RESPIRATOR PROTECTION

The N95 is the respirator of choice when treating suspected/confirmed Aerosol Transmissible Disease (ATD) or tuberculosis (TB) patients. It may also be assigned as personal protective equipment (PPE) when working with chemotherapy or hazardous medications. This type of respirator has a filter-efficiency level of 95% or greater against particulate aerosols free of oil with a respiratory protection factor of 5 when used appropriately. It was designed by a qualified manufacturer and is certified by NIOSH to filter aerosolized particles of 1 micrometer in size. Tight-fitting respirators like the N95 are only effective when the seal around your nose and mouth is tight. If you cannot achieve proper fit, do not enter the isolation or treatment area.

N95 Use Limitations:
• The N95 does not supply oxygen. It cannot be worn in an atmosphere containing less than 19.5% oxygen or in environments where contaminant concentrations are immediately dangerous to life and health (organic vapors, toxic gases, and toxic particulates).
• If the respirator becomes wet, it must be assumed that it is no longer effective and must be replaced.
• If the respirator is damaged, soiled, or if breathing becomes difficult, leave the contaminated area and dispose the respirator.
• The N95 cannot work with beards or other facial air, or if other conditions exist that prevent a good seal between the face and the edge of the respirator. An alternative is discussed below.
• Medical clearance by Occupational Health is required prior to fit-testing.
• Fit-testing for the N95 respirator is required annually.
• Notify your supervisor that you may need an additional fit test should you experience physical changes that could affect respirator fit. Such conditions include, but are not limited to facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight.

Alternative: Powered Air-Purifying Respirators (PAPR)
Powered Air Purifying Respirators (PAPR) use a battery-powered pump to provide filtered breathing air. PAPRs provide a higher level of respiratory protection than a disposable mask by providing both a barrier and a positive air current against small and large airborne particles. These respirators remove air contaminants by filtering, absorbing, or chemically reacting with the contaminants as they pass through the respirator canister or cartridge. Air is moved through the filters by a battery-operated pump when used appropriately. PAPRs provide a respiratory protection factor of 25. PAPRs can be cleaned, disinfected, and fitted with new filters for re-use.

This alternative respirator is for use only:
• Where adequate oxygen (19.5 to 23.5 percent by volume) is available
• When the wearer is unable to acquire an acceptable fit for the N95 respirator
• When the wearer’s facial hair prevents a good seal around the N95 respirator

See Safety Resources tab in http://safety.ucsfmedicalcenter.org/ for guidance documents related to respirators. Please contact EH&S at 476-1300 if you have questions about the Respiratory Protection Program, or if you require additional assistance with respirators not listed in this handout.
Donning and Fit Checking
N-95 Respirators

Select respirator according to fit test (refer to sticker on back of your ID badge) and position under your chin with nose piece up. While holding the respirator in place over nose, mouth, and chin, pull straps over your head.

Using both hands, mold the nose piece around the bridge of your nose by pushing inward while moving your fingers down both sides of the nose piece (pinching nosepiece with one hand may result in improper fit and less effective respirator performance).

Forcefully inhale and exhale several times. The respirator should collapse slightly when you inhale and expand when you exhale. If the respirator does not collapse and expand OR if air is leaking around the edges, adjust the nosepiece and headbands as described above. Perform fit check again.

FIT CHECKING

To perform the fit check, place both hands completely over the respirator, being careful not to disturb the position, and exhale sharply. If air leaks around your nose, adjust the nosepiece as described above. If air leaks around edge, adjust the straps back along the sides of your head. Perform fit check again.
**Respirator and Mask Selection Guide**

### When to Wear

#### Use Requirements

- **Powered Air Purifying Respirator (PAPR)**
  - Staff only: Use PAPR (or N-95) when entering into Airborne Isolation Precautions regardless of immunity.
  - PAPR required when performing High Hazard Medical Procedures (i.e. sputum induction, bronchoscopy, open suctioning of an endotracheal tube or tracheostomy, etc.) on Airborne Isolation Precaution patients.
  - Required when hazardous medication aerosols are present for all patients.

- **N-95 Respirator**
  - Staff Only: Use PAPR (or N-95) when entering into Airborne Isolation Precautions regardless of immunity.
  - N95 respirator use is required with eye protection when performing High Hazard Medical Procedures on all patients except those on airborne isolation precautions where a PAPR is required.

- **Surgical/Exam Masks**
  - Staff: Use surgical/exam mask when entering into droplet precautions.
  - All staff not vaccinated against influenza are REQUIRED to wear surgical mask/exam mask during flu season in all patient care areas.
  - Wear in Surgery at the sterile field.

### What to Wear

#### Use Requirements

- Staff must only use the respirator for which they were fit tested.
  - Medical clearance is required.
  - Annual fit testing is required.
  - A Tight-seal against the wearer’s skin is required.

- Trainings required before use.
- Medial clearance required before use.
- No Fit testing Required.
- No training Required before use.

### When to Wear

- **Powered Air Purifying Respirator (PAPR)**
  - Required when performing High Hazard Medical Procedures on Airborne Isolation Precaution patients.
  - Required when hazardous medication aerosols are present for all patients.

- **N-95 Respirator**
  - Wear in Surgery at the sterile field.
  - Wear with surgical mask when entering into Airborne Isolation Precautions.

- **Surgical/Exam Masks**
  - Place on a patient in DROPLET or AIRBORNE Precautions.
  - When entering into Airborne Isolation Precautions, please anticipate potential splashes.
  - Use SplashShield® mask has integrated eye protection.
  - If SplashShield® mask is not used, wear safety goggles or SplashShield® goggles w/mask.
  - Sandal/Exam mask when entering into Airborne Isolation Precautions.

### Questions?

- Safety Office 885-3538
- Safety website: http://safety.ucsfmedicalcenter.org/

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Powered Air Purifying Respirators (PAPRs) provide a higher level of respiratory protection than a fit tested N-95 respirator. PAPRs are required for high hazard procedures for patients requiring airborne precautions.* Fit tested N95 respirators must be worn during high hazard procedures for all other patients. Diseases requiring airborne precautions include:

- Novel viral pathogens
- Measles
- Chicken Pox
- Disseminated zoster
- Tuberculosis (TB)
- Unknown respiratory pathogens with significant morbidity and mortality

High Hazard procedures are:
1. sputum induction
2. bronchoscopy
3. open suctioning of an endotracheal tube or tracheostomy
4. cardiopulmonary resuscitation
5. intubation/extubation
6. aerosolized administration of medications
7. pulmonary function testing
8. autopsy, clinical, surgical and laboratory procedures that may aerosolize pathogens

Clinical Support during High Hazard Procedures:
Support personnel that are assisting and/or observing beyond 6ft from the high hazard procedure have an option to wear a PAPR or a fit tested N-95 respirator.

Do I need to be fit tested to wear PAPR equipment?
No. Medical clearance and training is required. Call OEHS (476-6884) for additional information.

How to obtain a PAPR unit:
Contact Materiel Services at 353-1837 to obtain a PAPR or an airborne precautions cart equipped with PAPR equipment.

Are there exemptions?
Yes. If PAPRs interfere with performing required task(s), a fit tested N-95 respirator may be worn.

Current exemptions include:
1. Emergent patient condition does not allow sufficient time to don PAPR equipment.
2. PAPR equipment interferes with the use of medical devices necessary to conduct a procedure.
3. Call (476-6884) to report other potential exemptions for review and consideration.

* Per Cal-OSHA regulation Title 8, Section 5199, (g) (3) (B), http://www.dir.ca.gov/Title8/5199.html
Please contact the Medical Center Safety Officer, Matt Carlson (885-3538), with any questions or concerns.