

Face Masks & Infection Prevention in Home Care During the Coronavirus Pandemic Guidance for Home Care Agencies and Aides

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<https://www.uml.edu/research/shch/>

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How is the new coronavirus spread from one person to another?

The coronavirus lives in the human nose, mouth and lungs. When we sneeze or cough, we spray a “cloud” of moisture droplets and smaller particles into the air around us. If we don’t cover our nose and mouth, the cloud can spray as far as several feet (see photo). The cloud consists of mucus, saliva or other matter sprayed out of the mouth and nose and into the air in a range of sizes from large droplets (some big enough to see) to very small particles (not visible). The larger droplets fall out of the air within minutes. The smallest particles may remain airborne for hours.



Public Health Image Library, CDC.gov

If a person has COVID-19, the illness caused when infected with the new coronavirus, the virus gets sprayed out with his/her cough or sneeze cloud. Another person nearby gets exposed if the infected person coughs (or sneezes or spits while talking) directly in that person’s face or on their hands and other skin and then they touch their face so the virus can get into their nose, mouth or eyes. If the cloud from a cough or sneeze lands on surfaces in the home like countertops, sinks, or toilets, the virus can live in droplets for hours to days and someone can be exposed by touching these surfaces and then touching their face. The small particles from a cough or sneeze cloud that hang in the air for a minutes to hours may also be breathed in by others in the room. Scientists are still working to figure out how infectious these smallest particles can be.

How do we know who is infected with coronavirus?

We only know for certain if someone is infected with the coronavirus if they get a medical test. However, during this pandemic, if someone has symptoms such as fever, cough, or difficulty breathing, they are “symptomatic” and assumed to be infectious. The problem is that we can be infected with the virus and pass it on to others before we have these symptoms. It is the home care aides and clients who may be infected but who do not yet have the symptoms that are most challenging for coronavirus exposure prevention.

Can face masks, like the ones doctors and nurses wear in hospitals, prevent the spread of coronavirus?

Surgical masks, also called face masks (see photo), catch some but not all of the droplets and particles in a cough or sneeze. They have been shown to be effective for capturing some of the cough or sneeze cloud primarily from the

person who is sick (the “source”). Secondly, surgical masks protect doctors, nurses, and other healthcare workers from large droplets sprayed from an infected patient’s cough or when infectious body fluids get splattered.



<https://www.fda.gov/medical-devices/personal-protective-equipment-infection-control/n95-respirators-and-surgical-masks-face-masks>

Surgical masks look like they are made with regular fabric, but instead they are manufactured with melted blown fibers that are tightly bound together so they capture the bigger droplets and some of the smaller droplets in a cough or sneeze cloud. These masks are relatively light and soft. However, they don’t seal well between the face and the edges of the mask and smaller droplets and particles can pass through the gaps.

Especially during the coronavirus pandemic, there are more effective masks called respirators that healthcare workers in hospitals need to use during patient contact. We know how well surgical masks and respirators capture droplets and particles because they must pass lab tests before they are approved by the US government to be sold. Unfortunately, there is a shortage of surgical masks and respirators and the ones that are available are reserved mainly for hospital workers.

What about homemade face masks, can they be used in home care?



Photo by Janna Danilova. Licensed for use from iStock.

Because of the surgical mask shortage, many thoughtful, caring citizens are now sewing homemade masks from fabric and offering them for medical and personal care. At this time, there is no lab testing to tell us how much of a cough or sneeze cloud a homemade mask can capture, if any. Homemade masks are not a good substitute for surgical masks or respirators – but **are homemade fabric masks better than no mask at all?**

When used with other safety practices described below, homemade masks, such as those made of cotton fabric like double-layered cotton t-shirt or pillowcase material, may be better than no mask at all for containing some of the big

droplets coughed or sneezed by a person who is wearing the mask (the “source”). Homemade masks may also capture some big droplets that could land in the face of the aide who gets a cough or sneeze cloud sprayed on them from their client or who has body fluids splattered on them. Additionally, some report that a mask serves as a reminder not to touch the face, which is a key infection prevention practice in itself. If homemade face masks are used it is important to remember that:

- All masks, whether officially approved or handmade, need to be used with a larger set of safety practices.
- There are conditions when a mask could actually increase the risk of infection if not used properly (see below).

Should a home care client wear a homemade fabric mask?

As with all care practices, before a client wears a mask, its use should be approved by the client, their family if involved in the care, and your agency. It may also require approval of elder services or others, so consult your employer. It is also important to be sure that the client does not have any difficulties breathing or wearing a mask in general. For example, some people feel claustrophobic in masks.

If the client chooses to wear a mask, it may be most effective to prevent the spread of infection to the aide if the client wears the mask during direct personal care (bathing or toileting). The mask may help to capture large droplets that get sprayed out in coughing or from spittle. A homemade mask will not likely stop the smaller virus particles.

Should a home care aide wear a homemade fabric mask?

Aides may be asked to wear a mask when caring for clients due to the concern that a person may be infected with the coronavirus but not know it because they do not yet have symptoms. The virus can be spread from the infected person to a non-infected person during this period and older people, the majority of home care clients, are particularly at risk of severe COVID-19 symptoms.

If an aide has the coronavirus, wearing a homemade mask will have the same effect as in the example above for the client— the mask may help to capture large droplets sprayed out during coughing, sneezing or talking so that the droplets do not land on the client. A homemade mask will not be able to stop the smaller virus particles.

What are some precautions to consider with a homemade mask?

In some cases, homemade masks may *increase* the possibility of exposure to the virus.

- Masks are often uncomfortable or do not fit well. If you touch the mask to adjust it with your hands or with gloves after your gloves have been in use in your client’s home, you may transfer contamination, including live virus, to your mask.
- Air leaks around the edges of the mask, especially if it doesn’t fit well. A homemade mask should be snugly fit over the bridge of the nose and below the chin, but not stretched so tightly that the fabric is flat up against the nose and lips.
- Face masks can collect moisture from your exhaled breath which could promote the survival of virus from droplets on the mask.
- Facial hair can reduce how well the homemade mask fits around the face, creating gaps that droplets and particles can pass through.
- Homemade masks may give a false sense of security and some people may be tempted to skip other important safety practices.

What are the safety practices that should be used with face masks?

It is important for you, your client and employer to remember that wearing a mask is only a part of the larger set of practices and protective clothing, such as gloves, that you and your agency use to protect yourself and your client. The following are home care aide practices to use if homemade face masks are worn:

- Home care aides should wear a clean mask for every visit. If the mask is coughed, sneezed or splashed on during client contact, change the mask following this incident.
- Used masks should not be shared.
- Make sure your mask is clean and dry before use. Seal the clean, dry mask in a sealable plastic bag so that it stays clean and dry as you carry it to a visit with your other equipment. Do not seal a clean mask that is still damp in a plastic bag because it could promote microbial growth on the fabric.
- If you are wearing gloves, when you need to remove your mask at the end of your visit or when you need to change it during a visit, first wash your gloved hands with warm water and soap for 20 seconds or use hand sanitizer to disinfect the gloves, then remove the used mask, and remove the gloves and dispose of them in sealed trash. If the mask will be laundered and reused, it should be stored in a separate bag from the gloves. Place the used mask in a plastic bag, and seal it so you don't spread contamination. The used mask can be washed in hot water and soap, thoroughly dried, and stored in a clean bag for re-use.

Are there other ways besides droplets from coughs and sneezes that coronavirus can be spread in home care?

There is early, limited evidence that coronavirus may also spread through contact with feces (poop). Along with the most common symptoms of fever, dry cough, and difficulty breathing, some people with COVID-19 also report diarrhea. Aides performing direct client care including bathing, toileting and dressing; changing bed linens; doing the laundry; and cleaning bathrooms should wear gloves and avoid getting splashed with feces or toilet bowl water.

What practices are most important for preventing the spread of coronavirus when taking care of home care clients?

The most important practices are the basics for coronavirus prevention everywhere, as recommended by the US Centers for Disease Control and Prevention (CDC). Below are key practices. For a complete list, consult the CDC website given in the resources at the end of this factsheet.

- Cough or sneeze into a clean tissue, dispose of the tissue in covered trash or sealed plastic bag, and wash your hands immediately afterwards.
- Wash hands thoroughly with warm water and soap for 20 seconds after sneezing, touching surfaces that have not been disinfected or performing care tasks that require direct contact with the client.
- If water and soap are not available, use alcohol hand sanitizer (at least 60% alcohol).
- Wear gloves, if you have a break in the skin of your hands or if you are performing care tasks with potential for exposure to body fluids directly from the client or from surfaces.
- Don't touch your face.
- When possible keep at least 6 feet of distance between you and your client.
- Disinfect hard surfaces such as countertops, sinks, toilets, and frequently touched points such as door handles, light switches, water faucets & toilet handles.

How should surfaces in clients' homes be cleaned and disinfected?

Cleaning and disinfection of surfaces is one of the key practices in infection prevention. Cleaning refers to the removal of visible soil. Disinfection refers to killing all or most of the microorganisms on a surface, including coronavirus.

If surfaces are visibly dirty, clean them first with warm water and soap or other household cleaner before disinfection because the dirt can interfere with the disinfection of the virus.

Following cleaning, non-porous (hard) surfaces like ceramic and stainless steel in bathrooms and kitchens can be disinfected using a dilute bleach solution.

CDC recommends the following recipe for a disinfecting solution: 4 teaspoons of bleach per quart of water or 5 tablespoons (1/3^d cup) of bleach per 1 gallon of water.

- Be careful not to get bleach straight out of the bottle on your skin or breathe the fumes—it is a strong irritant.
- Keeping the bleach and water mixture in a sealed spray bottle may increase the length of time the bleach solutions stays most effective but it is best to mix a fresh solution each time the solution is needed.

If a ready-to-use disinfectant is preferred, it should be approved by the U.S. Environmental Protection Agency (EPA) and used as directed on the label (see link to the EPA approved list in the resources below).

Cleaning and disinfecting should be done in a well-ventilated room. Whenever possible, open the doors between rooms and open the window in the room where you are working at least a crack even in winter and turn on the bathroom fan. Ventilation will not only reduce the risk of irritation from cleaning product and disinfectant fumes but may also reduce the risk of spreading the virus by diluting virus airborne droplets and particles with more air.

Resources:

CDC Cleaning & Disinfecting –most useful for home care; has formula for bleach solution for home environmental surface, touch point disinfection:

https://www.cdc.gov/coronavirus/2019-ncov/prepare/cleaning-disinfection.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fcommunity%2Fhome%2Fcleaning-disinfection.html

US EPA List of commercial disinfectants approved for human coronavirus – in case home care clients want to purchase ready-to-use products to disinfectant their home environmental surfaces:

<https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>