During the COVID-19 Pandemic:

PERSONAL PROTECTIVE EQUIPMENT (PPE) IN HOME CARE

Guidance for Home Care Aides

Safe Home Care Project[1], University of Massachusetts Lowell

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This factsheet provides basic information for home care aides on the types of personal protective equipment (PPE) and how to use it during the COVID-19 pandemic. Normally, there are few home care tasks that require PPE other than gloves, however, because a person without any symptoms can be infected with the new coronavirus (SARS-CoV-2) and pass it on to someone else, during the pandemic, it is safest to approach home care work as if both the client/consumer and the aide could be infectious. Using this assumption, this factsheet will address:

- When is PPE necessary?
- What kind of PPE is necessary for certain home care tasks?
- How to properly put PPE on and take it off
- Proper care and disposal of the PPE

It is important for you and your employer to remember protection of yourself and your client relies on a whole set of safety practices and equipment. PPE will not be effective if it is not used properly and if it is not used along with other standard measures of infection control, like handwashing, not touching your face, and disinfecting frequently touched surfaces.

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[1] See the last page for a description of the Safe Home Care Project Team Contributors

The first level of protection is staying home from work if you are sick

Should I go to work?

1. Do you have a **fever**?
2. Do you have new **respiratory symptoms such as cough or shortness of breath**?
    a. Are you having **trouble breathing**? If so, seek medical help immediately.
3. **Have you been diagnosed with COVID-19 or told by a healthcare provider that you may or do have COVID-19?**

If you answer YES to any of these questions, you should not go to work. Contact your agency or client and let them know you are sick and cannot come to work. Also contact your own doctor or medical provider for medical care.

4. Have you had **close contact with a person diagnosed with COVID-19** in the past 14 days?

If you answer YES, you could be infected even if you don't have the symptoms above. Best practices recommend you should quarantine for 14 days. Contact your agency and check in with your supervisor.

What is personal protective equipment (PPE)?

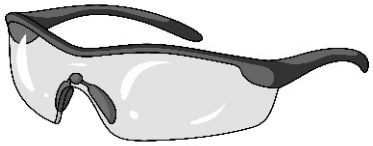
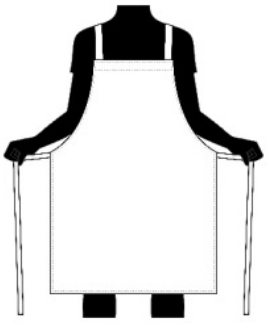
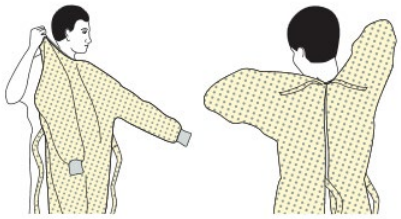
Personal protective equipment, also called "PPE", is equipment or clothing worn to cover parts of your body to protect you from hazards in the environment that cause injuries and illnesses. In home care this includes protecting you against biological hazards like the coronavirus and other infections that may be spread through the air and by contact with body fluids. PPE can also protect you from exposure to harsh chemicals in cleaning products.

You could be exposed to biological and chemical hazards by inhalation (breathing in), contact with your skin, ingestion (eating) or through mucous membranes (in the mouth, nose, eyes, windpipe and lungs, stomach and intestines). Eyes are often a significant and overlooked route of exposure. For example, particles from a client sneezing or coughing, spattered blood and other body fluids, as well as spray from harsh cleaning products could accidently reach your unprotected eyes.

PPE used in home care includes: gloves, face shields, goggles or safety glasses, masks or respirators (N95) and protective clothing like disposable aprons, sleeves, or gowns that resist body fluids from leaking through. You often wear more than one type of PPE at the same time.

Getting to know your personal protective equipment (PPE)

Table 1. Types of PPE

Disposable gloves	**Gloves** 		
Eye Protection	**Safety glasses** 	**Goggles** 	**Face shield** 
Disposable Protective Clothing	**Apron** 	**Sleeves** 	**Gown** 
Masks & Respirators	**N95 respirator** 	**Surgical mask** 	

Photos: FDA, CDC, and Shutterstock

Table 2. PPE commonly used in home care.

In general, there are few activities performed in home care where the protection of PPE is needed. Gloves are the most commonly needed PPE and these are usually used during direct care or other activities when there is a chance of body fluid exposure, like changing bed linens when a client/consumer is incontinent. However, during the COVID-19 pandemic, it is safest to approach home care work as if both the client/consumer and aide could be infectious.

Disposable gloves	
Purpose	Lightweight synthetic or natural rubber gloves protect the skin from infectious materials like viruses and bacteria, body fluids and feces (poop), and some chemicals. Gloves are especially important if you have a cut, blister or other type of break in the skin of your hands.
Types	Gloves are often made of nitrile rubber, latex or vinyl. Fitted gloves used in contact with people are sometimes called "medical exam gloves" and come in a box like tissues. Medical exam gloves are made of: • Nitrile - the most recommended type for home care and healthcare because they are generally more durable than the other types and more chemical resistant. In home care, we are protecting against body fluids and cleaning and disinfecting chemicals. Most of the gloves used in Boston area hospitals and clinics are nitrile exam gloves. • Latex - can cause an allergic reaction in some people that can be life-threatening. If you or a client have latex allergy, do not use latex gloves. Latex can also be damaged by some chemicals. • Vinyl gloves are generally less protective and can tear easily but may be sufficient if no other gloves are available (also called PVC or polyvinyl chloride). Gloves for doing the dishes or other cleaning tasks are made from synthetic materials and can be purchased in supermarkets. These can be used for some other household tasks such as laundry but because they fit more loosely than exam gloves are not used for personal contact or tasks that require precision hand work.
Eye Protection	

Purpose	Provide protection from splashes, sprays, and respiratory droplets from coughing, sneezing, spittle. The eyes are an important and overlooked route of infection.
	• COVID-19 and other Infectious diseases can be introduced through the eye:
	  ○ Splash or spray when a client coughs or sneezes
	  ○ Touching your eye with contaminated hands or gloves
	• Chemicals can also enter and irritate or hurt the eye. For example,
	  ○ When you are spraying cleaning products, directly from the spray droplets or from fumes that remain airborne.
	  ○ Splash when you are mixing or using a bleach and water cleaning solution.
	  ○ Touching your eye with contaminated hands or gloves

Types	Safety glasses • Are used to protect the eyes from being hit by a flying object • Do not provide a high level of splash or droplet protection because they don't fit snugly or fully cover the eyes or face. • Generally, they are not used for infection control like COVID-19. If no other eye protection is available, safety glasses may be better than nothing to protect your eyes from coughs, sneezes, and spittle. • Personal prescription lenses do not provide optimal eye protection and should not be considered useful as PPE.

Eye Protection, cont. **Types**	Goggles • Goggles are made of clear plastic that is held snugly against your face to fully cover the eyes. • They provide reliable, practical eye protection from splashes, sprays, and respiratory droplets. • While highly effective as eye protection, goggles do not provide splash or spray protection to other parts of the face. • Many styles of goggles can fit over regular eyeglasses. • Goggles provide barrier protection for the eyes and should fit snuggly over and around the eyes or personal prescription lenses.
	Face Shields • Face shields are made of clear plastic. They are typically attached to a band that sits on your head like a hat. • The face shield covers the forehead, extends below the chin, and wraps around the side of the face to protect your eyes, nose, mouth and skin. • They can be combined with other PPE used on your face such as masks and glasses.
Protective clothing – aprons, sleeves, gowns	
Purpose	• This PPE is a disposable covering for clothing and uncovered skin to protect against contamination by splashes, sprays, respiratory droplets, and body fluids or feces (poop). It is generally used when close contact with a client may lead to contamination of scrubs or other clothing. • Protective clothing also minimizes the possibility of carrying contaminants from client to client and back to your home.
Types	• **Gowns** are used to protect against contact with potentially infectious liquid and solid material. Gowns should fully cover the torso and upper legs, fit comfortably over the body, and have long sleeves that fit snugly at the wrist. • Gowns are more protective than aprons or sleeve covers because they cover a larger part of your body.
	• Disposable single-use **aprons** cover the front of the aide's clothing and are occasionally used where limited contamination is anticipated
	• **Sleeves** are disposable shields for the lower arms that go from the wrists to the elbows. They have elastic at both the wrist and elbows, and provide extra protection for the skin and clothing above where the glove ends.
Masks and respirators	
Purpose	Masks and respirators are worn by home care aides to protect them from inhaling particles that may be released when a COVID-19 infected person breathes, talks, coughs, sneezes or generates spittle. They may also protect the client from airborne particles or droplets coming from the aide.
Types	Surgical masks, also called medical masks • These are loose fitting covers for the mouth and nose. Most surgical masks have pleats or folds. They may have ear loops, ties, or an elastic band that is secured behind the head. • Surgical masks catch some but not all of the droplets and particles in a cough, sneeze or spittle. • It is important to know that surgical masks do not stop very small particles, including the COVID-19 virus. • Because the edges of the mask don't seal well against the face, droplets and particles can also enter through these gaps.

Masks & Respirators, cont. **Types**	N95 respirators • N95 respirators are specifically designed to provide protection by forming a tight seal against the face and efficiently filtering out airborne particles including pathogens. • "N95" means that the respirator stops or filters at least 95% of airborne particles. • To most safely use N95 respirators, there is a special procedure called fit testing that should be done with your employer. This procedure makes sure you know how to properly wear your mask so that it forms a tight seal with your face. • Once you have donned an N95 respirator, perform a seal check by taking a few deep breaths and feeling around the mask with clean hands for escaping air to ensure there is a good seal against the skin.
Special note: ***You may also see homemade cloth face coverings.*** ***These have not been tested and are not considered standard PPE*** *because no data exists to demonstrate they are effective in preventing transmission of illness.* ***We include homemade cloth face coverings here so you know where to get more information about them.***	<u>Homemade cloth face coverings are not tested PPE and should only be used as a last resort</u>. • Because of surgical mask and N95 respirator shortages, many thoughtful citizens are making cloth face coverings and offering them for medical, personal care and general use. At this time, no reliable testing information exists to tell us how much protection cloth face coverings provide against the corona virus. • **For more information, please review the factsheet on our website, "Cloth Face Coverings & Infection Prevention in Home Care During the Coronavirus Pandemic Guidance for Home Care Agencies and Aides" at: https://www.uml.edu/research/shch/** • Homemade cloth face coverings are not a good substitute for surgical masks or respirators. If you have a surgical mask or respirator, go ahead and use it.
Improve ventilation	
Purpose	Because small respiratory particles with COVID-19 virus could remain suspended in the air for a few hours or longer, opening windows and using bathroom ventilation fans will help reduce the viral load in the air.
Type	• Open windows, use window fans if available • Bathroom fan • Kitchen fan • Use screen doors when it is safe to do so

How can you protect against COVID-19? (How can you be exposed to COVID-19?)

Below are some suggestions to help determine how best to use PPE as part of your home care aide job. The more protections you have, the better. You should discuss the availability and use of PPE with your employer and client.

Table 3. Protections against COVID-19

		Use these practices as much as possible						Breathing protection		Face & eye protection			Protective clothing		
Type of exposure	**How to protect yourself →** **How you may be exposed to COVID-19 ↓**	Avoid touching face	Hand washing (see note 1)	Surface disinfection	Increase ventilation	Social distancing	Gloves	Surgical Mask	N95 respirator	Safety glasses	Goggles	Face Shield	Gown	Sleeves	Apron
Personal habits	Using contaminated hands in a way that delivers the virus to your body • Touching your face – eyes, nose, mouth • Smoking • Eating • Touching your face with a cell phone or other electronic device	✓	✓	Cell phone or elec. device											
Contaminated air	• Getting exposed to a COVID-19-infected person's breathing, talking, sneezing, coughing or spittle.	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Contaminated surfaces	• Touching: Counters, doorknobs, light switches, bedding, towels and then touching your face	✓	✓	✓		✓	✓	✓	✓				✓	✓	✓
Contaminated surfaces and air	• Visiting a sick client • Personal care with a sick client: bathing, toileting, transfers, feeding • Changing bedding • Laundry	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Notes:

1. Hand washing with soap and warm water is best. If handwashing is not possible, hand sanitizing is the next best alternative. Use sanitizer with at least 70% alcohol on unsoiled hands. Dirt such as grease, food residue, or soil can interfere with the ability of a sanitizer or disinfectant to reach and destroy the COVID-19 virus or other pathogen.

Home Care Tasks, Exposure Risk, and Recommended PPE

Healthcare workers should always use protective barriers to protect themselves from exposure to another person's blood or body fluid[1]:

- Always wear gloves when touching surfaces soiled with blood or body fluids.
- A mask, goggles, and face shield help protect your eyes and nose. Always wear them when doing an activity that may expose you to infectious airborne particles, splashes or sprays of blood or body fluid.
- Gowns or aprons protect you from sprays or splashes of blood or body fluid.

The four exposure risk levels represent probable distribution of risk (OSHA[2])

Table 4. Homecare tasks, exposures and recommended PPE

COVID-19 positive client, household member or person under investigation

Risk Level	Exposure	Tasks or Activities	Recommended PPE
Very high	Aerosol generating activities – client on oxygen, nebulizer; high aerosol and droplet exposures: being close to client's mouth, breathing, sneezing, coughing, talking	Conducting a visit in the home → Personal care with client using oxygen or nebulizer or inhaled medications; bathing, tooth/denture brushing, toileting, dressing, feeding, transferring, ambulating	**Before entering the home, don the following PPE:** N95 respirator* Goggles or safety glasses Face shield Gloves Gown
High	Exposure to aerosols in indoor air and to contaminated surfaces, including blood and body fluids	Conducting a visit in the home → Laundry of sick client Cleaning bathroom and kitchen Changing linens Cleaning other high touch surfaces	
Medium	-	-	
Lower	-	-	

Non-COVID-19 client or household member

Risk Level	Exposure	Tasks or Activities	Recommended PPE
Very high	-	-	
High	Exposure to blood and body fluids	Personal care (bathing, toileting, dressing, transferring, ambulating) →	Surgical mask** Goggles or safety glasses Gloves Gown
Medium	Surface contamination from blood and body fluids	Cleaning bathroom Changing linens and doing laundry →	
Lower		Light house cleaning →	Gloves

* Use of an N95 respirator requires a safety process known as Fit Testing. Fit Testing assures that the respirator provides the intended protection. For more information about fit testing: https://blogs.cdc.gov/niosh-science-blog/2020/04/01/fit-testing-during-outbreaks/

** A surgical mask is recommended to help protect the client in case an aide is asymptomatic but infectious.

[1] Body fluids include mucus or moisture from nose or lungs, saliva or spittle, blood, stool, sweat, tears, vomit, urine

[2] Worker Exposure Risk to COVID-19. https://www.osha.gov/Publications/OSHA3993.pdf

How to put on (don) and take off (doff) each type of PPE

The first thing to know is that for PPE, two old-fashioned words are commonly used:

don – to "do on" or "put on"

doff – to "do off" or "take off"

Now that you have learned two new words, let's talk about the PPE.

In addition to the tables below, there are online video resources providing guidance for healthcare workers during the COVID-19 pandemic:

How do I put on (don) my PPE? (video)
https://www.nebraskamed.com/for-providers/covid19/door-to-door-user-guide/donning

How do I take off (doff) my PPE? (video)
https://www.nebraskamed.com/for-providers/covid19/door-to-door-user-guide/how-to-take-off-my-ppe

There are four general points to remember about PPE use.

- First, wash your hands and don your PPE before you have any close contact with your client.
- Once you have PPE on, use it carefully to prevent spreading contamination.
- When you have completed your tasks, remove the PPE carefully and either dispose of it correctly as a waste material or clean and sanitize it prior to reuse if this option is approved by your agency.
- Then immediately wash your hands with soap and water or use hand sanitizer.

Donning PPE continued on next page→

Donning PPE

If you are using multiple types of PPE, it should be put on in a certain order. The reason for this is to build up a protective layer and keep the PPE as clean as possible. You will always do step 1, handwashing, before donning any PPE. After that, PPE should be donned in the following order. Skip over any items that you don't wear.

Table 5. How to don (put on) PPE

1.	Clean hands	• Wash hands with soap and water or hand sanitizer before donning PPE
2.	Don protective clothing Gown, apron, sleeve covers	• To don a gown, the opening of the gown should be in the back • Secure the gown with ties at the neck and waist • Place apron or sleeve covers over your body or arms

3.	Don face mask or respirator	• Place the mask or respirator over nose, mouth and chin
		• Fit flexible nose piece over nose bridge
		• Secure on head with elastic or ties
		  ○ Mask with ties: place the mask over your mouth, nose and chin. Fit the flexible nose piece to the form of your nose bridge; tie the upper set at the back of your head and the lower set at the base of your neck.
		  ○ Mask or respirator with elastic head bands: separate the two bands, hold mask in one hand and bands in the other. Place and hold the mask or respirator over your nose, mouth, and chin, then stretch the bands over your head and secure them comfortably; one band on the upper back of your head, the other below the ears at the base of the neck. Fit the flexible nose piece to the form of your nose bridge.
		• Adjust to fit. To avoid touching the mask or respirator during use, take a few seconds to make sure it is secure on your head and fits snugly around your nose and face without gaps.
		• Perform a seal check. For N95 respirators, this is done by taking a few deep breaths and feeling around the mask with clean hands for escaping air to ensure there is good seal against the skin.
		• To work effectively, a respirator should be fit tested to avoid leaks. Talk to your agency or supervisor for information about fit testing.

4.	Eye/face protection Goggles Face shield Safety glasses	• Position **goggles** over eyes and secure to the head using the headband. Adjust to fit comfortably. Goggles should feel snug but not tight. • Position **safety glasses** over eyes. Glasses should fit well so they don't fall off or shift when you lean forward or bend over. Earpieces should rest comfortably on your ears so you don't need to adjust them later. • Position **face shield** over the face and secure on brow with the headband. A face shield can be worn over safety glasses or goggles and a face mask or N95 respirator.
5.	Gloves	• Don gloves last. Insert hands into gloves • If wearing a gown or protective sleeves with cuffs, tuck the cuffs securely under each glove to provide a continuous barrier of protection for your skin.

The University of Nebraska Medical Center is one of the few highest-level infection treatment centers in the USA and they have guidance for healthcare workers during the COVID-19 pandemic including a video:

How do I put on (don) my PPE? (videos)
https://betsylehmancenterma.gov/homecare
https://www.nebraskamed.com/for-providers/covid19/door-to-door-user-guide/donning

Doffing PPE

There is also a process for taking off, or doffing, your PPE without contaminating your clothing, skin, or body with potentially infectious materials.

Remember:

- Your gloved hands are probably contaminated from all the surfaces you touched. That's why you are told to wash or use sanitizer on your gloved hands, in the following steps.
- Be cautious! Evaluation of PPE use during other epidemics has shown that infection exposure most often happens when PPE is removed (doffed).

If you are wearing only gloves and safety glasses (or goggles), follow these steps for removing them.

Table 6. Removing gloves and safety glasses (if you are wearing only gloves & safety glasses)

1.	Gloves	• Wash gloved hands with soap and water for 20 seconds, or use hand sanitizer (at least 60% alcohol)
2.	Safety glasses	• Avoid touching the front of your glasses because they may be contaminated. • Remove glasses from the back by lifting the earpieces • Wash glasses with warm soapy water.
3.	Remove gloves	• Using a gloved hand, grasp the palm area of the other gloved hand and peel off first glove. Hold removed glove in gloved hand. • Slide fingers of ungloved hand under remaining glove at wrist and peel off second glove over first glove. • Discard gloves in a waste container.
4.	Clean hands	• Wash hands with soap and water or hand sanitizer immediately after taking off PPE

The University of Nebraska Medical Center is one of the few highest-level infection treatment centers in the USA and they have guidance for healthcare workers during the COVID-19 pandemic including a video:

How do I take off (doff) my PPE ? (videos)
https://betsylehmancenterma.gov/homecare
https://www.nebraskamed.com/for-providers/covid19/door-to-door-user-guide/how-to-take-off-my-ppe

Doffing PPE continued on next page→

If you are using multiple types of PPE, it should be taken off in a certain order. Skip over any items that you don't wear.

Table 7. Removing multiple layers of PPE

1.	Gloves	• Wash gloved hands with soap and water for 20 seconds, or use hand sanitizer (at least 60% alcohol)
2.	Eye/face protection Goggles Face shield Safety glasses	• Avoid touching the outside of the face shield, goggles or safety glasses because they may be contaminated. • Remove from the back by lifting headband or earpieces
3.	Protective clothing Gown, apron, sleeve covers	• Unfasten gown ties, taking care that sleeves don't contact your head or body when reaching for ties. Pull gown away from neck and shoulders, touching the inside of gown only. Turn gown inside out, fold or roll into a bundle and discard in a waste container. • To remove apron, untie or tear strap from behind your neck. Pull the apron away from neck and shoulders, touching the inside of the apron only. Fold or roll into a bundle and discard in a waste container (with the contaminated outer surface of the apron now facing inward). • Remove sleeve covers by grabbing the inside of the top of the sleeve. Pull sleeve down. It will roll inside out as you pull it off.
4.	Face mask or respirator	• Be careful not to touch your face when removing mask or respirator. • Do not touch the front of the mask/respirator. It may be contaminated. • Do not allow the outside of the mask or respirator to touch your face. • Bend at the waist so you are facing down as the mask or respirator is removed from your face. • Grasp bottom ties or elastic of the mask/respirator then slide them up and over your head and allow them to hang down as you are bent forward. Then grab the upper tie or elastic and pull over the top of your head so that the mask/respirator can drop away from your face as you are bent forward. • Discard in a waste container. • If using a mask that can be sanitized or washed and reused, place in a sealed bag for later cleaning.
5.	Remove gloves	• Using a gloved hand, grasp the palm area of the other gloved hand and peel off first glove. Hold removed glove in gloved hand. • Slide fingers of ungloved hand under remaining glove at wrist and peel off second glove over first glove. • Discard gloves in a waste container.
5.	Clean hands	• Wash hands with soap and water or hand sanitizer immediately after taking off PPE

How to store, transport, clean and/or dispose of PPE

- Clean PPE should be stored in a clean, dry, sealed bag. The bag should be labelled CLEAN.
- PPE can be transported to your client's home in a clean, dry, sealed bag (labelled CLEAN).
- After use, disposable PPE should be placed in a plastic garbage bag that can be sealed or tied shut. The bag should be disposed of promptly according to agency or employer guidance. Anyone handling the bag should wash their hands with soap and water (20 seconds minimum) or use hand sanitizer (at least 60% alcohol) after handling.
- For reusable PPE, used items should be placed in a sealed bag labelled DIRTY. The bag should be of breathable material, such as a paper bag, so that the moisture from your breath on a mask or from liquid on other PPE does not promote microbial growth while it is in the bag waiting to be cleaned. This bag is likely to be contaminated on both inside and outside, so store and carry separately from clean PPE. Once you take the dirty PPE out for cleaning or sanitizing, discard the bag immediately and wash your hands.
    - Wash safety glasses with warm soapy water or bleach solution, then rinse thoroughly and dry. Store in a clean, dry, sealed plastic bag.
    - For washable homemade cloth face coverings, clean in washing machine with hot water and detergent. Dry thoroughly. Store in clean, dry, sealed bag.
    - For other forms of reusable PPE, contact your agency or employer for information on cleaning or sanitizing.

About the Safe Home Care Project Contributors

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