

Masks – What’s the go?

- The current evidence on COVID19 is that it is spread via droplets, which can be transmitted by being in close (<1.5m) contact with an infected individual, or via fomites (when the person coughs/sneezes, droplets containing the virus land on objects which then infect an individual when they transmit the virus from the fomite to the mucous membranes via the hands)
 - o Aerosolised spread may occur in what are known as “aerosol-producing procedures” – this includes CPR, BVM, intubation, nebulisers etc.
- Because of this, health care workers are advised to utilise droplet and contact precautions when treating suspected COVID cases. This means
 - HAND HYGEINE
 - Gloves
 - Gowns
 - Surgical face masks
 - Face shields/eye goggles
 - o Proper use should protect the health care worker from droplets and contact with fomites, and prevent exposure to mucous membranes (eyes, nose, mouth)
- When aerosol-producing procedures are being performed, aerosol precautions need to be adhered to. This includes
 - o Minimising the number of people in the room
 - o Face shields/gowns/gloves, plus use of a **properly fitted** N95 mask
 - o Other measures to minimise aerosol generation/exposure – sheets to cover the face and video-assisted laryngoscopy during intubation, masks (surgical, or NIV with viral filters)
 - o Other options include PAPRs (portably air purifying respirators), although inventory of these is limited and this requires further donning/doffing training due to high risk of exposure when doffing



A PAPR – source 3M

- Patients who are suspected of having COVID19 (or other respiratory illness) are made to wear surgical masks because this helps to catch the droplets, before they spread and are inhaled by those surrounding them, or land on a surface.
- Why not play it safe and have everyone in the hospital use N95 masks?
 - o N95 masks are not “plug and play” – they require a proper fit for them to work properly. Improper donning (putting on), use, and doffing (taking off) of PPE exposes users to higher risks of contracting the virus

- Supplies – N95s are more technical and expensive to make, and thus are at a greater risk of running out. That means we don't have the minimum required equipment when we need it. It also exposes the people who are our most experienced in managing intubated patients – critical care physicians
- What about using masks out in the community?
 - At the moment community transmission of COVID19 is still low, and with adherence to social distancing the chance of coming within 1.5m of an infected patient whilst they're coughing is very low
 - Therefore, masks are pretty ineffective from the point of view of preventing inhalation
 - N95 masks are not required by the community, as aerosolised spread is generally limited to aerosol-producing procedures
 - The greatest risk of community transmission occurs when lots of people are in close contact – therefore the most effective way to prevent transmission is to physically distance and to minimise time outside
 - The way most surgical masks (or any mask for that matter) help prevent spread in the community is by stopping people touching their face. This can be achieved with a scarf, item of clothing, or by simply being aware. People who wear masks are also more likely to be engaging in frequent hand hygiene
 - Therefore, you can reduce your risk in the community of catching the virus by not touching your face, and frequently practicing hand hygiene
 - The main risk with the community using masks, especially N95s, is that it takes away a finite resource from our health professionals who need it most. Many hospitals across the US and Europe are already running low on stock, whilst individuals panic buy thousands of masks for price gouging. This puts our medical workforce at risk.
 - And, we're already preparing for this in Australia. Surgeons are buying painting equipment from Bunnings to use as makeshift PPE, and some hospitals in Sydney have already been told to start writing their name and dates on their N95s so they can keep re-wearing them (<https://mobile.abc.net.au/news/2020-03-30/sydney-doctors-asked-to-reuse-face-masks-in-coronavirus-shortage/12100952?pfmredir=sm>)

Source: This source is the amalgamation of many papers, articles, and guidelines I've been reading over the past few weeks. As such, I can't give exact sources for all the points made in this post. However, some good places for further reading include

- <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public/when-and-how-to-use-masks>
- <https://www.health.gov.au/resources/publications/coronavirus-covid-19-information-on-the-use-of-surgical-masks>
- <https://emcrit.org/ibcc/COVID19/>