OREGON STATE HOSPITAL

PORTLAND – SALEM

POLICIES AND PROCEDURES

SECTION 8:	Safety, Security, Emergency Management	**POLICY: 8.013**
SUBJECT:	**Respiratory Protection Policy**	

POINT PERSON: ROBERT COX, SAFETY DIRECTOR

APPROVED: GREGORY P. ROBERTS, SUPERINTENDENT **DATE: JUNE 26, 2012**

I. POLICY

A. The primary technique for respiratory protection shall be to prevent exposure to contaminated atmospheres through engineering controls (i.e., substitution of less toxic materials, enhanced ventilation, etc.).

B. When engineering controls are not feasible, all employees who are exposed to harmful (as identified in a Material Safety Data Sheet [MSDS]) dusts, fogs, fumes, mists, gases, smokes, sprays, or vapor are required to wear respirators.

C. All who come in contact with a suspected or active case of Tuberculosis (TB) or other contagious respiratory diseases are required to wear respirators. In addition to placing the active TB patient or patients with other contagious respiratory diseases in a negative pressure isolation room, the following must occur:

1. When the negative pressure isolation room is in use, it shall be tested as directed in Appendix A. Results of daily tests shall be forwarded to the Infection Control Director.

2. When not in use for respiratory isolation, the negative pressure isolation room must be tested monthly by Facilities staff for proper operation.

3. Should a second negative pressure isolation room be required, Oregon State Hospital (OSH) has agreements with local hospitals with respiratory isolation capabilities to accept our patients.

II. DEFINITIONS

A. "NIOSH" means the National Institute of Occupational Safety and Health.

B. "MSDS" (Material Safety Data Sheet) means a data sheet providing information on permissible allowable levels (PALs) and permissible exposure levels (PELs), required personal protective equipment, e.g., respirator, gloves, etc., and health hazards in relation to specific products.

C. "PLHCP" (Physician or other licensed health care professional) means an individual whose legally permitted scope of practice (i.e., license, registration. or certification) allows him or her to independently provide, or be delegated the responsibility to provide, some or all of the health care services by this policy.

D. "Tight-fitting face-piece" means a respiratory inlet covering that forms a complete seal with the face.

III. PROCEDURES

A. Selecting Respirators

1. Each worksite shall identify specific respiratory hazards and factors as the basis for respiratory selection.

2. Only NIOSH-certified respirators shall be provided. A sufficient number of respirator models shall be available so that the respirator is acceptable to and correctly fits the user. The respirator selected shall be appropriate for the chemical state and physical form of the contaminant. If incorporated in the respirator, the canisters or cartridges shall either be equipped with an end-of-service-life indicator or a change out schedule. This shall be implemented to ensure that they are replaced before the end of their service life.

3. The Medical Unit is the designated negative pressure isolation room location. Powered Air Purifying Respirator (PAPR) is located on the designated Medical Unit.

B. Determination of Ability to Wear Respirator

1. Individuals with certain medical conditions may not be able to wear respirators. An annual medical evaluation using a medical questionnaire or an initial medical examination to obtain the information to determine the employee's ability to wear a respirator is mandatory.

2. Additional medical evaluations shall be required if:

   a. An employee reports medical signs or symptoms that are related to the ability to use a respirator.

   b. An employee who gives a positive response to any question among questions 1 through 8 of Section 2 Part A of the medical questionnaire.

   c. A PLHCP (physician or other licensed health care professional) or respiratory program administrator determines there is a need.

C. Fit Testing

1. Any employee required to use a tight-fitting respirator must pass fit test annually with the same make, model, style, and size of respirator.

2. Employees tested in the clinical setting shall require fit testing annually.

D. Use of Respirators

1. Respirators shall be used as intended and instructed by the manufacturer.

2. Employees shall not be permitted to wear tight-fitting respirators if they present any condition (e.g., facial hair, glasses, eye protection, etc.) that alters or interferes with the sealing surface of the facepiece and the face.

3. A user fit check shall be performed each time the respirator is put on.

4. When there is a change in work area conditions, the effectiveness of the respirator shall be re-evaluated.

5. Employees shall leave the respirator use area:

   a. To wash their faces or respirator facepieces;

   b. If they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the facepiece;

c. To replace the respirator or filter, cartridge, or canister elements.

d. If the face piece is defective, it must be replaced before the employee can return to the work area.

6. Staff in the clinical setting shall place or remove the PAPR respirator only in the anteroom of the negative pressure isolation room.

a. In the event the patient with suspect or active TB or other contagious respiratory diseases must transition to or from respiratory isolation:

1. Place a phone call to the destination to ensure staff have approved respirators to wear.

2. Place a surgical mask on the patient if possible.

E. Maintenance of Respirator

1. Non-disposable respirators shall be cleaned and disinfected using the procedures in the standard. Respirators issued for the exclusive use of an employee shall be cleaned and disinfected as often as necessary to be maintained in a sanitary condition. Respirators used by more than one employee, used for emergencies, or used in fit testing and training shall be cleaned and disinfected after each use.

2. Respirators shall be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals, and they shall be stored to prevent deformation of the facepiece and the valves.

3. Respirators used in routine situations shall be inspected before each use and during cleaning. The inspection shall include:

a. A check of respirator function, tightness of connections and the condition of the various parts including the facepiece, head straps, valves, connecting tube, and cartridges, canisters, or filters.

b. A check of elastomeric parts for pliability and signs of deterioration.

4. Any respirator that fails inspection shall either be discarded or repaired using NIOSH-approved parts and by appropriately trained personnel.

F. Training

1. Training provided by the Safety Department to employees who are required to use respirators shall be comprehensive and understandable. If an employee chooses to wear a respirator when not required, basic respirator information shall be provided.

2. Each employee must be able to demonstrate knowledge of the following:

   a. Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator.

   b. What the limitations and capabilities of the respirator are.

   c. How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions.

   d. How to inspect, put on and remove, use and check the seals of the respirator.

   e. What the procedures are for maintenance and storage of the respirator.

   f. How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators and the general requirements of the standards.

3. The training shall occur prior to requiring the employee to use a respirator in the workplace.

4. Retraining shall be administered annually and when the following situations occur:

   a. Changes in the workplace or the type of respirator render previous training obsolete;

   b. Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill; or

c. Any other situation arises in which retraining appears necessary to ensure safe respirator use.

G. Respirator Program Evaluation

The Safety Department shall conduct annual evaluations to ensure that the program is effective. Factors to be assessed include:

1. Respirator fit.

2. Appropriate respirator selection for the hazards to which the employee is exposed.

3. Proper respirator maintenance.

4. All exposed employees are annually trained.

H. Records

1. Records of medical evaluation must be retained for the duration of employment plus 30 years.

2. A record of fit tests administered shall be established including:

a. Name of identification of the employee tested.

b. Type of test performed.

c. Specific make, model, style, and size of respirator tested.

d. Date of the test.

e. Results for the qualitative or quantitative fit tests shall be recorded.

3. A written copy of the current respirator program shall be retained.

IV. REFERENCES

(OSHA) OAR 437, 1910.134, Respiratory Protection
(OSHA) OAR 437, 1910.1020(d), Preservation of Records
OSH Policy and Procedure – Infection Control 4.05 Powered Air Purifying Respirator (PAPR)
(OSHA) OAR 437, 1910.134, Respiratory Medical Evaluation Questionnaire Appendix C

Replaces Oregon State Hospital Policy and Procedure 8.013, *Respiratory Protection Policy*, dated 10/10/2006.

APPENDIX A

Smoke-Trail Testing Method for Negative Pressure Isolation Room

Test method description:

One purpose of a negative pressure TB airborne infection isolation (AII) room is to prevent TB droplet nuclei from escaping the AII room and entering the corridor or other surrounding uncontaminated spaces. To check for negative room pressure, use smoke-trails to demonstrate that the pressure differential is inducing airflow from the corridor, through the crack at the bottom of the door (undercut) and into the AII room. When performing a smoke-trail test, follow these recommendations where applicable:

1. Test only with the AII room door shut. If not equipped with an anteroom, it is assumed that there will be a loss of space pressure control when the AII door is opened and closed. It is not necessary to demonstrate direction of airflow when the door is open.

2. If there is an anteroom, release smoke at the inner door undercut with both anteroom doors shut.

3. In addition to a pedestrian entry, some AII rooms are also accessed through a wider wheeled-bed stretcher door. Release smoke at all door entrances to AII rooms.

4. So that the smoke is not blown into the AII room, hold the smoke bottle/tube parallel to the door so the smoke is released perpendicular to the direction of airflow through the door undercut.

5. Position the smoke bottle/tube tight to the floor, centered in the middle of the door jamb and approximately 2 inches out in front of the door.

6. Release a puff of smoke and observe the resulting direction of airflow. Repeat the test at least once or until consistent results are obtained.

7. Minimize momentum imparted to the smoke by squeezing the bulb or bottle slowly. This will also help minimize the volume of smoke released.

8. Depending on the velocity of the air through the door undercut, the smoke plume will either stay disorganized or it will form a distinct streamline. In either case, the smoke will behave in one of three ways:

    a. Go through the door undercut into the isolation room

    b. Remain motionless

    c. Blow back into the corridor.

    Compliance with the intent of the CDC Guidelines for negative pressure requires that the smoke be drawn into the AII room through the door undercut.

Most smoke tubes, bottles, and sticks use titanium chloride ($TiCl_4$) to produce a visible fume. There is no Oregon OSHA PEL or ACGIH TLV for this chemical although it is a recognized inhalation irritant. Healthcare professionals are concerned about releasing $TiCl_4$ around pulmonary patients. The smoke released at the door undercut makes only one pass through the isolation room and is exhausted directly outside. All room air is typically not recirculated.

Room air cleaners in the room should be operating. People using smoke tubes should avoid inhaling the smoke, because direct inhalation of high concentrations of the smoke can be irritating. Nonirritating smoke tubes are available and should nevertheless be utilized whenever possible. Provide material Safety data sheets and hazard communication training to people who use smoke tubes.