Guidelines for persons at risk of severe COVID-19 infection

- These instructions are for individuals who could be at increased risk of serious illness if they become infected with the SARS-CoV-2 virus that causes COVID-19.
- Health care workers also need to be aware of this risk and:
  - Test for the virus if symptoms indicate disease.
  - Follow these individuals closely if infected because of risk of severe illness. Continuity of care and close follow up of underlying disease is also important to minimize risk.
- This document will be updated as needed and new information comes forward.

Hand washing – hand hygiene
Repeat each step of the hand washing procedure at least five times

1. Rub hands palm to palm
2. Rub right palm over left dorsum and vice versa
3. Rub thoroughly between all fingers
4. Rub fingertips and fingernails of both hands together thoroughly
5. Rub thumb of each hand thoroughly
6. Rub each palm thoroughly

Guidelines from the Chief Epidemiologist for Iceland, December 2020

25 May 2020
Index

1. Lifting of restrictions on social gatherings ................................................................. 3
2. Background .................................................................................................................. 3
3. Those who are at risk of serious illness ................................................................. 3
4. Those who are possibly at risk of serious illness ................................................... 4
5. What you can do to avoid infection ......................................................................... 4
6. Social distancing ..................................................................................................... 5
   6.1 Health care services ......................................................................................... 5
   6.2 Public transport ............................................................................................... 5
   6.3 Work/school ...................................................................................................... 5
   6.4 Social gatherings .............................................................................................. 5
   6.5 Leisure .............................................................................................................. 5
   6.6 Hair and beauty salons ................................................................................... 5
   6.7 Shops/errands ................................................................................................. 6
   6.8 Apartment buildings ...................................................................................... 6
   6.9 Houseguests ..................................................................................................... 6
   6.10 Outdoor activities .......................................................................................... 6
   6.11 Sports/fitness .................................................................................................. 6
   6.12 Support .......................................................................................................... 6
7. Details of vulnerable groups ................................................................................... 7
   7.1 Older people .................................................................................................... 7
   7.2 Heart disease ................................................................................................... 7
   7.3 Cancer ............................................................................................................... 8
   7.4 Chronic lung disease ...................................................................................... 8
   7.5 Impaired kidney function .............................................................................. 9
   7.6 Endocrine disorders ....................................................................................... 9
   7.7 Obesity ............................................................................................................ 10
   7.8 Immunodeficiency/organ recipients ............................................................. 11
   7.9 Immunodeficiency/autoimmune diseases .................................................... 11
   7.10 Chronic muscular and neurologic diseases ................................................. 12
   7.11 Pregnancy ....................................................................................................... 12
   7.12 Children .......................................................................................................... 12
8. Things to remember for all groups ........................................................................ 13
1. **Lifting of restrictions on social gatherings**
   - Many vulnerable people stayed at home in the beginning of the epidemic and in practicality were in self-quarantine. Now that spread of the virus is minimal in the community many people in these groups have gradually relaxed these measures.
   - The epidemic curve has declined and there is minimal transmission of the virus in society.
   - Individuals in at-risk groups should continue to be in contact with their primary care physician or specialist to discuss their risk of severe illness.
   - Those in vulnerable groups should continue to be cautious but at the same time increase their interactions with others. It is advised to continue to be careful and follow the situation closely.
     - People should continue basic hygiene and infection control with regular handwashing/use of hand sanitizer, adhere to 2-meter physical distancing as much as possible and avoid large gatherings.
     - Those that interact with vulnerable individuals are advised the same and to avoid any contact if they have symptoms consistent with COVID-19.
     - Further discussion follows, including on specific risk groups.

2. **Background**
   - COVID-19 is a new disease and information on risk factors are limited. Based on best knowledge specialists have defined conditions that could place individuals at risk for serious illness if they become infected.
   - How great this increase in risk is for particular individuals is not known. They need to assess their situation and review these guidelines with their doctor.
   - Individuals at risk of serious illness are in general not more likely to become infected and therefore the same general advice applies to vulnerable persons as other: **Handwashing/use of hand sanitizer, hygiene and to ensure 2-meter physical distancing as much as possible.**
   - Social distancing, avoiding close contact with others, is the most important addition for those at risk of serious illness. They should especially avoid large gatherings and not interact with people with symptoms that could be because of COVID-19 and keep a distance of 2 meters from others as much as possible.
     - Symptoms of COVID-19 include fever, cough, shortness of breath, cold symptoms, chills, lethargy, sore throat, sudden loss of smell and taste, sometimes gastrointestinal symptoms.

3. **Those who are at risk of serious illness**
   - **Older people**: After age 65–70 years the risk increases but it also depends on the person’s general condition and underlying problem.
   - **People with cardiovascular disease**: Hypertension, coronary artery disease, heart failure.
   - **People with cancer**: Recent or ongoing cancer treatment.
   - **People with chronic lung disease**: Emphysema.
   - **People with impaired kidney function**: Ondialysis.
4. **Those who are possibly at risk of serious illness**

- People with diabetes, type 1 or 2.
- People with obesity.
- People who are organ transplant recipients: Heart, lungs, kidney.

5. **What you can do to avoid infection**

The **mode of infection** is person-to-person by droplets or by touch. This means that the virus can be transmitted when an ill person coughs, sneezes or wipes their nose and the face of a healthy individual is exposed to the droplets or when their hands are contaminated somehow by the drops and they then touch their face. Transmission during a conversation or other types of interaction is less likely.

**Household members** of vulnerable persons must pay attention to their hygiene and conduct, both within and outside the home. It is very important to limit the likelihood of exposing those who are vulnerable. There may even be a reason for household members who continue to work and participate in activities outside the home to significantly limit their interactions with vulnerable persons and leave the home if they could be infected.

**General advice regarding hygiene and infection control:**

- **Washing of hands** with soap and water is the most effective way to prevent infection. Cleaning hands thoroughly with **alcohol-based solution** (hand sanitizer) is also recommended if hands are not visibly dirty, e.g. after touching door knobs and hand rails. It is important that cleaning of hands involves all areas of hands.

- Alcohol-based tissues (wipes) can be used to **wipe common surfaces** before touching them, such as door knobs, hand rails, elevator buttons and shopping carts.

- **Avoid close contact with ill individuals**, e.g. those with symptoms of common cold or cough.

- **Masks** can be useful, for example, if an ill individual needs to be out in public, when there is community transmission, to protect his/her surroundings against spreading of droplets from sneezing or coughing. Also, a vulnerable individual might choose to wear a mask to protect himself/herself in certain situations, e.g. in doctors’ waiting rooms. See [here](#) about sensible use of masks.

- Vulnerable individuals should avoid cleaning after others, especially outside the home, but they should use **disposable gloves** if they need to and wash their hands thoroughly after.

- Vulnerable individuals should follow a **healthy lifestyle** as much as possible: Good sleep habits, at least 7–8 hours per night, a healthy balanced diet, adequate level of physical activity and nurturing their mental health.
• **Avoid** the abuse of alcohol and tobacco. Excessive use of alcohol and tobacco can weaken the immune system in addition to negative effects on health and well-being in general.

If symptoms are noticed a local healthcare center should be contacted (preferably through [heilsuvera.is](http://heilsuvera.is) where there are options to send text messages or use online chat) or a private doctor familiar with the individual. The on-call service, Laeknavaktin, 1700 (+354 544-4113 for foreign numbers) should be called if needed. Call 112 in case of emergency.

6. **Social distancing**

6.1 **Health care services**. If health care services are needed it is advisable not to wait longer than necessary in the waiting room. Thorough handwashing is most important and a vulnerable individual could choose to wear a mask, if there is community transmission, especially if the 2-meter distancing rule cannot be adhered to. Clinics and health centers have guidelines regarding booking appointments for vulnerable individuals when there are fewer people in the waiting room and to use other measures to separate vulnerable individuals from ill persons in the reception area.

6.2 **Public transport**. It is preferable to use a private car or a taxi rather than public transport. If using public transport is used, 2 meter distancing should be adhered to as much as possible, do not touch surfaces unless needed and clean hands before and after the ride. If using a taxi, hands should be cleaned after entering the car, avoid touching anything inside the car unnecessarily and to clean hands again after the car door has been closed. Taxis have instructions on hygiene and infection control.

6.3 **Work/school**. At work and in school the 2-meter distancing rule should be adhered to as much as possible. Each individual must evaluate their risk, possibly in consultation with their doctor. In consultation with their employer or school authorities, vulnerable individuals could continue to work or study from home if possible.

6.4 **Social gatherings**. When community transmission is minimal gatherings that comply with rules of hygiene and the 2-meter distancing can be attended. Vulnerable people should be cautious when attending large gatherings whether work- or family-related or social. Most infections have occurred either in families or where many people gather for extended time such as in work places, restaurants and at large gatherings of some sort.

6.5 **Leisure**. The 2-meter distancing rule should preferably be adhered to when attending theatre, cinemas, shopping malls or other places where large numbers of people congregate.

6.6 **Hair and beauty salons**. Special caution should be taken in places, where many people come during the day even though there are few people there at any given time, such as barbershops, hair and beauty salons and the like. Employees in such
establishments are in close contact with numerous people each day and 2 meter distancing cannot be adhered to due to the nature of the interactions.

6.7 Shops/errands. If possible shopping items should be picked up, home-delivered and errands resolved by telephone or via the Internet but it may prove necessary to have next of kin undertake certain tasks. A letter of proxy may have to be issued, particularly for tasks involving pharmacies, banks or post offices.

If it is needed to fetch supplies or run errands in e.g. the pharmacy, supermarket, the post office or bank then ensure hygiene:

- Use personal grocery bags to collect goods or use gloves and/or wipe handlebars of shopping carts with disinfectant wipes.
- If self-checkout kiosks are used it is important to thoroughly clean hands after using such kiosks and possibly use disinfectant wipes to clean touch screens and buttons. It is not necessarily preferable that shop workers touch each item purchased unless utmost hygiene is observed.

6.8 Apartment buildings. Two meter physical distancing should be adhered to in shared spaces in apartment buildings, such as in stairwells, laundry rooms, shared gardens or outdoor recreational areas. General hygiene should be adhered to when taking out the trash or collecting the mail from the mailbox.

6.9 Houseguests. If a group of guests is being entertained in the home, 2 meter distancing should be adhered to as much as possible. Vulnerable individuals should show the same caution around small children as around adults. Other ways to spend time together is by sitting outside on the balcony or porch, spending time in the yard or going for a walk.

6.10 Outdoor activities. Good mental and physical health is important. Get fresh air by going out onto the balcony or to the yard. Go for walks or to the park if possible. The distance to other pedestrians should preferably be 1–2 meters. In addition, one can exercise within the home, under the guidance of a physiotherapist, if appropriate. Guidance on exercise routines can be obtained from the radio, television or the Internet. Indoor stairs can also be used for a variety of exercises.

6.11 Sports/fitness. Attending fitness centres or group gym classes where there is close physical proximity is not recommended unless there is strict hygiene and the 2 meter distancing respected as much as possible. At swimming pools utmost caution should be take, especially in the changing rooms and hot tubs, where many people can gather. Avoid touching common surfaces and follow the 2-meter distancing rule as much as possible. Baths in nature do not contain chlorinated water as in swimming pools and therefore special caution should be taken if those are used.

6.12 Support. The Red Cross help line at number 1717 or online chat at www.1717.is is open to everyone. There you can seek support, obtain information and discuss matters privately as needed. The help line is open 24 hours a day and free of charge.
7. Details of vulnerable groups

7.1 Older people
Older people, especially with underlying conditions, should follow general advice regarding hygiene and infection control, as above, as well as social distancing and caution in interactions with others.

Age. The risk of serious COVID-19 illness increases after age 65–70 years. The literature is not consistent regarding the risk of age per se but many of the conditions that increase the risk of serious illness are also common in the elderly.

Though older people have an impaired immune system and develop serious infections pre-existing conditions and how they are treated is more relevant than the person’s chronological age. Older people that are frail or that have disabilities are at increased risk.

Underlying conditions. Most older people have one or more pre-existing condition. Research is still limited regarding the association of multiple underlying conditions and serious COVID-19 illness though a correlation seems likely.

Follow up and continuity of care as well as compliance with treatment is especially important in preventing disease. Notably, older people and the frail can present with infections in an atypical manner.

Social isolation and quarantine. The importance of hygiene and infection control is established. Many older people with multiple underlying conditions and frailty have isolated themselves in their homes due to the pandemic. These individuals are at risk of various setbacks due to their pre-existing conditions. Therefore it is vital to attend to one's mental and physical health.

Nursing homes. Only a few individuals have been diagnosed with COVID-19 in nursing homes in Iceland. Nursing homes and elderly day centres have specific guidelines regarding procedures and response depending on level of transmission in society.

7.2 Heart disease
Individuals with cardiovascular disease are considered at risk of serious illness from COVID-19.

Hypertension has emerged as a risk factor for serious illness. Whether it is the disease itself or its treatment (ACE inhibitors/ARBs) is not certain. It is important to continue to take your medications as prescribed.

Coronary artery disease and heart failure increase the risk of serious illness as well the common risk factors of heart disease, diabetes and obesity.

Treatment and follow up. Outpatient clinics had to change their procedures during the epidemic. Only necessary visits were allowed but telemedicine and phone calls were used for routine follow up. Clinic visits now operate with special precaution.
Investigations such as cardiac echo, Holter monitoring and coronary catheterization are also conducted with similar caution.

7.3 Cancer
Cancer patients on chemotherapy or that have recently finished treatment (within 6 months) are at risk of serious illness from COVID-19.

- Many are immunocompromised because of their malignant disease and/or chemotherapy.
- Some viruses can cause serious illness in this patient population. Research on COVID-19 and cancer are limited. The research does not support that cancer patients are more susceptible to infection although they do support the risk of more serious illness when infected.
- If an individual contracts COVID-19 while on chemotherapy the chemotherapy has to be postponed.

**Cancer patients with the following are most at risk:**

- Lung cancer on chemotherapy or that have recently completed treatment.
- Blood and bone marrow cancer such as leukemia, lymphoma and multiple myeloma.
- Monoclonal antibody treatment.
- Biological therapies.
- Immunosuppressive treatment or bone marrow transplant within the last 6 months.

Individuals with history of treatable cancer that are only on preventive hormonal therapy that in general does not affect their immune system have **less risk**.

Malignant diseases and their therapy varies and therefore these guidelines might need to be adjusted for each individual.

For more information see the website of the [Icelandic Cancer Society](#).

7.4 Chronic lung disease
To control symptoms of emphysema and asthma it is important to continue maintenance therapy as prescribed and to know how to respond if symptoms worsen.

**Emphysema.** Individuals with emphysema are **at risk** of serious illness if they contract COVID-19 infection.

**Asthma** is **not** considered a risk factor for serious illness. Individuals with well controlled asthma are therefore not considered a vulnerable group.

- This applies to those with mild asthma that use medications on as needed basis.
- This also applies to moderate or severe asthma with minimal symptoms on maintenance therapy.

**Smoking.** The available data is conflicting whether smoking is a risk factor for serious illness from COVID-19. Cessation of smoking is however important due to smokers’ risk of various diseases and death.
E-cigarette use. No research is available on COVID-19 infection and vaping but e-cigarette use may cause inflammation in the airways and lungs.

7.5 Impaired kidney function
Chronic kidney disease is a risk factor for severe COVID-19 illness if kidney function is markedly impaired.

Increased risk applies especially to patients on dialysis due to end-stage kidney disease, but this patient population commonly also has other underlying conditions, such as:

- Advanced age
- Diabetes
- Cardiovascular disease

Kidney transplant recipients are at increased risk, particularly when the function of the kidney graft is decreased. These patients often have other underlying conditions (as above for dialysis).

7.6 Endocrine disorders

Diabetes
The current data does not support that individuals with type 1 or 2 diabetes are more susceptible to COVID-19 infection.

However, hygiene and infection control is essential as individuals with type 1 and type 2 diabetes are at increased risk of severe illness if infected with COVID-19.

Recent research from the UK showed increased mortality in COVID-19 for individuals with diabetes, both type 1 and 2. This was mainly significant for those without good blood glucose control before the illness, for individuals with obesity or underlying conditions such as heart disease or impaired kidney function. As expected, older individuals also had worse outcomes.

Therefore it is vital for individuals with diabetes (type 1 and 2) to be well informed of their situation and to know how to react in case of illness.

Notably most individuals with type 2 diabetes are overweight or obese, many have hypertension and complications are common in both types of diabetes (cardiovascular disease, impaired kidney function etc.).

Good blood glucose control is not easy to maintain and preventive measures would therefore include continuity of care and close follow up with a health care provider. This includes getting an evaluation and advice about uncertain situations. Heilsuvera.is is a useful place to contact your primary care provider.

Younger individuals with type 1 or 2 diabetes, good blood glucose control, normal weight and no complications are not at increased risk of severe COVID-19 illness.

One of the main issues for individuals with type 1 diabetes is ketoacidosis (DKA) and therefore it is important to be aware of the symptoms of DKA. Good blood glucose control is essential as well as to know how to check for ketones in the blood or urine. Individuals with type 1 diabetes should never stop taking insulin and in case of illness the dose usually needs to be increased even if intake is decreased.
Recent instructions „Verklag í veikindum“ from the University Hospital Landspítali Endocrine Department are posted on their website and on Facebook. They also post videos on those topics (also on YouTube) and your health care provider can also provide education on these matters. Therefore:

- Be aware of your situation and your goals
- Aim for good blood glucose control
- Know how to react in case of illness („Verklag í veikindum“)

See also the website of the International Diabetes Federation.

Other endocrine disorders
Information on COVID-19 and other endocrine disorders is limited but individuals with glucocorticoid deficiency (primary or secondary adrenal insufficiency) is a group that could develop severe infection. Currently there is no indication that there is more risk with COVID-19 than other illnesses.

- It is important that hormonal supplements are adequate if an illness occurs but also that the patient knows how to react and adjust supplements at onset of symptoms.
- These instructions can be found on the website of the University Hospital Landspítali Endocrine Department. Guidelines are thus as for type 1 diabetes.

7.7 Obesity
Obesity is a disease with increased risk of serious illness from COVID-19. Research has shown that obesity is a significant risk factor for hospital admission for COVID-19 as well as need for ventilator management, especially for those with BMI>35 kg/m².

The reason for severe COVID-19 illness for people with obesity is not known but possibilities include:

- The effect of obesity on lung function but abdominal obesity (socalled central obesity) impairs breathing, especially when laying down.
- The effects of the metabolic syndrome associated with obesity, with insulin resistance and other metabolic complications.
- The chronic inflammation associated with obesity could increase severity of disease when infected.
- Many individuals with obesity have hypertension or type 2 diabetes.

Individuals with obesity should therefore exercise caution in interaction with others and at social gatherings and continue strict hygiene and general infection control as outlined in this document.

See poster from The European Association for the Study of Obesity (EASO).
7.8 Immunodeficiency/organ recipients

Solid organ recipients (heart, lungs, kidney) are at increased risk of severe illness from COVID-19. They should adhere to guidelines about hygiene and general infection control as well as social distancing, or avoiding close contact with others, in discussion with their health care provider.

7.9 Immunodeficiency/autoimmune diseases

The current literature does not support that individuals on immunosuppressive therapy are more susceptible to COVID-19 infection or that they are at risk of severe illness when infected. Guidelines regarding hygiene and infection control are the same as for the general public.

On the other hand individuals with severely compromised immune status, e.g. due to biologic therapy, with or without disease-modifying anti-rheumatic drugs (DMARD), high dose steroids or other at-risk underlying conditions (see above) are possibly at risk of severe illness from COVID-19.

Rheumatic- and autoimmune diseases affect immune function and general health. Therefore, during these times, it is advisable to continue medical treatment as prescribed including with:

- disease-modifying anti-rheumatic drugs (DMARD), such as methotrexate, sulphasalazin/Salazopyrin, hydroxychloroquine/Plaquinil, leflunomid/Arava, mycophenolate mofetil/Cellcept/Myfenax
- biologics, such as anti-TNF agents and JAK inhibitors (toficitinib/Xeljanz).
- steroids (glucocorticoids), which should in general be used in the lowest dose possible.

Whether new treatment with immunosuppressants should be started during these times needs to be evaluated on a case by case basis.

If an individual is in quarantine it should be considered to temporarily suspend immunosuppressive therapy, i.e. DMARDs and biologics. This needs to take into consideration the chances of infection. Steroids should never be discontinued abruptly, especially for long-term treatment the dose should be gradually tapered down. It is prudent to contact your doctor, preferably a specialist, regarding possible adjustments of medications.

If a COVID-19 infection is confirmed, it is advisable, as with other infections, to discontinue DMARDs and biologics, until the infection has cleared.

- A rheumatologist should be consulted regarding treatment of connective tissue diseases that affect the heart, lungs or kidneys.
- Gradual tapering down of steroids should be attempted if possible, in consultation with a physician (rheumatologist).
- When infection has cleared medications can be restarted in consultation with a physician.

See The European League Against Rheumatism website: eular.org
7.10 Chronic muscular and neurologic diseases

Information on COVID-19 and chronic muscular and neurologic diseases is limited in general. Therefore it is difficult to evaluate the risk for specific disorders.

There is no indication that patients with neurologic diseases are at risk of severe illness from COVID-19 including those that are on immunosuppressive therapy. However, the reported cases are few and patients and their treatments vary widely.

Patients with severe neurologic impairment could be at risk, regardless of the underlying disease. These are patients with significant disability and reduced lung function, e.g. MND/ALS. This patient population should adhere to guidelines for at-risk groups until further information becomes available.

Patients with neurological disease without significant disability who are on mildly immunosuppressive therapy are probably not at risk and should follow advice for the general public.

7.11 Pregnancy

Based on available information, pregnant women seem to have the same risk of contracting COVID-19 as adults who are not pregnant. It seems that pregnant women appear to experience similar clinical manifestations as non-pregnant women when infected. Rare cases of severe illness of COVID-19 in pregnant women have been reported.

COVID-19 illness in pregnant women has lead to increase in cesarian deliveries which probably reflects respiratory compromise in the pregnant woman but fetal distress has also been described which can be caused by the mother’s illness.

Preterm delivery does occur but still births are very rare en newborns have not shown signs of illness at birth. Shortly after birth a few newborns have been found to be infected but showing very mild symptoms.

General precautions for the prevention of COVID-19 therefore also apply to pregnant women and they do not need to take any extra measures.

Pregnant women are advised to contact their primary care center, at heilsuvera.is, midwife or other health care provider for further guidance.

7.12 Children

Children in at-risk groups

Although there have been rare reports of severe COVID-19 illness in children it is possible that some groups are more at risk for serious infection.

It is most likely that children with COVID-19 infection develop mild symptoms of disease but the following underlying conditions could cause serious illness:

- **Chronic lung disease**, especially:
  - Cystic fibrosis.
  - Chronic lung disease of prematurity.
  - Primary ciliary dyskinesia.
  - Some other congenital lung disorders.
• **Severe heart disease**, especially:
  o Heart failure requiring medications.
  o Cyanotic heart disease with significantly reduced oxygen saturation (<90%).

• **Solid organ recipients (heart, liver, kidney)**
  o First 6 months after transplant, if treatment is according to schedule.

• **Severe chronic neurologic diseases**, especially:
  o Severe epilepsy (frequent seizures).
  o Muscular-, neurological- and metabolic diseases that affect lung function.

Children with **type 1 diabetes** do **not** seem at risk for severe COVID-19 illness. General good blood glucose control is important as in other illnesses.

Parents with children in at-risk groups should be in contact with their primary care physician or pediatrician to assess their individual risk.

See additional information regarding children and teens at [Barnaspitali Hringsins](#).

If a child/teenager is suspected of COVID-19 do **not** go directly to the emergency room, primary care center or clinic reception. Call ahead to the primary care center or the on-call service, Laeknavaktin, at 1700 (+354 544-4113 for foreign numbers) for advice. Call 112 in case of emergency.

### 8. Things to remember for all groups

• **Clean hands** – soap and water or hand sanitizer
• **Distance** – 2 meter physical distancing
• **Optimistic** – avoid negative thoughts
• **Sleep** – adequate sleep
• **Nutrition** – healthy balanced diet
• **Home delivery** – groceries and services, if possible, get help if needed
• **Sunlight** – get enough daylight
• **Vigor** – active exercise indoor or outdoor
• **Social support/contact** – use communication technology with family/friends
• **Medications** – take all medicines as prescribed
• **Health care/emergency room** – call or go if needed
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