

COVID-19: Surgical masks and respirators in the operating theatre

Editor

There has been much focus on all aspects of PPE to protect healthcare staff¹. However, due to exceptionally high demand some compromises are being made. The difference between masks and respirators should be highlighted. “Masks protect the patient and the surgical area from contamination. Masks prevent particles being transferred to the operative site. Respirators reduce potential exposure of the wearer to airborne hazardous contaminants. Respirators should be worn where protection against hazards such as laser plume, blood aerosol and diathermy smoke is required².”

The PPE recommendation in the UK is FFP3 respirators when performing an aerosol generating procedure on a patient with suspected or confirmed COVID-19³. There is some debate as to what generates an aerosol; 3M defines diathermy plume as an aerosol, whereas this is conspicuous by its absence in current recommendations³. Government guidelines do not address surgical PPE⁴.

FFP3 respirators can be valved or unvalved. FFP3 masks offer 20x APF (assigned protection factor) and block both liquid and solid aerosol. Unvalved

masks filter through the material of the mask during inspiration and expiration. This makes the internal atmosphere hot, humid and more difficult to tolerate. Manufacturers therefore offer a valve for exhaled air. This valve does not filter exhaled air and directs it downwards. This significantly improves comfort for the wearer and is appropriate for most healthcare settings. However, with a valve the device no longer functions as a surgical mask.

To address this in the author's hospital some surgeons have been wearing fluid repellent surgical masks over valved FFP3 respirators to protect patients. 3MTM technical division do not recommend this as it increases the effort needed to breath with no added benefit to the wearer. Some manufacturers provide a shrouded valve option as an option which can be used.

We propose further testing to establish the safety of these devices in the operating theatre. In the interim we advocate the use of unvalved surgical masks for surgical procedures with a high risk of wound or device infection. We appreciate for shorter, lower risk procedures and with current global procurement issues valved FFP3 masks may be appropriate.

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DOI: 10.1002/bjs.11888

- 1 COVIDSurg Collaborative. Global guidance for surgical care during the COVID-19 pandemic. *Br J Surg* 2020; **107**: 1097–1103.
- 2 3M Health Care. <https://multimedia.3m.com/mws/media/3431700/3mtm-surgical-masks-respirators-and-protective-eyewear.pdf>
- 3 Royal College of Surgeons of England COVID-19: GOOD PRACTICE FOR SURGEONS AND SURGICAL TEAMS. <https://www.rcseng.ac.uk/standards-and-research/standards-and-guidance/good-practice-guides/coronavirus/>
- 4 Public Health England. Guidance-Considerations for acute personal protective equipment (PPE) shortages. <https://www.gov.uk/government/publications/wuhan-novel-coronavirus-infection-prevention-and-control/managing-shortages-in-personal-protective-equipment-ppe?>