

# **Pandemic Influenza Preparedness and Response Guidance for Healthcare Workers and Healthcare Employers**

## ***Appendix C: Implementation and Planning for Respiratory Protection Programs in Healthcare Settings***

### ***OSHA Respiratory Protection Standard***

The OSHA Respiratory Protection standard (29 CFR 1910.134) requires employers to establish and maintain a respiratory protection program to protect their respirator-wearing employees. Employers must provide respirators when such equipment is necessary to protect the health of employees. The respirator provided must be suitable for its intended purpose. When an employer is required to provide respirators, the employer must establish and maintain a respiratory protection program.

### ***Respiratory Protection Program***

A respiratory protection program is a cohesive collection of worksite-specific procedures and policies that addresses all respiratory protection elements required by the standard. For example, a respiratory protection program must contain specific procedures describing how respirators will be selected, fitted, used, maintained, and inspected in a particular workplace. A written program is needed because health and safety programs can be more effectively implemented and evaluated if the procedures are available in a written form for study and review. Also, a written respiratory protection program is the best way to ensure that the unique characteristics of the worksite are taken into account. Developing the written program encourages the employer to thoroughly assess and document information pertaining to the respiratory hazards to which their employees will potentially be exposed, both during normal operating conditions and during reasonably foreseeable emergencies.

A respiratory protection program is required to include the following elements (as applicable):

- Procedures for selecting appropriate respirators for use in the workplace.
- Fit testing tight-fitting respirators.
- Cleaning, disinfecting, storing, inspecting, repairing, removing from service or discarding, and otherwise maintaining respirators. Also, you must establish schedules for these elements.
- Ensuring adequate air supply, quantity, and flow of breathing air for atmosphere supplying respirators.
- Provisions for medical evaluation of employees who must use respirators.
- Training employees in the proper use of respirators (including putting them on and removing them), the limitations on their use, and their maintenance.
- Regularly evaluating the effectiveness of the program.

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## ***Respiratory Protection Program Administrator***

The employer must designate a program administrator to run the program and evaluate its effectiveness. An individual is qualified to be a program administrator if he or she has appropriate training or experience in accord with the program's level of complexity. This training or experience is appropriate if it enables the program administrator to fulfill the minimum standard requirements of recognizing, evaluating, and controlling the hazards in the workplace. For example, if the program requires air-supplying respirators for use in immediately-dangerous-to-life-or-health environments, the program administrator must have training and experience pertaining to the use of this type of equipment. Similarly, if air-supplying respirators are not used and there are no significant respiratory hazards at the workplace, someone with less sophisticated experience or training might be able to effectively serve in this position.

Ultimately, the appropriate qualifications for the respiratory protection program administrator must be determined based on the particular respiratory hazards that exist, or that are reasonably anticipated, at the workplace.

## ***Medical Evaluations***

Employers must medically evaluate their employees' ability to wear a respirator. Medical evaluations are required for both positive pressure and negative pressure respirators. Medical evaluation can be performed by using a medical questionnaire or by performing an initial medical examination that obtains the same information as the medical questionnaire. Employers must allow the employee to be evaluated during the employee's normal working hours or at a time that is convenient to the employee, and employers are responsible for paying for this service (even if the employee has coverage under an insurance plan).

Employers must identify a physician or another licensed healthcare professional (PLHCP) to perform the medical evaluations. Physicians are not the only healthcare professionals allowed to perform medical evaluations for respirator use. The Respiratory Protection standard allows any PLHCP to administer the medical questionnaire (described below) or to conduct the medical examination if doing so is within the scope of the PLHCP's license. Employers may check with PLHCPs in their local area to see if performing the medical evaluation is within the scope of their professional license, or employers may check with the state's licensing board.

## ***The Medical Questionnaire***

The medical questionnaire is designed to identify general medical conditions that place employees who use respirators at risk of serious medical consequences. If employers choose to use the medical questionnaire to conduct the medical evaluation, they must use the questionnaire contained in the Respiratory Protection standard (Appendix C of the standard, Part A., Sections 1 and 2). The PLHCP determines whether or not Part B of the questionnaire needs to be administered, and the PLHCP can alter the questions in Part B in any manner he or she thinks is appropriate. Employers may choose to use medical examinations in place of the questionnaire, but they are not required to do so. Medical examinations must be provided for an employee who gives a positive response to any question among questions 1-8 of Part A, Section 2 in Appendix C of the standard. Although the questionnaire does not have to be administered during the medical examination, the PLHCP must obtain the same information from the employee that is contained in the questionnaire.

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## **Fit Testing**

The Respiratory Protection standard requires employers to conduct fit testing on all employees who are required to wear a respirator that includes a tight-fitting facepiece. Fit testing is a procedure used to determine how well a respirator “fits”—that is, whether the respirator forms an adequate seal on the user’s face. If a good facepiece-to-face seal is not achieved, the respirator will provide a lower level of protection than it was designed to provide. For example, without a good seal, the respirator can allow contaminants to leak into the facepiece and be inhaled by the user.

There are two types of fit testing: quantitative and qualitative. Quantitative fit testing is a method of measuring the amount of leakage into a respirator. It is a numeric assessment of how well a respirator fits a particular individual. To quantitatively fit test a respirator, sampling probes or other measuring devices must be placed to measure aerosol concentrations both outside and on the inside of the respirator facepiece. Qualitative fit testing is a non-numeric pass/fail test that relies on the respirator wearer’s response to a substance (“test agent”) used in the test to determine respirator fit. In qualitative fit testing, after performing user seal checks, the respirator wearer stands in an enclosure and a test agent is introduced, such as banana oil (isoamyl acetate), saccharin, Bitrex, or irritant smoke (without a test enclosure). If the individual can smell or taste the test agent (or is irritated by the smoke), this indicates that the agent leaked into the facepiece and that the respirator has failed the test because a good facepiece-to-face seal has not been achieved. If the employee cannot successfully complete the qualitative test with a particular respirator, the employee must then be tested with another make, size, or brand of respirator.

Fit testing must be conducted for all employees required to wear tight-fitting facepiece respirators as follows:

- Prior to initial use
- Whenever an employee switches to a different tight-fitting facepiece respirator (e.g., a different size, make, model, or style)
- At least annually

Employers must ensure that an additional fit test is conducted if an employee experiences a change in physical condition that could affect the seal on the tight-fitting facepiece respirator. This requirement is triggered by a physical change:

- Reported by the respirator user
- Observed by the employer, a physician or other licensed healthcare professional, the supervisor, or the program administrator

Physical changes in the employee that might affect the facepiece-to-face seal could include, for example, an obvious change in body weight, facial scarring, dental work, or cosmetic surgery.

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If, after fit testing, an employee reports that his or her respirator does not fit properly, you must allow the employee a reasonable opportunity to select a different tight-fitting facepiece respirator. After another respirator is selected, you must conduct a new fit test on the employee's replacement equipment. An employee might determine that the facepiece does not establish an effective facepiece-to-face seal, for example, upon smelling a worksite contaminant while wearing the respirator with new cartridges. Or an employee might hear or feel air leaking around the facepiece-to-face seal. The employee's determination also can be based on factors unrelated to the particular worksite. For example, the employee might find that he or she cannot wear the respirator for extended periods without experiencing irritation or pain.

Employers must ensure that all fit testing conducted for employees required to wear tight-fitting facepiece respirators follows the OSHA-approved protocols. Detailed protocols for qualitative and quantitative fit testing are provided as part of the standard (see Appendices A and B of the standard). These protocols specify that you must have on hand during fit testing all types and sizes of respirators that are available for use at the worksite. This allows you to ensure that each employee is tested with the same type of respirator (make, model, style, and size) that he or she will wear at the worksite.

### ***Tight-Fitting and Loose-Fitting Respirator Facepieces***

A tight-fitting facepiece is intended to form a complete seal with the respirator wearer's face. This seal must be sufficiently tight to prevent any contaminants in the work environment from leaking around the edges of the facepiece into the user's breathing air.

In contrast, a loose-fitting facepiece is specifically designed to form a partial seal with the user's face. Such a facepiece typically covers at least the head and includes a system through which clean air is distributed into the breathing zone. For example, hoods and helmets are loose-fitting facepieces. Such equipment does not rely on a tight facepiece-to-face seal to protect the wearer, and is useful for employees with facial hair or other physical characteristics that make it difficult to wear a tight-fitting facepiece.

### ***Preventing Leaks in the Facepiece Seal***

Facepiece seals and valves are important in tight-fitting respirators. Tight-fitting respirators have a complete seal to the face. If there is a leak in the seal of a tight-fitting respirator or valve, then the respirator cannot reduce the wearer's exposures to respiratory hazards. You must be sure that nothing interferes with the seal of the respirator to the employee's face or with the valves. Conditions that can interfere with the seal or valve include:

- Facial hair
- Facial scars
- Jewelry or headgear
- Missing dentures
- Corrective glasses, goggles, or other PPE, such as:
  - Face shields
  - Protective clothing
  - Helmets
  - Eyeglass insert or spectacle kits

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Employees may use the equipment in the above list with tight-fitting respirators if the employer ensures that the equipment is worn in a way that:

- Does not interfere with the face-to-facepiece seal
- Does not distort the employee's vision
- Does not cause physical harm to the employee (e.g., if the eyeglass insert does not fit properly, the tight fit of the respirator could cause the insert to press against the employee's forehead, eyes, or temples)

If an employee wears corrective glasses, goggles, or other PPE, the employer shall ensure that such equipment is worn in a manner that does not interfere with the seal of the facepiece to the face of the user.

### ***Conducting User Seal Checks***

To conduct a user seal check, the employee performs a negative or positive pressure fit check. For the negative pressure check, the employee:

- Covers the respirator inlets (cartridges, canisters, or seals)
- Gently inhales, and
- Holds breath for 10 seconds.

The facepiece should collapse on the employee's face and remain collapsed.

For the positive pressure check, the employee:

- Covers the respirator exhalation valve(s) and
- Gently exhales.

The facepiece should hold the positive pressure for a few seconds. During this time, the employee should not hear or feel the air leaking out of the face-to-facepiece seal. Appendix B-1 of the OSHA Respiratory Protection standard provides detailed instructions on how to conduct the user seal check. The manufacturer's recommended procedures for checking the facepiece seal may be used if the employer demonstrates that the manufacturer's procedures are as effective as those described in Appendix B-1 of the OSHA Respiratory Protection standard.

### ***Maintenance and Care of Respirators***

Employers must provide respirator users with equipment that is clean, sanitary, and in good working order. To accomplish this, employers must have a system of respirator care and maintenance as a component of their respiratory protection program. Regular care and maintenance is important to ensure that the equipment functions as designed and protects the user from the threat of illness or death.

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Your system of respirator care and maintenance must provide for:

- Cleaning and disinfection procedures
- Proper storage
- Regular inspections
- Repair methods

### ***Cleaning and Disinfection***

Respirator equipment must be regularly cleaned and disinfected according to specified procedures (see Appendix B-2 of the standard) or according to manufacturer specifications that are of equivalent effectiveness.

Cleaning and disinfection procedures are divided into the following:

- Disassembly of components
- Cleaning and disinfecting
- Rinsing, drying, and reassembly
- Inspection

The frequency of cleaning and disinfecting or sanitizing respirators will depend in part on whether your employees share the equipment or are issued respirators for their exclusive use. Worksite conditions also will dictate cleaning frequency (e.g., working in a dirty environment). In addition, if individual employees are required to clean their own respirators, you must allow time during work hours for users to perform this function.

### ***Proper Storage Procedures for Respirators***

Employers must store respirators in a manner that:

- Protects them from contamination, dust, sunlight, extreme temperatures, excessive moisture, damaging chemicals, or other destructive conditions
- Prevents the facepiece or valves from becoming deformed
- Follows all storage precautions issued by the respirator manufacturer

In addition, if a respirator is intended for emergency use, it must be:

- Kept accessible to the work area, but not in an area that may itself become involved in an emergency and become contaminated or inaccessible
- Stored in a compartment or cover (e.g., on a fire truck) that is clearly identified as containing emergency equipment

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## **Training and Information**

Employee training is a critical part of a successful respiratory protection program and is essential for correct respirator use. Employers must provide training to their employees who are required to wear respirators and must ensure that each employee can demonstrate knowledge of at least the following:

**1. Why the respirator is necessary and how improper fit, usage, and maintenance can make the respirator ineffective.**

Training must address the identification of hazards, the extent of employee exposure to those hazards, and the potential health effects of exposure. The training that is required under the Hazard Communication standard (29 CFR 1910.1200) can satisfy this requirement for chemical hazards. Employees must understand that proper fit, usage, and maintenance of respirators is critical to ensure that they can perform their protective function.

**2. The limitations and capabilities of the selected respirator.**

Training must cover how the respirator operates. Included must be an explanation of how the respirator provides protection by filtering the air, absorbing the gas or vapor, or supplying a clean source of air. Limitations on the use of the equipment, such as prohibitions against using an air-purifying respirator in an immediately-dangerous-to-life-and-health atmosphere, and why not, must also be explained.

**3. How to inspect, put on and remove, and check the seals of the respirator.**

Employers must train employees how to recognize problems that may decrease the effectiveness of the respirator and what steps to follow if a problem is detected, such as the person to whom problems should be reported and where replacement equipment can be obtained if needed. If specialized personnel conduct inspections, individual respirator wearers only need to be taught about the portions of the inspection process that are their responsibility. Training must also cover how to properly put on and remove the respirator to ensure that respirator fit in the workplace is as close as possible to the fit obtained during fit testing.

**4. The proper respirator maintenance and storage procedures.**

The extent of training required may vary according to workplace conditions. If employees are individually responsible for storing and maintaining respirators, detailed training may be necessary. If specialized personnel perform these functions, employees only need to be informed of the maintenance and storage procedures.

**5. The general requirements of the Respiratory Protection standard.**

Employers must ensure that employees are aware, in general, of the employer's obligations under the standard. This discussion need not focus on the standard's provisions but could, for example, simply inform employees that employers are obligated to develop a written program; properly select

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respirators; evaluate respirator use; correct deficiencies in respirator use; conduct medical evaluations, provide for the maintenance, storage, and cleaning of respirators; and retain and provide access to specific records.

Employers must ensure that before an employee is required to use a respirator in the workplace, he or she understands the information provided and can use the respirator properly. This can be done by reviewing the training with the employee either orally or in writing, and by reviewing the employee's hands-on use of respirators. Training must be conducted in a manner that is understandable to the employees. This means that your program should be tailored to your employees' education level and language background. Employers must provide the required training prior to requiring an employee to use a respirator in the workplace.

If employers can demonstrate that a new employee has received training within the past 12 months and that the new employee has the necessary knowledge, employers are not required to repeat this training. In cases where training in some elements is lacking or inadequate, employers are required to provide training in those elements. Previous training not repeated initially must be provided no later than 12 months from the date of the previous training.

### ***Retraining***

Employers must retrain employees on the proper use of respirators annually. They must also retrain employees when:

- Changes in the workplace or the type of respirator make previous training obsolete
- The knowledge and skill necessary to use the respirator properly has not been retained by the employee
- Any other situation arises in which retraining appears necessary to ensure safe respirator use