



**2020 Topic sheet # 9 - September**  
(SARS-CoV-2 is the virus and COVID-19 is the disease)

**IS COVID-19 AIRBORNE SPREAD? SHOULD I BE WEARING A P2 RESPIRATOR MASK?**

**Transmission**

A couple of months ago, the term airborne spread began to be used for COVID-19 with an implication that P2 respirator masks were required. This is more about terminology than evidence but it did lead to further thought about cases in settings where transmission should not have occurred. The evidence still supports it being predominantly droplet spread (CDNA) and surgical masks are still recommended. However, a setting described in bold below has been identified where a P2 is now recommended in addition to it being a standard requirement during an aerosol generating procedure e.g. intubation. The setting described below in bold would not be currently/normally encountered in General Practice so there does not appear to be a case for use of these masks in clinics. The virus can also be spread by contact which is why hand hygiene is critical in addition to correct use of PPE etc.

**The setting in question**

- **spending lengthy periods in an enclosed space with contact with multiple COVID-19 patients (who may not be wearing masks and/or who may be coughing and/or have challenging behaviours e.g shouting out**

*During a recent outbreak at RMH Royal Park campus, the above setting was more or less described. The authors implemented a number of measures to attempt to reduce transmission. These included attention to PPE use, observation of zones, moving residents to single rooms with own bathroom and use of P2 respirator masks. The outbreak was contained but it is not known if any action contributed more than another to eliminating transmission but use of P2 in such settings would seem to be prudent.*

*(I have to assume that PPE was used correctly and that use of the staff room did not promote transmission -MJ)*

**Small particle airborne spread**

Measles and chicken pox are considered true airborne spread (aerosols) while COVID-19, like influenza is predominantly droplet spread. However, it is obvious that a range of droplet sizes (mucosaliva /water) will be released during coughing / talking where the largest fall within a metre with the highest risk being when close up. Attention has moved to the possibility that smaller droplets (between large droplets and aerosols) may play a role in transmission especially in the above described setting where transmission occurred despite the use of PPE. Other factors in the environment such as temperature, humidity, air currents, air exchange may influence how long these small particles may remain suspended in such settings to increase risk to a point where a P2 respirator mask may be more protective.

**The R0 number and the infectious dose – the evidence for COVID-19 not being classic airborne transmission**

The reproduction number (R0) is used to describe how many people one case can infect. For measles this is accepted as approximately 17 while for influenza it is considered to be just above 2. From the evidence over the past 8 months, COVID-19 is just over 2 but closer to 4 in a setting such as a cruise ship. If COVID-19 was classic airborne spread, then we would see a completely different pattern of spread to what is observed – what we observe is in fact classic for droplet transmission.

So, between large droplets and aerosols is **small particle airborne transmission** (SPAT) – this is where thinking is at.

The issue of P2 use requires firstly fit checking every time such a mask is used. Unfortunately, some on the market do not pass this test and will obviously not pass the gold standard of a fit test which requires special equipment. In essence, avoid any P2 that has ear loops and do not use any P2 with a valve. You cannot wear a P2 if you have facial hair.