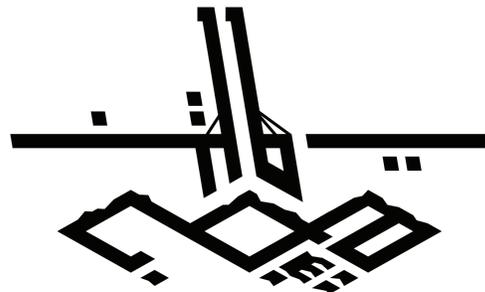


# CORONAVIRUS DISEASE 2019 (COVID-19): Guidelines and Beyond



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# **Coronavirus Disease 2019 (COVID-19): Guidelines and Beyond**

*(as of February 2, 2021)*

## **I. General information**

*Disclaimer: Information on COVID-19 disease and management has been prepared by a team of clinicians from the diaspora and from AUBMC part of the community-initiative in the fight COVID-19 by Khaddit Beirut. The evidence is changing quickly, so this document will be updated regularly.*

### **COVID-19 Nomenclature**

COVID-19 is a disease caused by a novel virus SARS-CoV-2 discovered in 2019. This virus belongs to the coronavirus family. “CO” stands for corona, “VI” stands for virus, “D” stands for disease, and “19” for the year it was discovered.

### **COVID-19 is not the Flu**

COVID and the flu are diseases caused by different viruses. COVID-19 can arise after an infection with the novel coronavirus SARS-CoV-2, while the flu is caused by the **influenza** viruses. While both are contagious respiratory illnesses, the data we have so far shows that COVID-19 spreads more easily, can cause serious illnesses in more people and is more deadly. Concurrently, people can be contagious for a longer period of time.

### **Modes of transmission of COVID-19**

#### **Contact and droplet transmission**

Transmission of COVID-19 can occur through direct, indirect, or close contact with infected people through infected secretions such as saliva and respiratory secretions or their respiratory droplets, which are expelled when an infected person coughs, sneezes, talks or sings and can stay minutes to hours in air depending on their size and air current. Transmission can occur when a person is in close contact (within 1 metre) with an infected person and can reach the mouth, nose or eyes of a susceptible person and can result in infection.

#### **Airborne transmission**

Spread of COVID-19 virus suspended in air in indoor settings with poor ventilation. For example, during choir practice, in restaurants, in fitness classes, in superspreading events such as weddings, funerals and celebrations.

#### **Fomite transmission**

Contaminated objects with COVID-19, depending on the ambient environment and the type of surface can be sources for the transmission, though a less likely source, by indirectly touching surfaces in the immediate objects from an infected person, followed by touching the mouth, nose or eye.

### **Indecisive evidence of transmission:**

- Urine
- Stool
- Blood
- Plasma
- Pregnant mother to fetus
- Breast milk

### **What counts as community-related exposure to COVID-19?**

Consider yourself exposed if you were in close contact with a COVID-19 person, which means:

- You were within 2 meters of someone who has COVID-19 for a total of 15 minutes or more
- You provided care at home to someone who is sick with COVID-19
- You had direct physical contact with the person (hugged or kissed them)
- You shared eating or drinking utensils
- They sneezed, coughed, or somehow got respiratory droplets on you

Keep in mind, people with COVID-19 are contagious two days before their symptoms start. Even people who test positive for COVID-19 and have no symptoms (asymptomatic COVID-19 patients) are contagious.

<https://www.cdc.gov/coronavirus/2019-ncov/if-you-are-sick/quarantine.html#:~:text=Watch%20for%20symptoms%20until%2014,the%20spread%20of%20COVID%2D19>

### **I was exposed, or had a close contact with someone who has COVID-19 what should I do now?**

You should stay home (also called quarantine) and monitor your health for 14 days **after exposure**, except if cleared by a physician or another provider

- Watch for fever (38C), cough, shortness of breath, or [other symptoms](#) of COVID-19
- If possible, stay away from others, especially people who are at [higher risk](#) for getting very sick from COVID-19

- If symptoms develop, schedule a PCR

<https://www.cdc.gov/coronavirus/2019-ncov/php/public-health-recommendations.html>

### **I am a healthcare worker and had an exposure, but I continue to work. What should I do outside of work?**

While some healthcare workers might [continue to work in the healthcare setting](#) after an exposure, these individuals should stay away from others when in the community setting per the recommendation on exposure: *I was exposed, or had a close contact with someone who has COVID-19, what should I do now?*

### **What should I do if I have flu or COVID-19 symptoms?**

- If you are part of the AUB community,
  - you can go directly to the Flu Clinic (Building 56) for investigation; you do not need a referral from the University Health Services (infirmary).
- If you are not part of the AUB community, you have several options:
  - Schedule a tele-health appointment online with a doctor by one of the following ways:
    - Mobile App: MyChart (iOS and Android)
    - Online <https://myaubhealth.aubmc.org> and click “Schedule a video visit”
    - Call 01-350 000
  - Schedule a PCR test for COVID-19
    - Drive-through, without seeing a doctor
      - Mobile App: MyChart (iOS and Android)
      - Call 01-350 000
  - Schedule an in-person visit to the Flu Clinic with a doctor
    - Call 01-350 000
  - Go to the Emergency Department if you have severe signs of infection such as:
    - Trouble breathing
    - Persistent pain or pressure in the chest
    - New confusion
    - Inability to wake or stay awake
    - Bluish lips or face

### **Testing for COVID-19 Infection**

Anyone with symptoms or had close contact, i.e. more than 15 minutes less than one meter, no masks, with someone who is COVID-19 positive, needs to be tested. While waiting for test results, they should remain isolated from others.

- Nucleic Acid Amplification Testing for COVID-19 infection known as Polymerase Chain Reaction (PCR). Samples are collected from the nose and/or throat with a swab. Molecular tests detect virus in the sample by amplifying viral genetic material to detectable levels. For this reason, a molecular test is used to confirm an active infection, usually within a few days of exposure and around the time that symptoms may begin.
- Rapid Antigen Testing for COVID-19 detects viral proteins (known as antigens). These tests are cheaper than PCR and will offer results more quickly, although they are generally less accurate.
  - If you are symptomatic with positive Covid-19 Agà no need for confirmatory PCR.
  - If you are symptomatic with negative Covid-19 Agà schedule a PCR and keep isolating yourself
  - If you are asymptomatic with no recent exposure à result needs to be confirmed with negative PCR.

A negative Rapid Covid-19 Ag test does not mean you do not have Covid-19 infection. Please refer to ID or pulmonology specialist to interpret such test results

- Serologic or Antibody Testing for Diagnosis of COVID-19 Infection: can tell us whether someone has had an infection in the past, even if they have not had symptoms. Usually done on a blood sample. These tests detect antibodies produced in response to an infection. In most people, antibodies start to develop after days to weeks and can indicate if a person has had past infection. Antibody tests cannot be used to diagnose COVID-19 in the early stages of infection or disease but can indicate whether or not someone has had the disease in the past.
- 1- What is a cycle threshold (Ct) from a RT-PCR test?
- RT-PCR test creates many copies of the same genetic material from the virus in a process called amplification to improve the test's ability to detect virus. Ct value is the point at which a reaction reaches a fluorescent intensity above background levels. The Ct value indicates when the nucleic acid target is detectable in the amplification process. There is a correlation between the Ct value and the amount of viral genetic material that was present in the specimen.
- 2- Can a ct value determine how much viral genetic material is present in an individual patient sample?
- A Ct value does not indicate how much virus is present, but only whether or not viral genetic material was detected at a defined threshold. Although a quantitative RT-PCR test can estimate the level of viral load in a population, a quantitative RT-PCR test cannot determine how much virus is present in an individual patient specimen.
- 3- Can a ct value predict how infectious a patient with COVID-19 is?

- No. Ct values should not be used to determine a patient’s viral load, how infectious a person may be, or when a person can be released from isolation or quarantine.
- An RT-PCR test uses multiple repeating amplification cycles to create more and more copies of the virus’ genetic material. Specimens with lower amounts of virus will require more cycles to amplify that genetic material to reach an amount that can be detected, resulting in a higher Ct value. Thus, there is a correlation between the Ct value and the amount of starting viral genetic material that was present in the specimen.
- Ct values can also be affected by factors other than viral load. For example, if the specimen is not collected or stored properly or the specimen is collected early during the infection, the Ct value may be higher than it would be under ideal conditions. Thus, a high Ct value could also result from factors not related to the amount of virus in the specimen. The correlation between Ct and viral load can be used to evaluate data from groups of people and infer the difference in the relative amount of viral load between the two groups (e.g., between symptomatic and asymptomatic individuals).

### **When you can be around others after you had or likely had COVID-19**

You can be around others after:

- 10 days since symptoms first appeared **without testing and**
- 24 hours with no fever without the use of fever-reducing medications **and**
- Other symptoms of COVID-19 are improving\*

*\*Loss of taste and smell may persist for weeks or months after recovery and need not delay the end of isolation*

New recommendations show that you can stop your home quarantine:

- After day 7 after receiving a negative test result (test must occur on day 5 or later)

Most people do not require testing to decide when they can be around others; however, if your healthcare provider recommends testing, they will let you know when you can resume being around others based on your test results.

Note that these recommendations **do not** apply to persons with severe COVID-19 or with severely weakened immune systems (immunocompromised). People who are severely ill with COVID-19 might need to stay home longer than 10 days and up to 20 days after symptoms first appeared.

After stopping quarantine, you should

- Keep watching for symptoms (fever, cough, shortness of breath, or [other symptoms](#) of COVID-19) until 14 days after exposure.
- If you have symptoms, immediately self-isolate and contact your local public health authority or healthcare provider.
- Wear a mask, stay at least 2 meters from others, wash your hands, avoid crowds, and take other steps to [prevent the spread of COVID-19](#).
- If possible, stay away from others, especially people who are at [higher risk](#) for getting very sick from COVID-19

## II. Symptoms and risk factors associated with worse prognosis of COVID-19

Anyone with COVID-19 can show mild to severe symptoms. While most people with COVID-19 develop only mild (40%) or moderate (40%) disease, approximately 15% develop severe disease that requires oxygen support and necessitate hospital admission, and 5% have critical disease with complications.

COVID-19 has a relatively long incubation period, and typically at least 2 days of infectivity before symptoms develop.

- Time from exposure to symptom onset (incubation period): Estimated at 2-14 days, but most develop disease around 5-7 days after being exposed.
- الفترة التي تمتد من التعرض للفيروس و بدء الأعراض تتراوح ما بين ٢-١٤ يوم (معدّل ٥ أيام) لذلك على الأشخاص الذين تعرضوا للفيروس البقاء بالعزل لمدة 14 يوم
- Incubation periods of up to 24 days are shown in some reports
- Therefore, the best way to protect yourself and others is to stay home for 14 days if you think you've been exposed to someone who has COVID-19. Check with your doctor for information about options in your area to possibly shorten this quarantine period.

The most common symptoms are:

- Fever, 44-94%
  - We recommend using  $\geq 38^{\circ}\text{C}$  oral temperature to define fever, taking into account the patient's age, immune status, medications (steroids, chemotherapy, etc.), and recent use of fever-reducing medications.
  - Children are less likely to have fever or cough
- Cough, 68-83%
- Anosmia and/or ageusia (loss of sense of taste and/or smell), ~70%

- Upper respiratory symptoms (sore throat, dripping nose, nasal or sinus congestion), 5-61%
- Shortness of breath, 11- 40%
- Fatigue, 23-38%
- Muscle aches, 11-63%
- Headache, 8-14%
- Confusion, 9%
- Gastrointestinal symptoms (nausea, vomiting, diarrhea), 3-17%

ما هي العوارض

- العوارض الأكثر شيوعاً: الحمى ( الحرارة المرتفعة) ، السعال الجاف، الإجهاد ( التعب الشديد)
- العوارض الأقل شيوعاً: احتقان الأنف، فقدان الذوق والشم، ألم في العضلات، احمرار العينين، ألم الحلق، الصداع، مختلف أنماط الطفح الجلدي، الغثيان أو القيء، الإسهال، الرعشة ( دوار البرد) أو الدوخة.

### Mild cases

**Symptoms include:** Fever, cough, fatigue, anorexia, shortness of breath, myalgias, sore throat, nasal congestion, headache, gastrointestinal symptoms, loss of smell (anosmia), loss of taste (ageusia), without evidence of viral pneumonia or hypoxia.

### Moderate cases

**Symptoms include:** clinical signs of pneumonia (fever, cough, dyspnoea, fast breathing) but no signs of severe pneumonia as detailed below and with oxygen saturation (SpO<sub>2</sub>) ≥ 94% while breathing normal room air.

بالنسبة لأكثر المصابين، تتحسن هذه العوارض بخلاف اسابيع قليلة. يزداد المرض حدة لدى نسبة قليلة من المصابين

### Severe cases

**Symptoms include:** clinical signs of pneumonia (fever, cough, dyspnoea, fast breathing) plus one of the following: respiratory rate > 30 breaths/min; severe respiratory distress; or SpO<sub>2</sub> < 94% on room air.

Other signs of worsening conditions may include:

- Chest tightness, pain, pressure, or squeezing.
- Vomiting not improving on medications
- Not tolerating oral intake
- Abdominal Pain
- Shortness of breath

- Severe fatigue
- Lightheadedness or sudden dizziness
- Sudden trouble speaking
- Numbness of the face, arm or leg
- Severe, sudden headache
- Trouble walking
- Change in level of consciousness or change in mental status

### When to seek emergency medical attention

- Trouble breathing
- Persistent pain or pressure in the chest
- Confusion or inability to stay awake
- Bluish lips
- Sudden trouble speaking
- Not tolerating oral intake
- Vomiting not improving on oral medications
- Numbness in the face, arm or leg
- Trouble walking
- Persistent high grade fever(>38.5) for more than 4 days
- Any symptoms concerning to you, call your provider

Please refer to Triage protocol at the end of the document

- العلامات التي تدل على اشتداد حدة المرض: ضيق في النفس، ازرقاق الشفتين، انعدام الشهية، الهذيان، ألم مستمر مع شعور بالضغط على الصدر، إستمرار في ارتفاع درجة الحرارة (أكثر من 38 درجة مئوية) لعدة أيام.
- 
- استشارة الطبيب عند حدوث أي من هذه العوارض
- 

### Factors associated with worse prognosis

Multiple factors have been associated with worse prognosis in people infected with COVID-19:

- **Age:** Increased age is associated with more severe disease and higher rates of death.
  - Children appear to be as likely to contract the infection as adults, although symptomatic cases of children are more rare. Children are less likely to have severe disease, but pediatric deaths have been reported.
  - Among adults, the older someone is, the more likely they are to get very sick or to die; there is no clear cutoff age, but the risk increases rapidly after the age of 60.

- **Comorbidities:** The following conditions are associated with more severe COVID-19 disease and are often associated with worse outcomes.
  - Diabetes type II
  - Hypertension
  - Obesity
  - Smoking
  - Serious heart disease, such as coronary artery disease, congestive heart failure
  - Chronic kidney disease
  - Chronic Lung Disease
  - Malignancy
- **Sex:** Men appear to be more severely affected by COVID-19 than women.
- **Smoking:** Smoking may offer a small risk reduction for COVID infection, though it is not clear why and this finding may be subject to confounding. It does appear to be associated with worse outcomes.

الأشخاص الأكثر عرضة لمضاعفات الكورونا: كبار السن ( فوق ال 60 سنة)، المصابين بالأمراض المزمنة ( امراض القلب، امراض مزمنة بالكلية)، بدانة، سكري، ضغط، امراض بالرئة كالربو او الانسداد الرئوي المزمن، او امراض نقص المناعة.

### III. Complications/sequelae of COVID-19

Persistent symptoms after recovery from acute COVID-19 have been described like fatigue, cough, shortness of breath, chest pain, muscle and joint pains, anosmia, hair loss.

While COVID-19 is primarily a pulmonary disease, it also leads to cardiac, dermatologic, hematological, hepatic, neurological, renal, and other complications. Thromboembolic events also occur in patients with COVID-19, with the highest risk occurring in critically ill patients.

The long-term sequelae of COVID-19 survivors may occur on lung, heart and brain, blood clots, vessels, mood and fatigue in some people.

Lastly, COVID-19 infection has been associated with a potentially severe inflammatory syndrome in children and young adults (multisystem inflammatory syndrome) but in small proportion.

### IV. Laboratory findings

Common laboratory findings in patients with COVID-19 include leukopenia and lymphopenia. Other laboratory abnormalities include elevated levels of aminotransferase (AST, ALT), C-reactive protein, D-dimer, ferritin, and lactate dehydrogenase.

## **V. How to protect yourself and others**

### The 3 W's:

- Wear your mask your distance
- Wash your hands

### Wear a mask over your nose and mouth

- Masks help prevent you from getting or spreading the virus.
- You could spread COVID-19 to others even if you do not feel sick.
- Everyone should wear a mask in public settings and when around people who don't live in their household, especially when other social distancing measures are difficult to maintain.
  - Masks should not be placed on young children under age 2, anyone who is unconscious, incapacitated or otherwise unable to remove the mask without assistance.
- Currently, surgical masks and N95 respirators are critical supplies and accordingly the use of surgical masks is clearly outlined in the below WHO link for:
  - 1-people above 60
  - 2- people with health problems
  - 3- people with covid
  - 4- people caring for covid patients

The link is:

<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public/when-and-how-to-use-masks>

- In addition, for all other situations, the cloth mask for other users should be 3-layered.
- The following is a good review on recent regulatory changes regarding masks in europe:
- [https://www.washingtonpost.com/world/europe/europe-coronavirus-masks-regulations/2021/01/20/23463c08-5a74-11eb-a849-6f9423a75ffd\\_story.html](https://www.washingtonpost.com/world/europe/europe-coronavirus-masks-regulations/2021/01/20/23463c08-5a74-11eb-a849-6f9423a75ffd_story.html)

- The mask is not a substitute for physical distancing. Both are recommended to be used simultaneously.

#### Stay 1.5 meters away from others (2 arms' length distance)

- Inside your home: Avoid close contact with people who are sick.
  - If possible, maintain 1.5 meters between the person who is sick and other household members.
  - Avoid having visitors, especially visits by people who are at higher risk for severe illness.
- Outside your home: Put 1.5 meters of distance between yourself and people who don't live in your household.
  - Remember that some people without symptoms may be able to spread the virus.
  - Keeping distance from others is important for everyone.

#### Avoid crowds

- Being in crowds like in restaurants, bars, fitness centers, or movie theaters put you at higher risk for COVID-19.

#### Avoid poorly ventilated spaces

- Avoid indoor spaces that do not offer fresh air from the outdoors as much as possible. If indoors, bring in fresh air by opening windows and doors, if possible.

#### Wash your hands often

- Wash your hands often with soap and water for at least 20 seconds especially after you have been in a public place, or after blowing your nose, coughing, or sneezing.
- It's especially important to wash:
  - Before eating or preparing food
  - Before touching your face
  - After using the restroom
  - After leaving a public place
  - After blowing your nose, coughing, or sneezing
  - After handling your mask
  - After changing a diaper
  - After caring for someone sick
  - After touching animals or pets
- If soap and water are not readily available, use a hand sanitizer that contains at least 60% alcohol. Cover all surfaces of your hands and rub them together until they feel dry.
- Avoid touching your eyes, nose, and mouth with unwashed hands.

#### Cover coughs and sneezes

- Always cover your mouth and nose with a tissue when you cough or sneeze or use the inside of your elbow and do not spit.
- Throw used tissues in the trash, don't place them on table or any other surface around you.
- Immediately wash your hands with soap and water for at least 20 seconds. If soap and water are not readily available, clean your hands with a hand sanitizer that contains at least 60% alcohol.

#### Clean and disinfect

- Clean AND disinfect frequently touched areas daily. This includes tables, doorknobs, light switches, countertops, handles, desks, phones, keyboards, toilets, faucets, and sinks.
- If surfaces are dirty, clean them. Use detergent or soap and water prior to disinfection.
- Then, use a household disinfectant.

#### Monitor your health daily

- Be alert for symptoms. Watch for fever, cough, shortness of breath, or other symptoms of COVID-19.
- Take your temperature if symptoms develop.
  - Don't take your temperature within 30 minutes of exercising or after taking medications that could lower your temperature, like acetaminophen.

### **VI. Caring for someone sick at home**

#### Limit contact

- Keep a separate bedroom and bathroom for a person who is sick. COVID-19 spreads between people who are in close contact (within about 6 feet) through respiratory droplets, created when someone talks, coughs or sneezes. Staying away from others helps stop the spread of COVID-19.
- The caregiver, when possible, should not be someone who is at high risk for severe illness from COVID-19.

#### The person who is sick should be isolated regardless of the results of the PCR and the cycle threshold (Ct) value

- The sick person should separate themselves from others in the home. If possible, have the person who is sick use a separate bedroom and bathroom. If possible, have the person who is sick stay in their own "sick room" or area and away from others. Try to stay at least 6 feet away from the sick person.
- Shared space: If you have to share space, make sure the room has good airflow.
  - Open the window to increase air circulation.
  - Improving ventilation helps remove respiratory droplets from the air.

#### Caregivers should quarantine

- Caregivers and anyone who has been in close contact with someone who has COVID-19 should stay home regardless of the PCR result and the Ct value.

#### Eat in separate rooms or areas

- Stay separated: The person who is sick should eat (or be fed) in their room, if possible.
- Wash dishes and utensils using gloves and hot water: Handle any dishes, cups/glasses, or silverware used by the person who is sick with gloves. Wash them with soap and hot water or in a dishwasher.
- Clean hands after taking off gloves or handling used items.

#### Avoid sharing personal items

- Do not share: Do not share dishes, cups/glasses, silverware, towels, bedding, or electronics (like a cell phone) with the person who is sick.

#### When to wear a mask or gloves

- The person who is sick:
  - The person who is sick should wear a mask when they are around other people at home and out (including before they enter a doctor's office).
  - The mask helps prevent a person who is sick from spreading the virus to others. It keeps respiratory droplets contained and from reaching other people.
  - Masks should not be placed on young children under age 2, anyone who is not able to remove the covering without help.
- Caregiver
  - Put on a mask and ask the sick person to put on a mask before entering the room.
  - Wear gloves when you touch or have contact with the sick person's blood, stool, or body fluids, such as saliva, mucus, vomit, and urine. Throw out gloves into a lined trash can and wash your hands right away.
    - Practice everyday preventive actions to keep from getting sick: Wash your hands often; avoid touching your eyes, nose, and mouth; and frequently clean and disinfect surfaces.

#### Clean your hands often

- Wash hands: Wash your hands often with soap and water for at least 20 seconds. Tell everyone in the home to do the same, especially after being near the person who is sick.

- Hand sanitizer: If soap and water are not readily available, use a hand sanitizer that contains at least 60% alcohol. Cover all surfaces of your hands and rub them together until they feel dry.
- Hands off: Avoid touching your eyes, nose, and mouth with unwashed hands.

### Clean and then disinfect

- Clean and disinfect “high-touch” surfaces and items every day
- Place used disposable gloves and other contaminated items in a lined trash can.
- Use gloves when removing garbage bags, and handling and disposing of trash. Wash hands afterwards.
- Place all used disposable gloves, masks, and other contaminated items in a trash can.
- If possible, dedicate a lined trash can for the person who is sick.
- Around the house
  - Clean and disinfect “high-touch” surfaces and items every day: This includes tables, doorknobs, light switches, handles, desks, toilets, faucets, sinks, and electronics.
  - Clean the area or item with soap and water if it is dirty. Then, use a household disinfectant.
  - Be sure to follow the instructions on the label to ensure safe and effective use of the product. Many products recommend keeping the surface wet for several minutes to kill germs. Many also recommend wearing gloves, making sure you have good airflow, and wiping or rinsing off the product after use.
  - To clean electronics, follow the manufacturer’s instructions for all cleaning and disinfection products. If those directions are not available, use alcohol-based wipes or spray.
- Bedroom and bathroom
  - If you are using a separate bedroom and bathroom: Only clean the area around the person who is sick when needed, such as when the area is soiled. This will help limit your contact with the sick person.
  - If they feel up to it, the person who is sick can clean their own space. Give the person who is sick personal cleaning and disinfection supplies such as tissues, paper towels, and cleaners.
  - If sharing a bathroom: The person who is sick should clean and then disinfect after each use. If this is not possible, wear a mask and wait as long as possible after the sick person has used the bathroom before coming in to clean and use the bathroom.
- Wash and dry laundry
  - Do not shake dirty laundry.
  - Wear disposable gloves while handling dirty laundry.
  - Dirty laundry from a person who is sick can be washed with other people’s items.
  - Wash items according to the label instructions. Use the warmest water setting you can.
  - Remove gloves, and wash hands right away.
  - Dry laundry, on hot if possible, completely.

- Wash hands after putting clothes in the dryer.
- Clean and disinfect clothes hampers. Wash hands afterwards

### Track your own health

- Caregivers should stay home and monitor their health for COVID-19 symptoms while caring for the person who is sick.
  - Symptoms include fever, cough, and shortness of breath but other symptoms may be present as well. Trouble breathing is a more serious warning sign that you need medical attention.
- Caregivers should continue to stay home after care is complete. Caregivers can leave their home 14 days after their last close contact with the person who is sick (based on the time it takes to develop illness), or 14 days after the person who is sick meets the criteria to end home isolation.

## **VII. Confirmed and suspected cases of reinfection of the virus that causes COVID-19**

Cases of reinfection of COVID-19 have been reported, but are very rare in the 3-6 months after the prior infection. In general, reinfection means a person was infected (got sick) once, recovered, and then later became infected again. Based on what we know from similar viruses, some reinfections are expected. In addition, someone might get infected with one of the new variants of the coronavirus even if they had COVID-19 before or have been vaccinated.

هل يمكن ان أصاب بال كورونا مرة أخرى؟

من الممكن الإصابة من جديد بال كورونا ولكن ذلك يعتبر نادراً الحدوث. في حال اتصال وثيق مع شخص لديه كورونا، لست بحاجة للحجر كنت أصبت بال كورونا خلال الأشهر ال 3 السابقة وتعافيت منه و لست تعاني من أي اعراض (على سبيل المثال، السعال وضيق التنفس)

## **VIII. Frequently asked questions on management including medications for mild/moderate cases**

Treatment for COVID-19 for patients with mild/moderate cases at home is largely supportive.

- **Symptomatic treatments:**
  - Antipyretics (NSAIDs are acceptable). Start by paracetamol or acetaminophen and if no improvement in one hour can use NSAIDS such as ibuprofen if no medical contraindication such as uncontrolled hypertension, elderly, kidney diseases, stomach ulcers
  - Cough Suppressants and Expectorants:

- Drink plenty of fluids, preferably warm if possible
  - When sleeping, avoid lying on back
  - A teaspoon of honey may help ease coughing symptoms (honey is not allowed to children less than one years of age, honey can affect blood sugar in diabetic patients so they have to check with their doctors before taking honey).
  - Wet cough, difficulty clearing thick sputum: Cough expectorant such as guaifenesin
  - Dry cough: Cough suppressant such as dextromethorphan
- Hydration
- Compression stockings
- Frequent mobilization: While staying at home, get up and move every 90 min
- **Outpatient COVID treatments:**
  - Thrombosis prevention (such as heparin) is generally not used for outpatients.
  - Aspirin: Aspirin can continue to be used in patients in whom it is indicated (i.e. cardiovascular disease prevention), but at this point in time, there is not enough evidence to support its use strictly for COVID-19 prevention and/or treatment.
  - Zinc and vitamins:
    - There is no clinical evidence to recommend the use of zinc or vitamin C for the treatment or prevention of COVID-19.
    - Some evidence suggests that a greater proportion of vitamin D-deficient individuals with SARS-CoV-2 infection turned SARS-CoV-2 RNA negative with a significant decrease in fibrinogen level on high-dose vitamin D supplementation.
  - Awake self-proning (lying flat with the chest down and the back up) may help improve oxygenation and the feeling of being short of breath.
  - Antibiotics are not recommended unless there's evidence of bacterial superimposed infection.
  - Corticosteroids: not recommended in mild disease especially in the viral phase (early in the disease). Recommended in moderate-severe disease when oxygen saturation is below 94%
  - Oximeter: a finger oximeter is beneficial to be present at home for patients with high risk of complications. Oximeter can be purchased in pharmacies.
  - Proper use of oximeter includes:

- Most commonly, a clip-like device will be placed on your finger, earlobe, or toe. You may be asked to remove your fingernail polish if it's being attached to a finger. The skin needs to be warm enough for accuracy.
- You'll keep the probe on for as long as needed to monitor your pulse and oxygen saturation, half a minute at least.
- Once the test is over, the clip or probe will be removed.
- Number of factors can impair the functioning or accuracy of a pulse oximeter. Nail polish and artificial nails may block the red and infrared light emitted by the device. Certain dyes used for diagnostic tests or medical procedures can also hinder light transmission. Excessive motion—shivering, shaking, or other movement—can also cause erroneous readings.
- An oxygen less than 94 requires medical evaluation
- **Management of existing medications.** Medications should not be discontinued without discussing with the prescriber.
  - ACE inhibitors (RAAS inhibitors): No need to discontinue
  - Immuno-suppressants: Case-by-case
  - Nonsteroidal anti-inflammatory drugs: No need to discontinue in most patients
  - Inhalers: No need to discontinue, avoid nebulizers if possible due to increased risk of transmission
- **Oxygen management at home mild/moderate cases**

Seek care for assessment by health professional for any SaO<sub>2</sub> less than 95-94.

In the situation where oxygen is being administered at home, please educate on abiding to the following safety measures:

## Home Oxygen Safety



Ensure your home has working smoke detectors that are checked regularly



Ensure your home has a working fire extinguisher and household members have training to use it.



No one should smoke in your home.



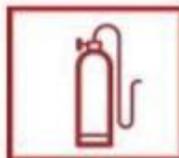
Stay at least 10 feet away from heat sources (candles, pilot lights, electrical appliances, fireplaces.)



Do not use flammable products like hair spray, other aerosol sprays, rubbing alcohol, paint thinner; or petroleum-based products such as lip-balm, lotions, oils etc while oxygen is in use.



Ensure you get fire safety education, or attend a fire safety course, and have a fire safety plan.



Place the oxygen cannister in a well-ventilated area free of smoke and away from direct sunlight; ensure that the air intake and exhaust ports are not obstructed.

Reference (Sardesai, I., Grover, J., Garg, M., Nanayakkara, P., Di Somma, S., Paladino, L., Anderson, H. L., 3rd, Gaieski, D., Galwankar, S. C., & Stawicki, S. P. (2020). Short Term Home Oxygen Therapy for COVID-19

patients: The COVID-HOT algorithm. *Journal of family medicine and primary care*, 9(7), 3209–3219.  
[https://doi.org/10.4103/jfmmpc.jfmmpc\\_1044\\_20](https://doi.org/10.4103/jfmmpc.jfmmpc_1044_20)

- **Medications we DO NOT recommend:**

- Chloroquine or Hydroxychloroquine With or Without Azithromycin: NOT recommended for the treatment of COVID-19.
- Ivermectin: Ivermectin: no strong evidence to recommend for or against use. Low quality studies showed some benefit in high risk groups when it was started early in the course. Inform the patient that we are awaiting more studies. Since it is a drug without side effects, the patient can take it. Discuss with the physician.

## **IX. Prevention and Vaccinations**

- **Pre-Exposure Prophylaxis:**

- The COVID-19 Treatment Guidelines Panel (the Panel) **recommends against** the use of any agents for SARS-CoV-2 pre-exposure prophylaxis, except in a clinical trial. At present, there is no known agent that can be administered before exposure to SARS-CoV-2 to prevent infection.

- **Vaccinations:**

- Influenza vaccination: Recommended for all patients for whom there is not a contraindication.
- Pneumonia vaccinations: Should be given to patients who meet criteria.
- Please note: As SARS-CoV2 vaccines become available, present guidelines do not recommend administering them to patients with acute COVID-19.

## **COVID-19 vaccines frequently asked questions**

- **Are COVID-19 vaccines safe?** All the COVID-19 vaccines being used have gone through rigorous studies to ensure they are as safe as possible. Systems that allow CDC to watch for safety issues are in place across the entire country.
- **Is there a risk of severe allergic reaction from the vaccine?** Serious problems from vaccination can happen, but they are rare.
- **Can a COVID-19 vaccine make me sick with COVID-19?** No, the Pfizer and Moderna vaccines do not have the live-virus in them. It typically takes a few weeks for the body to build immunity (protection against the virus that causes COVID-19) after vaccination. That means it's possible a person could be infected with the virus that causes COVID-19 just before or just after vaccination and still get sick. This is because the vaccine has not had enough time to provide protection.

- **If I have already had COVID-19 and recovered, do I still need to get vaccinated with a COVID-19 vaccine?** **Yes.** Due to the severe health risks associated with COVID-19 and the fact that re-infection with COVID-19 is possible, the vaccine should be offered to you regardless of whether you already had COVID-19 infection.
- **Will a COVID-19 vaccination protect me from getting sick with COVID-19?** **Yes.** COVID-19 vaccination works by teaching your immune system how to recognize and fight the virus that causes COVID-19, and this protects you from getting sick with COVID-19. Being protected from getting sick is important because even though many people with COVID-19 have only a mild illness, others may get a severe illness, have long-term health effects, or even die.
- **Will a COVID-19 vaccine alter my DNA?** **No.** COVID-19 mRNA vaccines do not change or interact with your DNA in any way. Messenger RNA vaccines—also called mRNA vaccines—are the first COVID-19 vaccines authorized for use in the United States. mRNA vaccines teach our cells how to make a protein that triggers an immune response. The mRNA from a COVID-19 vaccine never enters the nucleus of the cell, which is where our DNA is kept. It also gets degraded rapidly. This means the mRNA cannot affect or interact with our DNA in any way. Instead, COVID-19 mRNA vaccines work with the body’s natural defenses to safely develop immunity to disease.
- **Will a COVID-19 vaccine prevent disease transmission?** **We don’t know yet.** While it is highly probable that the FDA-approved COVID-19 vaccines will prevent disease transmission, the data that we have right now is not enough. Hence, even if we get vaccinated, the center for disease control (CDC) advises that we continue following social distance rules, keep our masks on, and wash hands often.
- **Will one shot of the COVID-19 vaccine be enough?** **No.** Both FDA-approved Pfizer and Moderna vaccines require two shots for maximum efficacy. For the Pfizer vaccine, those two shots (the primer and the booster) are 3 weeks apart, for the Moderna vaccine, they are at least 4 weeks apart.
- **Should pregnant and breastfeeding women receive the vaccine?** **They can if they want to.** Side effects from COVID-19 outweighs those from the vaccine. Hence the CDC, the American College of Obstetricians and Gynecologists, and the Society for Maternal Fetal medicine recommend that pregnant and breastfeeding women are offered the vaccine and they can make an educated decision as to whether they would like to take the vaccine.
- **Can children receive the vaccine?** **Not yet.** While the Pfizer vaccine was approved for 16 years old and above and the Moderna vaccine was approved for 18 years old, there is little clinical data on the safety of the vaccines for kids that are younger. Until that data is available, children cannot receive the vaccine.

**X. COVID in the pediatric population:**

Children of all ages can get COVID-19 the incidence increases with increasing age.

Most cases in children resulted from household exposure

Infected children appear to shed SARS-CoV-2 virus with nasopharyngeal viral loads comparable to or higher than those in adults (but the rate of transmission by young children is uncertain)

Despite the trend of increasing hospitalization, a minority of children with COVID-19 require hospitalization.

In the US among children who were hospitalized with COVID-19 from 14 states by late July 2020, approximately 33 % required intensive care and 6 % required invasive mechanical ventilation

**Clinical manifestations:**

- COVID-19 appears to be milder in children than in adults, but severe disease can happen.
- Why are kids less affected is still unclear, several theories has been postulated, one possibility is that children have a less intense immune response ( less cytokine release syndrome )different expression of the angiotensin converting enzyme 2 receptor in the respiratory tracts of children, pre-existing cross-reactive antibodies and relatively healthier blood vessels in children than in adults.
- boys and girls were equally affected.
- clinical findings are diverse, fever or chills and cough are the most common reported symptoms.
- Gastrointestinal symptoms may occur more commonly than in adults even sometimes without respiratory symptoms (mainly Diarrhea, vomiting, and abdominal pain in children also cholestasis has been reported in teens)

Age 0 through 9 years	Age 10 through 19 years,
<b>Fever – 46 %</b> <b>Cough – 37 %</b> <b>Shortness of breath – 7 %</b> Myalgia – 10 % Rhinorrhea – 7% Sore throat – 13 % Headache – 15 % Nausea/vomiting – 10 % Abdominal pain – 7 % Diarrhea – 14% Loss of smell or taste – 1%	<b>Fever – 35%</b> <b>Cough – 41%</b> <b>Shortness of breath – 16%</b> Myalgia – 30 % Rhinorrhea – 8 % Sore throat – 29 % Headache – 42 % Nausea/vomiting – 10% Abdominal pain – 8 % Diarrhea – 14% Loss of smell or taste – 10%

### Labwork/Imaging:

- The complete blood count is normal in most children, CRP is elevated in 1/3 of the affected children.
- Elevated inflammatory markers and lymphocytopenia may indicate multisystem inflammatory syndrome in children (MIS-C)
- Chest imaging is not routinely necessary for the diagnosis of COVID-19 in children and it should be obtained as indicated to evaluate clinical findings suggestive of lower respiratory involvement, risk factors for disease progression, potential complications, or worsening respiratory status.
- Imaging findings are variable and may be present before symptoms ( subpleural consolidations, bilateral infiltrates)

### Severe disease:

- 2 % of the affected infants may experience dyspnea, central cyanosis, and hypoxemia only 0.7% of the affected become critical (eg, acute respiratory distress syndrome, respiratory failure, shock)
- younger age /obesity /increased WBC count/ hypoxia and bilateral infiltrates on CXR on admission
- Only 121 SARS-CoV-2-associated deaths reported to the CDC among persons <21 years of age from 391,814 cases
- Elevated inflammatory markers (eg, CRP, procalcitonin, interleukin 6, ferritin, D-dimer) at admission or during hospitalization and gastrointestinal symptoms at admission have been associated with severe disease in children.
- Are kids with underlying immunosuppression more at risk? they are more hospitalized but not necessary more sick In fact CDC surveillance of COVID-19 in the US noted that underlying conditions are associated with higher rates of hospitalization (22 versus 4%) (but it's unsure whether this higher rate is associated with a higher threshold for admission in these infants versus increased illness severity)Also a recent study looking at children with a kidney disease taking immunosuppressive medication reported them having mild disease with SARS-CoV-2 infection. And therefore, suggested that children on immunosuppressive therapy should not be more strictly isolated than children who are not on immunosuppressive therapy. (Arch Dis Child 2020;PMID: [33355203](#).)

**Risk Factors:** The following conditions may be associated with increased risk of severe disease in children

- Obesity
- Medical complexity
- Severe genetic disorders
- Severe neurologic disorders
- Inherited metabolic disorders
- Sickle cell disease
- Congenital heart disease
- Diabetes
- Chronic kidney disease
- Asthma and other chronic pulmonary diseases
- Immunosuppression due to malignancy or immune-weakening medications
- Down syndrome

● Infants <12 months of age : they present with poor feeding and fever without an obvious source Respiratory symptoms may be minimal; when present, respiratory symptoms are similar to those caused by other coronaviruses and influenza, note that cough may be less prominent.

**Multisystem inflammatory syndrome** is a rare but serious condition associated with COVID-19 may be similar to those of Kawasaki disease, Kawasaki disease shock syndrome, and toxic shock syndrome

They include persistent fever, hypotension, gastrointestinal symptoms, rash, myocarditis, and laboratory findings associated with increased inflammation; respiratory symptoms may be lacking.

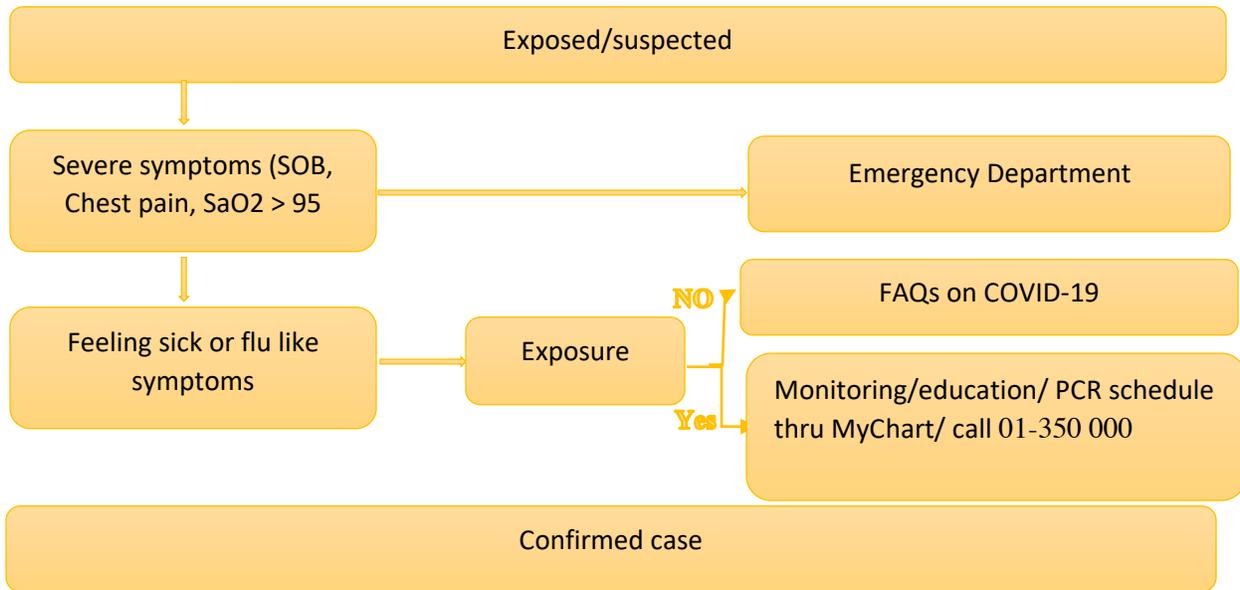
[1] L. C. Bailey et al., "Assessment of 135 794 Pediatric Patients Tested for Severe Acute Respiratory Syndrome Coronavirus 2 Across the United States," *JAMA Pediatr*, Nov. 2020, doi: 10.1001/jamapediatrics.2020.5052.

[2] D. M. Fernandes et al., "Severe Acute Respiratory Syndrome Coronavirus 2 Clinical Syndromes and Predictors of Disease Severity in Hospitalized Children and Youth," *J Pediatr*, Nov. 2020, doi: 10.1016/j.jpeds.2020.11.016.

[3] M. Marlais et al., "COVID-19 in children treated with immunosuppressive medication for kidney diseases," *Arch Dis Child*, Dec. 2020, doi: 10.1136/archdischild-2020-320616.

(4) Uptodate Coronavirus disease 2019 (COVID-19): Clinical manifestations and diagnosis in children)

**Patient triage protocol**



**Confirmed case**

