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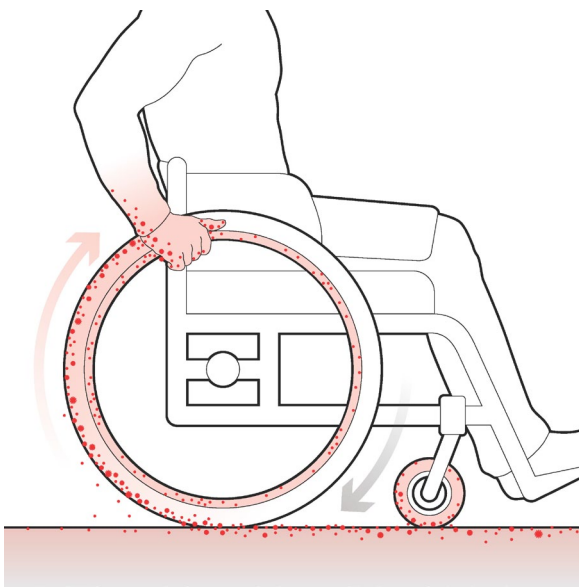
Wheelchair and Assistive Technology Users

PRECAUTIONS for COVID-19

Greetings from Beneficial Designs. My name is Peter Axelson. I am a wheelchair user, designer, and engineer, and I am reaching out today with important information regarding COVID-19 precautions to be taken by wheelchair users.

In the 1970s, James Robb, MD, was one of the first molecular virologists in the world to study coronaviruses. Dr. Robb has shared an important email correspondence on how this virus can spread. According to Robb, the virus spreads in droplets through coughing and sneezing. He cautions that surfaces where these droplets land are infectious for about a week, on average. It is important to remember that direct contact with an infected surface does not guarantee the spread of infection, so long as you continuously wash your hands and keep them away from your face.

If you push a manual wheelchair or use other types of assistive technology (AT), there are unique precautions you should take related to hand washing. COVID-19 can survive on the surfaces of your wheelchair or AT which you come in frequent contact with, such as the handrims. Any virus that might be on your hands is transferred to your handrims as you push your wheelchair.



Tires transfer the virus to the hands and your hands transfer the virus to the handrims.

Clean Hands

Washing your hands is incredibly important. Wet and wash your hands with soap for at least 20 seconds, following the [CDC guidelines](#)¹ whenever you return home from ANY activity that involves locations where other people have been.

Using a fingernail brush to clean under your fingernails is a good idea for those of us that have really rough skin from pushing our wheelchairs for so many years.

I have been a manual wheelchair user for over 40 years, since I broke my back at the Air Force Academy during a training exercise. Because my hands are always touching the handrims on my wheelchair, I use anti-bacterial wet wipes to clean my hands before eating. Using hand wipes prior to meals, regardless of where I am, has reduced the amount of colds and flu I have contracted over the past 20 years. I generally do not touch the tires on my wheelchair, as I use flexible ergonomic handrims which provide a great grip without requiring hand-to-tire contact.

¹ https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fprepare%2Fprevention.html

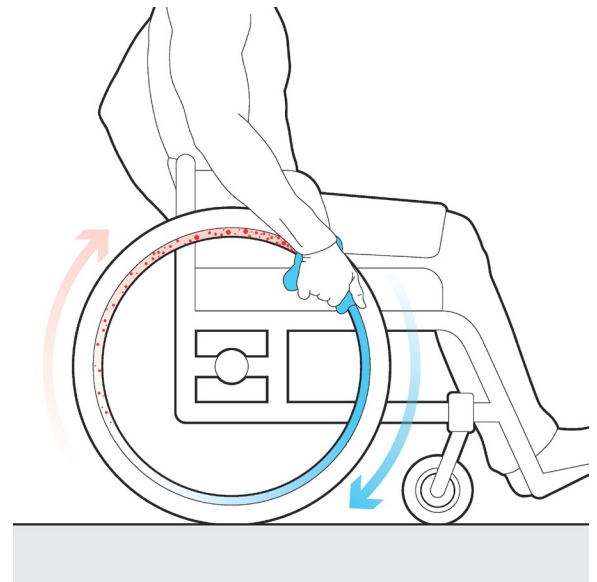
In addition, if you push on your tires, you are basically touching everywhere you have rolled. Wearing gloves when pushing is another option to keeping your hands cleaner. However, if you wear gloves you might need to think about where you set them, as they may now be infected with a virus. It is also likely that the inside of your gloves may become infected unless you always wash your hands before putting the gloves on.

Clean Wheelchair

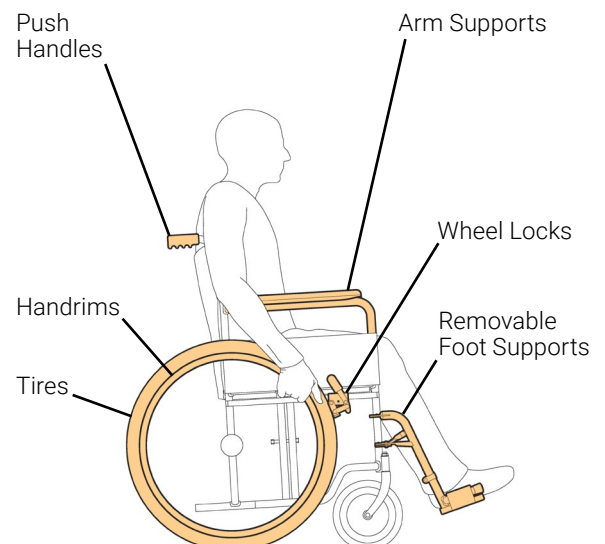
Washing the surfaces on your wheelchair is an important practice. All solid surfaces that we touch could potentially have viruses on them. The handrims and tires on your wheelchair are solid surfaces. At home, when I wash my hands, I have two washcloths or anti-bacterial wipes available. After I wet my hands, apply soap, and then wash my hands, I get two washcloths or paper towels wet with some soap and push my wheelchair around the house, sliding the wash cloths on the handrims as I go. I push my chair about 20 ft (6 m), or spin around in circles if I am in a public bathroom. Pushing 20 ft (6 m) wipes the handrims three times. It can be a bit tricky to learn how to do this. You can have someone slowly push you to make it easier. This allows me to clean the handrims on my wheelchair. I recommend a similar technique for cleaning your wheels; push the wheelchair around with the washcloths on the tires.

While I'm at it, I also wipe the other surfaces that I regularly touch on my wheelchair; including the wheel locks, and the frame in front of my seat cushion. If you have arm supports, push handles or removable foot supports they should be cleaned as well. If you use a powered wheelchair, disinfect your joystick and controls and anything else that you regularly touch on your chair. Remember that many plastics could react poorly to a cleaner containing bleach.

As long as you properly wash your hands before getting into your wheelchair, it can be helpful if someone else washes your tires and handrims while you are not using the chair. I also regularly clean grab bars and other surfaces that I touch in my home when making transfers into or out of my wheelchair. If you do not clean your wheelchair or AT **after washing your hands you will re-infect your hands** with the virus that might be on the handrims or other surfaces that you touch. In case you might have touched part of your uncleaned wheelchair or AT during the cleaning process, it might be a good idea to wash your hands again afterwards.



Pushing the chair with a wet cloth with soap will clean your handrims.



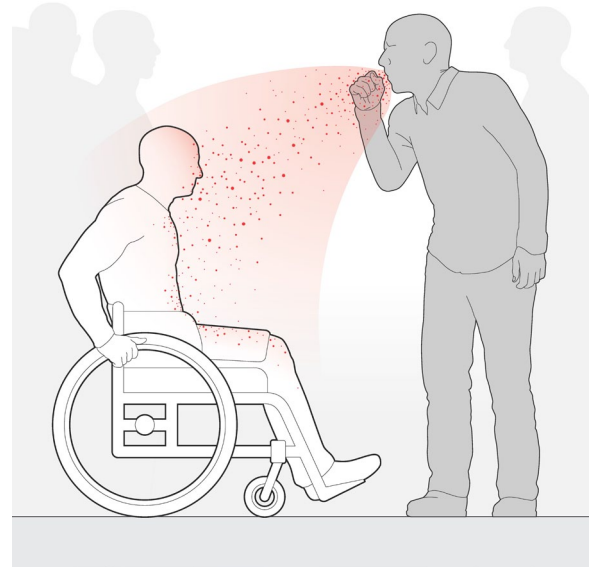
Make sure to wipe down all surfaces on your wheelchair that you or others regularly touch.

Social Distance

There is also the matter of social distancing.

Because wheelchair users tend to sit lower than most people that are standing, we can experience more exposure to saliva droplets when talking to people taller than us. Many medical professionals have recommended observing a minimum of 6 ft (2 m) of distance to those around you to alleviate this risk.

You may also consider wearing some type of face mask to protect yourself from getting “sprayed” by people talking to you. Medical face masks are in high demand right now, and not easy to get hold of. I have a face mask that I wear skiing on really cold days; it would catch any unintentional spraying of saliva from someone’s speech, sneeze or cough. A virus could go through the mask since it is not an N95 rated mask, however, my ski mask might be better than no protection at all. A face mask would also keep me from touching my mouth and nose, further preventing infection. It is important to limit hand-to-face contact as much as possible. Personally, I keep a cup of paint-stir sticks on my desk that I use to scratch my face when I have an itch.



Wheelchair users sit lower and are more vulnerable to infected saliva droplets and aerosols.

To Recap:

1. Wash your hands with soap often and wipe them with anti-bacterial wipes just before and after you eat.
2. Wipe down your wheelchair (especially push rims, tires, and joysticks) or other AT with a wet cloth with soap or anti-bacterial wipe.
3. Observe a minimum of 6 ft (2 m) of distance from others in social interactions, and consider the benefits of wearing a face mask, medical or otherwise.

We have a responsibility to ourselves and others to act in accordance with medical authority suggestions for preventing the spread of disease. By following these additional suggestions, as wheelchair users, we can all do our best to limit the spread of the virus and enable healthier environments for ourselves and those we come in contact with. I hope this advice can be of use and provide additional comfort in knowing the specific precautions that can be taken by wheelchair and AT users. This is an extraordinary trial we are going through. These precautions mean that it will take you much longer to practice appropriate hygiene than it will for everyone else. If you are alive and pushing a manual wheelchair independently, you have already proven to yourself that you have the perseverance to continue living your life. Do not give up because of a virus. Just because you use a wheelchair, and there is a new virus spreading around, you do not need to live your life in fear. Be courageous, and push forward.

Peter Axelson MSME, ATP, RET

Manual wheelchair user and leader of Beneficial Designs