By Craig Schuttenberg October 2020

COVID19 & Safer Air Travel

Best Practices Can Reduce Chances of Infection

Although many of us have been able to work from home since the COVID19 outbreak earlier this year, there will be a time when we will be confronted with the challenge of taking a trip by commercial aircraft before it is entirely safe to do so. Planes are enclosed spaces with no social distancing, so extra care needs to be taken to minimize the chances of infection. Understanding that every interaction in life has associated risks, mitigating apparent risks will significantly reduce the probability of an adverse outcome. In other words, nothing is risk-free –but if you have to fly, there are many actions you can take to decrease the chances of becoming infected with the COVID19 virus.

The disease scientists are still learning about the extent and vectors of COVID19 transmission. In response, airlines are being conservative and are going to great lengths to make the plane as near germ-free as they can prior to boarding passengers. Planes are being disinfected thoroughly at least once per day and many surfaces (e.g., arm rests, tray tables, etc.) are being wiped down between flights. With the planes being as close to sterile as possible, your main source of infection is your fellow passengers.

The current thought is that COVID19 transmission is primarily airborne and it enters the body through mucous membranes (e.g., nose, mouth and eyes). This newsletter focuses on how best to minimize the risk of infection wearing easily secured equipment and implementing best practices.

Definitions/Terminology

As with every technical subject, terms and jargon proliferate. Shown below, along with background information on the subject, is the language of COVID19 for safer air travel.

Filter Capacity Ratings

The designations N95 and N100 refer to the ability of masks/respirators to filter air passing through the filter medium. N95 masks filter out 95% of the contaminants (0.3 microns in diameter and larger) in the air you inhale, while N100 masks/respirators filter out 99.97% of contaminants.

Face Masks vs. Respirators

Face masks (the kind of protection most people wear) are the cloth coverings that cover your nose and mouth. Face masks are not designed to protect you – they are designed to protect others from you. They capture bodily fluids leaving the wearer's mouth and nose. Face masks have no standards with which to comply other then they should cover your mouth and nose.

Respirators are tight fitting filters that create a seal around your nose and mouth. Respirators come in two basic varieties – Respirators with or without exhale valves. Respirators without an exhale valve filter both the air you inhale (protecting you) and the air you exhale (protecting others). Respirators with exhale valves (i.e., some N95 and virtually all N100 masks) don't filter the air you exhale, therefore, they put others around you at risk. The exhale valves enhance the wearer's comfort as they decrease heat build up inside the mask during use. However, because of the additional risk to others, many airlines will not allow passengers to wear respirators with exhale valves – and the CDC does not recommend them.

Face Shields

Face Shields are the clear plastic face coverings that protect your eyes from contaminated droplets. COVID19 enters the body through mucous membranes – which includes your eyes. A face

shield or goggles will reduce the chance of infection via your eyes.

So what should you wear on the plane?

Wear an N95 respirator without an exhale valve. Assuming your objective is to protect yourself as best as possible, without compromising the safety of others, you are going to want to wear an N95 respirator – with no exhale valve. The biggest mistake people make when selecting/using an N95 respirator is using one that doesn't fit properly. An N95 respirator is ineffective if air can pass around the edges, thereby bypassing the filtering medium. To be able to adjust a respirator properly, it should have a metal nose bridge to form a close seal around your nose and mouth. If the respirator you have purchased does not create a good seal, then you should try another brand of mask. Yes, buying another mask is inconvenient. But considering how much you paid for your airfare and how bad things would be if you were to become infected with COVID19, keep things in perspective as you shell out for another five-dollar mask. And don't wait until the morning of your flight to see how the respirator fits.

Wear warm clothing (or bring an extra sweater). The filtration systems on air planes supplies conditioned air that is cleaner than the air we breath indoors at home or at work. Not only is it cleaner, but also the air is circulated (i.e., more air changes per hour) more frequently. Unfortunately, there are possibly hundreds of people on your plane unwittingly contaminating that very clean air you are all sharing. To maximize the quantity of clean air around you, open the personal air nozzle (you know, the nozzle that is usually left closed because the air is either too cold or makes too much noise) to maximum air flow and blow it directly at your face. Having warm clothing should eliminate the need to travel with the nozzle closed.

Wear a face shield. Although you will not be making a fashion statement with your brand new face shield, it will be helpful in reducing the chance of infection in close quarters like an airplane.

Summarizing – 1) wear a correctly fitted N95 respirator, 2) sport a stylish face shield and 3) bring/wear a warm sweater.

Other tips

- Choose a non-stop flight to reduce time in enclosed spaces such as terminals and planes
- Try to avoid removing and unnecessarily touching your respirator while on the plane. Every time you remove and/or touch it, you increase your chances of infection.
- When removing your N95 respirator, avoid touching the front of the mask as much as possible as this is the site where contaminants collect. Wash/disinfect your hands after touching a mask that has been worn for any length of time.
- Follow the mask manufacturer's guidelines regarding disposal (most recommend disposing after eight hours of use) and/or cleaning/re-use
- Even though you are taking extra precautions, understand that you aren't immune from infection. Don't go out of our way to test the efficacy of the equipment you are wearing. Still maintain social distancing as much as possible, wash your hands frequently, minimize touching your face, etc.

Note: For several months we were instructed to not purchase N95 masks as they should be saved for medical workers and essential personnel. Fortunately, that is no longer the case. Suppliers have ramped up production to meet the demand and they are now available all over the internet.

Enjoy your flight.