

Environment, health, & safety

Emerging infectious threats: Respiratory protection for personal safety

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There's widespread acknowledgment regarding the inevitability of an influenza pandemic and the corresponding need for respiratory protection as an essential line of defense for healthcare workers. The recent novel H1N1 flu outbreak has brought this issue to the forefront, but it isn't the only potentially deadly pandemic disease that could require the proper use of respiratory protection. For example, based on recent U.S. Department of Health and Human Services updates, the number of confirmed deaths due to avian influenza H5N1 is increasing in parts of Asia. Although there has been no proven transmission of person-to-person spread of avian flu, experts are concerned that the virus could undergo genetic changes that would result in its ability to be transmitted between humans. Healthcare workers may be especially vulnerable because they are expected to work extended hours as primary care providers for potentially infectious patients. This risk is exacerbated by the complacent use of respiratory protection—less than 60% of healthcare workers reportedly adhere to respiratory protection guidelines. Recent studies suggest that routine use of a respirator is critical in achieving good fit and protection. Therefore, healthcare workers must adopt improved respiratory protection practices to safeguard their personal health.

The best respirator will do little to protect an individual who doesn't know how to use it correctly. Following medical clearance, your initial fit test should be the beginning step in a process of learning how to properly use your respirator. Based on the results of your annual fit test, you should know the manufacturer, model, and size of the respirator selected for your protection. On a regular basis and each time you wear a respirator, perform the correct sequence for donning (putting on) and doffing (taking off) a respirator and self-assessed user seal check. With practice, you should be able to tell when you've achieved an adequate facial seal. Performing these routine activities is a critical step in self-protection from avian or pandemic influenza as well as other airborne infectious diseases. In some circumstances, a disposable respirator may be reused by the wearer as long as it isn't contaminated, soiled, or damaged or doesn't

become more difficult to breathe through. The respirator should only be reused by the same person and never shared. Always follow your employer's respiratory protection policy.

N95 filtering facepiece respirators, when properly fit, are more than 90% efficient at reducing exposure to harmful particles in the air. Therefore, the respirator wearer can be assured, based on National Institute for Occupational Safety and Health (NIOSH) certification testing and periodic fit testing, that no more than one-tenth of the outside particles are inside the respirator breathing zone. A properly fitted respirator should be snug to the face, with the nosepiece firmly adjusted on top and the NIOSH label, if present, on the bottom. Proper placement of the headbands, with the lower strap around the neck and below the ears and the top strap above the ears and around the crown of the head, secures the facepiece to the wearer's face. If weight fluctuations or facial or dental alterations occur, a fit test should be done again to ensure the respirator remains effective. Be aware that if there's fogging on eyeglasses during use, the respirator isn't sealed properly. Also, it's not possible to properly seal an N95 if the wearer has facial hair such as a beard extending into respirator seal areas.

Proper respirator use is paramount to protect healthcare workers from airborne infectious diseases. Although there's conflicting scientific evidence for the predominance of airborne transmission as the route of all types of influenza, the current recommendations are to use respiratory protection devices when caring for patients infected during an influenza pandemic or with avian influenza or other novel influenza strains because of the high case fatality rate. A few simple procedures ensure the safe and correct use of N95 filtering facepiece respirators. It behooves every nurse to be familiar with the fit test and seal check requirements, and to use a respirator that fits correctly when caring for patients infected with airborne infectious diseases. ★

Visit www.AmericanNurseToday.com/Archives.aspx for a complete list of selected references.

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