Maine Medical Center
MaineHealth

MMC Respiratory Protection Training

Self Study

BEST REGIONAL HOSPITALS U.S.News & World Report COASTAL MAINE RECOGNIZED IN 9 TYPES OF CARE 2016-17

MAGNET RECOGNIZED AMERICAN NURSES CREDENTIALING CENTER

THE JOINT COMMISSION NATIONAL QUALITY APPROVAL

Revised: 03/2019

Training Goals

- Understand the requirements of MMC's Respiratory Protection Program
- Understand respiratory protection needed at MMC
- Understand the use and limitations of positive and negative pressure particulate respirators
- Understand the processes for inspection, donning, doffing, seal checking and/or flow testing of respirators
- Understanding the maintenance and storage of respirators.

What is respiratory protection?

- Respiratory protection is a broad term used to describe a class of Personal Protective Equipment (PPE) that is designed to protect the user from inhaling contaminants that may be harmful to them.
- There are many different types of respiratory protection, each with their own uses and limitations. Not all respirators are created equal!

What is respiratory protection? (continued)

- These are all examples of respiratory protection:

What is respiratory protection? (continued)

- In a healthcare setting, these three are the most common:

Surgical Masks/Patient PPE

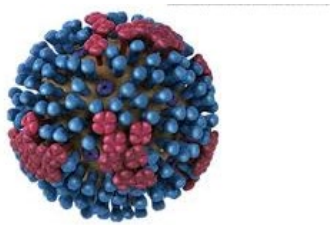
Filtering Face-piece Respirators (N95s)

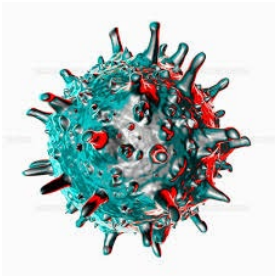
Powered Air Purifying Respirator (PAPR)

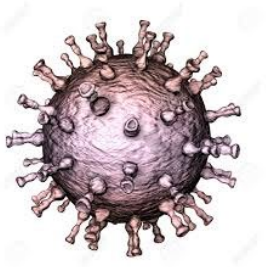
- These devices DO NOT all provide the same level of protection. In the following slides, you will learn more about the different types of respiratory protection.

What hazards would require me to wear a respirator?

- In healthcare settings, the primary contaminants of concern are viruses and other illnesses that our patients may have.
  - Typical illnesses that require the use of PPE:
    - » Tuberculosis
    - » Chicken Pox
    - » H1N1
    - » Ebola







MMC's Respiratory Protection Program

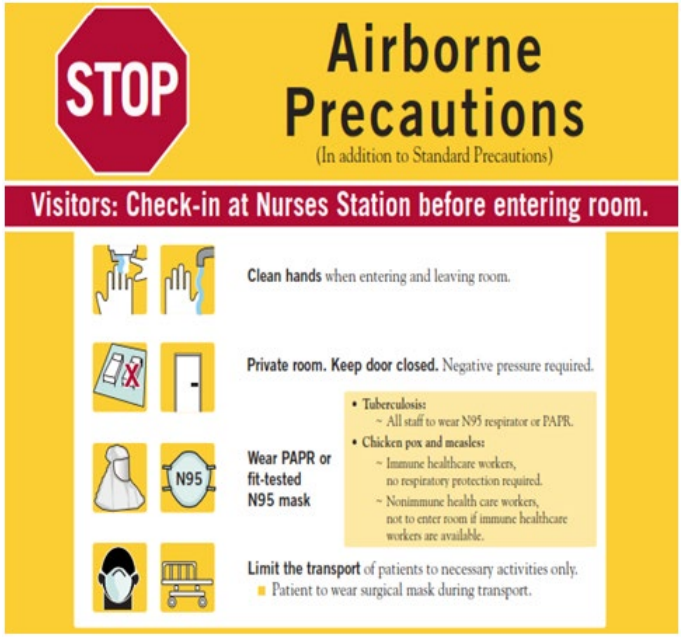
- Maine Medical Center's respirator program is managed by the Safety-Emergency Management Department to ensure compliance with Occupational Safety and Health Administration (OSHA) requirements and MMC's Respiratory Protection Policy.
- Selection of respirators is done by the Safety – Emergency Management Department in accordance with OSHA standards.
- Contact the Safety-Emergency Management Department at 662-2513 with any questions about the respiratory program at MMC

OSHA's Respiratory Protection Program Requirements

- Medical evaluations are required for all staff prior to using any respirator.
- Initial training is required for all staff prior to using any respirator.
- Initial and annual fit testing is required for all staff using a negative pressure respirator.
- Annual refresher training is required for all respirators and can be completed by any approved MMC fit tester or trainer.

OSHA

How do I Know When Respiratory Protection is Required?



Airborne precautions require that a positive or negative pressure respirator is worn while in the patient room. These patients release infectious particulates that can remain suspended in the air for long periods of time.

When conducting any surgical procedures that may produce hazardous or infectious particulates. Some examples of this are:

- Some procedures that produce surgical plume. (lasers, electro-surgical pencils, ultrasonic devices, and other surgical energy based devices)
- Endotracheal intubation
- Open respiratory and airway suctioning
- Bronchoscopy
- Pulmonary Function Testing

Surgical Masks

Here are some examples of surgical masks

Surgical Masks (continued)

- Surgical masks are designed to capture potentially infectious droplets that are exhaled by the wearer.
  - Surgical masks are NOT designed to filter the air that is being inhaled by the wearer.
  - Surgical masks are generally used to limit the spread of an illness in order to protect other people around the wearer.
- No training or fit testing is required to use a surgical mask.
- Surgical masks are generally the ONLY appropriate form of respiratory protection to give to patients, visitors and staff who have not been fit tested.

N95 Respirators

Here are some examples of N95 respirators

N95s (continued)

- Requirements for wearing an N95 respirator:
  - Medical clearance through Employee Health Services
  - Training on the use of the respirator
  - Fit testing to the specific make and model of the respirator to be used
- The National Institute for Occupational Safety and Health (NIOSH) is a governmental body under the Centers for Disease Control (CDC) that certifies N95 respirators.
  - Once a respirator is certified, "NIOSH N95" will be printed somewhere on the respirator.

N95s (continued)

- An N95 is a classification of respirator, and the name refers to the type and level of filtration that the respirator provides
- N95 respirators are designed to filter out potentially hazardous particulates from the air that the wearer breathes.
  - A hazardous particulate would be something like mold, dust, viruses and bacteria.
  - N95s are NOT effective in filtering out hazardous gasses, vapors, or fumes.
  - Many N95 respirators have a special layer that also captures the droplets that the wearer is breathing out, so the respirator protects both the wearer and the environment at the same time.

N95s (continued)

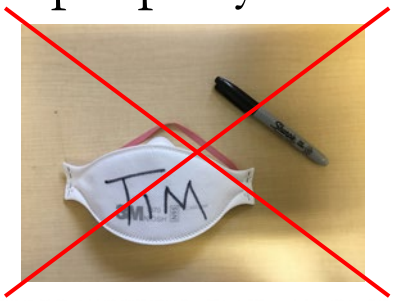
- N95 respirators work by creating a seal around the wearer's nose and mouth, which creates negative pressure inside of the mask when the wearer breathes in.
  - This seal forces air through the filter material, capturing any particulates, and delivering clean air to the wearer.
  - Since N95s require a seal, the wearer must be clean shaven to use an N95.
- In order to ensure the respirator seals appropriately to the wearer's face, a fit test is required.

N95s (continued)

- There are two ways to test the seal of an N95 respirator:
  - A user seal check that is performed each and every time an N95 is donned (put on) by the wearer.
  - A fit test that is done initially to ensure the respirator creates a seal to the wearer's face, and then is repeated once per year to ensure no changes to the fit have occurred.
    - » A fit test should be performed sooner than 1 year if the wearer has experienced any changes that may affect the fit of the respirator such as body weight gain/loss, facial scarring, or facial surgery that changed the wearer's face shape.

N95s (continued)

- An N95 can be used for up to 8 hours. After that time, the respirator should be disposed of, unless otherwise directed by Safety-Emergency Management.
  - N95 respirators are disposed of in the normal trash, unless otherwise directed.
- N95s should not be shared between staff members.
- Never write on or place stickers on a respirator.
- During your fit testing the trainer will ensure you can properly don your N95 and perform the Use Seal Test.



N95s (continued)

- Prior to using an N95 (or any other PPE), it must first be inspected.
- To inspect an N95:
  1. Make sure the N95 is in good condition (not dirty or discolored)
  2. Hold the respirator up to a light to check for holes in the filter media
  3. Check that both straps are attached and in good condition
  4. Ensure the nose piece is not broken or damaged.

Powered Air Purifying Respirators (PAPRs)

This is the model of PAPR that is used at MMC. It's a 3M Versaflo TR-300.

Parts to a PAPR

Battery

Powers the blower

Blower

Cleans the air and pushes it into the hose and hood.

Airflow Indicator

Checks the amount of air that the blower is pushing into the hose and hood.

Parts to a PAPR (continued)

Hoods

Economy Hood

Shrouded Hood

The hood stays positively pressured so that contaminants can't get into the hood.

The Economy hood and shrouded hood provide the same level of protection, but the shrouded hood also protects clothing from splashes.

There are two sizes for both the economy and shrouded hoods. They are Small/Medium and Medium/Large.

Hose

Transports the air between the blower and the hood.

PAPRs (continued)

- Requirements for using a PAPR:
  - Medical clearance through Employee Health Services
  - Training on the use of the respirator
  - Demonstrating competency for the use of the PAPR.
- Like N95s, PAPRs are designed to filter out potentially hazardous particulates from the air.
  - A hazardous particulate would be something like mold, dust, viruses and bacteria.
  - The TR-300 PAPR is NOT effective in filtering out hazardous gasses, vapors, or fumes.

PAPRs (continued)

- PAPRs work by using an air pump to draw air through a filter to be cleaned, and then delivering that clean air into the hood at a fast enough rate to keep the hood positively pressured.
  - The positive pressure under the hood stops particulates in the air from reaching the wearer's breathing zone.
- PAPRs do not require a tight seal, since the hood is positively pressured.
- Since no seal is needed, users with facial hair are able to use the PAPR for protection.

PAPRs (continued)

- Under normal circumstances, the PAPR hood is able to be cleaned and reused unless visibly soiled or damaged. The rest of the unit (blower, hose, battery, and flow check device) are permanently reusable and must be cleaned in between uses.
  - The PAPR hoods should be thrown out in the regular trash, unless otherwise directed.
  - Write your name on your PAPR hood if you intend to reuse it. This will help ensure others do not use your hood.

How to obtain a PAPR

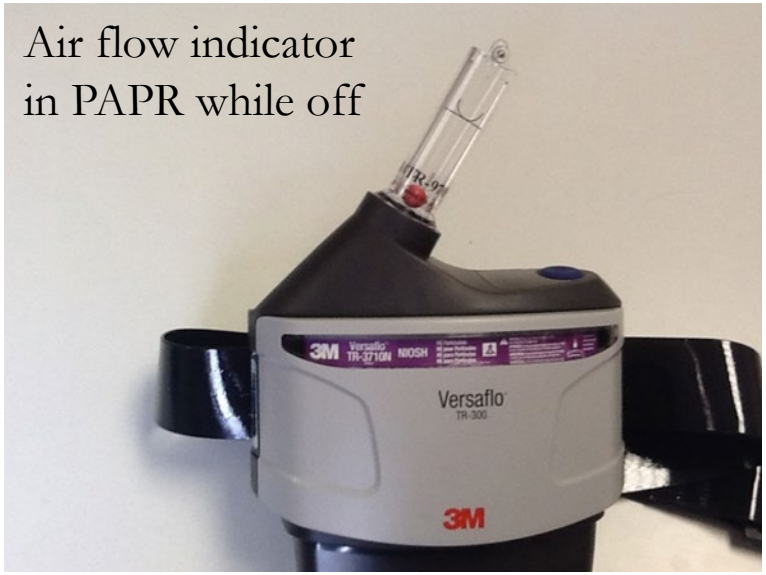
- Contact Transport at 662-3400 to obtain PAPR tubs containing all required equipment.
- Order 1 tub per employee
- A new bag/box of hoods will accompany the tub(s).

Inspection of a PAPR

- Inspect each piece of the PAPR unit.
  1. The battery has a 'test' button. When pressed, this will give you the battery life in 20% increments. When fully charged, the PAPR battery will provide 8-12 hours of use.
  2. Look through the 'window' of the blower unit to make sure you can see the magenta stripe that indicates that the unit is equipped with a HEPA filter
  3. Inspect the battery pack, hose, and hood for any tears, holes, or damage to parts. If any defects are found, return the unit, and request a new one.

PAPR Air Flow Test

- An air flow test MUST be performed BEFORE each use.
- Insert the "Air Flow Indicator", turn on unit, and wait for 60 seconds.



The air flow check passes if filtered air flow is sufficient to push red ball above the minimum air flow indicator line.

PAPR Air Flow Test – Continued

- Below is an example of a PAPR failing the air flow test.

After the 60 second air flow test, if the red ball remains below the minimum air flow indicator line, the PAPR must not be used!!

Reminders

- Flow test the PAPR every time before entering the patient room or contaminated area.
- Never share hoods between staff.
- Exit the patients room immediately if the PAPR alarm sounds.
- Dispose of PAPR hoods after final use.

Respiratory Protection Quick Reference Guide

CARE TEAM WELL BEING | HEALTHY COMMUNITIES | AFFORDABLE CARE | PATIENT CENTERED CARE

	 Surgical Mask and Patient PPE	 N95	 PAPR
Captures droplets, protecting the environment	Yes	Yes	No
Filters air, protecting the wearer	No	Yes	Yes
Appropriate for patients and visitors	Yes	No	No
Requires Training	No	Yes	Yes
Requires Fit Test	No	Yes	No
Requires Competency Check	No	Yes	Yes

Questions

- Please contact the MMC Safety-Emergency Management Department at (207) 662-2513 with any questions pertaining to the content of this training.

Thank You