

EAST CAROLINA UNIVERSITY

INFECTION CONTROL POLICY

Respiratory Protection Program: Fit Test Procedure

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Page 1 of 6

Approved by:

Department Chairman

Administrator/Manager

Chairman, Infection Control Committee

Infection Control Nurse

Respiratory Protection Program Fit Test Procedure

- I. Education and Medical Clearance
 - A. The employee will complete the OSHA Training on Tuberculosis or other airborne infection initial training or annual refresher.
 - B. The employee will complete the OSHA Respirator Questionnaire
 - 1. The blue form “Questionnaire for Respirator Use for Tuberculosis (or other Airborne Infection) is used for employees who will use an N-95 filtering face piece or PAPR
 - 2. The white form “Medical evaluation Questionnaire” is used for all other ECU respiratory clearance.
 - C. The fit tester will scan the form for any responses other than “No” on the questionnaire. If any question is answered as “Yes”, this employee is referred to the Prospective Health physician, extender who will obtain additional history. Hands on physical examination may be indicated.
 - D. The fit tester will not conduct a fit test on any employee who has marked a response in the “Yes” column on the questionnaire until a licensed healthcare professional whose scope of practice includes the ability to perform a medical evaluation has cleared them.
 - E. All medical clearance forms (blue or white) will be signed by a licensed healthcare professional (physician or extender). Other licensed professionals may collect additional information but may not make the clearance determination.
- II. OSHA-Accepted Fit Test Protocols
 - A. Fit Testing Procedures
 - 1. The test subject will be allowed to pick the most acceptable respirator from the available N-95 disposable filtering face pieces in current use at ECU or a powered air purifying respirator (PAPR).
 - 2. The test subject will be shown how to put on a respirator, how it should be positioned on the face, how to set strap tension and how to determine an acceptable fit. A mirror is available to assist the subject in evaluating the fit and positioning of the respirator.
 - 3. The test subject will be informed that he/she is being asked to select the respirator that provides the most acceptable fit.
 - 4. The most comfortable mask is donned and worn at least five minutes to assess comfort.
 - 5. Assessment of comfort will include a review of the following points with the test subject and allowing the test subject adequate time to determine the comfort of the respirator:
 - a. Position of the mask on the nose
 - b. Room for eye protection
 - c. Room to talk
 - d. Position of mask on face and cheeks
 - 6. The following criteria shall be used to help determine the adequacy of the respirator fit:

- a. Chin properly placed;
 - b. Adequate strap tension, not overly tightened;
 - c. Fit across nose bridge;
 - d. Respirator of proper size to span-distance from nose to chin;
 - e. Tendency of respirator to slip;
 - f. Self-observation in mirror to evaluate fit and respirator position.
7. The test subject will conduct a user seal check, as described below in Section III.
 8. The test shall not be conducted if there is any hair growth between the skin and the facepiece sealing surface, such as stubble beard growth, beard, mustache or sideburns which cross the respirator sealing surface. Any type of apparel which interferes with a satisfactory fit shall be altered or removed; e.g., rings or piercings.
 - a. If the obstruction to fit cannot be removed, use of PAPR is recommended.
 - b. Demonstrate the use and fit of the PAPR.
 - c. After training on use and care of PAPR, employee need not complete the remaining procedures.
 9. If a test subject exhibits difficulty in breathing during the tests, she or he shall be referred to a physician or other licensed health care professional.
 10. If the employee finds the fit of the respirator unacceptable, they will be given the opportunity to select a different respirator and be retested.
 11. A description of the fit test and the test subject's responsibilities during the test will be explained. The respirator to be tested shall be worn for at least 5 minutes before the start of the fit test.
 12. The fit test will be performed while the test subject is wearing any applicable safety equipment that may be worn during actual respirator use which could interfere with respirator fit. For N-95 filtering face piece, additional safety equipment is minimal if any.
 13. Test Exercises: Each test exercise will be performed for one minute. The test conductor will ask the subject regarding the comfort of the respirator during these exercises. The respirator shall not be adjusted once the fit test exercises begin.
 - a. Normal breathing.
 - b. Deep breathing.
 - c. Turning head side to side.
 - d. Moving head up and down.
 - e. Talking
 - f. Rainbow passage reading
 - g. Bending over.
 - h. Normal breathing
- B. Qualitative Fit Test (QLFT) Protocol
1. General
 - a. Persons administering QLFT will prepare test solutions, calibrate equipment and perform tests properly, recognize invalid tests, and ensure that test equipment is in proper working order.
 - b. QLFT equipment is kept clean and well maintained to operate as designed.
 - c. A nebulizer is used to spray the threshold solution

- i. The threshold check solution is prepared by dissolving 0.83 gram of sodium saccharin USP in 100 ml of warm water or diluting the test solution 1:10.
- ii. This nebulizer will be clearly marked as threshold solution to distinguish it from the fit test solution nebulizer.
- iii. To produce the aerosol, the nebulizer bulb is firmly squeezed to that it collapses completely, then released and allowed to fully expand.
- iv. Approximately 1 ml of liquid is used at a time in the nebulizer body.
- v. The nebulizer shall be thoroughly rinsed in water, shaken dry, and refilled each morning and afternoon or at least every four hours.
- d. If the test subject eats or drinks something sweet before the screening test, he/she may be unable to taste the weak saccharin solution. The test subject may not eat, drink (except plain water), smoke, or chew gum for 15 minutes before the test.
- e. The nebulizer has a tendency to clog during use; the test operator must make periodic checks of the nebulizer to ensure that it is not clogged. If clogging is found at the end of a test session, that test is invalid.

2. Saccharin Solution Aerosol Protocol

The entire screening and testing procedure shall be explained to the test subject.

- a. Saccharin taste threshold screening. The saccharin taste threshold screening, performed without wearing a respirator, determines whether the subject can detect the taste of saccharin. The subject has the option of using Bitrex if they cannot taste the saccharin.
 - 1) During threshold screening as well as during fit testing, subjects wear an enclosure about the head and shoulders.
 - 2) The test subject shall don the test enclosure. The test subject shall breathe through his/her slightly open mouth with tongue extended. The subject is instructed to report when he/she detects a sweet taste.
 - 3) The test conductor sprays the threshold check solution into the enclosure. The nozzle is directed away from the nose and mouth of the person.
 - 4) Ten squeezes are repeated rapidly and then the test subject is asked whether the saccharin can be tasted. If the test subject reports tasting the sweet taste during the ten squeezes, the screening test is completed. The threshold is 10 if tasted.
 - 5) If the first response is negative, ten more squeezes are repeated rapidly and the test subject is again asked whether the saccharin is tasted. The threshold is 20 if tasted.

- 6) If the second response is negative, ten more squeezes are repeated rapidly and the test subject is again asked whether the saccharin is tasted. The threshold is 30 if tasted.
 - 7) The test conductor will take note of the number of squeezes required to solicit a taste response.
 - 8) If the saccharin is not tasted after 30 squeezes (step 10), the test subject is unable to taste saccharin and may not perform the saccharin fit test.
 - 12) If a taste response is elicited, the test subject shall be asked to take note of the taste of reference in the fit test.
- b. Saccharin solution aerosol fit test procedure.
- 1) The test subject shall don the enclosure while wearing the respirator selected; which shall be properly adjusted.
 - 2) A second nebulizer is used to spray the fit test solution into the enclosure. This nebulizer shall be clearly marked to distinguish it from the screening test solution nebulizer.
 - 3) The test subject shall breathe through the slightly open mouth with tongue extended, and report if he/she tastes the sweet taste of saccharin.
 - 4) The nebulizer is inserted into the hole in the front of the enclosure and an initial concentration of saccharin fit test solution is sprayed into the enclosure using the same number of squeezes (either 10, 20 or 30 squeezes) required to elicit a taste response. A minimum of 10 squeezes is required.
 - 5) After generating the aerosol, the test subject will perform the exercises in section II A13.
 - 6) Every 30 seconds the aerosol concentration will be replenished using one half the original number of squeezes used initially.
 - 7) The test subject will indicate to the test conductor if at any time during the fit test the taste of saccharin is detected. If the test subject does not report tasting the saccharin, the test is passed.
 - 8) If the taste of saccharin is detected, the fit is deemed unsatisfactory and the test is failed. A different respirator shall be tried and the entire test procedure is repeated.

III. User Seal Check Procedures

The user of a tight-fitting respirator is instructed to perform a user seal check to ensure that an adequate seal is achieved each time the respirator is put on. The respirator manufacturer's recommended user seal check method shall be used. User seal checks are not substitutes for qualitative or quantitative fit tests.

The user is also instructed that respirators are an effective method of protection against designated hazards when properly selected and worn.

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators limitation.

2. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect.

Fitting Instructions (Must be followed each time respirator is worn)

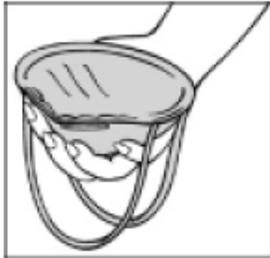


Fig. 1



Fig. 2



Fig. 3



Fig. 4

1. Cup the respirator in your hand, with the nosepiece at your fingertips, allowing the headbands to hang freely below your hand.
2. Position the respirator under your chin with the nosepiece up. Pull the top strap over your head resting it high at the top back of your head. Pull the bottom strap over your head and position it around the neck below the ears.
3. Place your fingertips from both hands at the top of the metal nosepiece. Using two hands, mold the nose area to the shape of your nose by pushing inward while moving your fingertips down both sides of the nosepiece.

! Pinching the nosepiece using one hand may result in improper fit and less effective respirator performance. Use two hands.

4. Perform a User Seal Check prior to each wearing. To check the respirator-to-face seal, place both hands completely over the respirator and exhale. Be careful not to disturb the position of the respirator. If air leaks around nose, readjust the nosepiece as described in step 3. If air leaks at the respirator edges, work the straps back along the sides of your head.

If you CANNOT achieve proper seal, DO NOT enter the isolation or treatment area. See your supervisor.

Removal Instructions

See step 2 of *Fitting Instructions* and cup respirator in hand to maintain position on face. Pull bottom strap over head. Still holding respirator in position, pull top strap over head and remove respirator.