ASA – PS21

Position statement

ASA Position Statement on fit-testing for adequate respiratory protection

Fit-testing

Fit-testing is an essential and mandatory step in ensuring that workers obtain an effective seal when donning a P2/N95 respirator.

This is in accordance with Workplace Health and Safety Legislation and AS/NZS 1715:2009,[1] where at-risk anaesthetists and associated staff are required to wear P2/N95 respirators. Employers are required to implement a comprehensive respiratory protection program that includes respirator fit-testing and training in the donning and doffing of respirators.

The Australian Government *Guidance on the use of personal protective equipment (PPE) in hospitals during the COVID-19 outbreak* version 4 published on 24th April 2020, which was developed by the Infection Control Expert Group (ICEG) acknowledged that "Fit-testing is recommended as the gold-standard (AS/NZS1715:2009) for use of P2/N95 respirators".[2] This advice has since changed although the Australian Standard has not.

The ASA considers fit-checking (user seal check) alone to be insufficient

Fit-testing with a trained fit-tester not only confirms that an effective seal can be maintained, but also identifies which respirators provide the greatest protection. Fit testing also provides education about how to don a respirator correctly, what a correctly fitted respirator feels like and how to wear and fit-check it correctly. This is supported in the following studies:

- A Canadian study of 784 participants: 25% of those who considered they had an adequate seal failed quantitative fit-testing.[3]
- A Hong Kong study of 268 Chinese descent participants: the user seal check was correct on 71-75% of occasions.[4]
- A Hong Kong study of 204 Chinese descent participants: the ability of the fit-check to correctly identify a poor fit was 15-23%. Furthermore, the accuracy of the fit-check was higher for males than for females.[5]

These studies and our own experience consistently demonstrates that the fit-check is unable to serve as an effective alternative to fit-testing because of its low accuracy and predictive value. In healthcare, fit-checking is often taught in an ad-hoc fashion by inexperienced trainers and it could be anticipated that the reliability of fit-checking is worse than in the research settings.

Fit testing provides a valuable opportunity for education

An N95/P2 respirator will not provide adequate protection if facial hair prevents an adequate seal being formed. This and other techniques for obtaining optimal fit are learnt during fit-testing. Our own experience of testing ASA members found that for 55% of tests, education was required in order for the mask to pass fit-testing. In a study of 43 untrained fit-tested health workers followed for 14 months,

44% successfully passed fit-testing without specific instruction. This increased to 74% after initial training.[6] Failure rates of fit-testing were high at 3 and 14 months follow up, but pass rates remained high amongst regular users. Wearing a P2/N95 respirator in daily work was found to improve the success of maintaining a face seal in the longer term. During the current pandemic, it could be anticipated that there is a high motivation to ensure correct use and that use will become regular by anaesthetic teams. For those who do not use P2/N95 respirators routinely, this emphasises the need for regular training.

Alternate respiratory protection

Where an approved fit-tested P2/N95 respirator is not available, there are a number of options. These include removing the worker from high risk duties, providing a reusable (elastomeric) respirator or providing a powered air-purifying respirator (PAPR). Loose fitting PAPR may be most suitable for those unable to shave facial hair, for example due to religious reasons. Workers should not work with close-fitting respirators until they have been successfully fit-tested.

In summary, the ASA recommends:

- All health services be mandated to provide health workers in contact with patients with COVID-19 with adequate respiratory protection. This includes a fit tested N95/P2 respirator as a minimum and is in accordance with the National Guidelines and Australian Standards, except where State guidance recommends a higher level of PPE.
- Health workers should not undertake or be required to undertake tasks requiring PPE in situations where appropriately fit-tested and checked PPE is not available for use. Any such tasks should not proceed until required PPE is made available.
- In ensuring adequate PPE, fit-testing is essential to ensure P2/N95 respirators will provide adequate protection. Training as to their correct use should be provided and fit-checking must be performed with each individual mask application.
- Where fit-testing is not available, alternatives methods of protection are to be implemented (e.g. PAPRs).
- All anaesthetists must undertake training until they are proficient in the donning and doffing of PPE and team-based simulation for protected intubation and extubation as a minimum.

References

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