



Office Of Emergency Management: N95 Versus P100 Filtering Facepieces For EMS Personnel

"A concern has been raised that EMS personnel should be wearing P100 filtering facepiece respirators (FFR) instead of N95 filtering facepiece respirators as the minimum respiratory protection required during a pandemic influenza crisis. The filter efficiency of a P100 FFR is greater than that of an N95 only when the great majority of the particulates it encounters are concentrated at the most penetrating particle size of 0.3 microns. That is where filter efficiency would have a significant impact on penetration into the respirator. Once the particle size of infectious particles and droplets encountered increases slightly, the efficiency of the N95 filter rapidly approaches that of the P100 filter. The distribution of particles from coughs and sneezes of pandemic flu-infected individuals is not predominately in the most penetrating particle size range, and particles are readily captured by either an N95 or P100 filter."

"Both the N95 FFR and the P100FFR have the same Assigned Protection Factor (APF) of 10. The actions that most impact the level of protection that EMS personnel receive against pandemic influenza are obtaining a proper facepiece fit consistently and performing fit testing to make sure that the best-fitting respirator has been selected. It is the quality of the facepiece fit that can most greatly impact the protection provided by any respirator. A P100 FFR can increase breathing resistance for the wearer and could result in increased leakage past the facepiece for an improperly fitting respirator. The N95 and P100 filters have both been shown to be effective in controlling exposures to bacterial and viral particles in the atmosphere. Therefore, OSHA has recommended the fit-tested N95 filtering facepiece respirator used within the context of a respiratory protection program as the minimum level of respiratory protection for pandemic flu."

The CDC also stipulates that persons who wear surgical masks or respirators should note that:

- "Surgical mask or respirator use should not take the place of preventive interventions, such as respiratory etiquette and hand hygiene."
- "To offer protection, surgical masks and respirators must be worn consistently throughout the time they are used."
- "Wearing a surgical mask or respirator incorrectly, or removing or disposing of it improperly, could allow contamination of the hands or mucous membranes of the wearer or others, possibly resulting in disease transmission."

"Proper surgical mask or respirator use and removal includes the following:"

- "Prior to putting on a respirator or surgical mask, wash hands thoroughly with soap and/or use an alcohol-based hand sanitizer to reduce the possibility of inadvertent contact between contaminated hands and mucous membranes."
- "If worn in the presence of infectious persons, a respirator or surgical mask may become contaminated with infectious material; therefore, avoid touching the outside of the device to help prevent contamination of the hands."
- "Once worn in the presence of a patient with pandemic influenza, the surgical mask or disposable N95 respirator should be removed and appropriately discarded."
- "After the surgical mask or respirator has been removed and discarded, wash hands thoroughly with soap and water, or use an alcohol-based hand sanitizer."

To be OSHA compliant, the Respiratory Protection Program must contain the following seven key elements:

1. A written plan detailing how the program will be administered
2. A complete assessment and knowledge of respiratory hazards in the workplace
3. Procedures and equipment to control respiratory hazards, including the use of engineering controls and work practices structured to limit or reduce employee exposures
4. Guidelines for the proper selection of respiratory protective equipment
5. Employee training that includes respiratory hazard recognition, dangers of the hazards, and proper care and use of respiratory protective equipment
6. Inspection, maintenance and repair of respiratory protective equipment
7. Medical Surveillance of employees

Further information may be found at:
www.cdc.gov/ncidod/sars/respirators.htm
www.fda.gov/cdrh/ppe/masksrespirators.html