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

30 June 2020

Version history

Version	Date	Specific updates
V1.0	23 March 2020	Date of first rapid review
V2.0	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.
V3.0	25 March 2020	Review updated to reflect change in guidance for vulnerable groups in: <ul style="list-style-type: none"> Australia; New Zealand; Switzerland.
V4.0	26 March 2020	Review updated to include new guidance for vulnerable groups in Singapore.
V5.0	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
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V23.0	29 June	<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 • Ireland

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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 included in the vulnerable group categories are those of older age, those with chronic conditions such as diabetes, high blood pressure and respiratory conditions and those in receipt of therapies that weaken the immune system.
- Australia, Canada, Finland, Germany, New Zealand, Singapore, Sweden, Switzerland, United States and Wales have a single grouping for vulnerable people, while England, Northern Ireland, Scotland and Norway distinguish between those considered at 'highest risk' and those at 'increased risk'.
- Some countries have published additional risk 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.
- Advice for vulnerable groups typically includes stay at home, practice hand hygiene, physical distancing and avoid all 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 to not leave the house, while those that are an increased risk can leave the house but are strongly advised to practice physical distancing and not meet others.
- As some countries have begun to ease restrictions, the advice for people in the vulnerable group has changed to include the choice to go outside. For some countries this has also included meeting people outside of their household, including physical contact with grandchildren.
- As of 19 June, all four neighbouring countries of Ireland allow those who are shielding or cocooning to go outside and in specific situations to meet with people from other households. Furthermore, from 1 August, if infection rates continue to be low, PHE will no longer advise those at the highest risk to shield and the shielding programme will be paused. However, the shielding patient list will be maintained by the NHS.

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.⁽¹⁾ The extremely medically vulnerable groups, defined by the HPSC in Ireland, include:

- People aged ≥ 70 years
- 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 6 months, or who are still taking immunosuppression drugs.
- People with severe respiratory conditions including cystic fibrosis, severe asthma, pulmonary fibrosis/ lung fibrosis/ interstitial lung disease and severe COPD
- 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.

On 27 March, the specific advice given to these groups was to stay at home at all times and avoid any face-to-face contact with others. It was announced on 1 May that those cocooning could go outside for a walk, provided they followed strict physical distancing and hygiene guidelines. However, avoidance of shops is still recommended. This was outlined in [guidance](#) by the HPSC and includes meeting people in groups of up to four people outdoors.⁽²⁾

On 5 June, as restrictions were eased for the general population, the advice for those cocooning was updated to include more activities outside the home. These now include measures aimed at minimising the risk of acquiring COVID-19 infection, such as leaving the home to go for a drive, visiting shops and public services, when receiving visitors, and for members of the public supporting those who are cocooning when they are outside their home (see Table 1 for all measures). Additional guidance has been provided for people cocooning relating to receiving visitors and making visits to other people's houses,⁽³⁾ and also for any person visiting

a resident in a residential care facility (with effect from 15 June).⁽⁴⁾ As of 26 June, physical distancing with others in the same household is no longer advised for those cocooning. In addition, public transport is advised during off peak only and non-essential care by informal carers, including family carers, can resume.

Similar measures have been implemented in other settings to protect vulnerable groups. We undertook a rapid review of public health guidance on COVID-19, to summarise the range of advice and recommendations that have been issued to protect vulnerable groups who may be at risk of severe illness from the virus.

Methods

The review was first undertaken on 23 March, in line with the '*Protocol for the identification and review of new and updated relevant COVID-19 public health guidance*', available on <https://www.hiqa.ie/areas-we-work/health-technology-assessment/covid-19-publications>. The review was updated twice-weekly and as of 25 May, it is updated on a weekly basis. A detailed account of the methods used in this review are 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 in each health care setting to protect vulnerable groups, as identified in this rapid review, are summarised separately below.

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

England, Public Health England (PHE)

On 21 March, PHE issued [guidance on 'shielding' and protecting people who are clinically extremely vulnerable](#), including children.⁽⁵⁾ On 23 June, it was announced that unless a significant rise in cases is seen, the shielding programme is likely to be paused. People who are clinically extremely vulnerable will then be advised to adopt strict physical distancing rather than full shielding measures (see below).⁽⁶⁾ As per PHE, shielding is a practice used to protect clinically extremely vulnerable people from coming into contact with COVID-19. These people include:

- People who have had an organ transplant

- 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.
- 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.

On 31 May, the advice was updated to take into account that COVID-19 disease levels for England are substantially lower now than when shielding was first introduced. PHE continues to strongly advise people in this group to stay at home as much as possible. However, if people in this group want to leave their home they can now do so if they wish. The current advice is:

- if you wish to spend time outdoors (though not in other buildings, households, or enclosed spaces) you should take extra care to minimise contact with others by keeping 2 metres apart.
- if you choose to spend time outdoors, this can be with members of your own household. If you live alone, you can spend time outdoors with one person from another household (ideally the same person each time).
- you should stay alert when leaving home: washing your hands regularly with soap and water or hand sanitiser, maintaining physical distance and avoiding gatherings of any size.
- you should not attend any gatherings, including gatherings of friends and families in private spaces, for example, parties, weddings and religious services.
- you should strictly avoid contact with anyone who is displaying symptoms of COVID-19 (a new continuous cough, a high temperature, or a loss of, or change in, sense of taste or smell).
- Although single adult households can form a 'support bubble' with one other household, people who are clinically extremely vulnerable are advised not to be part of a support bubble.

PHE states that this guidance is still advisory. People in this group will not be fined or sanctioned if they prefer to follow the guidance on staying alert and safe (physical distancing). When outside they are advised to:

- keep the number of visits outside to a minimum (for instance once per day)
- travel on your own, or with members of your household. If you live alone, you can spend time outdoors with one person from another household (ideally the same person each time)
- go outside when there are fewer people around, such as early in the morning
- ideally spend time in open areas
- always keep a physical distance of 2 metres
- take particular care to minimise contact with others
- do not share or exchange personal belongings (such as cups) with others
- avoid going into enclosed spaces and other households, shops and buildings
- spend as long as you feel comfortable outside.

Guidance is also provided for people living with a person who falls in this group:

- Minimise the time other people living with you spend in shared spaces, such as kitchens, bathrooms and sitting areas, and keep shared spaces well ventilated.
- Keep 2 metres away from people you live with and encourage them to sleep in a different bed where possible. If you can, use a separate bathroom from the rest of the household. Use separate towels from the other people in your house, both for drying themselves after bathing or showering and for hand hygiene purposes.
- If you share a toilet and bathroom with others, it's important that they are cleaned every time after use (for example, wiping surfaces you have come into contact with). Consider drawing up a rota for bathing, with you using the facilities first.
- If you share a kitchen with others, avoid using it while they're present. If you can, take your meals back to your room to eat. If you have a dishwasher, use it to clean and dry the family's used crockery and cutlery. If this is not possible, wash them using your usual washing-up liquid, warm water and dry them thoroughly. If you are using your own utensils, remember to use a separate tea towel for drying these.
- Everyone in your household should regularly wash their hands, avoid touching their face and clean frequently touched surfaces.

As of 31 May, unpaid carers who have been notified by NHS Test and Track that they are a contact of a person who has tested positive for COVID-19, are advised not to provide care for someone who is clinically extremely vulnerable.

From 6 July the advice for those shielding will be as follows:

- you may, if you wish, meet in a group of up to 6 people outdoors, including people from different households, while maintaining strict physical distancing
- you no longer need to observe physical distancing with other members of your household

- in line with the wider guidance for single adult households (either an adult living alone or with dependent children under 18) in the general population, you may from this date, if you wish, also form a 'support bubble' with one other household. All those in a support bubble will be able to spend time together inside each other's homes, including overnight, without needing to physically distance.

From 1 August, the government is advising that shielding will be paused and advice to those previously shielding will be:

- you can go to work, if you cannot work from home, as long as the business has COVID-19 safety measures in place
- children who are clinically extremely vulnerable can return to their education settings if they are eligible and in line with their peers. Where possible children should practice frequent hand-washing and physical distancing
- you can go outside to buy food, to places of worship and for exercise but you should maintain strict physical distancing
- you should remain cautious as you are still at risk of severe illness if you catch coronavirus, so the advice is to stay at home where possible and, if you do go out, follow strict physical distancing.

On 6 April, NHS Digital published details on the process for maintaining the [Shielded Patient List](#) (SPL) - a list of people at 'high risk' of complications from COVID-19, who should be shielded. Patients are eligible based on the criteria for extremely vulnerable people (above).⁽⁷⁾ On 2 June it was announced that given the emerging evidence and the improving epidemiology, the Government's Shielding policy is currently under review.⁽⁷⁾ The NHS will maintain the SPL following the pause of the shielding programme on the 31 July.⁽⁶⁾

The 'high risk' list was defined as a subset of a wider group of people who may be 'at risk'. Specific advice is provided for these groups; currently the advice for the 'at risk' group, which is a large group (approximately 19 million people) who are normally at risk from the flu, is to practice strict physical distancing; the advice for the 'at high risk' group, which is a smaller sub-group (approximately 1.5 million people) defined by the Chief Medical Officer (CMO), is to practice complete social 'shielding'. The SPL is generated from NHS Digital data repositories, and additional sources, as directed by NHS England and the CMO for England. These include additional cancer patients and patients identified by GP practices and acute hospital. In the future, hospital specialists and GPs will be able to add or subtract individual patients from this register. As of 29 March, all people on this list were to be contacted by the NHS and extra supports in relation to coronavirus were being made available: SMS Shielding Service, assistance with food and or prescriptions, food and essential supplies deliveries (free).

On 11 May, PHE guidance on social distancing⁽⁸⁾ was superseded by [Staying alert and safe \(social distancing\)](#).⁽⁹⁾ Within this guidance, the specific advice for clinically vulnerable people, as listed below, remains unchanged (that is, to stay at home as

much as possible and, when outside, to take particular care to minimise contact with others). Clinically vulnerable people are those who are:

- Aged 70 or older (regardless of medical conditions)
- Under 70 with an underlying health condition listed below (that is to say, anyone instructed to get a flu jab as an adult each year on medical grounds):
 - Chronic (long-term) mild to moderate 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, motor neurone disease, multiple sclerosis (MS), or cerebral palsy
 - Diabetes
 - A weakened immune system as the result of conditions, treatments like chemotherapy, or medicines such as steroid tablets
 - Being seriously overweight (a body mass index (BMI) of 40 or above).
- Pregnant women.

Since 11 May, the guidance for physical distancing measures has been included in the [Staying safe outside your home guidance](#).⁽¹⁰⁾

Since 11 May, PHE has advised that those who want to go out to help a vulnerable person can do so provided physical distancing and hand hygiene is maintained, unless they have coronavirus symptoms, even if these symptoms are mild.

Northern Ireland, Public Health Agency (PHA)

From 23 March, the PHA in Northern Ireland was following PHE's guidance on shielding for people who are extremely vulnerable. On 23 April, upon advice from Northern Ireland's CMO, two additional conditions were added to the list of extremely vulnerable groups. These included those undergoing renal dialysis and those with Motor Neurone Disease. On 15 May, in addition to PHE criteria, people who have had a splenectomy were added to the list (see Table 1). People in this risk group are advised to stay at home at all times and avoid all face-to-face contact for at least 12 weeks. On 8 June, the advice was updated to allow those shielding to go outside with members of their household or, if they live alone, to meet one other person from a different household and preferably the same person each time. From 6 July, shielding advice is likely to relax, allowing households to form a support bubble exclusively with another household, without the need for physical distancing measures. Meeting up to six people outside of their home with physical distancing will also be possible.⁽¹¹⁾ From 31 July, it is anticipated that those who are extremely vulnerable will no longer need to shield and the shielding programme will pause.⁽¹²⁾

Similarly, for older people and people with an underlying health condition, PHA was following PHE's guidance on physical distancing.⁽⁸⁾ A link to the [criteria](#) is listed on the NI Direct website,⁽¹³⁾ which appears to be based on the criteria used by PHE for

identifying those who are at an increased risk of severe illness from COVID-19 and those that should practice physical distancing measures. This includes people over the age of 70, people who are pregnant, and others who have certain conditions (see Table 1). On 22 March, it was estimated that 40,000 people meet these criteria in Northern Ireland. On 6 June, people who have motor neurone disease and people who have problems with the spleen were removed from the vulnerable person criteria, but remain on the extremely vulnerable criteria.

Scotland, Health Protection Scotland (HPS)

On 23 March, HPS was following PHE's guidance on social distancing.⁽⁸⁾ The protective measures announced by PHE (on shielding) have also been included in relevant guidance issued by HPS. On 28 April, there was an estimated 150,000 clinically vulnerable people shielding in Scotland ([link](#)).⁽¹⁴⁾

On 3 April, [detailed criteria](#) were provided by the Scottish government for identifying people considered to be at the highest risk of severe illness:⁽¹⁵⁾

- Solid organ transplant recipients - includes people who have had a transplant of heart, lung, stomach or other part of intestine, liver and kidney. People will be in this group because they need to take medications to prevent rejection of the transplanted organ.
- People with specific cancers - made up of five sub-groups:
 - People with cancer who are undergoing active chemotherapy or have had radical radiotherapy specifically 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 specialised, 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 Disease (COPD), severe bronchiectasis and pulmonary hypertension. People in this group include:
 - All patients with cystic fibrosis
 - People with severe asthma, having severe asthma means being on regular inhalers AND long-term oral steroid tablets, e.g. prednisolone, OR regular injections to control your asthma
 - People with severe COPD, this means being too breathless to walk 100 yards, having 2 or more lung infections per year or requiring oxygen to help with your breathing. Usually you will be on several different inhaler medications that include two long acting preventers (Long Acting Beta Agonists and Long Acting Anti-Muscarinic Antagonists) and a steroid inhaler
 - If you are on home oxygen for your lung condition.

- People with rare diseases including all forms of interstitial lung disease/sarcoidosis and inborn errors of metabolism that significantly increase the risk of infections (such as SCID, homozygous sickle cell disease)
 - 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.
- People on immunosuppression therapies sufficient to significantly increase risk of infection, or who have had their spleens removed.
 - Immunosuppressive therapy may be used to keep a person from rejecting a bone marrow or organ transplant. It may also be used to treat conditions in which the immune system is overactive, such as autoimmune diseases and allergies
 - In some cases these treatments may put people at a higher risk should they contract Covid-19 infection. The following situations put people into the highest risk group:
 - patients on high dose corticosteroid treatment (equivalent to Prednisolone 20mg or more) for 4 weeks or more
 - patients on specific single therapies, for example Cyclophosphamide. These medications are usually prescribed by specialists in hospitals and clinical judgement is needed to determine if medications indicate highest risk
 - patients on lower dose of corticosteroids (equivalent to Prednisolone 5mg per day for 4 weeks or more), in combination with other disease modifying medication
 - patients on several different disease modifying medications taking into account their other chronic medical conditions (Patients on a single Disease Modifying medications (DMARD) or Biologic such as Methotrexate, Azathioprine, Cyclosporin, Leflunomide plus others, would not automatically be considered in the highest risk group if they are otherwise healthy, but should be decided upon by a specialist or GP if unsure.)
- People who are pregnant with significant heart disease, congenital or acquired
 - If you are being followed up by a specialist heart clinic during your pregnancy then you fall within this group
- People who are receiving renal dialysis treatment
 - People receiving and those starting renal dialysis.

As of 19 June, the advice for people in these groups is to:

- keep 2 metres (3 steps) apart from everyone as much as possible, even those you live with
- stay at home, as much as possible – you can go into a private garden or sit on your doorstep
- only leave your home to exercise or to meet with people from another household in small groups of no more than eight people at once outdoors, this does not yet apply if you live in a residential care or nursing home
- stay close to home so as to avoid using a toilet that is not your own
- keep in touch with family and friends using technology such as phone, Internet, and social media

- do not go out for shopping or to pick up prescription medication – please arrange for these to be delivered by someone you know, using supermarket deliveries or by your local authority.

Children who have been asked to shield should not attend school. Children who live with someone who has been asked to shield should only attend school if they can strictly follow physical distancing while there. Additional advice is provided for going outdoors to exercise and meeting with family and friends. Wearing a face covering is also advised (see Table 1). It is advised that this will remain in place until 31 July 2020.

[Specific 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.⁽¹⁶⁾

On 11 May, the HPS updated their [methods](#) for identifying patients that meet the shield criteria.⁽¹⁷⁾ The document sets out details of the groups, as defined by the criteria listed above. It serves the same function as the NHS Digital Shielded Patient List (see England, Public Health England (PHE)).

From 23 May, those at increased clinical risk are able to leave their home for essential purposes. This includes people over 70 years of age, pregnant women and those who receive the influenza vaccination for medical reasons.⁽¹⁸⁾ From 19 June, people in this group can meet with up to two households outside (subject to an eight person overall limit) and can also use toilets indoors while visiting the outdoors of another household.⁽¹⁹⁾

Wales, Welsh Government

Since 24 March, the Welsh government has been following PHE advice on shielding and protecting people defined on medical grounds as extremely vulnerable from COVID-19. The criteria for identifying people in this group are identical to the PHE criteria with the addition of children up to the age of 18 with significant heart disease, congenital or acquired (see Table 1 for full criteria).

An update was made on 1 June to allow those shielding to leave home, to exercise or meet outside with people from another household. This is reportedly due to fewer people infected with COVID-19 and as a result, the risk of catching COVID-19 has reduced. In addition, it is acknowledged that the risk of catching COVID-19 when outside is low, providing physical distancing and good hygiene measures are strictly followed. On 4 June this advice was updated to allow those shielding to leave home to exercise or meet outside with people from another household locally and continue to avoid gatherings indoors including going shopping. This will remain in place until 16 August 2020.⁽²⁰⁾ On the 12 June, children who are at high risk were advised not to attend school but should continue to learn from home. As of 29 June, this advice remains unchanged.

Australia, Department of Health

On 24 March, further measures to limit the spread of COVID-19 were introduced in Australia. This moved the country away from a policy of physical distancing to one of a more restrictive nature, such as protective self-separation. The updated advice was for everyone to stay at home, including those at highest risk of severe illness. Minor layout changes, with no change in the listed conditions, occurred on the 23 April which included listing specific examples of haematologic neoplasm and providing minor additional details for disease-modifying anti-rheumatic drugs. People at higher risk include:

- people aged 70 years and over
- people aged 65 years and over with chronic medical conditions
- people with compromised immune systems (for example, cancer)
- aboriginal and Torres Strait Islander people aged 50 years and over with one or more medical conditions.

The following chronic conditions are of concern in Aboriginal and Torres Strait Islander people over 50 years and non-indigenous people over 65 years:

- chronic renal failure
- coronary heart disease
- congestive cardiac failure
- chronic lung disease, such as severe asthma, cystic fibrosis, bronchiectasis, suppurative lung disease, chronic obstructive pulmonary disease, chronic emphysema
- poorly controlled diabetes
- poorly controlled hypertension.

People with immune system conditions that put them at greater risk:

- due to haematologic neoplasms such as leukemias, lymphomas and myelodysplastic syndromes
- post-transplant, following a solid organ transplant and are on immunosuppressive therapy
- post-transplant, following a haematopoietic stem cell transplant in the last 24 months or are on treatment for graft versus host disease (GVHD)
- by primary or acquired immunodeficiency including HIV infection
- by having chemotherapy or radiotherapy.

Medical treatments that put people at greater risk, including any biological disease-modifying anti-rheumatic drug (bDMARD) or any of the following immunosuppressive drugs, include:

- azathioprine >3.0 mg/kg/day
- 6-Mercaptopurine >1.5 mg/kg/day
- methotrexate >0.4 mg/kg/week
- prednisone >20 mg/day. If <14 days treatment, can resume work when treatment ceased
- high-dose corticosteroids (≥ 20 mg of prednisone per day, or equivalent) for ≥ 14 days
- tacrolimus (any dose)

- cyclosporine (any dose)
- cyclophosphamide (any dose)
- mycophenolate (any dose)
- disease-modifying anti-rheumatic drugs (DMARDs) are used to treat inflammatory forms of arthritis. They suppress the immune system and this slows the development of the arthritis.
- any combination of these or other DMARDs.

Since 10 May, Australia has initiated a [3-step framework](#) for easing restrictive measures.⁽²¹⁾ Those at the highest risk of severe illness are advised to stay at home and work from home if possible, and avoid non-essential travel and contact with others.

Canada, Government in Canada

In Canada, the Public Health Agency has advised those considered at [high risk of severe illness](#) from COVID-19 to practice 'protective self-separation', which involves avoiding unnecessary face-to-face social interaction and physical contact with others.⁽²²⁾ These groups, as defined by the WHO, include:

- older adults (age not specified)
- those with underlying medical conditions (such as heart disease, hypertension, diabetes, chronic respiratory diseases, cancer)
- those who are immunocompromised as a result of a medical condition or treatment (for example, chemotherapy).

In addition to the advice to stay at home as much as possible, people who fall into these categories are advised to avoid contact with others, keep at least 2 metres physical distance, avoid crowds and large gatherings, avoid cruises and non-essential travel outside of Canada.

Additional social groups that may be vulnerable to severe illness were defined as anyone who has:

- 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 specialised medical care or groups that need 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.

Finland, Finish Institute of Health and Wellness (THL)

On 2 April, it was estimated that 200,000 people aged 18 to 69 are at high risk due to illness and 870,000 people are at higher risk due to advanced age, compared to

the rest of the population. People over 70 years of age are more susceptible to severe coronavirus infections.

In addition, the risk of developing a severe coronavirus infection may be increased by pre-existing conditions that significantly impair the functioning of the lungs, heart, or immune system. These include:

- 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 (e.g. 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.

Since 16 March 2020, the Finnish Government [imposed an obligation](#) on those over 70 years of age to avoid close contact with other people as far as possible. This means that they can go out provided they practice physical 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, in the case of staff, for instance. All visitors should use a scarf or other protection for their nose and mouth. People close to those over 70 and in risk groups have been urged to consider the potential risk of infection via their other contacts.

On 19 May, the Institute [published advice](#) explicitly aimed at people over 70 years of age. It advised these groups to follow the general guidelines on physical distancing 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. Advice is also provided on wellbeing, functional ability and for neighbours, family and friends who provide important support.

On 16 June, the THL published a [press release](#) relating to risk groups and the health hazards of hot weather. People within this group are advised to avoid using a fan in common areas with more than one person present or confined spaces with poor ventilation.⁽²³⁾

Germany, Robert Koch Institute (RKI)

On 21 May, an assessment by the RKI found the risk level to the health of the German population overall was high and very high for the following [risk groups](#):

- 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])

- smokers
- very obese people
- people with certain medical conditions:
 - of the cardiovascular system (for example, coronary heart disease and high blood pressure)
 - chronic diseases of the lungs (for example, COPD)
 - patients with chronic liver disease
 - patients with diabetes mellitus
 - patients with cancer
 - patients with a weakened immune system (for example, due to a disease that is associated with an immunodeficiency or by taking medication that can influence and reduce the immune defence, such as cortisone, on a regular basis).

The [current advice](#) for these groups is to reduce interaction with others as much as possible and avoid close physical contact. This includes meeting the same people, limiting the length of visits and trying to meet outside where possible. If meetings occur indoors, people are advised to ensure rooms have good air circulation. It is also recommended to wear a mask in public spaces. Families can visit their grandparents and other family members.

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.⁽²⁴⁾ 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.⁽²⁴⁻²⁷⁾ These available studies and the results of the report of the "WHO-China Joint Mission on Coronavirus Disease 2019"⁽²⁸⁾ 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.⁽²⁹⁾ 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.⁽³⁰⁾

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.

New Zealand, Ministry of Health

On 25 March, New Zealand moved to Level 4 of its four-level alert system. The advice to everyone in New Zealand was to stay at home, except for those providing essential services. In particular people over 70 or people with existing underlying medical conditions were advised to follow the advice.⁽³¹⁾ These conditions, as listed by the [New Zealand Government](#) include:

- serious respiratory disease such as chronic lung disease or moderate to severe asthma
- serious heart conditions
- immunocompromised conditions
- severe obesity — a BMI of 40 or higher
- diabetes
- chronic kidney disease
- people undergoing dialysis
- liver disease.

Many conditions can cause a person to be immunocompromised (as listed above), including:

- cancer treatment
- smoking related illness
- bone marrow or organ transplantation
- haematologic neoplasms
- immune deficiencies
- poorly controlled HIV or AIDS
- prolonged use of corticosteroids and other immune weakening medications such as disease-modifying anti-rheumatic drugs.

Other people at risk include:

- those over 70
- residents of aged care facilities
- pregnant women in their third trimester.

New guidance was issued when New Zealand transitioned from Alert Level 4 to Alert Level 3 on 28 April. For those in the at-risk groups, the advice focused on creating a safe “bubble”, as detailed in Table 1. On 2 May, the Ministry [published advice](#) for these groups on how to manage their “bubble”, which stated that they can now

leave their house for activities when previously they were advised not to. If people share their bubble with someone who is more vulnerable to COVID-19, then the risks of extending their bubble needs to be considered.

On 29 April, the dedicated government website [covid19.gov.nz](https://www.covid19.gov.nz) advised pregnant women to take extra precautions during the third trimester as a growing baby puts increased oxygen demands on the woman. Pregnant women working in areas where there is high risk of exposure to COVID-19, for example, some healthcare settings, were advised to discuss and agree with their employer an assessment of the risk and options for working differently if needed.

On 13 May, New Zealand moved to Alert Level 2 and allowed those at risk to meet friends and family outside of the home. On 8 June, New Zealand has moved to Alert Level 1. At Level 1, everyone can return without restriction to work, school, sports and domestic travel, and can get together with as many people as they want.⁽³²⁾ For people at higher risk of COVID-19, the following advice has been issued for Alert Level 1:

- keep a 2 metre distance from people you don't know in public places and take extra care with hygiene practices
- avoid touching surfaces and wash your hands before and after you leave home
- wipe keys, handrails and regularly touched surfaces
- avoid passing around your mobile phone to other people.

On 15 May, the Ministry published an [updated list](#) of medical conditions and treatments that are risk factors for severe illness from COVID-19 and other factors contributing to a higher risk (see below).⁽³³⁾

Relevant medical conditions include:

- chronic lung disease such as cystic fibrosis, bronchiectasis, chronic obstructive respiratory disease and emphysema, severe asthma that needs multiple medications and medical care
- serious heart conditions such as congestive heart failure
- hypertension that is not well controlled
- diabetes that is not well controlled
- chronic kidney disease
- liver disease.

Conditions and treatments that weaken the immune system include:

- having chemotherapy or radiotherapy
- bone marrow or organ transplantation
- some blood cancers
- immune deficiencies including HIV infection
- immunity weakening medications such as high-dose corticosteroids and disease-modifying anti-rheumatic drugs that treat inflammatory forms of arthritis.
- older people (updated 15 May)

- people in aged care facilities (updated 15 May).

Other factors contributing to risk (updated 15 May):

- ethnicity
- smoking
- obesity (BMI of 40 or higher)
- pregnancy (pregnant women in their third trimester).

Norway, Norwegian Institute of Public Health (NIPH)

On 17 April, the NIPH amended its [criteria for high-risk groups](#),⁽³⁴⁾ 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. On 21 May, the criteria for [two new risk groups](#) replaced the previous criteria. The risk groups describe those that are considered to be at ‘moderate to high risk’ and ‘slightly increased risk’ of severe illness from COVID-19. For each risk group, specific advice is provided, which depends on the rate of transmission in the community of the applicable person (low-level spread and widespread community transmission). Currently, NIPH reports that the transmission of the virus is low in all counties in Norway, but there may be local clusters of transmission, for example in workplaces, regions, or municipalities.⁽³⁵⁾

People at moderate (clinically vulnerable) and or high risk (clinically extremely vulnerable) include:

- Those over 80 years of age
- Residents of nursing homes
- Those aged 66 to 80 years with one of the following chronic diseases, OR aged 50 to 65 years with two or more of the following chronic diseases:
 - cardiovascular disease (other than well-regulated high blood pressure)
 - morbid obesity (BMI ≥ 30 kg/m² in combination with weight-related diseases or BMI ≥ 40 kg/m²)
 - diabetes
 - chronic kidney disease and kidney failure
 - chronic lung disease (other than well-regulated asthma)
 - chronic liver disease
 - in immunosuppressive therapy such as chemotherapy, radiation therapy and immunosuppressive therapy in autoimmune diseases.
- Those with severe health condition, regardless of age*:
 - people with active cancer, ongoing or recently discontinued treatment for cancer (especially immunosuppressive therapy, radiation therapy to the lungs or chemotherapy). Leukaemia has a higher risk than other types of cancer
 - neurological or muscular disease with impaired coughing strength or lung function (e.g. ALS)
 - congenital immunodeficiency in an unstable phase that carries the risk of severe respiratory tract infections

- blood disorders that include cells or organs that are important for the immune system
- bone marrow transplant or organ transplant
- HIV infection with low CD4 counts
- significant renal impairment or significantly impaired liver function
- other, assessed by a physician.

**Some serious health conditions in this list are included due to a precautionary principle, although at present there are no studies indicating a higher risk of severe progression for the diseases.*

The advice for people in this group (that is, 'moderate to high risk') depends on whether transmission is low or widespread in their communities:

Low-level spread (current situation):

Increase physical distancing

- You can be with your closest circle as normal, and travel and socialise with others as long as:
 - you and your closest circle are particularly careful to follow general advice, keeping a safe distance and good hand hygiene and cough etiquette
 - you limit your number of close contacts
 - you avoid crowded places (e.g. public transport, shopping malls) or only go to such places when they are quieter.
 - Workplace planning and adjustment may be appropriate.

Widespread transmission or community outbreaks:

Social shielding

- To avoid infection, you should withdraw during this period. You can go outside and maintain normal contact with your closest circle as long you:
 - keep a greater distance from others (preferably 2 metres) than your closest circle
 - ask others to help you with necessary purchases
 - your closest circle should also limit their social contact. If not, you should keep a safe distance to them. If this is not possible, it might be necessary to consider other temporary housing arrangements.
- If workplace adjustments or remote working is impossible, sick leave should be considered.

People at slightly increased risk include those:

- Aged 65–80 years (especially over 70)
- Aged 50–65 years with one of the following chronic diseases:
 - cardiovascular disease (other than well-regulated high blood pressure)
 - morbid obesity (BMI ≥ 30 kg/m²) in combination with weight-related diseases or BMI ≥ 40 kg/m²)
 - diabetes
 - chronic kidney disease and kidney failure
 - chronic lung disease (other than well-regulated asthma)
 - chronic liver disease

- in immunosuppressive therapy such as chemotherapy, radiation therapy and immunosuppressive therapy in autoimmune diseases.
- 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.

The advice for people in this group also depends on whether transmission is low or widespread in their communities:

Low-level spread (current situation):

Live like others

- You can generally live like the rest of the population, travel, work and attend events, but be particularly careful to follow the general advice:
 - keep the recommended distance to people, apart from your closest circle
 - remember hand hygiene and cough etiquette
 - stay home when you are ill
 - avoid being with people who are sick.
- Consider whether you will be able to follow these measures before travelling or participating in social activities.

Widespread transmission or community outbreaks:

Increase social distancing

- You can be in normal contact with your closest circle, and travel and socialise with others as long as:
 - you and your closest circle are particularly careful to follow general advice, keeping a safe distance and follow good hand hygiene and cough etiquette.
 - you limit your number of close contacts
 - you avoid crowded places (for example, public transport, shopping malls) or only go to such places when they are less busy
- Workplace planning and adjustment may be appropriate.

These protective measures could be described as 'protective self-separation', although the Norwegian Institute of Public Health does not use any label to describe the advice issued.

On 17 April, advice is offered on a method of assessment for risk groups at work, which is based on age and underlying chronic conditions. Employees in risk groups are advised to talk to their employer about the possibility of remote working and videoconference facilities. Sick leave is not recommended unless workplace adjustment or remote working is not possible. The advice for the specific groups is as follows:

- Aged over 65 years - It is particularly important to shield this group from infection. The need for shielding applies especially to people with underlying chronic conditions.
- Aged 50-65 years - This group has a lower risk of severe disease than people over the age of 65. People with chronic conditions may be at increased risk of severe disease, but the risk is expected to be limited if their condition is well regulated. The need for shielding for COVID-19 infection should therefore be considered on an individual basis.

- Aged under 50 years - The risk of severe COVID-19 disease is low in this group. Further shielding is usually not necessary but may be appropriate for people with chronic conditions that are poorly regulated or with multiple chronic conditions.

Advice is also provided to someone who has developed symptoms and lives with a person who is at higher risk. This includes:

- If you live with someone who is at risk, and you have symptoms of a respiratory tract infection or do not feel well, then you should limit time spent together.
- If possible, stay and sleep in separate rooms and have your own bathroom or toilet.
- If this is not possible, try to keep your distance and have a separate towel in the bathroom or toilet and your own toiletries.

Singapore, Ministry of Health

On 24 March, the Multi-Ministry Taskforce in Singapore introduced tighter measures to minimise the further spread of COVID-19. Included in the measures was specific advice for older adults [age not specified] and anyone with underlying medical conditions. On 5 June, an advisory issued by the Ministry of Health provided further indications for risk of poorer clinical outcomes in the event of infection.⁽³⁶⁾ These include:

- Persons who are aged 60 and above
- Patients who are immunocompromised or have concurrent medical conditions such as obesity (BMI > 31), hypertension, diabetes, chronic heart and lung diseases, kidney diseases on dialysis, hypercoagulable states, cancer, or patients on drugs that cause immunosuppression.

The advice to these groups was to avoid social gatherings and crowded places as far as possible, and only go out for essential purposes, such as to work or buy food.⁽³⁷⁾

The advice is similar to the advice issued in Ireland, and could be described as 'protective self-separation'. On 21 April, it was announced that the emergency measures will be extended for another four weeks, until 1 June, with no specific reference to vulnerable groups. A [press release](#) published by the Ministry on 19 May, suggests that the advice for vulnerable groups is likely to remain the same after 1 June.⁽³⁸⁾ As of 8 June this advice is currently in use. From 2 June, the use of face masks (that completely cover the nose and mouth) are required outside of the home by everyone. Face shields may be worn for people who have health conditions that may result in breathing or other medical difficulties, when a mask is worn for a prolonged period of time.⁽³⁹⁾ Since 2 June, families may also visit their parents or grandparents, capped at two persons per household per day.⁽⁴⁰⁾ On 19 June, Singapore moved to Phase Two where the majority of activities have resumed.⁽⁴¹⁾ The advice for those at high risk in Phase Two is to continue to exercise extra caution and stay at home as much as possible. Grandparents can now provide childcare on a daily basis but parents are advised to take the necessary safe distancing precautions to protect these grandparents. Observe personal hygiene,

reduce interaction time as far as possible when visiting their home and do not visit if unwell.⁽⁴²⁾

Sweden, Public Health Agency of Sweden

On 1 April, the Public Health Agency advised all those with symptoms of COVID-19 to avoid social contact, in order to reduce the risk of spreading the virus. The Agency also advised those aged 70 years or over to limit their contacts with other people and not to travel by public transport, (for example, by train, bus, tram or subway), or visit supermarkets or other venues where a large group of people may be gathered at the same time. From 1 April, all private visits to nursing homes were prohibited by the government. On 15 June, this was extended until 31 August.⁽⁴³⁾

There is an increased risk of severe illness from COVID-19 among those of old age, along with those with pre-existing medical conditions such as:

- High blood pressure
- Cardiovascular disease
- Pulmonary disease
- Diabetes.

The Public Health Agency of Sweden also advised that people with asthma, allergies, or kidney disease may be at high risk of severe illness from COVID-19, but the evidence is unclear. In addition, it advised that people with conditions that make them vulnerable to infectious diseases, for example, due to problems with the immune system, should seek advice from their doctor about how to manage their condition and how to decrease the risks associated with COVID-19.

[Additional information](#) relating to those at high risk was published on 5 June.⁽⁴⁴⁾ This is said to be informed by a [recent preprint publication](#) of a study conducted using a dataset of 17 million adult NHS patients collected since the beginning of February.⁽⁴⁵⁾ Below is a translation of the additional information.

The risk of becoming seriously ill gradually increases with age:

- those who are 60-70 years of age have twice the risk of becoming seriously ill, compared to someone who is 50-60 years of age
- those who are 70-80 years of age have a five-fold higher risk of becoming seriously ill, compared to those who are 50-60 years
- the risk is greatest for those over 80 years of age. Then the risk of getting seriously ill is twelve times higher than for a person who is 50-60 years.

70 years and older

Below, are some diseases that in addition to rising age, Public Health Agency of Sweden consider to further increase the risk of becoming seriously ill.

- organ transplantation
- blood cancer diseases, existing and past
- neurological disorders (for example, MS, Parkinson's, Myasthenia gravis)
- obesity (increased risk with increased levels of obesity)

- diabetes (less risk if well treated)
- current cancer treatment
- chronic pulmonary disease (including asthma, but very marginal if well treated)
- stroke / dementia
- other immunosuppressive disease or treatment
- liver disease
- renal impairment
- cardiovascular disease.

High blood pressure alone does not appear to increase the risk, and is therefore no longer on the list.

Younger than 70 years

People under the age of 70 may also be at increased risk of becoming seriously ill if they have:

- any or all of the diseases mentioned above
- any disease that involves an increased risk of serious disease in respiratory tract infections.

These groups are not counted as risk groups:

- children even those who have any of the conditions or illnesses that increase the risk for adults and the elderly
- people who smoke are not a risk group but tobacco smoking increases the risk of serious symptoms of respiratory infections.

The Agency states that according to current knowledge, pregnant women do not appear to be at higher risk than others of being affected by severe illness from COVID-19, but acknowledged that there have been some instances where pregnant women have needed intensive care in Sweden. The Agency advised that pregnant women should be extra careful, especially at the end of their pregnancy and before giving birth. 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.

People considered at high risk have been are currently advised to:

- Limit close physical contact with others and completely avoid public transportation
- Avoid travelling by bus, tram or subway, shopping in supermarkets, or visiting venues where a large group of people gather at any one time. Instead, ask friends, family or neighbours to do your shopping and so on.
- While remaining at home, you may still go out for walks.

On 20 April, a new report ([link](#) – in Swedish) from the Swedish National Board of Health and Welfare ('Socialstyrelsen') identified the groups most at risk of being severely affected if they contract COVID-19. The criteria are listed in Table 1.

Swedish welfare has proposed to the government, that people who live with someone who has an increased risk of acquiring COVID-19, should temporarily refrain from working outside of the home. Particularly if their work situation is such that the Agency's advice regarding contagion protection cannot be followed.

The list is based on knowledge from the time that the coronavirus first occurred in January. The knowledge of risk factors is still low, and the Agency states the assessment may need to be reconsidered and developed.

On 11 May, the Ministry of Health and Social Affairs published an [article](#) for older people, people with health conditions, and health care and social services staff. The article outlined measures, advice, and restrictions specific to these populations.⁽⁴⁶⁾

In addition to avoiding close contact with others, as from 13 June, the [PHA advises](#) people 70 years of age and older that travel is now possible but that they should avoid public transport if they cannot book a seat in advance, and to avoid busy venues.⁽⁴⁷⁾

Switzerland, Federal Office of Public Health (FOPH)

In Switzerland, the following groups have been [identified](#) as at high risk:

- Those over the age of 65
- Those who have one of the following conditions:
 - High blood pressure.
 - Cardiovascular disease
 - Diabetes
 - Chronic respiratory diseases
 - Cancer
 - Conditions and therapies that weaken the immune system
 - Obesity class III (morbid, BMI greater than or equal to 40 kg/m²).

People who are at high risk are being advised to stay at home. If they do leave the home, they should strictly follow hygiene and physical distancing guidelines and avoid places frequented by large numbers of people. For example, railway stations, public transport or shopping centres during peak times,⁽⁴⁸⁾ and avoid unnecessary contacts. Although the guidance issued in Switzerland has not been labelled, it is consistent with 'protective self-separation'.

Additional conditions, listed in Table 1, are detailed in the [Ordinance on Measures to Combat the Coronavirus \(COVID-19\)](#), which is updated by FOPH when evidence emerges. According to this document, persons at high risk may not be involved in providing services at schools, higher education institutions and other education and training institutions. The first phase of measures to protect the public have been eased, but the advice still applies. Additional guidance issued to these vulnerable groups is listed in Table 1.

The [FOPH advises](#) that adults should only visit their parents if they need assistance that they cannot get elsewhere. Since 20 May, visiting old people's and nursing homes are now allowed in principle, but the rules are set at canton level (member

states of the Swiss Confederation).⁽⁴⁹⁾ As of 22 June, people at especially high risk can resume work.⁽⁵⁰⁾

On 11 May schools resumed in Switzerland and advice was issued to grandparents over the age of 65 or with an underlying medical condition, instructing them not to look after their grandchildren.⁽⁴⁹⁾ This advice has been updated to allow grandparents to look after grandchildren, except when either person is ill. They are advised, however, to keep their distance from the parents.

US, Centers for Disease Control and Prevention (CDC)

In the US, those aged 65 years and older are considered at high risk for severe illness from COVID-19. These people are being asked to stay at home if possible and maintain physical distancing when outside the home (6 feet).⁽⁵¹⁾ The groups listed below have also been identified as high risk,⁽⁵²⁾ but no guidance has been issued for these groups. An update on 2 April included additional conditions associated with being immunocompromised. As of 7 April, people who are pregnant are no longer listed as high risk, this was said 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'. On 5 May, additional information was provided for people with chronic liver disease, including hepatitis B and hepatitis C.

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. This is reported to be based on a review of the evidence available up to the 29 May.⁽⁵³⁾ People aged 65 or older were previously included as high risk, whereas now it is advised that risk increases with age but no specific cut off age point is provided. Underlying conditions are now listed in two risk groups - increased risk *or* might be at increased risk (see below). Severe asthma and some of the conditions previously listed that can cause immunocompromised states are no longer considered to belong to the increased risk category.

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

- Chronic kidney disease
- COPD (chronic obstructive pulmonary disease)
- Immunocompromised state (weakened immune system) from solid organ transplant
- Obesity (BMI of 30 or higher)
- Serious heart conditions, such as heart failure, coronary artery disease, or cardiomyopathies
- Sickle cell disease
- Type 2 diabetes mellitus
- Children who are medically complex, who have neurologic, genetic, metabolic conditions, or who have congenital heart disease.

People with the following conditions might be at an increased risk for severe illness from COVID-19:

- Asthma (moderate-to-severe)
- Cerebrovascular disease (affects blood vessels and blood supply to the brain)
- Cystic fibrosis
- Hypertension or high blood pressure
- Immunocompromised state (weakened immune system) from blood or bone marrow transplant, immune deficiencies, HIV, use of corticosteroids, or use of other immune weakening medicines
- Neurologic conditions, such as dementia
- Liver disease
- Pregnancy
- Pulmonary fibrosis (having damaged or scarred lung tissues)
- Smoking
- Thalassemia (a type of blood disorder)
- Type 1 diabetes mellitus.

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 they interact 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.

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.⁽⁵³⁾ 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 6 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 6 feet apart and attendees travel from outside the local area.

Conclusion

A variety of protective measures are being taken to protect vulnerable groups who are at a high risk of severe illness from COVID-19. These broadly involve social or 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 in Ireland and the UK.^(1, 5)

All 14 countries included in the review have published inclusion criteria for 'vulnerable groups'. Australia, Canada, Finland, Germany, New Zealand, Singapore, Sweden, Switzerland, US and Wales have a single grouping, while England, Northern

Ireland, Scotland and Norway distinguish between those considered at 'highest risk' and those at 'increased risk'.

In general, people who are considered vulnerable to more severe illness are those that are older aged, those with chronic conditions such as diabetes, high blood pressure and respiratory conditions and those in receipt of therapies that weaken the immune system. Some countries have published additional risk factors that increase risk, although these do not always require inclusion in the vulnerable group category. These risk factors include ethnicity, smoking, high BMI and pregnancy in conjunction with another condition.

Specific advice is provided by all countries for people who are vulnerable. This typically includes advice to stay at home, practice hand hygiene, physical distancing and avoid all 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 to not leave the house, while those that are a high risk could leave the house but were strongly advised to practice physical distancing and not to meet others. For Norway, the advice is further stratified according to local transmission levels, with higher restrictions in place where community case numbers are high.

As some countries have begun easing restrictions, the advice for people at higher risk has changed to include the choice to go outside and for some countries this has also included meeting people outside of their household, including physical contact with grandchildren.

As of 19 June, all four neighbouring countries of Ireland allow those who are shielding or cocooning to go outside and in specific situations to meet with people from other households.

Since 22 June, PHE announced further easing of shielding guidance from 6 July and 1 August, when it is expected that those who are extremely clinically vulnerable will no longer need to shield and can follow physical distancing measures instead. Northern Ireland has updated its guidance to align with PHE. FOPH, Switzerland has eased restrictions to allow people at high risk to resume work. The CDC has reorganised its classification of those considered to be at increased risk. This has resulted in a number of conditions, such as severe asthma and conditions associated with a weakened immune system, such as a blood or bone marrow transplant, immune deficiencies, HIV, use of corticosteroids, or use of other immune weakening medicines. Individuals with these conditions are no longer being considered at increased risk. Instead they are now in a lower risk group that *might be* at increased risk. This was based on a [review of the evidence](#) up to 29 May.

Although some of the measures may seem stringent, research by Ferguson et al.⁽⁵⁵⁾ in March 2020 suggested that physical distancing of the elderly and others most at risk of severe disease, in combination with home isolation of suspected cases and home quarantine of those living in the same household as suspected cases, could considerably reduce hospital demand and mortality.

Protective measures for vulnerable groups may also be in place in other settings that were not identified in this rapid review.

The findings from this rapid review were accurate as of 29 June 15.00 GMT; however, it is important to note that the protective measures identified above may change as the situation and response to COVID-19 evolves.

Table 1 Overview of protective measures for vulnerable groups from COVID-19 [UPDATED 29/06/2020 15.00 GMT]

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
Australia Guidance provided by: Department of Health	Protective self-separation	<p>The following chronic conditions are of concern in Aboriginal and Torres Strait Islander people over 50 years and non-Indigenous people over 65 years:</p> <ul style="list-style-type: none"> • Chronic renal failure • Coronary heart disease or congestive cardiac failure • Chronic lung disease (severe asthma, cystic fibrosis, bronchiectasis, suppurative lung disease, chronic obstructive pulmonary disease, chronic emphysema) • Poorly controlled diabetes • Poorly controlled hypertension. <p>Weakened immune system due to:</p> <ul style="list-style-type: none"> • haematologic neoplasms such as leukemias, lymphomas and myelodysplastic syndromes • Post-transplant, a solid organ transplant and on immunosuppressive therapy • Post-transplant, a haematopoietic stem cell transplant in the last 24 months or on treatment for graft versus host disease (GVHD) • primary or acquired immunodeficiency including HIV infection • chemotherapy or radiotherapy. <p>Taking any biological disease-modifying anti-rheumatic drug (bDMARD) or any of the following immunosuppressive drugs:</p> <ul style="list-style-type: none"> • Azathioprine, more than 3 mg per kg per day • 6-mercaptopurine, more than 1.5 mg per kg per day • Methotrexate, more than 0.4 mg per kg per week • High-dose corticosteroids (20 mg or more of prednisone per day or equivalent) for 14 days or more • Tacrolimus • Cyclosporine • Cyclophosphamide • Mycophenolate 	Stay home unless it's absolutely necessary to go outside.

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
		<ul style="list-style-type: none"> Any combination of these or other DMARDs 	
<p>Canada</p> <p>Guidance provided by: Government of Canada</p>	<p>Protective self-separation</p>	<ul style="list-style-type: none"> Older adults [age not specified] Those with chronic underlying medical conditions (such as high blood pressure, heart disease, lung disease, cancer or diabetes) Those who are immunocompromised as a result of a medical condition or treatment (e.g. chemotherapy). <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"> 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 Avoid crowds and large gatherings Avoid cruises and non-essential travel outside of Canada.
<p>England</p> <p>Guidance provided by: PHE</p>	<p>Shielding</p>	<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 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 	<p>Guidance is to stay at home as much as possible and shield until 6 July. It also advised that this is a personal choice. If for example, a person is terminally ill or has a prognosis of less than 6 months to live, or has some other special circumstances, that person may decide not to stay at home. Other advice includes:</p> <ul style="list-style-type: none"> If you wish to spend time outdoors (though not in other buildings, households, or enclosed

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
		<ul style="list-style-type: none"> • 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 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 • Women who are pregnant with significant heart disease, congenital or acquired. 	<p>spaces) you should take extra care to minimise contact with others by keeping 2 m apart.</p> <ul style="list-style-type: none"> • If you choose to spend time outdoors, this can be with members of your own household. If you live alone, you can spend time outdoors with one person from another household (ideally the same person each time). From 6 July, you can meet in a group of up to 6 people outdoors, including people from different households, while maintaining strict physical distancing. • You should stay alert when leaving home: washing your hands regularly, maintaining social distance and avoiding gatherings of any size. • You should not attend any gatherings, including gatherings of friends and families in private spaces, for example, parties, weddings and religious services. • You should strictly avoid contact with anyone who is displaying symptoms of COVID-19 (a new continuous cough, a high temperature, or a loss of, or change in, your sense of taste or smell). • From 6 July, you can form a 'support bubble' with one other household. All those in a support bubble will be able to spend time together inside each other's homes, including overnight, without needing to socially distance. <p>For people living a person who falls in this group:</p> <ul style="list-style-type: none"> • Minimise the time other people living with you spend in shared spaces, such as kitchens, bathrooms and sitting areas, and keep shared spaces well ventilated. • Keep 2m away from people you live with and encourage them to sleep in a different bed where possible. If you can, use a separate

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
			<p>bathroom from the rest of the household. Use separate towels from the other people in your house, both for drying themselves after bathing or showering and for hand hygiene purposes. From 6 July, you no longer need to observe physical distancing with other members of your household.</p> <ul style="list-style-type: none"> • If you share a toilet and bathroom with others, they should be cleaned every time after use (for example, wiping surfaces you have come into contact with). Consider drawing up a rota for bathing, with you using the facilities first. • If you share a kitchen with others, avoid using it while they're present. If you can, take your meals back to your room to eat. If you have one, use a dishwasher to clean and dry the family's used crockery and cutlery. If this is not possible, wash them using your usual washing-up liquid and warm water and dry them thoroughly. If you are using your own utensils, use a separate tea towel for drying these. • Everyone in your household should regularly wash their hands, avoid touching their face and clean frequently touched surfaces.
<p>England</p> <p>Guidance provided by: PHE</p>	<p>Social distancing</p>	<ul style="list-style-type: none"> • Aged 70 or older (regardless of medical conditions) • Under 70 with an underlying health condition listed below (that is, anyone instructed to avail of influenza vaccination each year on medical grounds): <ul style="list-style-type: none"> ○ Chronic (long-term) mild to moderate respiratory diseases, such as asthma, COPD, emphysema or bronchitis ○ Chronic heart disease, such as heart failure ○ Chronic kidney disease 	<ul style="list-style-type: none"> • Stay at home as much as possible and, if you do go out, minimise contact with others outside your household or support bubble. • Avoid contact with someone who is displaying symptoms of COVID-19. These symptoms include high temperature and or new and continuous cough. • Avoid non-essential use of public transport when possible. • Work from home, where possible.

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
		<ul style="list-style-type: none"> ○ Chronic liver disease, such as hepatitis ○ Chronic neurological conditions, such as Parkinson’s disease, motor neurone disease, multiple sclerosis (MS) or cerebral palsy ○ Diabetes ○ A weakened immune system as the result of certain conditions, treatments like chemotherapy, or medicines such as steroid tablets ○ Being seriously overweight (BMI of 40 or above). ● Those who are pregnant. 	<ul style="list-style-type: none"> ● Avoid large and small gatherings in public spaces, noting that pubs, restaurants, leisure centres and similar venues are currently shut as infections spread easily in closed spaces where people gather together. ● Avoid gatherings with friends and family. Keep in touch using remote technology such as phone, internet, and social media. ● Use telephone or online services to contact your GP or other essential services. <p>Those who want to go out to help a vulnerable person, can do so unless they have coronavirus symptoms, however mild and whenever possible to ensure social distancing and hand hygiene is maintained.</p>
<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 ● 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>	<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 and in risk groups have been urged to consider the potential risk of infection via their other contacts. <p>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

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
			<p>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> <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 50–60 years) • Very obese • Smokers • People with certain medical conditions: <ul style="list-style-type: none"> ○ of the cardiovascular system (e.g. coronary heart disease and high blood pressure) ○ chronic diseases of the lungs (e.g. COPD) ○ Patients with chronic liver disease) ○ Patients with diabetes mellitus ○ Patients with cancer. <p>Patients with a weakened immune system (e.g. due to a disease that is associated with an immunodeficiency or by taking medication that can influence and reduce the immune defence, such as cortisone, on a regular basis).</p>	<ul style="list-style-type: none"> • Stay at home wherever possible • Have family or neighbours take care of supplies • Reduce personal contact to the bare minimum and, if you do have to see people, keep your distance (1.5 metres) • It is also recommended to wear a mask in public spaces.
<p>Ireland</p> <p>Guidance provided by: Health Protection Surveillance Centre and</p>	<p>‘Cocooning’</p>	<ul style="list-style-type: none"> • People aged ≥ 70 years • 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 	<p>If you choose to go for outside for exercise you should:</p> <ul style="list-style-type: none"> • strictly adhere to 2m social distancing measures • avoid close face-to-face contact • avoid touching people or surfaces • wash your hands on returning home

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
Department of Health		<ul style="list-style-type: none"> ○ 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 cystic fibrosis, severe asthma, pulmonary fibrosis/ lung fibrosis/ interstitial lung disease and severe COPD ● 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. 	<p>If you choose to go for a drive, you should adhere to the following measures:</p> <ul style="list-style-type: none"> ● don't share the journey with anyone who is not cocooning with you ● strictly adhere to the 2m social distancing measures when out ● wash your hands on returning home <p>The use of public transport is to be avoided if possible, should only be used in non-peak times and where a physical distance of 2m can be maintained. Face coverings should be used, and wash your hands on returning home.</p> <p>If you need to attend essential services for example healthcare appointments and have no other means of attending other than getting a taxi, the following measures can be taken to minimise risk of spread:</p> <ul style="list-style-type: none"> ● indicate to the driver in advance that you are cocooning ● maintain strict hand hygiene ● the use of face coverings for both passenger and driver ● keeping as much distance as is practical <p>If you choose to go shopping, it is best to adhere to the following measures:</p> <ul style="list-style-type: none"> ● attend shops that provide dedicated hours for those who are cocooning which will enable you to do your shopping in a safer way ● ideally wear a face covering ● strictly adhere to the 2m social distancing measures when out

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
			<ul style="list-style-type: none"> • wash your hands on returning home. <p>You can also have a small number of visitors to your home (outdoors as much as possible), ideally from a core group of family or friend who are aware of your circumstances and willing to adhere to protective measures while you cocoon. In addition, visitors must not visit you if they are unwell, should keep at least 2m away from you, wash their hands with soap and water for at least 20 seconds on arrival to your house and should wear face coverings.</p> <p>If you choose to visit other people’s homes, tell them in advance that you are coming, make sure that no one in the household is unwell with COVID-19, ideally wear a face covering, strictly adhere to the 2m social distancing measures and wash your hands on returning home. Make the visits outdoors as much as possible.</p> <p>You may also attend a funeral of a close relative or friend, but as with any gathering of people, it is important that you maintain strict physical distancing, strictly adhere to 2m social distancing measures, wear a face covering, avoid close face-to-face contact, avoid touching people and wash your hands on returning home.</p> <p>In general, group activities or group sports should be avoided at this time.</p> <p>Those who are working remotely should continue to do so and only return to the workplace if appropriate safety measures are in place.</p>

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
<p>New Zealand Guidance provided by Ministry of Health and Government of New Zealand</p>	<p>None</p>	<ul style="list-style-type: none"> • People over 70 • People with underlying medical conditions such as: <ul style="list-style-type: none"> ○ serious respiratory disease such as chronic lung disease or moderate to severe asthma ○ serious heart conditions ○ immunocompromised conditions* ○ severe obesity — a BMI of 40 or higher ○ diabetes ○ chronic kidney disease ○ people undergoing dialysis ○ liver disease. <p>*Many conditions can cause a person to be immunocompromised, including:</p> <ul style="list-style-type: none"> ○ cancer treatment ○ smoking related illness ○ bone marrow or organ transplantation ○ haematologic neoplasms ○ immune deficiencies ○ poorly controlled HIV or AIDS ○ prolonged use of corticosteroids and other immune weakening medications such as disease-modifying anti-rheumatic drugs ○ people in aged care facilities (updated 15 May). <ul style="list-style-type: none"> • Other factors contributing to risk <ul style="list-style-type: none"> ○ ethnicity ○ smoking ○ obesity (BMI of 40 or higher) ○ pregnancy (pregnant women in their 3rd trimester). 	<p>At Level 1:</p> <ul style="list-style-type: none"> ▪ Stay vigilant when out and about ▪ Maintain physical distance from others if you possible ▪ Keep up good hygiene practices
<p>Northern Ireland Guidance provided by:</p>	<p>Shielding</p>	<p>Extremely vulnerable people:</p> <ul style="list-style-type: none"> • Solid organ transplant recipients • People with specific cancers: <ul style="list-style-type: none"> • People with cancer and are undergoing active chemotherapy 	<p>Those that are shielding are directed to the PHE website for advice.</p> <p>Allowed to go outside with members of their household or if they live alone can meet one other</p>

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
Public Health Agency and Government of Northern Ireland (NI Direct)		<ul style="list-style-type: none"> • 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 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 with Motor Neurone Disease • People undergoing renal dialysis • People who have had a splenectomy. <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. 	<p>person from a different household and preferably the same person each time.</p> <p>When outside:</p> <ul style="list-style-type: none"> ▪ should take extra care to minimise contact with others by keeping 2 m apart, when spending time outdoors (i.e. not in other buildings, households or enclosed spaces). ▪ should remain with members of your own household. If you live alone, you can spend time outdoors with one person from another household (ideally the same person each time). ▪ should remain vigilant when leaving home: washing your hands regularly, maintaining social distance and avoiding gatherings of any size. ▪ should not attend any gatherings, including gatherings of friends and families in private spaces, for example, parties, weddings and religious services. ▪ should strictly avoid contact with anyone who is displaying symptoms of COVID-19 (a new continuous cough, a high temperature, or a loss of, or change in, sense of taste or smell).

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		<ul style="list-style-type: none"> 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>	<p>Self-isolate</p>	<p>Vulnerable groups</p> <ul style="list-style-type: none"> Over the age of 70 Under 70 with an underlying health condition listed below: <ul style="list-style-type: none"> Chronic (long-term) mild to moderate 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, 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 (BMI of 40 or above). Those who are pregnant. 	<ul style="list-style-type: none"> Everyone should be staying at home and following social distancing measures. Older people and vulnerable people, including those with underlying health conditions and pregnant women should be particularly strict when following them.
<p>Norway</p> <p>Guidance provided by: Norwegian Institute of Public Health</p>	<p>Protective self-separation</p>	<p>People at moderate (clinically vulnerable) / high risk (clinically extremely vulnerable):</p> <ul style="list-style-type: none"> Over 80 years of age Residents of nursing homes Age 66–80 years with 1 of the following chronic diseases, OR age 50–65 years with 2 or more of the following chronic diseases: <ul style="list-style-type: none"> cardiovascular disease (other than well-regulated high blood pressure) morbid obesity (BMI ≥ 30 kg/m² in combination with weight-related diseases or BMI ≥ 40 kg/m²) diabetes chronic kidney disease and kidney failure chronic lung disease (other than well-regulated asthma) 	<p>Advice for people in this group depends on whether transmission is low or widespread in their communities.</p> <p>Low-level spread (current situation):</p> <p><i>Increase social distancing</i></p> <p>You can be with your closest circle as normal, and travel and socialise with others as long as:</p> <ul style="list-style-type: none"> You and your closest circle are particularly careful to follow general advice, keeping a safe distance and follow good hand hygiene and cough etiquette. You limit your number of close contacts.

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
		<ul style="list-style-type: none"> ○ chronic liver disease ○ in immunosuppressive therapy such as chemotherapy, radiation therapy and immunosuppressive therapy in autoimmune diseases. ● Severe health condition, regardless of age*: <ul style="list-style-type: none"> ○ people with active cancer, ongoing or recently discontinued treatment for cancer (especially immunosuppressive therapy, radiation therapy to the lungs or chemotherapy). Leukaemia has a higher risk than other types of cancer ○ neurological or muscular disease with impaired coughing strength or lung function (e.g. ALS) ○ congenital immunodeficiency in an unstable phase that carries the risk of severe respiratory tract infections ○ blood disorders that include cells or organs that are important for the immune system ○ bone marrow transplant or organ transplant ○ HIV infection with low CD4 counts ○ significant renal impairment or significantly impaired liver function ○ other, assessed by a physician. <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>	<ul style="list-style-type: none"> ● You avoid crowded places (e.g. public transport, shopping malls) or only go to such places when they are less busy. <p>Workplace planning and adjustment may be appropriate.</p> <p>Widespread transmission or outbreaks in your community:</p> <p><i>Social shielding</i> To avoid infection, you should withdraw during this period. You can go outside and maintain normal contact with your closest circle as long if you follow the advice in the yellow box and in addition:</p> <ul style="list-style-type: none"> ● Keep a greater distance from others (preferably 2m) than your closest circle. ● Ask others to help you with necessary purchases. ● Your closest circle should also limit their social contact. If not, you should keep a safe distance to them. If this is not possible, it might be necessary to consider other temporary housing arrangements. <p>If workplace adjustment or remote working is impossible, sick leave should be considered.</p>
<p>Norway</p> <p>Guidance provided by: Norwegian Institute of Public Health</p>	<p>Protective self-separation</p>	<p>People at slightly increased risk:</p> <ul style="list-style-type: none"> ● age 65–80 years (especially over 70) ● 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) ○ morbid obesity (BMI \geq 30 kg/m²) in combination with weight-related diseases or BMI \geq 40 kg/m²) ○ diabetes 	<p>Advice for people in this group depends on whether transmission is low or widespread in their communities.</p> <p>Low-level spread (current situation):</p> <p><i>Live like others</i></p>

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
		<ul style="list-style-type: none"> ○ chronic kidney disease and kidney failure ○ chronic lung disease (other than well-regulated asthma) ○ 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>	<p>You can generally live like the rest of the population, travel, work and attend events, but be particularly careful to follow the general advice:</p> <ul style="list-style-type: none"> ● Keep the recommended distance to people, apart from your closest family and friends ● Remember hand hygiene and cough etiquette ● Stay home when you are ill ● Avoid being with people who are sick. <p>Consider whether you will be able to follow these measures before travelling or participating in social activities.</p> <p>Widespread transmission or outbreaks in your community:</p> <p><i>Increase social distancing</i></p> <p>You can be in normal contact with your closest circle, and travel and socialise with others as long as:</p> <p>You and your closest circle are particularly careful to follow general advice, keeping a safe distance and follow good hand hygiene and cough etiquette.</p> <ul style="list-style-type: none"> ● You limit your number of close contacts ● You avoid crowded places (e.g. public transport, shopping malls) or only go to such places when they are less busy. <p>Workplace planning and adjustment may be appropriate.</p>
<p>Scotland</p> <p>Guidance provided by:</p>	<p>'Shielding'</p>	<p>Highest risk group:</p> <ul style="list-style-type: none"> ● Solid organ transplant recipients. <ul style="list-style-type: none"> ○ Includes people who have had a transplant of heart, lung, stomach or other part of intestine, liver and kidney. <p>People will be in this group because they need to take</p>	<p>At home:</p> <ul style="list-style-type: none"> ● Keep 2 m (3 steps) apart from everyone as much as possible, even those you live with ● Stay at home, as much as possible – you can go into a private garden or sit on your doorstep

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
Health Protection Scotland and Scottish Government		<p>medications to prevent rejection of the transplanted organ.</p> <ul style="list-style-type: none"> • People with specific cancers: <ul style="list-style-type: none"> ○ People with cancer who are undergoing active chemotherapy or have had radical radiotherapy specific 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. • People with severe respiratory conditions including all cystic fibrosis, severe asthma and severe COPD, severe bronchiectasis and pulmonary hypertension: <ul style="list-style-type: none"> ○ All patients with cystic fibrosis ○ Severe asthma means being on regular inhalers AND long term steroid tablets, e.g. prednisolone, OR regular injections to control your asthma ○ Severe COPD- means being too breathless to walk 100 yards, having 2 or more lung infections per year or requiring oxygen to help with your breathing. Usually on several different inhaler medications that include 2 long acting preventers (Long Acting Beta Agonists and Long Acting Anti-Muscarinic Antagonists) in the last year, and a steroid inhaler ○ On home oxygen for your lung condition. • People with rare diseases including all forms of interstitial lung disease/sarcoidosis and inborn errors of metabolism 	<ul style="list-style-type: none"> • Only leave your home to exercise or to meet with people from another household in small groups outdoors – this does not apply if you live in a residential care or nursing home • Keep in touch with family and friends using technology such as phone, Internet, and social media • Do not go out for shopping or to pick up prescription medication – arrange for these to be delivered by someone you know, using supermarket deliveries or by your local authority. <p>Outside:</p> <ul style="list-style-type: none"> • Do whatever level of physical activity feels comfortable for you • Go for a run, wheel, walk or cycle as much as you want • Can also take part in a non-contact sport or activity, such as golf, hiking, canoeing, outdoor swimming, fishing etc. • Stay close to home (broadly within 5 miles) so you do not have to use a toilet that is not your own • Do not go in a car with people you do not live with. • Meeting family and friends from another household: <ul style="list-style-type: none"> • Only do this outdoors, including in gardens • Keep 2 m (3 steps) away from other people • Try to avoid meeting with people from more than one other household on the same day • Only meet with people in small groups of no more than 8 people at once • We do not advise going inside buildings other than your home.

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
		<p>that significantly increase the risk of infections (such as SCID, homozygous sickle cell disease)</p> <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. ○ Your clinician will know if you should be in the highest risk group and will make sure that you are added. If you are added to this group you will receive a letter telling you what to do. ● People on immunosuppression therapies sufficient to significantly increase risk of infection or who have had their spleens removed: <ul style="list-style-type: none"> ○ Patients on high dose corticosteroids (equivalent to Prednisolone 20mg or more) for 4 weeks or more ○ Patients on specific single therapies, for example Cyclophosphamide, however, clinical judgement is needed to determine if medications would indicate highest risk. ○ Patients on lower dose of corticosteroids (equivalent to Prednisolone 5mg per day for 4 weeks or more), in combination with other disease modifying medication ○ Patients on several different disease modifying medications taking into account their other chronic medical conditions (Patients on a single Disease Modifying medications (DMARD) or Biologic such as Methotrexate, Azathioprine, Ciclosporin, Leflunomide plus others, would not be considered automatically in the highest risk group if they are otherwise healthy, but should be decided by a specialist or GP if not sure). ● People who are pregnant with significant heart disease, congenital or acquired ● People who are receiving renal dialysis treatment. 	<ul style="list-style-type: none"> ● If you think there is a chance you may not be able to maintain physical distancing, you may want to wear a face covering.
Scotland	Social distancing	High risk group:	<ul style="list-style-type: none"> ● Stay at home as much as possible ● Only go outside for limited purposes

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
<p>Guidance provided by: Health Protection Scotland and Scottish Government</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 • 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) 	<ul style="list-style-type: none"> • Can meet with up to 2 households outside (8 person overall limit) • Can use toilets indoors while visiting the outdoors of another household • Stay 2 m (6 feet) away from other people
<p>Singapore</p> <p>Guidance provided by: Ministry of Health and Government of Singapore</p>	<p>Protective self-separation</p>	<ul style="list-style-type: none"> ▪ Persons who are aged 60 and above ▪ Patients who are immunocompromised or have concurrent medical conditions such as obesity (BMI > 31), hypertension, diabetes, chronic heart and lung diseases, kidney diseases on dialysis, hypercoagulable states, cancer, or patients on drugs that cause immunosuppression. 	<ul style="list-style-type: none"> • Avoid social gatherings and crowded places as far as possible, and to only go out for essential purposes (e.g. work, purchase food and supplies) • Families may also visit their parents or grandparents, capped at 2 persons per household per day • Grandparents can provide childcare on a daily basis but physical distance to parents must be maintained • Face shields may be worn for people who have health conditions that may result in breathing or other medical difficulties when a mask is worn

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
<p>Sweden</p> <p>Guidance provided by: The Public Health Agency of Sweden</p>	<p>Social distancing</p>	<p>Older age combined with pre-existing medical conditions such as:</p> <ul style="list-style-type: none"> • High blood pressure • Cardiovascular disease • Pulmonary disease • Diabetes. <p>People with asthma, allergies, or kidney disease may have a higher risk of severe illness, but the evidence is unclear.</p> <p>Any condition that makes a person vulnerable to an infectious diseases. For example, problems with the immune system, people should seek advice from their doctor about how to manage their condition and how to decrease the risks associated with COVID-19.</p> <p>According to a report published on 20 April by the Swedish National Board of Health and Welfare ("Socialstyrelsen"), people that are most at risk are those:</p> <ul style="list-style-type: none"> • Advanced age, 70 years and older • Obesity, with a BMI over 40 • Cancer or with ongoing or recently completed cancer treatment • Neuromuscular disorders such as Parkinson's, MS or ALS with involved muscular functioning • Intellectual impairment and disability (multifunctional impairment) • At least 2 of the following: cardiovascular disease (angina, heart failure, stroke), hypertension, diabetes with complications, chronic kidney disease and kidney failure, chronic lung disease (other than asthma) and chronic liver disease. • People with immunodeficiency diseases, diseases, or residual conditions after diseases that seriously affect certain organ 	<p>for a prolonged period of time. For all others, face masks must be worn.</p> <ul style="list-style-type: none"> • Limit their physical close contact with others and completely avoid public transportation. • Avoid travelling by bus, tram or subway, shopping in supermarkets, or visiting venues where many people gather at any one time. Instead, ask friends, family or neighbours to do your shopping etc. • While remaining at home, you may still go out for walks.

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
		<p>functions, spinal cord injury with a need for continuous respiratory support, as well as treatment that may impair the body's defence against viral infections.</p> <ul style="list-style-type: none"> The combination of several risk factors increases the risk further. 	
<p>Switzerland</p> <p>Guidance provided by: Federal Office of Public Health</p>	<p>Protective self-separation</p>	<ul style="list-style-type: none"> Those over the age of 65 Those who have one of the following conditions in particular: <ul style="list-style-type: none"> High blood pressure Diabetes Cardiovascular disease Chronic respiratory diseases Conditions and therapies that weaken the immune system. Cancer Severe obesity (BMI of 40 or over). <p>An additional list is provided in the COVID ordinance 2 document:</p> <p>High blood pressure (hypertension):</p> <ul style="list-style-type: none"> Arterial hypertension with end-organ damage Therapy-resistant arterial hypertension <p>Cardio-vascular diseases:</p> <p><i>General criteria:</i></p> <ul style="list-style-type: none"> Patients with dyspnea of functional class NYHA ≥ II and NT per BNP > 125 pg/ml Patients with 2 cardiovascular 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><i>Other criteria:</i></p> <p>Coronary heart disease:</p> <ul style="list-style-type: none"> Myocardial infarction (STEMI and NSTEMI) in the past 12 months 	<ul style="list-style-type: none"> stay at home avoid gatherings have a friend or neighbour do the shopping for you and leave it outside the door adults should only visit their parents if they need assistance that they can't get elsewhere although the Federal government permits visits to care homes for the elderly in principle, it is a matter for the cantons to set the rule. grandparents over 65 years or with an underlying medical condition are allowed to look after grandchildren, except when either person is ill, but are advised to keep a distance from parents. work can resume.

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		<ul style="list-style-type: none"> ○ Symptomatic chronic coronary syndrome despite medical treatment (irrespective of any prior revascularisation) Disease of the heart valves: <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 on general criteria Cardiac insufficiency: <ul style="list-style-type: none"> ○ Patient with 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 Arrhythmia: <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 Adults with congenital heart disease <ul style="list-style-type: none"> ○ Congenital heart disease according to the individual assessment of the attending cardiologist Chronic respiratory diseases: <ul style="list-style-type: none"> ● Chronic obstructive lung diseases GOLD Grade II-IV ● Pulmonary emphysema ● Unmanaged asthma, in particular serious bronchial asthma ● Interstitial lung diseases ● Active lung cancer ● Pulmonary arterial hypertension ● Pulmonary vascular disease ● Active sarcoidosis ● Cystic fibrosis 	

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		<ul style="list-style-type: none"> • Chronic lung infections (atypical mycobacteriosis, bronchiectasis, etc.) • Ventilated patients <p>Diabetes:</p> <ul style="list-style-type: none"> ○ Diabetes mellitus, with long-term complications or a HbA1c von > 8% <p>Diseases/Therapies that weaken the immune system:</p> <ul style="list-style-type: none"> ○ Serious immunosuppression (e.g. CD4+ < 200µl) ○ Neutropenia ≥1 week ○ Lymphocytopenia <0.2x10⁹/L ○ Hereditary immunodeficiencies ○ Use of medication that suppresses the immune defences (such as long-term use of glucocorticoids, monoclonal antibodies, cytostatics, etc.) ○ Aggressive lymphomas (all entities) ○ Acute lymphatic leukaemia ○ 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) ○ Aplastic anaemia undergoing immunosuppressive treatment ○ Chronic lymphatic leukaemia ○ Asplenia / splenectomy ○ Multiple myeloma ○ Sickle-cell disease <p>Cancer:</p> <ul style="list-style-type: none"> • Cancer undergoing medical treatment <p>Obesity:</p> <ul style="list-style-type: none"> • Patients with a body-mass index (BMI) of 40 kg/m² or more 	

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
United States Guidance provided by: Center for Disease Control	Protective self-separation	<p>At increased risk:</p> <ul style="list-style-type: none"> • Older adults (no specific age) • People with underlying medical conditions: <ul style="list-style-type: none"> ○ Chronic kidney disease ○ COPD ○ Immunocompromised state (weakened immune system) from solid organ transplant ○ Obesity (BMI of 30 or higher) ○ Serious heart conditions, such as heart failure, coronary artery disease, or cardiomyopathies ○ Sickle cell disease ○ Type 2 diabetes mellitus ○ Children who are medically complex, who have neurologic, genetic, metabolic conditions, or who have congenital heart disease. <p>Might be at an increased risk:</p> <ul style="list-style-type: none"> ▪ Asthma (moderate-to-severe) ▪ Cerebrovascular disease (affects blood vessels and blood supply to the brain) ▪ Cystic fibrosis ▪ Hypertension or high blood pressure ▪ Immunocompromised state from blood or bone marrow transplant, immune deficiencies, HIV, use of corticosteroids, or use of other immune weakening medicines ▪ Neurologic conditions, such as dementia ▪ Liver disease ▪ Pregnancy ▪ Pulmonary fibrosis (having damaged or scarred lung tissues) ▪ Smoking ▪ Thalassemia (a type of blood disorder) ▪ Type 1 diabetes mellitus 	<p>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> <p>No specific advice is given for those that might be at an increased risk.</p>
Wales	Shielding	<ul style="list-style-type: none"> • Solid organ transplant recipients • People with specific cancers: 	<p>Things <u>you should</u> be doing to stay safe</p> <ul style="list-style-type: none"> ▪ keep 2 m or 3 steps away from other people outside your home and within your home.

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
Guidance provided by: the Welsh Government		<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. ● People with severe respiratory conditions including all cystic fibrosis, severe asthma and severe 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 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. 	<ul style="list-style-type: none"> ▪ leave your home to undertake exercise if you want to. You can leave your home to exercise outside as many times as you want to but stay local and try to avoid busy places so you can keep 2 m or 3 steps away from other people. ▪ meet outside with people from another house locally if you want to but always keep 2 m or 3 steps away. ▪ regularly wash your hands with soap and water for 20 seconds. ▪ ask neighbours, friends and family to bring you food and medicine. ▪ contact your local supermarket for priority online shopping. ▪ keep in touch with people using the phone, Internet and social media. ▪ use telephone or online services to contact your GP, pharmacy or other day-to-day services. ▪ contact your local council if you have no one who can help you. <p>Things <u>you should not</u> be doing to stay safe</p> <ul style="list-style-type: none"> ▪ get close to anyone who is showing signs of coronavirus. This could be any or all of the following: high temperature (above 37.8 °C), a new and continuous cough, a loss of/or change to your sense of smell or taste. ▪ attend any gatherings indoors. This includes gatherings of friends and families – for example, in family homes or weddings and religious services. ▪ go out shopping. When arranging food deliveries, these should be left at the front door. ▪ go to your GP, pharmacy or hospital without phoning first. You should speak to your pharmacy about how you can get your medicine.

Country / setting	Protective measure	Vulnerable/high-risk groups	Specific advice
			<ul style="list-style-type: none">▪ go to your place of work if this is outside your home. You should only work if you can work from home.▪ go to school. You should learn from home. Children who are at high risk are advised not to attend school but should continue to learn from home.

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