

## Respiratory Infection Control: Respirators Versus Surgical Masks

It is important that employers and workers understand the significant differences between these two types of personal protective equipment. The decision whether or not to require workers to use either surgical masks or respirators must be based upon a hazard analysis of the workers' specific work environments and the different protective properties of each type of personal protective equipment.

The use of surgical masks or respirators is one practice that may reduce the risk of infectious disease transmission between infected and noninfected persons. Since there is limited historical information on the effectiveness of surgical masks and respirators for the control of influenza during any previous pandemics, the effectiveness of surgical masks and respirators has been inferred on the basis of the mode of influenza transmission, particle size and professional judgment.

To offer protection, both surgical masks and respirators need to be worn correctly and consistently. If used properly, surgical masks and respirators both have a role in preventing different types of exposures. During an influenza pandemic, surgical masks and respirators need to be used in conjunction with interventions that are known to prevent the spread of infection, such as engineering and administrative controls (e.g., installing sneeze guards, teleworking) and work practices (e.g., cough etiquette, hand hygiene, and avoiding large gatherings).

### Respirators

Respirators are designed to reduce a worker's exposure to airborne contaminants. Respirators come in various sizes and must be individually selected to fit the wearer's face and to provide a tight seal. A proper seal between the user's face and the respirator forces inhaled air to be pulled through the respirator's filter material and not through gaps between the face and respirator.

Respirators offer the best protection for workers who must work closely (either in contact with or within 6 feet) with people



who have influenza-like symptoms. These generally include those workers who work in occupations classified as *very high exposure risk* or *high exposure risk* to pandemic influenza. For additional information on very high and high exposure risk occupations, please refer to OSHA Publication No. 3327, entitled *Guidance on Preparing Workplaces for an Influenza Pandemic*, which can be found at <http://www.osha.gov/dsg/topics/pandemicflu/index.html>.

Where workers are required by employers to wear respirators, they must be NIOSH-certified, selected, and used in the context of a comprehensive respiratory protection program, (see OSHA standard 29 CFR 1910.134, or [www.osha.gov/SLTC/respiratoryprotection/index.html](http://www.osha.gov/SLTC/respiratoryprotection/index.html)). It is important to medically evaluate workers to ensure that they can perform work tasks while wearing a respirator. For many workers, medical evaluation may be accomplished by having a physician or other licensed healthcare provider review a

respiratory questionnaire completed by the worker (found in Appendix C of OSHA's Respiratory Protection standard, 29 CFR 1910.134) to determine if the worker can be medically cleared to use a respirator. Employers who have never before needed to consider a respiratory protection plan should note that it can take time to choose an appropriate respirator to provide to workers; arrange for a qualified trainer; and provide training, fit testing and medical evaluation for their workers. If employers wait until an influenza pandemic occurs, they may be unable to implement an adequate respiratory protection program in a timely manner.

### **Surgical Masks**

Surgical masks are used as a physical barrier to protect the user from hazards, such as splashes of large droplets of blood or body fluids.

Surgical masks also protect other people against infection from the person wearing the surgical mask. Such masks trap large particles of body fluids that may contain bacteria or viruses expelled by the wearer.

Surgical masks are used for several different purposes, including the following:

- Placed on sick people to limit the spread of infectious respiratory secretions to others.

- Worn by healthcare providers to prevent accidental contamination of patients' wounds by the organisms normally present in mucus and saliva.
- Worn by workers to protect themselves from splashes or sprays of blood or bodily fluids; they may also keep contaminated fingers/hands away from the mouth and nose.

Surgical masks are not designed or certified to prevent the inhalation of small airborne contaminants. These particles are not visible to the naked eye but may still be capable of causing infection. Surgical masks are not designed to seal tightly against the user's face. During inhalation, much of the potentially contaminated air can pass through gaps between the face and the surgical mask and not be pulled through the filter material of the mask. Their ability to filter small particles varies significantly based upon the type of material used to make the surgical mask, so they cannot be relied upon to protect workers against airborne infectious agents. Only surgical masks that are cleared by the U.S. Food and Drug Administration to be legally marketed in the United States have been tested for their ability to resist blood and body fluids.

**This is one in a series of informational fact sheets highlighting OSHA programs, policies or standards. It does not impose any new compliance requirements. For a comprehensive list of compliance requirements of OSHA standards or regulations, refer to Title 29 of the Code of Federal Regulations. This information will be made available to sensory impaired individuals upon request. The voice phone is (202) 693-1999; teletypewriter (TTY) number: (877) 889-5627.**

For more complete information:



U.S. Department of Labor

[www.osha.gov](http://www.osha.gov)

(800) 321-OSHA

## Hospital Respiratory Protection Program Toolkit

*(This document was adapted from a California-specific guide, Implementing Respiratory Protection Programs in Hospitals: A Guide for Respirator Program Administrators, May 2012, which was developed by the California Department of Public Health, Occupational Health Branch, and the Public Health Institute under contract no. 254-2010-345-11 from the National Institute for Occupational Safety and Health, National Personal Protective Technology Laboratory (NIOSH-NPPTL). The guide was adapted under contract no. 254-2011-M-40839 from NIOSH-NPPTL to produce this toolkit.)*

### 5.0 Fit Testing

Before an employee is required to use any respirator with a tight-fitting facepiece (anything except a PAPR with loose-fitting facepiece, hood, or helmet that does not rely upon a tight-fitting facepiece-to-face seal), she/he will be fit tested with the same make, model, style, and size of respirator to be used. **Employees who use tight-fitting respirators are not permitted to have facial hair that interferes with the facepiece seal or valve function. D-6**

All employees who must wear respiratory protection shall receive medical clearance before fit testing is performed or the respirator is worn. Fit tests will be provided at the time of initial assignment and annually thereafter. Additional fit tests will be provided whenever the employee experiences or the supervisor or RPA observes physical changes that could affect respirator fit. These changes include, but are not limited to, facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight.

Employees who will be using only a PAPR with loose-fitting facepiece, hood, or helmet do not need to be fit tested. Any employee who cannot be successfully fit tested with a tight-fitting respirator may be assigned a PAPR with a loose-fitting facepiece, hood, or helmet for all tasks requiring a respirator.

Employees will be offered a selection of several models and sizes of respirators from which they may choose the one that correctly fits and is most acceptable/comfortable. A qualitative fit test may be used for all wearers of half mask APRs, including filtering facepiece respirators with N95 or P100 filters and elastomeric APRs. The qualitative test will follow the protocol saccharine found in Appendix A of the OSHA Respiratory Protection standard (29 CFR 1910.134) and in Appendix D of this RPP.

### 6.0 Training

Annual respirator training will be provided for all employees covered by this program. The training will be conducted annually and will include the following:

- The specific circumstances under which respirators are to be used
- Respiratory hazards to which employees are potentially exposed during routine and emergency situations
- Why the respirator is necessary and how proper fit, usage, and maintenance can ensure the protective effect of the respirator as well as how improper fit, usage or maintenance can compromise the protective effect of the respirator
- The limitations and capabilities of the respirators that will be used
- How to effectively use the respirators, including emergency situations and situations in which the respirator malfunctions
- How to inspect, put on, remove, use, and check the seals of the respirator (for tight-fitting respirators such as N95 filtering facepiece respirators)
- The procedures outlined in this program for maintenance, storage, and cleaning or disposal of respirators; employees who are issued PAPRs shall be instructed in procedures for charging and maintaining the batteries, and for checking the air flow rate
- How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators
- How and when to decontaminate (or safely dispose of) a respirator that has been contaminated with chemicals or hazardous/infectious biological materials

Training shall be provided at the time of initial assignment to respirator use, but before actual use, and annually thereafter. Additional training will be provided when there is a change in the type of respiratory protection used, or when inadequacies in the employee's knowledge or use of the respirator indicate that he or she has not retained the requisite understanding or skill.

The employee will also receive training during the fit testing procedure that will provide an opportunity to handle the respirator, have it fitted properly, test its facepiece-to-face seal, wear it in normal air to familiarize themselves with the respirator, and finally to wear it in a test atmosphere. Every respirator wearer will receive fitting instructions, including demonstrations and practice in how the respirator should be worn, how to adjust it, and how to perform a user seal check according to the manufacturer's instructions (see Appendix E of this RPP).

## 7.0 Respirator Use

Employees will follow procedures for proper use of their respirators under conditions specified by this program and in accord with the training they receive on the use of each particular model or type of respirator. The appropriate types of respirators to be used and the exposure conditions are listed in the respirator selection chart in Appendix A of this RPP. Respirators relying on a tight facepiece-to-face seal must not be worn when conditions prevent a good seal. Such conditions may be a beard, long moustache, sideburns, or even razor stubble as well as scars, other facial deformities, piercings, and temple pieces on glasses. In addition, the absence of one or both dentures can seriously affect the fit of a facepiece. Employees and supervisors are expected to be diligent in observing practices pertaining to ensuring the safe use of respirators. To ensure proper protection, the wearer will perform a user seal check, in accord with manufacturer's instructions and the training provided at the time of fit testing, each time he or she puts on a tight-fitting respirator. Employees who wear corrective glasses or other personal protective equipment must wear these during their fit testing to ensure that it does not interfere with the facepiece seal.

### Other Resources

#### UMCNO EMPLOYEE HEALTH NOTICE: FIT TESTING

For more information, visit UMCNO's website:

<http://www.umcno.org/Newsletter/ViewNewsletterNoMaster.aspx?x=YTn6r2ViapMrlAkC9IdOAq==#FitTesting>

#### WHO NEEDS FIT TESTING?

Health care workers who may come into contact with patients on airborne precautions isolation (TB, Anthrax, Measles, Chickenpox and Small pox).

#### WHAT IS FIT TESTING?

Per OSHA, a respirator mask (N95) cannot protect you if it doesn't fit your face. Fit testing is done to ensure proper fit of an N95 mask. Fit testing is a pass/fail test method that uses your sense of taste to an irritant (bitter or sweet) to detect leakage into the respirator mask (N95 mask). A proper mask fitting means the respirator mask will seal properly to the facial skin. Facial hair does not allow for a proper seal, employees with facial hair where the mask seals cannot be fit tested.

Prior to fit testing:

Employee should not smoke, eat, chew gum, or drink anything other than plain water 15 minutes prior to fit test.

- We will not be able to fit test anyone with facial hair per OSHA standards.

#### WHEN AND WHERE TO BE FIT TESTED?

- Tuesdays and Thursdays, 1 - 4 p.m. (please call for appointment)
- Employee Health is located on the 5th Floor D & T, across from Tower 1

For more information, please call UMCNO Employee Health at 702-3517

For information on Mask Fit Testing at other LSUSOM clinical partner sites, contact the sites' Medical Staff Offices.