number of foreign authorities and international organizations. New groups included obesity, neurological disorders (for example, MS, Parkinson's, Myasthenia gravis) and immunodeficiency diseases, additional detail was relating to cardiovascular disease. On 7 May a decision to not include pregnancy was reported but extra caution should be taken especially in the end of the pregnancy and prior to giving birth.⁽¹²³⁾ On 22 September high blood pressure and asthma were removed based a new large British study (Williams et al.) on COVID-19 which also informed an update in the age groups.⁽⁹⁵⁾ On 21 January 2021, MS, Parkinson's and myasthenia were removed as examples of a neurological disease risk factor, instead neurological diseases that affect respiratory functions was listed. On 18 February, a report was published which examined factors that are associated with mortality among laboratory-confirmed covid-19 cases in Sweden aged 50-69 years. The analysis demonstrated that age and gender were the variables most strongly associated with mortality.⁽¹²²⁾ On 4 March, Down Syndrome was added.

Current ECDC risk assessment

The epidemiological situation for Sweden is categorised as of **high concern**, increasing from of **moderate concern** for the previous six weeks.⁽¹⁾ This is based on a composite score based on the absolute value and trend of five weekly COVID-19 epidemiological indicators.

Current protective measures and supports

Since 23 October 2020, people who are aged 70 years or older, or belong to a risk group, have been asked to follow general advice.⁽¹²⁴⁾ This was reportedly due to a reduction in transmission levels in Sweden, the capacity for testing and contact tracing and the findings of a [report](#) (translated from Swedish) examining the harms and benefits for protective measures specific for people 70 years and older.⁽¹²⁵⁾ Nonetheless, the FoHM does provide recommendations for vulnerable groups,⁽¹²¹⁾ which includes maintaining a physical distance with people from other households, socialising outdoors rather than indoors, avoiding places where many people tend to gather, and avoiding public transport.

A population [study](#) of antibodies to SARS-CoV-2 has begun in 1,500 people over the age of 70.⁽¹²⁶⁾ The study aims to follow up the effect of the vaccinations and compare the results to a [previous study](#) which report the presence of antibodies to SARS-CoV-2 in 6.9% of people born in 1944. While the proportion of antibodies among blood donors aged 20-64 at the beginning of March was about 22%. The results from the study will be reported on the websites of AgeCaps, the Swedish Public Health Agency and the Västra Götaland region during winter 2021.

Previous highest level of protective measures for the first wave

People 70 years of age and over were advised to limit close contact with other people, stay at home as much as possible and avoid places where people tend to gather.⁽¹²⁷⁾

DRAFT

Switzerland, Federal Office of Public Health (FOPH)

Background

Since 17 March, FOPH [publishes](#) criteria and protective measures for people who are at high risk of become seriously ill from COVID-19.^(128, 129) Additionally, it regularly updates a [detailed list of conditions](#) (see Table 1), last updated on 10 May 2021.⁽¹³⁰⁾

Criteria

- Older people (The risk that people will contract a severe case of coronavirus disease increases as they get older. The risk of being hospitalised also increases from the age of 50. Pre-existing (underlying) conditions increase the risk even further.)
- Pregnant women
- Adults with Trisomy 21
- Adults who have one of the following conditions:
 - High blood pressure.
 - Cardiovascular disease
 - Diabetes
 - Pulmonary and respiratory diseases
 - Conditions and therapies that weaken the immune system
 - Obesity (BMI greater than or equal to 35 kg/m²)
 - Chronic kidney disease
 - Liver cirrhosis.

For children

It is stated that the risk of children developing a severe case of COVID-19 is considered low. According to current evidence, children are not considered to be an at risk group requiring additional protective measures.⁽¹³¹⁾ However, evaluations are made on a case-by-case basis by the attending doctor.⁽¹³²⁾ In addition to the general rules on hygiene and physical distancing, children with underlying medical conditions are advised they must continue to adhere to the recommended therapies and protective measures that applied to their condition prior to the coronavirus outbreak.

For pregnant women

On the basis of the evidence currently available, the FOPH together with the Swiss Association for Gynaecology and Obstetrics [consider](#) pregnant women among the people at especially high risk.⁽¹³³⁾ According to recent studies, pregnant women who have become seriously ill from COVID-19 have mostly been overweight, of an advanced age or had other illnesses. However, no evidence base was cited. On 1 March, FOPH added chronic pulmonary disease, liver cirrhosis, chronic kidney disease and reduced the BMI threshold from 40 to 35 and above.

Evidence-base

The Swiss National Task Force conducts evidence reviews which included a [review of risk factors](#) for severe illness from COVID-19 which was last conducted on 19

November 2020.⁽¹³⁴⁾ Adults with Trisomy 21 was added on 7 April 2021 and cancer was removed.⁽¹²⁹⁾

Current ECDC risk assessment

No recent updates available.

Current protective measures and supports

People who are at high risk are no longer being [advised](#) to stay at home.⁽¹²⁹⁾ But places frequented by large numbers of people should be avoided, such as railway stations, public transport or shopping centres during peak times. Physical distancing with people outside the household is also advised. Those at high risk and have the full protection of the vaccine are advised that their employer is no longer obliged to take steps to provide additional protection in the workplace. However, the general precautionary measures in the workplace still apply.

If a child suffers from a chronic illness (for example, serious heart disease or severe immune deficiency), the parents should talk to their paediatrician or a specialist to discuss how to proceed in this specific case.⁽¹³⁵⁾ Grandparents are advised to maintain physical distancing with parents when grandchildren visit.⁽¹³⁶⁾ With grandchildren aged 12 or over, physical distance and face masks are advised if possible. [Additional guidance](#) is provided for those caring for someone at highest risk, which includes reducing unnecessary contacts, avoiding peak hour public transport and maintaining physical distancing when with others.⁽¹³⁷⁾ If they live with a high risk person then they are advised to open all windows in the dwelling three to five times a day for 5 to 10 minutes each.

It should be noted that although the Federal Council determines the measures that apply throughout Switzerland, compared to spring of 2020, the cantons now have a greater say in matters. The cantons also adopt additional measures if the case numbers in their territory increase or threaten to increase.⁽¹³⁸⁾ Therefore, the measures can differ from one canton to the next.

Previous highest level of protective measures for the first wave

People at especially high risk were advised by FOPH to stay at home unless visiting a doctor and not to attend work if able to work from home.⁽¹³⁹⁾ The FOPH advised that adults should only visit their parents if they need assistance that they cannot get elsewhere. Grandparents over the age of 65 or with an underlying medical condition were instructed not to look after their grandchildren. Children who share a home with someone at especially high risk were advised not to attend school in person. Persons at high risk may not be involved in providing services at childcare, schools, higher education institutions and other education and training institutions.⁽¹³⁹⁾

US, Centers for Disease Control and Prevention (CDC)

Background

Since, 18 March, the CDC has [published](#) criteria and advice on protective measures for people who are at higher risk from severe illness from COVID-19, defined as hospitalization, admission to the ICU, intubation or mechanical ventilation, or death.⁽¹⁴⁰⁾ On 25 June, the CDC updated their guidance to provide more details on how [age](#) and [underlying conditions](#) contribute to the risk of severe illness from COVID-19.⁽¹⁴¹⁾ Underlying conditions are listed in two risk groups - increased risk *or* might be at increased risk, depending on the certainty of the evidence available.⁽¹⁴²⁾ These are further [detailed](#) with relative risk estimates based on what has been reported in the literature as of 31 August 2021.⁽¹⁴³⁾

Criteria

People of any age with the following conditions are at increased risk of severe illness from COVID-19:⁽¹⁴⁴⁾

Can make you more likely to get severe ill from COVID-19:

- Cancer
- Chronic kidney disease
- Chronic liver disease, including alcohol-related liver disease, non-alcoholic fatty liver disease, autoimmune hepatitis, and especially cirrhosis, or scarring of the liver
- Chronic lung diseases,
 - Asthma, if it's moderate to severe
 - Bronchiectasis (thickening of the lungs airways)
 - Bronchopulmonary dysplasia (chronic lung disease affecting newborns)
 - Chronic obstructive pulmonary disease (COPD), including emphysema and chronic bronchitis
 - Having damaged or scarred lung tissue such as interstitial lung disease (including idiopathic pulmonary fibrosis)
 - Cystic fibrosis, with or without lung or other solid organ transplant
 - Pulmonary embolism (blood clot in the lungs)
 - Pulmonary hypertension (high blood pressure in the lungs)
- Dementia or other neurological conditions
- Diabetes (type 1 or type 2)
- Down syndrome
- Heart conditions (such as heart failure, coronary artery disease, cardiomyopathies or hypertension)
- HIV infection
- Immunocompromised state (weakened immune system)
- Mental health conditions including depression, and schizophrenia spectrum disorders
- Overweight and obesity (BMI > 25 kg/m²)
- Pregnant people and recently pregnant people (for at least 42 days following end of pregnancy)

- Sickle cell disease or thalassemia
- Smoking, current or former
- Solid organ or blood stem cell transplant
- Stroke or cerebrovascular disease, which affects blood flow to the brain
- Substance use disorders
- Tuberculosis.

For children

Children with the following conditions might be at increased risk for severe illness: obesity, medical complexity, severe genetic disorders, severe neurologic disorders, inherited metabolic disorders, sickle cell disease, congenital (since birth) heart disease, diabetes, chronic kidney disease, asthma and other chronic lung disease, and immunosuppression due to malignancy or immune-weakening medications.⁽¹⁴⁴⁾ The CDC states that it is not yet known who is at increased risk for developing the rare but serious complication associated with COVID-19 in children called Multisystem Inflammatory Syndrome in Children (MIS-C), nor know what causes MIS-C.

For pregnant women

The CDC [states](#) although the overall risks are low, people who are pregnant or recently pregnant are at an increased risk for severe illness from COVID-19 when compared to people who are not pregnant.⁽¹⁴⁵⁾ People who have COVID-19 during pregnancy are also at increased risk for preterm birth (delivering the baby earlier than 37 weeks) and stillbirth and might be at increased risk for other pregnancy complications. Having certain underlying medical conditions, and other factors, including age, can further increase a pregnant or recently pregnant (for at least 42 days following end of pregnancy) person's risk for developing severe COVID-19 illness.

Evidence-base

Revisions were made on 23 December 2020 to reflect recent data supporting increased risk of severe illness among persons with Down syndrome from the virus that causes COVID-19.⁽¹⁴⁴⁾ However, no source was cited or added to the [evidence tables](#).⁽¹⁴²⁾ Updates to the list of underlying medical conditions list above were based on published reports, articles in press, pre-prints, and internal data available between December 1, 2019 and October 16, 2020, available in the format of [evidence tables](#) on the CDC website.⁽¹⁴²⁾ Qualifiers to previously listed conditions were added or removed if there was strong evidence to support that the condition be expanded. Conditions previously listed were removed if there was strong and consistent evidence demonstrating no association with severe outcomes. Following the update on 2 November 2020, pregnancy was moved from 'mixed evidence' to 'strong evidence' to reflect [US surveillance data](#) supporting increased risk of severe illness during pregnancy.⁽¹⁴⁶⁾ This was in contrast with the removal of pregnancy from the high risk groups on 7 April 2020 which was reported to be based on available information: 'we do not currently know if pregnant people have a greater

chance of getting sick from COVID-19 than the general public nor whether they are more likely to have serious illness as a result'. Smoking was also moved up in certainty of evidence. An update on 2 April 2021 included conditions associated with being immunocompromised. On 5 May 2021, additional information was provided for people with chronic liver disease, including hepatitis B and hepatitis C. On 29 March 2021 the certainty of the evidence increased for HIV infection and stroke or cerebrovascular diseases which affect blood flow to the brain. Substance abuse was added. While cancer and pulmonary fibrosis having damaged or scarred lung tissues were removed. Chronic lung disease (including bronchiectasis, bronchopulmonary dysplasia, interstitial lung disease, pulmonary hypertension, pulmonary embolism, tuberculosis) and chronic liver disease (including cirrhosis, non-alcoholic fatty liver disease, alcoholic liver disease, and autoimmune hepatitis) were added to the high risk groups and [evidence tables](#) based on evidence published between December 1, 2019 and August 31, 2021. Mental health disorders (such as mood disorders including depression, and schizophrenia spectrum disorders) were also added to the high risk groups based on evidence published between December 1, 2019 and August 31, 2021. No conditions were removed from the previous underlying medical conditions list.

Current ECDC risk assessment

Not available.

Current protective measures and supports

[Advice](#) for those at increased risk is to limit interactions with other people as much as possible and to take precautions to prevent getting COVID-19 when interacting with others.⁽¹⁴⁴⁾ This includes wearing a mask when it is difficult to stay at least six feet apart from others outside their household, and avoiding others who are not wearing a mask or asking those in close proximity to wear a mask.

It is recommended that fully vaccinated people wear a mask in public indoor settings in areas of substantial or high transmission.⁽¹⁴⁷⁾ In other settings, masks could be considered, especially for people who immunocompromised or at increased risk for severe disease from COVID-19, or if they have someone in their household who is immunocompromised, at increased risk of severe disease or not fully vaccinated.

Close contacts of immunocompromised people should also be encouraged to get vaccinated against COVID-19 to help protect these people.

Fully vaccinated people who live in a household with someone who is immunosuppressed, at increased risk of severe disease, or unvaccinated (including children <12 years of age) could also consider masking at home for 14 days following a known exposure or until they receive a negative test result.

A [breakdown](#) in terms of risk level for different types of events is provided to assist those at increased risk when considering attending an event or gathering.⁽¹⁴⁴⁾ This is as follows:

- Lowest risk: Virtual-only activities, events, and gatherings.

- More risk: Smaller outdoor and in-person gatherings in which individuals from different households remain spaced at least 6 feet apart, wear cloth face coverings, do not share objects, and come from the same local area (e.g., community, town, city, or county).
- Higher risk: Medium-sized in-person gatherings that are adapted to allow individuals to remain spaced at least six feet apart and with attendees coming from outside the local area.
- Highest risk: Large in-person gatherings where it is difficult for individuals to remain spaced at least six feet apart and attendees travel from outside the local area.

Previous highest level of protective measures for the first wave

These people were asked to stay at home as much as possible and maintain physical distancing when outside the home (six feet).⁽¹⁴⁸⁾ Wear a cloth face cover when out in public and avoid crowded places and mass gatherings.⁽¹⁴⁹⁾

Conclusion

A variety of protective measures are being taken internationally to protect vulnerable groups who are at high risk of severe illness from COVID-19. These broadly involve physical distancing and protective self-separation. However, highly protective measures are also being taken to shield, or cocoon, those who are considered extremely medically vulnerable to severe illness from COVID-19, as evidenced to date in Ireland and the UK.^(2, 13)

All 14 countries included in the review have published vulnerable groups for identifying people at increased risk of severe illness from COVID-19. Australia, Belgium, Canada, Finland, Germany, Sweden, Switzerland and Wales have a single grouping. Northern Ireland, Scotland and Norway distinguish between those considered at 'high risk' and those at 'increased risk'. Denmark stratifies by age and the US has two categories based on the certainty of the evidence used to inform the groups.

In general, people who are considered vulnerable to more severe illness are those that are of an older age, with chronic conditions if not well-managed or are in receipt of therapies that weaken the immune system. Some countries have published additional risk factors that may increase risk, although these are not always included in the vulnerable group category. These risk factors include ethnicity, gender, smoking, high BMI and pregnancy in conjunction with another condition.

Germany added people with psychiatric illnesses (for example dementia) to their high risk groups with no justification provided. On 22 September 2021, Belgium evidence summaries relating to children published by Sciensano were updated. On 12 October 2021, Australia moved all risk groups that were previously considered as moderate risk into the highest risk category and removed the time bound limits for bone marrow transplant and blood cancers. The CDC, US added chronic liver disease, pulmonary embolism (blood clot in the lungs), mental health conditions including depression, schizophrenia spectrum disorders, and tuberculosis to the high risk group.

The CDC states recently pregnant people (at least 42 days following end of pregnancy) are considered to be at an increased risk compared to non-pregnant, while the overall risk of severe illness is low, also for those who have COVID-19 during pregnancy they are at an increased risk of preterm birth (delivering the baby earlier than 37 weeks) and stillbirth and might be at increased risk for other pregnancy complications. Towards the end of November 2021, Germany added pregnant women to the high risk groups without a justification.

Specific advice is provided by all countries for people who are vulnerable. This typically includes advice to stay at home, practice hand hygiene, physically distance and avoid contact with others. For the countries that distinguished high risk from highest risk, proportionate advice is given. This usually means those at highest risk

are advised not to leave the house, while those that are high risk could leave the house but are strongly advised to practice physical distancing and not to meet others.

In Northern Ireland, England, Scotland and Wales the advice to people on the shielding list includes returning to work (if unable to work from home) and education in person. With the only exception being for those who have been advised otherwise by their clinical team. The Shielding Programme formerly ended on 20 September 2021. Risk groups used to identify those who are considered clinically extremely vulnerable are no longer published by Department of Health & Social Care and Public Health England. One-to-one support is available for people who are at highest risk and unemployed to help overcome any barriers to work and to help find a suitable job. Norway has reinstated public health measures and advised people in risk groups to shield. Germany advises visitors to people who are elderly or in a risk group to conduct a quick test before visiting.

England, Northern Ireland, Scotland and Wales also advise those who are fully vaccinated to continue to follow public health guidance. While Ireland advises those who are fully vaccinated that they may visit others who are fully vaccinated indoors and outdoors. Denmark, Finland, Germany, Sweden and the US have published exemptions to public health measures including quarantining after close contact with a confirmed case, serial testing in the community and workplace, returning to work and maintaining a physical distance and mask wearing with others outside of their household. Norway and Sweden have published exemptions that apply for those who received just one dose. These exemptions are similar to a recently published report by the ECDC which included additional countries outside the scope of this review.⁽⁸⁾

Immunocompromised persons are advised in Denmark, Ireland and the US to consult their medical care team about vaccine exemptions, even if fully vaccinated. While the US advise that close contacts of immunocompromised people should be encouraged to be vaccinated against COVID-19 to help protect these people. More recently masks indoors should be considered, especially for people who immunocompromised or at increased risk for severe disease from COVID-19, or if they have someone in their household who is immunocompromised, at increased risk of severe disease or not fully vaccinated. Definitions of immunity protection vary slightly between countries with most countries defining fully protected as two weeks after final dose of an approved vaccine or recovered from a previous infection in the last six months. Germany has advised that a booster vaccination with a mRNA vaccine will be offered at least six months after the first series of vaccinations for people with immunodeficiency or immunosuppression as well as those in need of care in their own home and the very elderly (from 80 years). A number of countries included in this review have recommended booster or third doses of vaccine for people who are immunocompromised as a result of a condition or treatment (Table 4).

Wales announced that the four UK CMOs have recommended that children (<18 years of age up to 31 December 2021) are no longer considered clinically extremely vulnerable, and are to be removed from the shielding patient list. On 3 September, England stated that an evaluation of recent clinical studies has led to an understanding that children and young people are at very low risk of serious illness if they catch COVID-19. As a result, children and young people under the age of 18 are no longer considered to be clinically extremely vulnerable and are advised to continue to follow the general advice for everyone. According to results from a survey of 13 central hospitals in Finland an estimated 21 patients under 16 years of age with a COVID-19 diagnosis were treated in an inpatient ward during the entire pandemic. None of the central hospitals had treated children or young people at an outpatient clinic or in an inpatient ward due to a suspected case of Long Covid. An analysis of registry data in Norway showed that for mild COVID-19 in children and adolescents, few needed contact with the health service following infection. Danish registry data show similar findings. On 22 September 2021, Belgium updated evidence summaries relating to children published by Sciensano which highlighted studies that similar findings as mentioned above.

As of 12 December 2021, the overall epidemiological situation in the EU/EEA is characterised by a high and rapidly increasing overall case notification rate and a slowly increasing death rate.⁽¹⁾ Increasing case notification rates and an epidemiological situation of high or very high concern are now observed, particularly in western and northern parts of the EU/EEA. This situation is largely driven by the high transmissibility of the Delta variant, which has limited the reduction in transmission achieved by the COVID-19 vaccination roll-out in the EU/EEA.

The overall COVID-19 case notification rate for the EU/EEA was 783.7 per 100,000 population (809.1 the previous week). This rate has been decreasing for one week. The 14-day COVID-19 death rate (58.8 deaths per million population, compared with 55.8 deaths the previous week) has been stable for three weeks. Of 29 countries with data on hospital or ICU admissions or occupancy up to week 49, 12 reported an increasing trend in at least one of these indicators compared to the previous week.

A recent Scottish [study](#) was published reporting on how high risk individuals feel about returning to the workplace, the future of the highest risk list, and their trusted information sources. A [report \(translated to English\)](#) relating to mixing COVID-19 vaccines following initial schedule was published by the Danish Health Authority. Sweden has begun a follow-up antibody study in people age 70 and over to assess levels.

The findings from this rapid review were accurate as of 17 December 2021 12.00 GMT; however, it is important to note that the protective measures identified above may change as the situation and response to COVID-19 evolves. Protective measures for vulnerable groups may also be in place in other settings that were not identified in this rapid review.

Table 1 Overview of protective measures for vulnerable groups from COVID-19 [UPDATED 17.12.21]

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
Australia Guidance provided by: Department of Health	Protective self-separation	<p>High risk:</p> <ul style="list-style-type: none"> ▪ aged 70 years and older ▪ have had an organ transplant and on immune suppressive therapy ▪ have had a bone marrow transplant ▪ on immune suppressive therapy for graft versus host disease ▪ have had blood cancer, for example, leukaemia, lymphoma or myelodysplastic syndrome ▪ non-haematological cancer diagnosed within the past 5 years or on chemotherapy, radiotherapy, immunotherapy or targeted anti-cancer therapy (active treatment or recently completed) or with advanced disease regardless of treatment ▪ survivors of childhood cancers ▪ chronic inflammatory conditions requiring medical treatments ▪ primary or acquired immunodeficiency ▪ chronic renal (kidney) failure ▪ heart disease (coronary heart disease or failure) ▪ chronic lung disease (excludes mild or moderate asthma) ▪ a non-haematological cancer (diagnosed in the last 12 months) ▪ diabetes ▪ severe obesity with a BMI \geq 40 kg/m² ▪ chronic liver disease ▪ some neurological conditions (stroke, dementia, other) ▪ poorly controlled blood pressure (may increase risk) ▪ pregnant people ▪ significant disability requiring frequent assistance with activities of daily living ▪ severe mental health conditions. 	<p>People with chronic conditions are advised to:</p> <ul style="list-style-type: none"> ▪ maintain good hygiene ▪ practise physical distancing ▪ avoid large public gatherings ▪ stay home and get tested if sick ▪ stay away from other people who are sick or in isolation. <p>Older people are advised to continue to stay at home:</p> <ul style="list-style-type: none"> ▪ stay 1.5 metres away — 2 arm’s length from other people ▪ continue to stay at home and avoid contact with others ▪ continue to avoid non-essential travel.

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
		<p>Other factors might affect risk:</p> <ul style="list-style-type: none"> ▪ having 2 or more conditions might increase your risk, regardless of your age. If your condition is severe or poorly controlled, this might also increase your risk of serious illness from COVID-19. Speak to your doctor about your risk. ▪ age - risk increases with age, even for those under 70 ▪ being male ▪ poverty ▪ smoking. 	
<p>Belgium</p> <p>Guidance provided by Federal Public Service Health, Food Chain Safety and Environment</p>		<p>People more at risk:</p> <ul style="list-style-type: none"> ▪ People over 65 ▪ Diabetics (type 2), in combination with obesity and/or problems with heart, lungs or kidneys ▪ People with heart, lung or kidney disease ▪ People with weakened immune system. 	<ul style="list-style-type: none"> ▪ It is mandatory that everyone works from home. No further advice.
<p>Canada</p> <p>Guidance provided by: Government of Canada</p>	<p>Protective self-separation</p>	<ul style="list-style-type: none"> ▪ Older adults (increasing risk with each decade, especially over 60 years). ▪ People of any age with chronic medical conditions including: <ul style="list-style-type: none"> ○ lung disease ○ heart disease ○ hypertension (high blood pressure) ○ diabetes ○ kidney disease ○ liver disease ○ dementia ○ stroke ▪ People of any age who are immunocompromised, including those: <ul style="list-style-type: none"> ○ with an underlying medical condition (e.g., cancer) 	<ul style="list-style-type: none"> ▪ If possible, only leave your home for medically necessary appointments ▪ Stay away from people who are sick ▪ Avoid contact with others, especially those who have travelled or been exposed to the virus ▪ If contact cannot be avoided, take the following precautions: <ul style="list-style-type: none"> ○ keep at least 2 m between yourself and the other people ○ give a friendly wave instead of a handshake, kiss or hug ○ keep interactions brief. ▪ Remind others who are sick, or may have been exposed to the virus, to stay away

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
		<ul style="list-style-type: none"> ○ taking medications that lower the immune system (e.g., chemotherapy) ▪ People living with obesity (BMI ≥ 40). <p>Social groups that may be vulnerable including anyone who has:</p> <ul style="list-style-type: none"> ▪ Difficulty reading, speaking, understanding or communicating ▪ Difficulty accessing medical care or health advice ▪ Difficulty doing preventive activities, like frequent hand washing and covering coughs and sneezes ▪ Ongoing specialized medical care or needs specific medical supplies ▪ Ongoing supervision needs or support for maintaining independence ▪ Difficulty accessing transportation ▪ Economic barriers ▪ Unstable employment or inflexible working conditions ▪ Social or geographic isolation, like in remote and isolated communities ▪ Insecure, inadequate, or non-existent housing conditions. 	<ul style="list-style-type: none"> ▪ Avoid crowds and large gatherings <ul style="list-style-type: none"> ▪ Avoid cruises and non-essential travel outside of Canada.
Denmark Guidance by: Danish Health Authority		<p>Clinically extremely vulnerable:</p> <p>Age</p> <ul style="list-style-type: none"> ▪ 80 years or older. It is well documented that they are at higher risk. ▪ 65-79 years old. Many fit and healthy people in this age group are not at higher risk. However, chronic diseases or mental and physical illnesses may cause you to be at higher risk. ▪ Under 65 years old. Very few are at higher risk. You are, for example, not at higher risk if you are only slightly overweight, has well-treated high blood pressure, arthritis, or mild asthma/COPD. 	<ul style="list-style-type: none"> ▪ Follow general advice including attending work, participating in leisure activities and caring for grandchildren. ▪ Those who are at higher risk of an infection, for example if you have a weakened immune system, precautions similar to previous wave are recommended. ▪ Housemates, relatives, friends and colleagues can engage with one another in social settings but are advised to maintain physical distancing with those at higher risk. ▪ As a rule, women should not be reassigned and or sent home from week 28 of a pregnancy if fully vaccinated. However, based on a precautionary principle, if a woman is pregnant,

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
		<p>Overweight^(59, 60) It is well documented that the following are at higher risk:</p> <ul style="list-style-type: none"> ▪ People with a BMI over 35. ▪ People with a BMI over 30 and one or more chronic diseases. <p>Residents in nursing homes/assisted living facilities</p> <ul style="list-style-type: none"> ▪ It is well documented that residents in nursing homes are at higher risk of severe illness from COVID-19 as they are often elderly and have chronic diseases, functional decline and fragile health. <p>People with certain chronic diseases and people with weakened immune systems</p> <ul style="list-style-type: none"> ▪ Based on the available knowledge about other diseases, particularly influenza, people with certain chronic diseases are assumed to be at increased risk of severe illness from COVID-19 – at least if these chronic conditions are not well-regulated. This also applies to certain children with chronic diseases. <p>People with no fixed abode</p> <ul style="list-style-type: none"> ▪ People without a permanent residence are presumed to be at higher risk as they often have fragile health and chronic diseases, and are often not able or willing to take advantage of the health services. <p>Pregnant women</p> <ul style="list-style-type: none"> ▪ Based on a precautionary principle, pregnant women and their unborn children are considered to be at higher risk. 	<p>treatment or care should not be provided in A&E, on a COVID-19 ward or similar; the same applies to other fully vaccinated people at higher risk.</p>
<p>England</p> <p>Guidance provided by: PHE</p>	<p>Shielding</p>	<p>Extremely clinically vulnerable (risk groups are no longer published which relate to extremely clinically vulnerable as Shielding Programme has ended)</p> <ul style="list-style-type: none"> ▪ Solid organ transplant recipients. ▪ People with specific cancers: <ul style="list-style-type: none"> ○ who are undergoing active chemotherapy 	<p>Clinically extremely vulnerable people are advised to follow the same guidance as everyone else.</p>

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
		<ul style="list-style-type: none"> ○ with lung cancer who are undergoing radical radiotherapy ○ cancers of the blood or bone marrow such as leukaemia, lymphoma or myeloma who are at any stage of treatment ○ having immunotherapy or other continuing antibody treatments for cancer ○ having other targeted cancer treatments which can affect the immune system, such as protein kinase inhibitors or PARP inhibitors ○ who have had bone marrow or stem cell transplants in the last 6 months, or who are still taking immunosuppression drugs. ▪ People with severe respiratory conditions including all cystic fibrosis, severe asthma and severe COPD ▪ People with rare diseases that significantly increase the risk of infections (such as SCID, homozygous sickle cell) ▪ People on immunosuppression therapies sufficient to significantly increase risk of infection ▪ Problems with your spleen, e.g. splenectomy (having your spleen removed) ▪ Adults with Down’s syndrome ▪ Adults on dialysis or with chronic kidney disease (stage 5) ▪ Women who are pregnant with significant heart disease, congenital or acquired. 	
<p>Finland</p> <p>Guidance provided by: Finish Institute for Health and Welfare</p>		<ul style="list-style-type: none"> ▪ Persons over 70 years of age. The risk of severe coronavirus infection may be increased by those underlying diseases that significantly impair lung or heart function or the body’s resistance, such as: <ul style="list-style-type: none"> ○ Severe heart disease ○ Lung disease that is not clinically stabilised ▪ Diabetes that involves organ damage ▪ Chronic liver or kidney failure 	<ul style="list-style-type: none"> ▪ Avoid close contact with other people as far as possible. This means that they can go out, provided they practice social distancing. Shopping is permitted if crowds can be avoided. ▪ If a visit to someone in this risk group is essential, handshakes, hugging and other close contact should be avoided unless essential for care or treatment reasons. It is important that all visitors use a scarf or other protection for their nose and mouth. People close to those over 70

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
		<ul style="list-style-type: none"> ▪ Diseases that weaken the immune system, such as leukaemia or lymphoma that is currently undergoing cytostatic treatment (not maintenance therapy) ▪ Medication which significantly weakens the immune system (e.g. high-dosage cortisone therapy). <p>Other factors that generally impair lung functioning and may increase the health risk of a coronavirus infection include morbid obesity (BMI over 40) and daily smoking.</p>	<p>and in risk groups urged to consider the potential risk of infection via their other contacts. Risk groups should protect themselves from the health hazards of hot weather:</p> <ul style="list-style-type: none"> ▪ Consider installing a portable air conditioner or air source heat pump. ▪ Avoid using a fan in common areas where more than one person is present. It is particularly important to avoid using a fan in confined spaces with poor ventilation. If using a fan, it is a good idea to make sure that the ventilation in the space works efficiently and set the fan so that it does not blow air from one person to another. <p>For older people and in particular those over 70, advice is to follow the general guidelines to reduce the risk of infection, keep in touch with family and friends but avoid contact with others and when shopping to avoid peak hours and do not spend more time in stores than necessary.</p>
<p>Germany</p> <p>Guidance provided by: Robert Koch Institut and the Federal Ministry of Health</p>		<ul style="list-style-type: none"> ▪ Older people (with a steadily increasing risk of severe course from around 50 to 60 years; 86% of those who died from COVID-19 in Germany were 70 years old or older [median age: 82 years]) ▪ Male gender ▪ Smokers ▪ Obese (BMI> 30) and very obese people (BMI> 35) ▪ People with Down’s syndrome (trichome 21) ▪ Pregnant women ▪ People with certain medical conditions, no ranking: <ul style="list-style-type: none"> ○ the cardiovascular system (e.g. coronary heart disease and high blood pressure) ○ chronic lung diseases (e.g. COPD) ○ Patients with chronic kidney and liver disease ○ Psychiatric illnesses (e.g. dementia) 	<ul style="list-style-type: none"> ▪ Stay at home wherever possible ▪ Reduce personal contacts to an absolute minimum ▪ Limit the length of visits and meet outside where possible ▪ Have family or neighbours take care of supplies ▪ Families can visit their grandparents and other family members ▪ It is also recommended to wear a mask in public spaces. ▪ FFP2 masks are provided without charge to those with certain pre-existing conditions and to people aged 60 years and older.

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
		<ul style="list-style-type: none"> ○ Patients with diabetes mellitus ○ Patients with cancer. ○ Patients with a weakened immune system (e.g. due to a disease that is associated with an immune deficiency or due to regular use of medication that can influence and reduce the immune system, such as cortisone). 	
<p>Ireland</p> <p>Guidance provided by: Health Service Executive</p>		<p>Those most at risk from COVID-19 are people who:</p> <ul style="list-style-type: none"> ▪ Are over 70 years of age - even if you're fit and well ▪ Have Down Syndrome ▪ Have cancer and are <ul style="list-style-type: none"> (a) being treated with chemotherapy or similar drugs other than hormone therapy (b) have lung or head and neck cancer and are having radical surgery or radiotherapy (c) having radical radiotherapy for lung cancer or head and neck cancer (d) having certain complex cancer surgery, for example surgery for lung cancer, head and neck cancer or oesophageal cancer (e) have advanced cancer or cancer that has spread to another part of the body ▪ Are on dialysis or have end stage kidney disease and an eGFR less than 15 ▪ Have a condition affecting the brains or nerves that has significantly affected your ability to breathe, meaning you require non-invasive ventilation (such as motor neurone disease or spinal muscular atrophy) ▪ Have unstable or severe cystic fibrosis, including people waiting for a transplant ▪ Have severe respiratory conditions including Alpha-1 antitrypsin deficiency, severe asthma, pulmonary fibrosis, lung fibrosis, interstitial lung disease and severe COPD ▪ Have uncontrolled diabetes ▪ Have had an organ transplant or are waiting for a transplant 	<p>Work from home where possible. If you are not able to work from home, get advice from your occupational health service and your healthcare team.</p>

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
		<ul style="list-style-type: none"> ▪ Have had a bone marrow or stem cell transplant in the last 12 months, or are waiting for a transplant ▪ Have a rare condition that means you have a very high risk of getting infections (such as APECED or errors in the interferon pathway) ▪ Have sickle cell disease ▪ Have been treated with drugs such as Rituximab, Cyclophosphamide, Alemtuzumab, Cladribine or Ocrelizumab in the last 6 months ▪ Have certain inherited metabolic disorders (such as Maple Syrup Urine Disease) ▪ Have obesity with a body mass index (BMI) greater than 40. 	
<p>Northern Ireland</p> <p>Guidance provided by: Public Health Agency and Government of Northern Ireland (NI Direct)</p>	Shielding	<p>Clinically extremely vulnerable people:</p> <ul style="list-style-type: none"> ▪ Solid organ transplant recipients ▪ People with specific cancers: <ul style="list-style-type: none"> ○ who are having chemotherapy ○ with lung cancer and are having radical radiotherapy ○ cancers of the blood or bone marrow such as leukaemia, lymphoma or myeloma who are at any stage of treatment ○ having immunotherapy or other continuing antibody treatments for cancer ○ having other targeted cancer treatments which can affect the immune system, such as protein kinase inhibitors or PARP inhibitors ○ who have had bone marrow or stem cell transplants in the last 6 months, or who are still taking immunosuppression drugs. ▪ People with severe respiratory conditions including all cystic fibrosis, severe asthma and severe COPD ▪ People with Motor Neurone Disease ▪ People with rare diseases and inborn errors of metabolism that significantly increase the risk of infections (such as SCID, homozygous sickle cell) 	Shielding paused. Following general advice. Clinically extremely vulnerable people who are working and are unable to do so from home are advised not to attend the workplace. It is stated that this is advice only.

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
		<ul style="list-style-type: none"> ▪ People on immunosuppression therapies sufficient to significantly increase risk of infection ▪ Women who are pregnant with significant heart disease, congenital or acquired ▪ People undergoing renal dialysis ▪ People who have had a splenectomy ▪ Adults with Down’s Syndrome ▪ Adult patient with kidney impairment (Stage 5 Chronic Kidney Disease). <p>Other relevant conditions:</p> <ul style="list-style-type: none"> ▪ A person’s immunity remains compromised for some time after finishing chemotherapy. If you have completed chemotherapy in the last 3 months, please contact your care team to discuss your circumstances. ▪ People with metastatic cancer in the lungs could also be more vulnerable and therefore at highest clinical risk from COVID-19. ▪ Those who are currently on targeted therapies for lung cancer are also classed as the highest clinical risk. 	
<p>Northern Ireland</p> <p>Guidance provided by: Public Health Agency and Government of Northern Ireland (NI Direct)</p>	Self-isolate	<p>Clinically vulnerable groups</p> <ul style="list-style-type: none"> ▪ Over the age of 70 ▪ Pregnant ▪ Under 70 with an underlying health condition listed below (i.e. for adults this usually is anyone instructed to get a flu jab as an adult each year on medical grounds): <ul style="list-style-type: none"> ○ Chronic (long-term) respiratory diseases, such as asthma, COPD, emphysema or bronchitis ○ Chronic heart disease, such as heart failure ○ Chronic kidney disease ○ Chronic liver disease, such as hepatitis ○ Chronic neurological conditions, such as Parkinson’s disease, MS, a learning disability or cerebral palsy ○ Diabetes 	<ul style="list-style-type: none"> ▪ No specific advice.

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
		<ul style="list-style-type: none"> ○ A weakened immune system as the result of conditions such as HIV and AIDS or medicines such as steroid tablets or chemotherapy ○ Being seriously overweight (BMI ≥ 40). 	
Norway Guidance provided by: Norwegian Institute of Public Health	Protective self-separation	<p>People at moderate/high risk (clinically extremely vulnerable):</p> <ul style="list-style-type: none"> ▪ Over 70 years of age^a ▪ Residents of nursing homes ▪ Severe health condition, regardless of age*: <ul style="list-style-type: none"> ○ Solid organ transplant ○ immunodeficiency ○ hematologic (blood) cancer in the last 5 years ○ people with active cancer, ongoing or recently discontinued treatment for cancer (especially immunosuppressive therapy, radiation therapy to the lungs or chemotherapy). ○ neurological or muscular disease with impaired coughing strength or lung function (e.g. ALS, cerebral palsy, Down's Syndrome) ○ chronic kidney disease and renal failure <p><i>a There is an exponential increase in risk from 70 years and over. Age is the most important independent risk factor.</i></p> <p><i>*Other serious and or chronic diseases that are not mentioned may also increase the risk of serious illness and death from COVID-19. This is assessed individually by a doctor.</i></p> <p><i>*Some serious health conditions in this list based on a precautionary principle, although at present there are no studies indicating a higher risk of severe progression for the diseases.</i></p>	Follow general public health advice.
Norway Guidance provided by:	Protective self-separation	<p>People at slightly/moderate increased risk:</p> <ul style="list-style-type: none"> ▪ age 65–69 ▪ age 50–65 years with one of the following chronic diseases: <ul style="list-style-type: none"> ○ cardiovascular disease (other than well-regulated high blood pressure) 	Follow general public health advice.

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
Norwegian Institute of Public Health		<ul style="list-style-type: none"> ○ stroke ○ morbid obesity (BMI \geq 30 kg/m²) in combination with weight-related diseases or BMI \geq 40 kg/m²) ○ diabetes ○ chronic lung disease, including severe asthma that has required the use of high dosage inhalation steroids or steroid tablets during the last year ○ chronic liver disease ○ in immunosuppressive therapy such as chemotherapy, radiation therapy and immunosuppressive therapy in autoimmune diseases. <p>People under 50 years of age have a lower risk of developing severe COVID-19 disease. However, some people with poorly-regulated chronic conditions or a combination of several chronic diseases might be at increased risk.</p>	
Scotland Guidance provided by: Health Protection Scotland and Scottish Government	'Shielding'	Highest risk group: <ul style="list-style-type: none"> ▪ Solid organ transplant recipients - includes people who have had a transplant of kidney, liver, pancreas, islet cell, heart, lung, stomach or other part of intestine. This is because of the medication taken to stop rejection of the transplanted organ. ▪ People with specific cancers: <ul style="list-style-type: none"> ○ who are undergoing active chemotherapy or have had radical radiotherapy for lung cancer ○ of the blood or bone marrow who are at any stage of treatment including cancers such as leukaemia, lymphoma or myeloma ○ who are having immunotherapy or other continuing antibody treatments ○ who are having specialised, cancer treatments that can affect the immune system, such as protein kinase inhibitors or PARP inhibitors 	<ul style="list-style-type: none"> ▪ Follow general advice according to a 4 tier system based on the COVID protection levels in the location of residency, work or travel. ▪ Currently, those who are shielding and who cannot work from home are now advised not to work. ▪ At level 4 (highest), children on the shielding list should not attend school or formal crèche in person.

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
		<ul style="list-style-type: none"> ○ who have had bone marrow or stem cell transplants in the last six months, or who are still taking immunosuppression drugs. ▪ People with severe respiratory conditions including all cystic fibrosis, severe asthma and severe Chronic Obstructive Pulmonary Disease (COPD), severe bronchiectasis and pulmonary hypertension. People in this group include: <ul style="list-style-type: none"> ○ People with cystic fibrosis ○ People with lung conditions which require home oxygen ○ People with severe asthma requiring regular inhaler use and long-term steroid tablets to control your asthma. For example, Prednisolone or regular injections. ○ Severe non-cystic fibrosis bronchiectasis ○ Pulmonary hypertension ○ People with severe COPD. Usually means being on several different inhaler medications in the last year. As well as a steroid inhaler, this must include 2 long acting preventers. For example, Long Acting Beta Agonists and Long Acting Anti-Muscarinic Antagonists. Severe COPD means that: <ul style="list-style-type: none"> ▪ too breathless to walk 100 yards ▪ have 2 or more lung infections a year, or ▪ require oxygen to help with breathing ▪ People with rare diseases including all forms of interstitial lung disease/sarcoidosis. This includes inborn errors of metabolism that significantly increase the risk of infections. For example, SCID, homozygous sickle cell disease. <ul style="list-style-type: none"> ○ There are many conditions classed as a rare disease. Not everyone with a rare disease will be at a higher risk of severe illness from COVID-19. Treating clinician will add people to shielding list if appropriate. ▪ People on immunosuppression therapies that significantly increase risk of infection or who have had their spleens removed. <ul style="list-style-type: none"> ○ In some cases these treatments may put people into a shielding group: 	

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
		<ul style="list-style-type: none"> ▪ people on high dose corticosteroid treatment (equal to Prednisolone 20mg or more) for more than four weeks ▪ people on specific single therapies, for example Cyclophosphamide. These medications are usually prescribed by specialists in hospitals ▪ people on lower dose of corticosteroids for more than 4 weeks in combination with other disease modifying medication ▪ people on disease modifying medications who also have other chronic medical conditions. ▪ people who take some medication and are otherwise healthy may not need to be in the shielding groups. This includes single Disease Modifying medications (DMARD). It also includes Biologic medications such as Methotrexate, Azathioprine, Cyclosporin, Leflunomide plus others. This is to be discussed with a specialist or GP if unsure. ▪ People who are pregnant with significant heart disease, congenital or acquired <ul style="list-style-type: none"> ○ If you are being supported by a specialist heart clinic during your pregnancy then you fall within this group. ▪ People who are receiving renal dialysis treatment, and people who have chronic kidney disease stage 5, or liver cirrhosis (Child-Pugh class B and C). 	
<p>Scotland</p> <p>Guidance provided by: Health Protection Scotland and Scottish Government</p>	<p>Social distancing</p>	<p>High risk group:</p> <p>People over the age of 70 are considered vulnerable, even if they do not have an underlying health condition. This also applies to those who are pregnant.</p> <p>Others considered vulnerable include people who have:</p> <ul style="list-style-type: none"> ▪ Chronic (long-term) respiratory diseases, such as asthma, COPD, emphysema or bronchitis ▪ Chronic heart disease, such as heart failure 	<ul style="list-style-type: none"> ▪ Follow general advice based on the COVID protection levels in the location of residency, work or travel.

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
		<ul style="list-style-type: none"> ▪ Chronic kidney disease ▪ Chronic liver disease, such as hepatitis ▪ Chronic neurological conditions, such as Parkinson’s disease, motor neurone disease, MS, a learning disability or cerebral palsy ▪ Diabetes ▪ Problems with your spleen – for example, sickle cell disease or if you have had your spleen removed ▪ A weakened immune system as the result of conditions such as HIV and AIDS, or medicines such as steroid tablets or chemotherapy ▪ Being seriously overweight (BMI of 40 or above) 	
<p>Sweden</p> <p>Guidance provided by: The Public Health Agency of Sweden</p>	<p>Social distancing</p>	<p>The risk of becoming seriously ill gradually increases with increasing age:</p> <ul style="list-style-type: none"> ▪ Those who are 60-70 years old have twice as high a risk of becoming seriously ill, compared with those aged 50-60 years old. New Swedish data show that it is mainly after the age of 65 that the risk begins to increase significantly, this is why the age group of older people who are given priority for vaccination in February 2021 was lowered from 70 to 65 years. ▪ Those who are 70–80 years old have a 5 times higher risk of becoming seriously ill, compared with those who are 50–60 years old. ▪ The risk is greatest for those over 80 years of age, with the risk of becoming seriously ill 12 times higher than for a person who is 50-60 years old. <p>Other risk factors:</p> <ul style="list-style-type: none"> ▪ organ transplantation ▪ blood cancer diseases, existing and past ▪ neurological diseases ▪ obesity (increased risk with increased levels of obesity) ▪ diabetes (reduced risk if well managed) ▪ ongoing cancer treatment 	<ul style="list-style-type: none"> ▪ maintain physical distance from other people unless you live with them ▪ socialise outdoors, but remember to maintain a safe distance from others ▪ avoid places like shops and cafés where many people gather ▪ avoid travelling on public transport such as buses, trams and the Metro. Travel by car or means of transport that allow you to book seats ▪ ask for help to buy food, collect prescriptions and run other errands that may involve close contact with other people ▪ wash your hands with soap and water regularly and for at least 20 seconds.

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
		<ul style="list-style-type: none"> ▪ stroke / dementia ▪ other immunosuppressive disease or treatment ▪ liver disease ▪ impaired kidney function ▪ cardiovascular disease including hypertension ▪ Down syndrome. <p>Asthma only gives a small increase in risk if it is difficult to treat and unstable.</p>	
<p>Switzerland</p> <p>Guidance provided by: Federal Office of Public Health</p>	<p>Social distancing</p>	<ul style="list-style-type: none"> ▪ Older people (The risk that people will contract a severe case of coronavirus disease increases with age. The risk of being hospitalised also increases from the age of 50. Pre-existing conditions increase the risk even further). ▪ Pregnant ▪ Adults with Trisomy 21 ▪ Those who have one of the following conditions in particular: <ul style="list-style-type: none"> ○ High blood pressure ○ Diabetes ○ Cardiovascular disease ○ Pulmonary and respiratory diseases ○ Conditions and therapies that weaken the immune system. ▪ Obesity (BMI greater than or equal to 35 kg/m²) ▪ Liver cirrhosis ▪ Chronic kidney disease. <p>A continually updated list (10 May 2021) is also provided:</p> <p>1. Adults with Trisomy 21</p> <p>1.1 Adults with the following underlying medical conditions:</p> <p>1. High blood pressure (hypertension)</p> <ul style="list-style-type: none"> – Arterial hypertension with end-organ damage – Therapy-resistant arterial hypertension 	<ul style="list-style-type: none"> ▪ Wash your hands thoroughly and regularly with soap and water. ▪ Keep your distance from other people (at least 1.5 m). ▪ Observe the requirement to wear a face mask on public transport. ▪ Follow the rules on hygiene and social distancing, even when meeting friends or family, e.g. not using the same cutlery to serve food and not drinking from the same glass, etc. ▪ Avoid places frequented by large numbers of people (e.g. railway stations, public transport) and peak times (e.g. shopping on Saturdays, commuting). If you do find yourself in places frequented by large numbers of people and are unable to keep the necessary distance, we recommend you wear a face mask.

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
		<p>2. Cardio-vascular diseases</p> <p>2.1 General criteria</p> <ul style="list-style-type: none"> – Patients with dyspnea of functional class NYHA II–IV and NT per BNP > 125 pg/ml – Patients with at least 2 cardio-vascular risk factors (one of which is diabetes or arterial hypertension) – Prior stroke and/or symptomatic vasculopathy – Chronic renal insufficiency (Stage 3, GFR <60ml/min) <p>2.2 Other criteria</p> <p>2.2.1 Coronary heart disease</p> <ul style="list-style-type: none"> – Myocardial infarction (STEMI and NSTEMI) in the past 12 months – Symptomatic chronic coronary syndrome despite medical treatment (irrespective of any prior revascularisation) <p>2.2.2 Disease of the heart valves</p> <ul style="list-style-type: none"> – Moderate or serious stenosis and/or regurgitation in addition to meeting at least one general criterion – Any surgical or percutaneous valve replacement in addition to meeting at least one general criterion <p>2.2.3 Cardiac insufficiency</p> <ul style="list-style-type: none"> – Patients with dyspnea of functional class NYHA II–IV or NT-Per BNP > 125pg/ml despite medical treatment for any LVEF (HFpEF, HFmrEF, HFrEF) – Cardiomyopathy with any cause – Pulmonary arterial hypertension <p>2.2.4 Arrhythmia</p> <ul style="list-style-type: none"> – Auricular fibrillation with a CHA2DS2-VASc score of at least 2 points – Prior implant of pacemaker (incl. ICD and/or CRT implantation) in addition to meeting one general criterion 	

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
		<p>2.2.5 Adults with congenital heart disease</p> <ul style="list-style-type: none"> – Congenital heart disease according to the individual assessment of the attending cardiologist <p>3. Diabetes</p> <ul style="list-style-type: none"> – Diabetes mellitus, with long-term complications or a HbA1c of $\geq 8\%$ <p>4. Chronic pulmonary and respiratory diseases</p> <ul style="list-style-type: none"> – Chronic obstructive lung diseases GOLD Grade II-IV – Pulmonary emphysema – Uncontrolled asthma, in particular serious bronchial asthma – Interstitial lung diseases / pulmonary fibrosis – Active lung cancer – Pulmonary arterial hypertension – Pulmonary vascular disease – Active sarcoidosis – Cystic fibrosis – Chronic lung infections (atypical mycobacteriosis, bronchiectasis, etc.) – Ventilated patients – Diseases with severely reduced lung capacity <p>5. Diseases/Therapies that weaken the immune system</p> <ul style="list-style-type: none"> – Serious immunosuppression (e.g. HIV-infection with a CD4+ T cell number of $< 200/\mu\text{l}$) – Neutropenia ($< 1'000$ neutrophils/μl) for ≥ 1 week – Lymphocytopenia (< 200 lymphocytes/μl) – Hereditary immunodeficiencies – Use of medication that suppresses the immune defences (such as long-term use of glucocorticoids (prednisolone equivalent > 20 mg/day), monoclonal antibodies, cytostatics, biologics etc.) – Aggressive lymphomas (all entities) – Acute lymphatic leukaemia 	

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
		<ul style="list-style-type: none"> – Acute myeloid leukaemia – Acute promyelocytic leukaemia – T-cell prolymphocytic leukaemia – Primary lymphomas of the central nervous system – Stem cell transplantation – Amyloidosis (light-chain (AL) amyloidosis) – Chronic lymphatic leukaemia – Multiple myeloma – Sickle-cell disease – Bone marrow transplant – Solid organ transplant – Individuals on a transplant waiting list <p>6. Cancer</p> <ul style="list-style-type: none"> – Cancer undergoing medical treatment 	

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
United States Guidance provided by: Center for Disease Control	Protective self-separation	<p>Can make you more likely to get severe ill from COVID-19:</p> <ul style="list-style-type: none"> ▪ Cancer ▪ Chronic kidney disease ▪ Chronic liver disease, including alcohol-related liver disease, non-alcoholic fatty liver disease, autoimmune hepatitis, and especially cirrhosis, or scarring of the liver ▪ Chronic lung diseases, <ul style="list-style-type: none"> ○ Asthma, if it's moderate to severe ○ Bronchiectasis (thickening of the lungs airways) ○ Bronchopulmonary dysplasia (chronic lung disease affecting newborns) ○ Chronic obstructive pulmonary disease (COPD), including emphysema and chronic bronchitis ○ Having damaged or scarred lung tissue such as interstitial lung disease (including idiopathic pulmonary fibrosis) ○ Cystic fibrosis, with or without lung or other solid organ transplant ○ Pulmonary embolism (blood clot in the lungs) ○ Pulmonary hypertension (high blood pressure in the lungs) ▪ Dementia or other neurological conditions ▪ Diabetes (type 1 or type 2) ▪ Down syndrome ▪ Heart conditions (such as heart failure, coronary artery disease, cardiomyopathies or hypertension) ▪ HIV infection ▪ Immunocompromised state (weakened immune system) ▪ Mental health conditions including depression, and schizophrenia spectrum disorders ▪ Overweight and obesity (BMI > 25 kg/m²) ▪ Pregnant people and recently pregnant people (for at least 42 days following end of pregnancy) ▪ Sickle cell disease or thalassemia ▪ Smoking, current or former 	<ul style="list-style-type: none"> ▪ Those at increased risk are advised to stay home if possible. ▪ Limit interactions with other people as much as possible and to take precautions to prevent getting COVID-19 when interacting with others. ▪ This includes wearing a mask when it is difficult to stay at least 6 feet apart from others outside their household, and avoiding others who are not wearing a mask or asking those in close proximity to wear a mask. <p>No specific advice is given for those that might be at an increased risk.</p>

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
		<ul style="list-style-type: none"> ▪ Solid organ or blood stem cell transplant ▪ Stroke or cerebrovascular disease, which affects blood flow to the brain ▪ Substance use disorders ▪ Tuberculosis. 	
<p>Wales</p> <p>Guidance provided by: the Welsh Government</p>	Shielding	<ul style="list-style-type: none"> ▪ solid organ transplant recipients ▪ people with specific cancers: <ul style="list-style-type: none"> ○ People with cancer who are undergoing active chemotherapy or radical radiotherapy for lung cancer ○ People with cancers of the blood or bone marrow such as leukaemia, lymphoma or myeloma who are at any stage of treatment ○ People having immunotherapy or other continuing antibody treatments for cancer ○ People having other targeted cancer treatments which can affect the immune system, such as protein kinase inhibitors or PARP inhibitors ○ People who have had bone marrow or stem cell transplants in the last 6 months, or who are still taking immunosuppression drugs. 	<p>Follow general advice. Wales is currently under national lockdown.</p> <ul style="list-style-type: none"> ▪ Currently at alert level 4 and everyone must stay at home as much as possible. ▪ Clinically extremely vulnerable are advised to no longer attend work or school outside the home. ▪ Members of a household with someone that is clinically extremely vulnerable should continue to attend work if they are unable to work from home. ▪ Children and young people in the household who are not clinically extremely vulnerable should continue to attend school. Children and young people whose parents or carers are clinically

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
		<ul style="list-style-type: none"> ▪ People with severe respiratory conditions including all cystic fibrosis, severe asthma and severe Chronic Obstructive Pulmonary Disease (COPD) ▪ People with severe single organ disease (e.g. Liver, Cardio, Renal, Neurological) ▪ People with rare diseases and inborn errors of metabolism that significantly increase the risk of infections (such as Severe Combined Immunodeficiency (SCID), homozygous sickle cell) ▪ People on immunosuppression therapies sufficient to significantly increase risk of infection ▪ Pregnant women with significant heart disease, congenital or acquired. ▪ Children up to the age of 18 with significant heart disease, congenital or acquired. 	<p>extremely vulnerable should also continue to go to school.</p>

Table 2 National vaccination priority lists [Updated 17.12.2021]

Country	Title	Notes
Australia	Who will get the vaccines	The Department of Health has compiled a list of at-risk population groups for COVID-19 for risk communication in public messaging; prioritisation of these groups for vaccination would need to be informed by evidence on relative risk of severe outcomes, and information on vaccine efficacy and safety, as available more details
Belgium	Belgians debate COVID-19 vaccination	Sciensano organized a citizen participation project in which 103 Belgians, with the help of experts, deliberated on the Belgian COVID -19 vaccination policy.
Canada	Groups that will get the vaccine first	Provinces and territories have developed more detailed vaccination rollout plans for their residents based on national government strategy.
Denmark	About the target groups for vaccination	Relatives are offered vaccination if they are permanently involved in specific care tasks or act as an indispensable caregiver to someone who is at extraordinarily high risk of severe illness from COVID-19. In addition, relatives can be offered vaccination if they are the relatives of someone who is at particularly high risk - and this person either cannot be vaccinated or if insufficient efficacy of the vaccine is anticipated.
Finland	Vaccination order and at-risk groups for COVID-19	Age is the most important risk factor for serious coronavirus disease. For that reason, the vaccine is recommended for the elderly. Highly predisposing conditions for severe COVID-19 disease include, for example, severe chronic kidney disease, severe immunosuppressive condition (organ transplant, acute cancer treatment) and severe chronic pulmonary disease. Predisposing conditions for severe COVID-19 disease include, for example, coronary artery disease and cirrhosis of the liver.
Germany	STIKO recommendations for COVID-19 vaccination	The vaccination should initially be offered to people over 80 years of age and residents in old people's and nursing homes.
Norway	Who will get the coronavirus vaccine?	Organised as two lists: one priority list for COVID-19 vaccination and one for medical risk groups.
Sweden	New recommendations on who is prioritized for vaccination against covid-19	Everyone over the age of 65 must be given priority in the second phase of vaccination work. The third includes people from the age of 60, as well as younger people with certain diseases or conditions.
Switzerland	Who is to be vaccinated?	Variation exists in priorities between cantons. If you are among those at especially high risk, you can be among the first to be vaccinated.
United States	CDC's COVID-19 Vaccine Rollout Recommendations	While CDC makes recommendations for who should be offered COVID-19 vaccine first, each state has its own plan for deciding who will be vaccinated first and how they can receive vaccines.

Table 3 Vaccination status and infection protection and control measures [Updated 17.12.2021]

Country	Setting	Date implemented	Specification	Target population
Ireland	RCF	8 July 2021	No requirement for transmission-based precautions or restricted movement.	Residents
Ireland	RCF	8 July 2021	When residents are vaccinated and disease incidence is low, the requirement to restrict group activities to pods of 4 to 6 can be relaxed in stages to move towards more normal social interaction in the RCF.	Residents
Ireland	Workplace	6 April 2021	It is generally safe to return to work for fully vaccinated people who are high risk, if it is essential, for example for certain healthcare workers. However, this may not apply if the person has problems with their immune system.	At-risk groups
Ireland	Community	30 March 2021	Two fully vaccinated people from different households can meet up indoors without wearing masks or staying 2 metres apart.	General public
Ireland	Community	6 April 2021	Although there is an increased risk, it is advised that it is	At-risk groups

			generally safe when fully vaccinated to go into shops and use public transport if essential, and precautionary measures are maintained.	
Ireland	Community	6 April 2021	It is advised that it is generally safe to meet up with one other household outdoors if you are fully vaccinated although you should keep a safe distance and avoid contact.	At-risk groups
Ireland	RCFs	19 April 2021	Two fully vaccinated residents do not need to wear a mask or avoid contact when they are alone with the person they are visiting.	Residents
Ireland	RCFs	12 March 2021	Derogation from restrictive movements after close contact for vaccinated HCWs, in preference over non vaccinated HCWs.	HCWs
Ireland	RCFs	22 March 2021	Greater flexibility in relation to duration of visits is appropriate if the resident and visitor are both vaccinated.	Residents, Visitors
Ireland	RCFs	10 November 2021	Maximum flexibility of visiting is appropriate where critical and compassionate grounds apply	Residents, Visitors

Ireland	RCFs	22 March 2021	Number of visitors received at once increases to 2 for RCFs with a high level of vaccination in HCWs and residents*	Residents, Visitors
Ireland	RCFs	19 April 2021	Subject to individual assessment, HCWs who are fully vaccinated and who are asymptomatic generally do not need to stay out of work or are subject to testing if they are identified as contacts unless specifically advised to do so in particular circumstances.	HCWs
Canada	Community	16 July 2021	Fully vaccinated can consider getting close to others without wearing a mask, taking into account the risk level of others and the setting.	General public
Canada	Community	16 July 2021	Fully vaccinated do not need to quarantine after being exposed to a person with COVID-19.	General public
England	RCFs	17 August 2021	Fully vaccinated RCF staff do not need to self-isolation after close contact with a resident who is a confirmed or possible case of COVID-19	RCF staff
Finland	Community	9 July 2021	Fully vaccinated grandparents can meet their own unvaccinated children and grandchildren if the children	At-risk, children

			and grandchildren are healthy and do not belong to an at-risk group for severe coronavirus disease.	
Finland	Community, health and social care	19 May 2021	Quarantining following exposure is not required for those fully vaccinated or recovered.	General public, Patients, Residents, HCWs
Norway	Community	28 September 2021	No requirement for transmission based quarantine if the person is a close contact of someone who is infected. The person should avoid contact with others for 7 days or undergo testing	Close contacts
Norway	Community	24 September 2021	If people in risk groups are fully vaccinated, they can follow the general infection control advice. Booster doses are recommended for people in risk groups.	General public, At-risk groups
Ontario	RCF	12 October 2021	Fully immunised staff and visitors may accompany a resident for meals including for the purposes of either having a meal themselves or for caregivers to assist a resident with eating.	Resident, Visitors
Switzerland	Private	18 May 2021	People who are vaccinated do not need to physical distance	General public

			or wear a mask in private with others who are vaccinated.	
Switzerland	Workplace	09 November 2021	For 12 months people who are fully vaccinated do not have to go into quarantine after close contact with people who have tested positive.	Close contacts
Switzerland	Workplace	20 October 2021	People who are at high risk and are fully vaccinated are advised that their employer is no longer obliged to take steps to provide additional protection in the workplace and this applies initially for 12 months. However, the general precautionary measures in the workplace still apply	Employer, Worker
Germany	Community	7 April 2021	People who have been fully vaccinated are exempt from quarantine measures after exposure to a confirmed SARS-CoV-2 case.	General public
Denmark	Workplace	20 April 2021	Relatives of someone at higher risk no longer need to be reassigned to other tasks (with less risk of infection) – if either the person at higher risk or the relative has been fully vaccinated.	At-risk groups, Worker

Denmark	Community	20 April 2021	Fully vaccinated people can socialise with family and close friends who are not fully vaccinated people without keeping their distance or wearing a face mask. However, this does not apply if the person they are with has not been fully vaccinated and is at higher risk of severe illness from COVID-19	General public
Denmark	Community	20 April 2021	Fully vaccinated people can socialise with other fully vaccinated people without keeping their distance or wearing a face mask.	General public
Denmark	Community	20 April 2021	Fully vaccinated people are exempt from regular testing. But not testing as a result of close contact with an infected person.	General public
Denmark	Community	20 April 2021	Fully vaccinated people who are symptom free are exempt from self-isolation as a result of close contact of someone who is infected. However, you must still get tested as a result of close contact.	Close contacts
Denmark	Community	15 October 2021	People at higher risk who are fully vaccinated do not need to	At-risk groups

			take special precautions, can participate in activities where several other people are present, can use public transport and go shopping at any time of day, and can return to usual duties.	
CDC	Workplace	27 April 2021	Fully vaccinated workers no longer need to quarantine or be restricted from work following an exposure to someone with suspected or confirmed COVID-19 as long as they get tested 5-7 days after the close contact. They also should wear a mask in public indoor settings for 14 days or until they receive a negative test result. If they test positive they should self-isolate.	Close contacts
CDC	Community	27 April 2021	Immunocompromised people need to consult their healthcare provider about vaccine exemption recommendations, even if fully vaccinated	At-risk groups
CDC	Community	16 March 2021	It is encouraged that fully vaccinated people might wear a mask regardless of the level	General public Close contacts

			of community transmission indoors especially if someone in their household is immunocompromised or at risk for several disease, or is not fully vaccinated. Fully vaccinated people should also continue to wear a mask where required by federal, state, local, tribal, or territorial laws, rules, and regulations.	
CDC	Wide range of settings (undefined)	19 August 2021	Fully vaccinated person who experiences symptoms consistent with COVID-19 should isolate themselves from others.	General public (not people in high risk settings)
CDC	Domestic and international travel	2 April 2021	Fully vaccinated people can resume domestic travel and do not need to get tested before or after travel or self-quarantine after travel. Fully vaccinated people do not need to get tested before leaving the United States (unless required by the destination) or self-quarantine after arriving back in the United States.	Travellers
CDC	Non-healthcare congregate settings	27 April 2021	Fully vaccinated residents of non-healthcare congregate	Residents

			settings no longer need to quarantine following a known exposure.	
CDC	Health and social care	10 March 2021	Asymptomatic HCPs who are fully vaccinated and have a higher-risk exposure (including aerosol generating procedures) as described in the CDC guidance may be exempt from expanded screening testing.	HCWs
CDC	RCFs and other healthcare settings	27 April 2021	Fully vaccinated patients/residents can participate in communal dining without use of source control or physical distancing.	Residents, Patients
CDC	RCFs	10 March 2021	If the resident is fully vaccinated, they can choose to have close contact (including touch) with their visitor while wearing well-fitting source control.	Residents, Visitors
CDC	RCFs	29 March 2021	Exempt from isolation for new admissions and readmissions if fully vaccinated or previous infection (<3 months)	Residents
Wales	Community	7 August 2021	Fully vaccinated adults, under 18s and vaccine trial participants will not need to self-isolate if they are a close	General public

			contact of someone with coronavirus	
Prince Edward Island, Canada	RCF	31 March 2021	If resident vaccination rates < 85% then: Designated visitors must visit in designated areas. Residents can only leave in the company of the Partners in Care. Residents cannot attend public places unless to perform essential services (e.g., banking).	Residents, Visitors
Neutral				
Norway	Travel	25 September 2021	People who are fully vaccinated or have had COVID-19 during the last six months are exempt from the travel quarantine	Inbound travellers
Scotland	Community	14 May 2021	People who are fully vaccinated must continue to follow the general advice.	At-risk groups
Canada	RCF	02 November 2021	A shorter duration of isolation may be considered for newly admitted or returning residents who have been fully vaccinated.	Resident, Visitors

Scotland	RCF	15 July 2021	Children and young people can visit residents where they are friends or relatives and in manageable group sizes	Residents, Visitors Children and Young people
England	RCF	16 August 2021	Close personal contact is regarded as safer between people who are fully vaccinated without face-to-face contact	Residents, Visitors
England	RCF	16 August 2021	Staff members who are a contact of a COVID-19 case are not required to self-isolate if they are fully vaccinated	HCWs
Country	Setting	Date implemented	Specification	Target population
Ireland	RCF	8 July 2021	No requirement for transmission-based precautions or restricted movement.	Residents
Ireland	RCF	8 July 2021	When residents are vaccinated and disease incidence is low, the requirement to restrict group activities to pods of 4 to 6 can be relaxed in stages to move towards more normal social interaction in the RCF.	Residents
Ireland	Workplace	6 April 2021	It is generally safe to return to work for fully vaccinated people who are high risk, if it is essential, for example for	At-risk groups

			certain healthcare workers. However, this may not apply if the person has problems with their immune system.	
Ireland	Community	30 March 2021	Two fully vaccinated people from different households can meet up indoors without wearing masks or staying 2 metres apart.	General public
Ireland	Community	6 April 2021	Although there is an increased risk, it is advised that it is generally safe when fully vaccinated to go into shops and use public transport if essential, and precautionary measures are maintained.	At-risk groups
Ireland	Community	6 April 2021	It is advised that it is generally safe to meet up with one other household outdoors if you are fully vaccinated although you should keep a safe distance and avoid contact.	At-risk groups
Ireland	RCFs	19 April 2021	Two fully vaccinated residents do not need to wear a mask or avoid contact when they are alone with the person they are visiting.	Residents
Ireland	RCFs	12 March 2021	Derogation from restrictive movements after close contact for vaccinated HCWs, in	HCWs

			preference over non vaccinated HCWs.	
Ireland	RCFs	22 March 2021	Greater flexibility in relation to duration of visits is appropriate if the resident and visitor are both vaccinated.	Residents, Visitors
Ireland	RCFs	10 November 2021	Maximum flexibility of visiting is appropriate where critical and compassionate grounds apply	Residents, Visitors
Ireland	RCFs	22 March 2021	Number of visitors received at once increases to 2 for RCFs with a high level of vaccination in HCWs and residents*	Residents, Visitors
Ireland	RCFs	19 April 2021	Subject to individual assessment, HCWs who are fully vaccinated and who are asymptomatic generally do not need to stay out of work or are subject to testing if they are identified as contacts unless specifically advised to do so in particular circumstances.	HCWs
Canada	Community	16 July 2021	Fully vaccinated can consider getting close to others without wearing a mask, taking into account the risk level of others and the setting.	General public

Canada	Community	16 July 2021	Fully vaccinated do not need to quarantine after being exposed to a person with COVID-19.	General public
England	RCFs	17 August 2021	Fully vaccinated RCF staff do not need to self-isolation after close contact with a resident who is a confirmed or possible case of COVID-19	RCF staff
Finland	Community	9 July 2021	Fully vaccinated grandparents can meet their own unvaccinated children and grandchildren if the children and grandchildren are healthy and do not belong to an at-risk group for severe coronavirus disease.	At-risk, children
Finland	Community, health and social care	19 May 2021	Quarantining following exposure is not required for those fully vaccinated or recovered.	General public, Patients, Residents, HCWs
Norway	Community	28 September 2021	No requirement for transmission based quarantine if the person is a close contact of someone who is infected. The person should avoid contact with others for 7 days or undergo testing	Close contacts
Ontario	RCF	12 October 2021	Fully immunized staff and visitors may accompany a resident for meals including for	Resident, Visitors

			the purposes of either having a meal themselves or for caregivers to assist a resident with eating.	
Switzerland	Private	18 May 2021	People who are vaccinated do not need to physical distance or wear a mask in private with others who are vaccinated.	General public
Switzerland	Workplace	09 November 2021	For 12 months people who are fully vaccinated do not have to go into quarantine after close contact with people who have tested positive.	Close contacts
Switzerland	Workplace	20 October 2021	People who are at high risk and are fully vaccinated are advised that their employer is no longer obliged to take steps to provide additional protection in the workplace and this applies initially for 12 months. However, the general precautionary measures in the workplace still apply	Employer, Worker
Germany	Community	7 April 2021	People who have been fully vaccinated are exempt from quarantine measures after exposure to a confirmed SARS-CoV-2 case.	General public
Denmark	Workplace	20 April 2021	Relatives of someone at higher risk no longer need to be	At-risk groups, Worker

			reassigned to other tasks (with less risk of infection) – if either the person at higher risk or the relative has been fully vaccinated.	
Denmark	Community	20 April 2021	Fully vaccinated people can socialise with family and close friends who are not fully vaccinated people without keeping their distance or wearing a face mask. However, this does not apply if the person they are with has not been fully vaccinated and is at higher risk of severe illness from COVID-19	General public
Denmark	Community	20 April 2021	Fully vaccinated people can socialise with other fully vaccinated people without keeping their distance or wearing a face mask.	General public
Denmark	Community	20 April 2021	Fully vaccinated people are exempt from regular testing. But not testing as a result of close contact with an infected person.	General public
Denmark	Community	20 April 2021	Fully vaccinated people who are symptom free are exempt from self-isolation as a result of close contact of someone	Close contacts

			who is infected. However, you must still get tested as a result of close contact.	
Denmark	Community	15 October 2021	People at higher risk who are fully vaccinated do not need to take special precautions, can participate in activities where several other people are present, can use public transport and go shopping at any time of day, and can return to usual duties.	At-risk groups
CDC	Workplace	27 April 2021	Fully vaccinated workers no longer need to quarantine or be restricted from work following an exposure to someone with suspected or confirmed COVID-19 as long as they get tested 5-7 days after the close contact. They also should wear a mask in public indoor settings for 14 days or until they receive a negative test result. If they test positive they should self-isolate.	Close contacts
CDC	Community	27 April 2021	Immunocompromised people need to consult their healthcare provider about vaccine exemption	At-risk groups

			recommendations, even if fully vaccinated	
CDC	Community	16 March 2021	It is encouraged that fully vaccinated people might wear mask regardless of the level of community transmission indoors especially if someone in their household is immunocompromised or at risk for several disease, or is not fully vaccinated. Fully vaccinated people should also continue to wear a mask where required by federal, state, local, tribal, or territorial laws, rules, and regulations.	General public Close contacts
CDC	Wide range of settings (undefined)	19 August 2021	Fully vaccinated person who experiences symptoms consistent with COVID-19 should isolate themselves from others.	General public (not people in high risk settings)
CDC	Domestic and international travel	2 April 2021	Fully vaccinated people can resume domestic travel and do not need to get tested before or after travel or self-quarantine after travel. Fully vaccinated people do not need to get tested before leaving the United States (unless required by the	Travellers

			destination) or self-quarantine after arriving back in the United States.	
CDC	Non-healthcare congregate settings	27 April 2021	Fully vaccinated residents of non-healthcare congregate settings no longer need to quarantine following a known exposure.	Residents
CDC	Health and social care	10 March 2021	Asymptomatic HCPs who are fully vaccinated and have a higher-risk exposure (including aerosol generating procedures) as described in the CDC guidance may be exempt from expanded screening testing.	HCWs
CDC	RCFs and other healthcare settings	27 April 2021	Fully vaccinated patients/residents can participate in communal dining without use of source control or physical distancing.	Residents, Patients
CDC	RCFs	10 March 2021	If the resident is fully vaccinated, they can choose to have close contact (including touch) with their visitor while wearing well-fitting source control.	Residents, Visitors
CDC	RCFs	29 March 2021	Exempt from isolation for new admissions and readmissions if	Residents

			fully vaccinated or previous infection (<3 months)	
Wales	Community	7 August 2021	Fully vaccinated adults, under 18s and vaccine trial participants will not need to self-isolate if they are a close contact of someone with coronavirus	General public
Prince Edward Island, Canada	RCF	31 March 2021	If resident vaccination rates < 85% then: Designated visitors must visit in designated areas. Residents can only leave in the company of the Partners in Care. Residents cannot attend public places unless to perform essential services (e.g., banking).	Residents, Visitors
Neutral				
Norway	Travel	25 September 2021	People who are fully vaccinated or have had COVID-19 during the last 6 months are exempt from the travel quarantine	Inbound travellers
Scotland	Community	14 May 2021	People who are fully vaccinated must continue to follow the general advice.	At-risk groups
Canada	RCF	2 November 2021	A shorter duration of isolation may be considered for newly	Resident, Visitors

			admitted or returning residents who have been fully vaccinated.	
Scotland	RCF	15 July 2021	Children and young people can visit residents where they are friends or relatives and in manageable group sizes	Residents, Visitors Children and Young people
England	RCF	16 August 2021	Close personal contact is regarded as safer between people who are fully vaccinated without face-to-face contact	Residents, Visitors
England	RCF	16 August 2021	Staff members who are a contact of a COVID-19 case are not required to self-isolate if they are fully vaccinated	HCWs

Table 4 Booster and third vaccine dose national recommendations [Updated 17.12.2021]

Country	Name of authorising body	3 rd dose of COVID-19 vaccine as part of the primary course to address the risk of suboptimal or non-response to the standard 2 dose schedule	Additional COVID-19 booster doses required at a broader population level, to optimise protection due to waning of immunity (loss of protection) over time
Australia	<p>Australian Technical Advisory Group on Immunisation (ATAGI)</p> <p>https://www.health.gov.au/news/atagi-statement-on-the-use-of-a-3rd-primary-dose-of-covid-19-vaccine-in-individuals-who-are-severely-immunocompromised</p>	<p>People (aged ≥12 years) who are severely immunocompromised (Table 5) or where the treating physician has assessed the patient and where the benefits of a 3rd dose of COVID-19 vaccine outweigh the risks.</p> <p>An mRNA vaccine (Pfizer-BioNTech or Moderna) is preferred to Astrazeneca for this 3rd dose.</p> <p>Recommended interval is 2 to 6 months after the 2nd dose of vaccine or minimum 4 weeks in exceptional circumstances (for example, anticipated intensification of immunosuppression, outbreaks). If 2nd dose is more than 6 months ago a 3rd dose should be administered whenever feasible.</p> <p>ATAGI does not recommend subsequent doses beyond the 3rd dose at this time. Many patients who fail to respond to 3rd doses may not respond to further doses.</p>	<p>Booster doses available for people ≥ 18 who took their second shot more than 5 or more months ago.</p>
Belgium	<p>Task Force on Vaccination</p> <p>https://www.info-coronavirus.be/en/vaccination/</p> <p>https://d34j62pglfm3rr.cloudfront.net/downloads/tekst-extraprik-september_EN.pdf</p>	<p>People (aged ≥12 years) with lowered immunity (Table 5).</p> <p>Only mRNA vaccine for 3rd dose (Pfizer-BioNTech or Moderna).</p> <p>Administering of 3rd has commenced since mid-September 2021, starting with older members of the population and then moving on to the younger generations.</p>	<p>Residents of nursing homes (minimum 4 weeks after the last dose)</p> <p>People of 65 years and older</p> <p>Patients in assisted living apartments, day care centres, psychogeriatric facilities and psychiatric care homes (min. 4 months after last dose Astrazeneca and vaccine Janssen or min. 6 months after 2nd dose of Pfizer-BioNTech or Moderna vaccine)</p> <p>Commenced since mid-September 2021</p>

Country	Name of authorising body	3 rd dose of COVID-19 vaccine as part of the primary course to address the risk of suboptimal or non-response to the standard 2 dose schedule	Additional COVID-19 booster doses required at a broader population level, to optimise protection due to waning of immunity (loss of protection) over time
Canada	<p>National Advisory Committee on Immunization (NACI)</p> <p>https://www.health.gov.on.ca/en/pro/programs/publichealth/coronavirus/docs/vaccine/COVID-19_vaccine_third_dose_recommendations.pdf</p>	<p>People (authorised age groups are not stated but this appears to be 12 and older) who are moderately to severely immunocompromised due to disease or treatment (Table 5).</p> <p>An mRNA vaccine is preferred for this 3rd dose. An additional dose of a viral vector vaccine (e.g. AstraZeneca or Janssen) should only be considered when other authorized COVID-19 vaccines are contraindicated or inaccessible.</p> <p>Recommend interval of at least 28 days after 1- or 2- dose primary series.</p>	<p>Residents of long-term care facilities and older persons living in similar settings, such as assisted living facilities, retirement homes and chronic care hospitals.</p>
Denmark	<p>Danish Health and Medicines Authority</p> <p>https://www.sst.dk/da/Nyheder/2021/Alle-aeldre-paa-85-aar-og-derover-er-nu-inviteret-til-revaccination</p> <p>https://www.sst.dk/da/Nyheder/2021/Krydsvaccinere-faar-tilbud-om-et-tredje-stik</p> <p>https://www.sst.dk/da/corona/Vaccination/Revaccination-af-udvalgte-grupper</p>	<p>People with severely weakened immune systems.</p> <p>The vaccine from Pfizer-BioNTech is expected to be approved for a 3rd dose in mid-October 2021. For the Moderna vaccine, an approval is expected closer to the end of 2021.</p> <p>People will be offered the same type of vaccine as received for 1st and 2nd dose.</p>	<p>Residents of nursing homes.</p> <p>People who are aged 65 and over.</p> <p>Healthcare professionals previously vaccinated with the AstraZeneca vaccine and then an mRNA vaccine (Pfizer-BioNTech or Moderna) for travel reasons only.</p> <p>People previously vaccinated with the Janssen vaccine.</p> <p>Healthcare professionals, especially frontline staff.</p> <p>Persons at increased risk under 65 years of age.</p> <p>It is the Danish Health and Medicines Authority's expectation that a large part of</p>

Country	Name of authorising body	3 rd dose of COVID-19 vaccine as part of the primary course to address the risk of suboptimal or non-response to the standard 2 dose schedule	Additional COVID-19 booster doses required at a broader population level, to optimise protection due to waning of immunity (loss of protection) over time
	https://www.vacciner.dk/FAQPage/Page/2/revaccination-af-udvalgte-grupper		the Danish population will eventually be offered revaccination against COVID-19. It is expected to become relevant in 2022 at the earliest.
Finland	Finnish Institute for Health and Welfare https://thl.fi/en/web/infectious-diseases-and-vaccinations/what-s-new/coronavirus-covid-19-latest-updates/transmission-and-protection-coronavirus/vaccines-and-coronavirus/vaccination-order-and-at-risk-groups-for-covid-19	Persons with a severely weakened immune system (at least 2 months have passed since the second dose). Persons who were vaccinated at a short dose interval (<6 weeks). This includes healthcare personnel working with coronavirus patients and, among others, elderly patients of nursing homes and the employees caring for them. Persons 60 years of age or over. 3 rd dose is not recommended for men under 30 years of age (does not apply to those with severe immune deficiencies).	None reported.
Germany	Standing Vaccination Commission (STIKO) https://www.rki.de/DE/Content/Infekt/Impfen/ImpfungenAZ/COVID-19/Impfempfehlung-Zusfassung.html?nn=13490888	People with immunodeficiency. Only an mRNA vaccine (Pfizer-BioNTech or Moderna) for 3 rd dose.	STIKO has published a recommendation where a booster (mRNA only) can be offered to: <ul style="list-style-type: none"> ▪ People aged ≥ 70 years ▪ Residents and cared for in facilities for care for the elderly. Due to the increased outbreak potential, residents aged <70 are also included here. ▪ Nursing staff and other workers who are in direct contact with the caregivers in outpatient, partially or fully inpatient care facilities for older people or for other people with an increased risk of severe COVID-19 disease

Country	Name of authorising body	3 rd dose of COVID-19 vaccine as part of the primary course to address the risk of suboptimal or non-response to the standard 2 dose schedule	Additional COVID-19 booster doses required at a broader population level, to optimise protection due to waning of immunity (loss of protection) over time
			<ul style="list-style-type: none"> ▪ Personnel in medical facilities with direct patient contact ▪ People who have been vaccinated with the Janssen vaccine. <p>However, the Conference of Health Ministers has already initiated a national programme: People over the age of 60 (at least 6 months after last dose and after individual consideration, medical advice and decision).</p> <p>Since 18 November 2021, has recommended a booster vaccination with an mRNA vaccine for all people aged 18 and over. This is in consultation.</p>
Norway	<p>National Institute of Public Health</p> <p>https://www.fhi.no/en/news/2021/persons-vaccinated-with-janssen-will-be-offered-an-additional-dose-of-mrna/</p> <p>https://www.fhi.no/en/id/vaccines/coronavirus-immunisation-programme/who-will-get-coronavirus-vaccine-first/</p>	<p>Patients who have a significantly weakened immune system as a result of illness or medical treatment.</p> <p>Persons vaccinated with Janssen will be offered an additional dose of mRNA vaccine (Pfizer-BioNTech or Moderna).</p>	<p>Residents of nursing homes.</p> <p>People aged 65 and older. Starting with group 85 years and above then group 75-84 and followed by the age group 65-74.</p>
Sweden	Swedish Public Health Agency	People who have a severely weakened immune system due to illness or treatment (Table 5).	A half dose of the mRNA vaccine from Moderna is offered to:

Country	Name of authorising body	3 rd dose of COVID-19 vaccine as part of the primary course to address the risk of suboptimal or non-response to the standard 2 dose schedule	Additional COVID-19 booster doses required at a broader population level, to optimise protection due to waning of immunity (loss of protection) over time
	<p>https://www.folkhalsomyndigheten.se/nyheter-och-press/nyhetsarkiv/2021/avgusti/extra-dos-vaccin-mot-covid-19-rekommenderas-vid-immunbrist/</p> <p>https://www.folkhalsomyndigheten.se/nyheter-och-press/nyhetsarkiv/2021/oktober/halv-dos-av-modernas-vaccin-mot-covid-19-rekommenderas-som-pafyllnadsdos/</p> <p>https://www.folkhalsomyndigheten.se/contentassets/5dd388ee4f9d4a618507f8857a53e458/extra-dos-vaccin-covid-19-rekommenderas-immunbrist.pdf</p>	<p>3rd dose given at an interval of at least 8 weeks after dose 2.</p> <p>Where possible, the same mRNA vaccine (Pfizer-BioNTech or Moderna) is recommended for this extra dose. Viral vector vaccine (e.g. AstraZeneca or Janssen) are being phased out so not recommended.</p>	<p>People living in special housing for the elderly (SÄBO)</p> <p>People with home care or home care decided by the municipality</p> <p>People aged 80 years and older</p> <p>People aged 65-79 years of age</p> <p>Staff within SÄBO, home care and home health care</p>
Switzerland	<p>Federal Vaccination Commission (EKIF/CFV) and the Federal Office of Public Health (FOPH/BAG)</p> <p>https://www.bag.admin.ch/bag/en/home/krankheit</p>	None reported.	People age 65 and over (particularly people aged 75 or over and those aged 65 or over with chronic diseases that put them at the highest risk of getting a severe case of COVID-19)

Country	Name of authorising body	3 rd dose of COVID-19 vaccine as part of the primary course to address the risk of suboptimal or non-response to the standard 2 dose schedule	Additional COVID-19 booster doses required at a broader population level, to optimise protection due to waning of immunity (loss of protection) over time
	<p>en/ausbrueche-epidemien-pandemien/aktuelle-ausbrueche-epidemien/novel-cov/impfen.html#1237595981</p>		<p>Residents and people being looked after in nursing homes, care homes and day care facilities for older people.</p> <p>Following individual assessment people at especially high risk aged under 65 with chronic diseases that put them at the highest risk of getting a severe case of COVID-19 may benefit from a booster.</p> <p>The booster should be administered from 6 months after the full vaccination (initial immunisation).</p> <p>Current data show that full vaccination with the mRNA vaccines (Pfizer-BioNTech and Moderna) is likely to provide protection against severe COVID-19 illness for at least 12 months. Protection will probably last significantly longer.</p>
United States	<p>Centers for Disease Control (CDC)</p> <p>https://www.cdc.gov/coronavirus/2019-ncov/vaccines/recommendations/immuno.html</p> <p>https://www.cdc.gov/coronavirus/2019-ncov/vaccines/booster-shot.html</p>	<p>People with moderately to severely compromised immune systems (Table 5).</p> <p>3rd dose given at an interval of at least 28 days after dose 2 of Pfizer-BioNTech or Moderna vaccines.</p> <p>A 3rd dose of the same mRNA vaccine (Pfizer or Moderna) should be used.</p> <p>CDC has stated there is insufficient evidence to determine whether immunocompromised people who received Janssen vaccine also have an improved antibody response following an additional dose of the same vaccine.</p>	<p>People ≥ 65 years.</p> <p>People ≥ 18 who live in long-term care settings.</p> <p>People ≥ 18 who have underlying medical conditions.</p> <p>People ≥ 18 who work in high-risk settings.</p> <p>People ≥ 18 who live in high-risk settings.</p> <p>People ≥ 18 and at least 2 months after Janssen vaccination.</p> <p>People ≥ 18 years who received a Pfizer-BioNTech or Moderna vaccine at least 6 months after their second dose.</p>

Table 5 Definitions of conditions or treatments as used in booster and third dose national recommendations [Updated 17.12.2021]

Country	Name of authorising body	Detailed definitions if provided
Australia	Australian Technical Advisory Group on Immunisation (ATAGI)	<p>People with the following immunocompromising conditions and therapies for which a 3rd primary dose is recommended:</p> <ul style="list-style-type: none"> ▪ Active haematological malignancy ▪ Non-haematological malignancy with current active treatment including chemotherapy, radiotherapy, and/or hormonal therapy, but excluding immunotherapy with immune checkpoint inhibitors ▪ Solid organ transplant with immunosuppressive therapy ▪ Haematopoietic stem cell transplant (HSCT) recipients or chimeric antigen receptor T-cell (CAR-T) therapy within 2 years of transplantation. <ul style="list-style-type: none"> ○ These patients require revaccination with 3 additional doses of COVID-19 vaccine, irrespective of doses given prior to transplantation, commencing generally ≥ 3-6 months after their transplant after discussion with their treating specialist. ○ Those beyond 2 years from transplant should discuss with their treating specialist about the need for a 3rd dose. ▪ Immunosuppressive therapies including: <ul style="list-style-type: none"> ○ High dose corticosteroid treatment equivalent to >20mg/day of prednisone for ≥ 14 days in a month, or pulse corticosteroid therapy. ○ Multiple immunosuppressants where the cumulative effect is considered to be severely immunosuppressive. ○ Selected conventional synthetic disease-modifying anti-rheumatic drugs (csDMARDs): <ul style="list-style-type: none"> ▪ including mycophenolate, methotrexate (>0.4 mg/kg/week), leflunomide, azathioprine (>3mg/kg/day), 6-mercaptopurine (>1.5 mg/kg/day), alkylating agents (e.g. cyclophosphamide, chlorambucil), and systemic calcineurin inhibitors (e.g. cyclosporin, tacrolimus) ▪ excluding hydroxychloroquine or sulfasalazine when used as monotherapy ○ Biologic and targeted therapies anticipated to reduce the immune response to COVID-19 vaccine: <ul style="list-style-type: none"> ▪ including B cell depleting agents (e.g. anti-CD20 monoclonal antibodies, BTK inhibitors, fingolimod), anti-CD52 monoclonal antibodies (alemtuzumab), anti-complement antibodies (e.g. eculizumab), anti-thymocyte globulin (ATG) and abatacept ▪ excluding agents with likely minimal effect on vaccine response such as immune checkpoint inhibitors, anti-integrins, anti-TNF-α, anti-IL1, anti-IL6, anti-IL17, anti-IL4 and anti-IL23 antibodies

		<ul style="list-style-type: none"> ▪ Primary immunodeficiency including combined immunodeficiency and syndromes, major antibody deficiency (e.g., common variable immune deficiency (CVID) or agammaglobulinemia), defects of innate immunity (including phagocytic cells), defects of immune regulation, complement deficiencies and phenocopies of primary immunodeficiencies. ▪ Advanced or untreated HIV with CD4 counts <250/μL or those with a higher CD4 count unable to be established on effective antiretroviral therapy <ul style="list-style-type: none"> ○ a 3rd primary dose is not required for people living with HIV, receiving ART with CD4 counts ≥250/μL ▪ Long term haemodialysis or peritoneal dialysis.
Belgium	Task Force on Vaccination	<p>Patients:</p> <ul style="list-style-type: none"> ▪ With congenital immune disorders ▪ Who are long-term kidney dialysis patients ▪ With inflammatory diseases that are being treated with immunosuppressants ▪ With blood cancers or other malignant tumours, who are being or have been actively, treated over the past 3 years ▪ Who are pre-transplant, stem cell transplant and organ transplant patients ▪ Who are HIV patients with CD4 cell counts below 200 per mm³ of blood.
Canada	National Advisory Committee on Immunization (NACI)	<p>Patients:</p> <ul style="list-style-type: none"> ▪ Active treatment for solid tumour or hematologic malignancies ▪ Receipt of solid-organ transplant and taking immunosuppressive therapy ▪ Receipt of chimeric antigen receptor (CAR)-T-cell therapy or hematopoietic stem cell transplant (within 2 years of transplantation or taking immunosuppression therapy) ▪ Moderate to severe primary immunodeficiency (e.g., DiGeorge syndrome, Wiskott-Aldrich syndrome) ▪ Stage 3 or advanced untreated HIV infection and those with acquired immunodeficiency syndrome ▪ Active treatment with the following categories of immunosuppressive therapies: anti-B cell therapies (monoclonal antibodies targeting CD19, CD20 and CD22), high-dose systemic corticosteroids (refer to the CIG for suggested definition of high dose steroids), alkylating agents, antimetabolites, or tumour-necrosis factor (TNF) inhibitors and other biologic agents that are significantly immunosuppressive. <p>A comprehensive list of more than 300 distinct genetic defects of immunity are grouped under general headings is available online: https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-3-vaccination-specific-populations/page-8-immunization-immunocompromised-persons.html</p> <p>An evidence summary has been published relating to the 3rd dose recommendation (10 September 2021): https://www.canada.ca/en/public-health/services/immunization/national-advisory-committee-on-immunization-naci/statement-september-10-2021-additional-dose-covid-19-vaccine-immunocompromised-following-1-2-dose-series.html</p>

Denmark	Danish Health and Medicines Authority	Not identified
Finland	Finnish Institute for Health and Welfare	Not identified
Germany	Standing Vaccination Commission (STIKO)	Not identified
Norway	National Institute of Public Health	Not identified
Sweden	Swedish Public Health Agency (FoHM)	<p>Patients:</p> <ul style="list-style-type: none"> ▪ with completed organ transplantation with ongoing medication with immunosuppressive drugs, regardless of time after transplantation ▪ with a history of allogeneic stem cell transplantation in the last 3 years, or who have an ongoing graft versus host disease (GvH) that requires immunosuppressive treatment ▪ with severe effects on the immune system following CAR T-cell therapy ▪ with primary severe immune deficiency ▪ with current or recently reviewed immunosuppressive therapy for a cancerous disease with a continuing serious impact on the immune system ▪ with current ongoing treatment that greatly lowers the immune system, e.g. in autoimmune diseases ▪ undergoing dialysis treatment and patients with chronic stage 5 kidney disease ▪ with advanced HIV ▪ which by the specialist doctor responsible for the patient is judged to have a significant effect on the immune system and which is not covered by the above points.
Switzerland	Federal Vaccination Commission (EKIF/CFV) and the Federal Office of Public Health (FOPH/BAG)	Not identified
United States	Centers for Disease Control (CDC)	<p>Patients who have:</p> <ul style="list-style-type: none"> ▪ Been receiving active cancer treatment for tumours or cancers of the blood ▪ Received an organ transplant and are taking medicine to suppress the immune system ▪ Received a stem cell transplant within the last 2 years or are taking medicine to suppress the immune system ▪ Moderate or severe primary immunodeficiency (such as DiGeorge syndrome, Wiskott-Aldrich syndrome) ▪ Advanced or untreated HIV infection ▪ Active treatment with high-dose corticosteroids or other drugs that may suppress your immune response.

Table 6 Version history

Version	Date	Specific updates
V1	23 March 2020	Date of first rapid review
V2	24 March 2020	Review updated: <ul style="list-style-type: none"> ▪ Updated guidance from Norway, Scotland, and Switzerland included ▪ 'Live' table of protective measures in each setting added.
V3	25 March 2020	Review updated to reflect change in guidance for vulnerable groups in: <ul style="list-style-type: none"> ▪ Australia ▪ New Zealand ▪ Switzerland.
V4	26 March 2020	Review updated to include new guidance for vulnerable groups in Singapore.
V5	02 April 2020	Review updated to include latest guidance for vulnerable groups from Ireland. Review updated to reflect change in the definition of high risk groups in: <ul style="list-style-type: none"> ▪ Australia ▪ Norway ▪ US.
V6	06 April 2020	Review updated to reflect change in the definition of high risk groups in: <ul style="list-style-type: none"> ▪ US ▪ Scotland. Additional measures/support: <ul style="list-style-type: none"> ▪ UK. Change in advice: <ul style="list-style-type: none"> ▪ Norway. Additional information on vulnerable social groups: <ul style="list-style-type: none"> ▪ Canada.
V7	09 April 2020	Minor text added: <ul style="list-style-type: none"> ▪ Canada. Review updated to reflect change in the definition of high risk groups in: <ul style="list-style-type: none"> ▪ CDC. Additional country profiles: <ul style="list-style-type: none"> ▪ Sweden ▪ Germany.
V8	16 April 2020	Additional detail added: <ul style="list-style-type: none"> ▪ New Zealand. Minor text added: <ul style="list-style-type: none"> ▪ Sweden. Minor layout changes:

		<ul style="list-style-type: none"> ▪ Germany
V9	20 April 2020	<p>Minor editing in wording used:</p> <ul style="list-style-type: none"> ▪ Australia ▪ Scotland. <p>Reduced list of conditions for higher risk:</p> <ul style="list-style-type: none"> ▪ Norway. <p>Addition of advice for cohabitating with people at higher risk:</p> <ul style="list-style-type: none"> ▪ Norway ▪ UK.
V10	23 April 2020	<p>Minor layout changes:</p> <ul style="list-style-type: none"> ▪ Australia ▪ Northern Ireland (criteria now listed separately from PHE).
V11	27 April 2020	<p>Review updated to reflect change in the definition of high risk groups:</p> <ul style="list-style-type: none"> ▪ Sweden. <p>Minor additional advice:</p> <ul style="list-style-type: none"> ▪ Norway ▪ New Zealand.
V12	30 April 2020	<p>Review updated to include additional detail on conditions of high risk groups:</p> <ul style="list-style-type: none"> ▪ Switzerland ▪ New Zealand.
V13	7 May 2020	<p>Review updated to reflect change in the definition of high risk groups:</p> <ul style="list-style-type: none"> ▪ UK ▪ Sweden. <p>Updated Advice:</p> <ul style="list-style-type: none"> ▪ New Zealand.
V14	11 May 2020	<p>Review updated to include additional detail on conditions of high risk groups:</p> <ul style="list-style-type: none"> ▪ Germany <p>Additional information provided for:</p> <ul style="list-style-type: none"> ▪ Finland ▪ Germany
V15	14 May 2020	<p>Review updated to include additional detail on conditions of high risk groups:</p> <ul style="list-style-type: none"> ▪ Scotland ▪ UK. <p>Updated Advice:</p> <ul style="list-style-type: none"> ▪ New Zealand. <p>Additional advice:</p> <ul style="list-style-type: none"> ▪ Switzerland.
V16	18 May 2020	<p>Review updated to include additional detail on conditions of high risk groups:</p> <ul style="list-style-type: none"> ▪ New Zealand.

		Updated advice: <ul style="list-style-type: none"> ▪ Ireland.
V17	21 May 2020	Review updated to include additional detail on conditions of high risk groups: <ul style="list-style-type: none"> ▪ New Zealand ▪ Northern Ireland. Updated advice: <ul style="list-style-type: none"> ▪ Finland.
V18	25 May 2020	Review updated to reflect change in the definition of high risk groups: <ul style="list-style-type: none"> ▪ Norway ▪ Switzerland. Updated advice: <ul style="list-style-type: none"> ▪ Norway ▪ Scotland.
V19	2 June 2020	Review updated to additionally include: <ul style="list-style-type: none"> ▪ Wales. Updated advice: <ul style="list-style-type: none"> ▪ England ▪ Singapore.
V20	8 June 2020	Review updated to reflect change in the definition of high risk groups: <ul style="list-style-type: none"> ▪ Northern Ireland ▪ Norway ▪ Singapore ▪ Sweden. Updated advice: <ul style="list-style-type: none"> ▪ Northern Ireland ▪ Wales ▪ Ireland ▪ New Zealand.
V21	15 June 2020	Updated advice: <ul style="list-style-type: none"> ▪ Northern Ireland ▪ Wales ▪ Sweden ▪ Switzerland.
V22	22 June 2020	Updated advice: <ul style="list-style-type: none"> ▪ Scotland ▪ Canada.
V23	29 June 2020	Updated to reflect change in the definition of high risk groups: <ul style="list-style-type: none"> ▪ US. Updated advice: <ul style="list-style-type: none"> ▪ England ▪ Ireland ▪ Northern Ireland ▪ Switzerland

		<ul style="list-style-type: none"> ▪ US.
V24	6 July 2020	<p>Minor update in the wording in the definition of high risk:</p> <ul style="list-style-type: none"> ▪ Scotland. <p>Updated advice:</p> <ul style="list-style-type: none"> ▪ England ▪ Scotland ▪ Northern Ireland ▪ Wales ▪ Finland.
V25	10 July 2020	<p>Updated advice:</p> <ul style="list-style-type: none"> ▪ England ▪ Scotland ▪ Australia.
V26	17 July 2020	<p>Updated advice:</p> <ul style="list-style-type: none"> ▪ Scotland ▪ Switzerland.
V27	24 July 2020	<p>Updated to reflect change in high risk groups:</p> <ul style="list-style-type: none"> ▪ US <p>Updated advice:</p> <ul style="list-style-type: none"> ▪ Wales ▪ Scotland
V28	29 July 2020	<p>Review will be updated every two weeks.</p> <p>Updated advice:</p> <ul style="list-style-type: none"> ▪ Scotland
V29	12 August 2020	<p>Updated advice:</p> <ul style="list-style-type: none"> ▪ England ▪ Northern Ireland ▪ Scotland ▪ New Zealand
V30	26 August	<p>Minor change in text:</p> <ul style="list-style-type: none"> ▪ Scotland <p>Updated advice:</p> <ul style="list-style-type: none"> ▪ New Zealand ▪ Wales
V31	9 September	<p>Updated to reflect change in the definition of high risk groups:</p> <ul style="list-style-type: none"> • Ireland • New Zealand <p>Updated advice:</p> <ul style="list-style-type: none"> ▪ England ▪ Singapore ▪ Sweden
V32	24 September	<p>Updated to reflect change in the definition of high risk groups:</p> <ul style="list-style-type: none"> • Canada • Germany

		<ul style="list-style-type: none"> • Sweden <p>Updated advice:</p> <ul style="list-style-type: none"> ▪ New Zealand
V33	22 October	<p>Updated to reflect change in the definition of high risk groups:</p> <ul style="list-style-type: none"> ▪ US <p>Updated advice:</p> <ul style="list-style-type: none"> ▪ England
V34	5 November	<p>Updated to reflect change in the definition of high risk groups:</p> <ul style="list-style-type: none"> ▪ England ▪ Northern Ireland ▪ Scotland ▪ Switzerland ▪ US. ▪ Wales <p>Updated advice:</p> <ul style="list-style-type: none"> ▪ England.
V35	19 November	<p>Restructured report.</p> <p>Added:</p> <ul style="list-style-type: none"> ▪ Belgium ▪ Denmark. <p>Removed:</p> <ul style="list-style-type: none"> ▪ New Zealand ▪ Singapore.
V37	3 December	<p>Updated to reflect change in the definition of high risk groups:</p> <ul style="list-style-type: none"> ▪ England ▪ Northern Ireland ▪ Wales ▪ Norway. <p>Updated advice:</p> <ul style="list-style-type: none"> ▪ England.
V38	17 December	<p>Updated advice:</p> <ul style="list-style-type: none"> ▪ England ▪ Wales ▪ Northern Ireland ▪ Scotland ▪ Switzerland ▪ Belgium.
V39	7 January 2021	<p>Updated to reflect change in the definition of high risk groups:</p> <ul style="list-style-type: none"> ▪ Norway ▪ US. <p>Updated advice:</p> <ul style="list-style-type: none"> ▪ England ▪ Wales

		<ul style="list-style-type: none"> ▪ Northern Ireland ▪ Scotland.
V40	21 January 2021	<p>Updated to reflect change in the definition of high risk groups:</p> <ul style="list-style-type: none"> ▪ Germany. <p>Updated advice:</p> <ul style="list-style-type: none"> ▪ Denmark ▪ Norway ▪ Scotland.
V41	4 February 2021	<p>Updated to reflect change in the definition of high risk groups:</p> <ul style="list-style-type: none"> ▪ Germany ▪ Sweden. <p>Updated advice:</p> <ul style="list-style-type: none"> ▪ Denmark ▪ England ▪ Northern Ireland ▪ Norway ▪ Wales.
V42	18 February 2021	<p>Updated to reflect change in the definition of high risk groups:</p> <ul style="list-style-type: none"> ▪ Norway ▪ Scotland ▪ Sweden. <p>Updated advice:</p> <ul style="list-style-type: none"> ▪ Denmark ▪ England ▪ Germany ▪ Scotland. <p>Updated evidence summaries:</p> <ul style="list-style-type: none"> ▪ Belgium ▪ Denmark.
V43	4 March 2021	<p>Updated to reflect change in the definition of high risk groups:</p> <ul style="list-style-type: none"> ▪ England ▪ Ireland (HSE) ▪ Scotland ▪ Sweden ▪ Switzerland. <p>Updated advice:</p> <ul style="list-style-type: none"> ▪ England <p>Updated evidence summaries:</p> <ul style="list-style-type: none"> ▪ Scotland (SIGN).
V44	18 March 2021	<p>Updated to reflect change in the definition of high risk groups:</p> <ul style="list-style-type: none"> ▪ Norway <p>Updated advice:</p>

		<ul style="list-style-type: none"> ▪ Germany
V45	1 April 2021	<p>Updated to reflect change in the definition of high risk groups:</p> <ul style="list-style-type: none"> ▪ Norway ▪ US <p>Updated advice:</p> <ul style="list-style-type: none"> ▪ Denmark ▪ England ▪ Scotland ▪ Switzerland ▪ Wales
V46	22 April 2021	<p>Addition of a table of with details on exemptions relating to vaccination status</p> <p>Updated to reflect change in the definition of high risk groups:</p> <ul style="list-style-type: none"> ▪ Switzerland <p>Updated advice:</p> <ul style="list-style-type: none"> ▪ Denmark ▪ CDC ▪ England ▪ Northern Ireland ▪ Scotland
V 47	5 May 2021	<p>Updated to reflect change in the definition of high risk groups:</p> <ul style="list-style-type: none"> ▪ Norway <p>Updated advice:</p> <ul style="list-style-type: none"> ▪ Norway ▪ Sweden ▪ Scotland ▪ US
V48	21 May 2021	<p>Updated to reflect updated evidence base used to inform high risk groups:</p> <ul style="list-style-type: none"> ▪ Norway ▪ US
V49	4 June 2021	<p>Updated advice:</p> <ul style="list-style-type: none"> ▪ Northern Ireland
V50	25 June 2021	<p>Updated to reflect change in the definition of high risk groups:</p> <ul style="list-style-type: none"> ▪ Germany <p>Updated advice:</p> <ul style="list-style-type: none"> ▪ Norway ▪ Wales
V51	9 July 2021	<p>Updated advice:</p> <ul style="list-style-type: none"> ▪ Denmark ▪ Finland
V52	21 July 2021	<p>Updated advice:</p> <ul style="list-style-type: none"> ▪ England

		<ul style="list-style-type: none"> ▪ Finland ▪ Scotland ▪ Switzerland ▪ US
V52	21 July 2021	<p>Updated advice:</p> <ul style="list-style-type: none"> ▪ England ▪ Finland ▪ Scotland ▪ Switzerland
V53	12 August 2021	<p>Updated advice:</p> <ul style="list-style-type: none"> ▪ England ▪ Scotland ▪ US
V54	31 August 2021	<p>Updated advice:</p> <ul style="list-style-type: none"> ▪ Denmark ▪ Finland ▪ Germany ▪ Norway ▪ Wales
V55	14 September 2021	<p>Updated advice:</p> <ul style="list-style-type: none"> ▪ England ▪ Norway ▪ Wales
V56	28 September 2021	<p>Updated to reflect change in the definition of high risk groups:</p> <ul style="list-style-type: none"> ▪ England <p>Updated advice:</p> <ul style="list-style-type: none"> ▪ England ▪ Belgium ▪ Germany ▪ Norway
V55	14 September 2021	<p>Updated advice:</p> <ul style="list-style-type: none"> ▪ England ▪ Norway ▪ Wales

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