

N95 respirators

How and when to use them?

TBIC training for professional HCWs



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Personal Respiratory Protection

N95 respirators

- Third line of defense
 - **Ineffective in absence of administrative and environmental control measures!**
- Relatively expensive to purchase (R7-10)
- Proper fit important for effectiveness
- US-certified N95 or EU-certified FFP2 respirators
- Filter 0.3-0.4 micron particles
- Protect HCWs from inhaling *M. tuberculosis*
- Special equipment to determine proper fit





NIOSH APPROVED N95 RESPIRATOR

Health Care N95 Particulate Respirator and Surgical Mask

Donning instructions (to be followed each time product is worn):



1 Cup the respirator in your hand with the top edge at fingertips, allowing the headbands to hang freely below hands.



2 Position the respirator under your chin with the top edge up.



3 Pull the top strap over your head so it rests right on the back of head.



4 Pull the bottom strap over your head and position it around neck below ears.



5 Using two hands, mold the nosepiece to the shape of your nose by pushing inward while raising fingertips down both sides of the nosepiece. Flaking the nosepiece using one hand may result in less effective respirator performance.



6 **FACE FIT CHECK**
The respirator strap should be tight and before each use, to check the face fit, hold your hands completely over the respirator and inhale. If air leaks around your mouth, adjust the respirator as described in step 5. If air leaks at the bottom or sides, adjust the straps first, using the sides of your head. Recheck.

NOTE: If you cannot achieve proper fit, do not enter the isolation or treatment area. See your supervisor.

Removal instructions:



1 Cup the respirator in your hand to maintain position on face. Pull bottom strap over head.



2 Still holding respirator in position, pull top strap over head.



3 Remove respirator from face and discard as soon as possible according to your facility's policy.



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High-risk situations where N95 is needed

- Isolation rooms for patients with TB, especially M(X)DR-TB
- Sputum induction or other cough-inducing procedures
- Consultations with high risk patients (suspected/confirmed MDR/XDR)
- Bronchoscopy suites
- Autopsy areas
- Spirometry rooms
- Surgery on potentially infectious TB patients



In conjunction with administrative and environmental control measures



RESPIRATOR



SURGICAL MASK



Protects healthcare workers from inhaling infectious droplets

Filters small particles

Has a tight seal around the entire edge

Use in high risk situations to protect healthcare workers

Too expensive to use for patient cough etiquette

Inadequate to protect against inhalation of infectious droplets

Not designed for high filtration

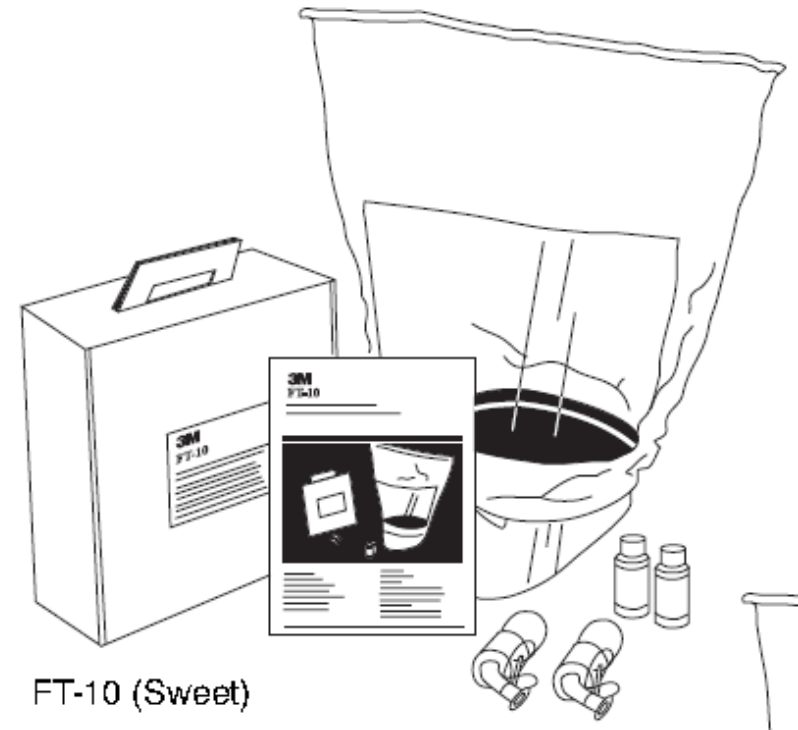
Does not have a tight seal around edges

Used by patients (TB/DR TB suspects or TB/DRTB cases) to avoid the spread of TB bacilli (cough etiquette)

Inexpensive

What is fit testing?

- Test to determine which type or size of respirator fits the healthcare worker
- Making use of an obnoxious substance sprayed in a hood covering the head
 - If you smell the substance, the respirator does not fit
 - If you do not smell the substance, the respirator fits well
- Once you know which type/size fits you, it does not need to be repeated regularly
- It is not the same as a seal check!



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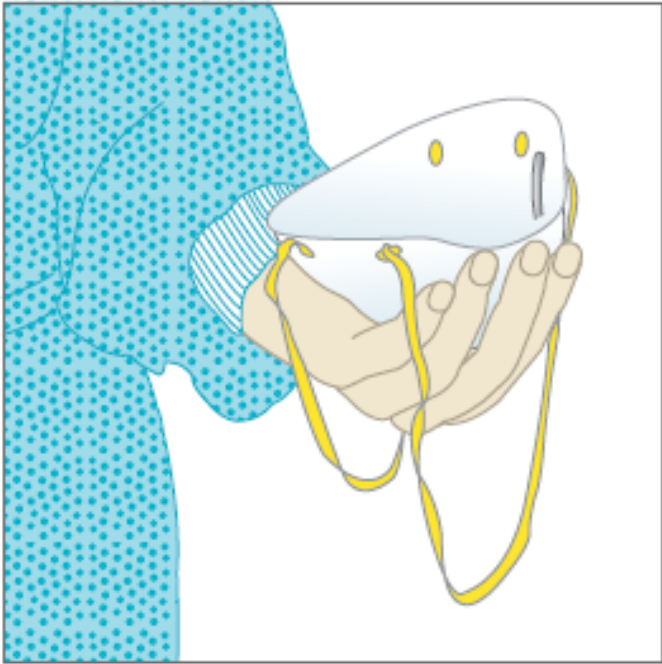
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What is seal checking?

- Seal checks are performed to check if the respirator that a HCW puts on is sealing the face off properly and air is not leaking between the face and the respirator
- This should be done every time you put on a respirator
- How to put on a respirator and how to do a seal check will be explained in the next slides ---

How to put on the N95 respirator - 1



Check the respirator for faults before putting it on!

Check the elasticity of the headbands

Step 1:

Cup the respirator in your hand with the nosepiece at your fingertips allowing the headbands to hang freely below your hand

How to put on the N95 respirator - 2



Step 2:

Position the nosepiece
under your chin with the
nosepiece up

Pull the top strap over your
head resting it high at the
back of your head



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How to put on the N95 respirator - 3



Step 3:

Pull the bottom strap over your head and position it around your neck below your ears.



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How to put on the N95 respirator - 4



Step 4:

Place fingertips of both hands at the top of the metal nosepiece.

Using two hands, mould 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.



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How to put on the N95 respirator – 5a (the positive seal check)



Step 5:

Cover the front of the respirator with both hands, being careful not to disturb its position

Positive seal-check: Exhale sharply.

A positive pressure inside the respirator = no leakage.

If air leaks around the nose, readjust the nosepiece as described in step 4.

If air leaks at the respirator edges, work the straps back along the sides of your head.

Retest the seal.

Repeat the steps until the respirator is secured properly.



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How to put on the N95 respirator – 5b (the negative seal check)



Negative seal-check: Inhale deeply.

If no leakage, negative pressure will make the respirator cling to your face.

Leakage will result in loss of negative pressure due to air entering through gaps in the seal.

Adjust the position and/or the tension straps and check for damage.

Retest the seal.

Repeat the test until the respirator is secured properly.



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How to remove the respirator

- Cup the mask in your hand to maintain the position on your face
- Pull the bottom strap over your head
- Then pull the top strap over your head
- Remove the respirator from your face
- Wash your hands after handling the mask



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How long can a respirator be used for?

- There are no clear guidelines on this, but what is known:
 - N95 respirators can be re-used by the same person if stored in a clean and dry place
 - The respirator should be changed when it becomes wet, dirty or damaged, or when it interferes with breathing
 - If the elastic headbands no longer provide a tight seal, the respirator must be replaced
 - On average, the respirator can be used for 5 days continuous wearing (about 40 hours) before discarding
 - Humidity, dirt and crushing reduce the efficiency of the respirator



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How to store the respirator

- Keep the respirator in a dry, well-ventilated area
 - A paper bag can be used
 - Do not store the respirator in a plastic bag
- Write your name on the elastic straps or on the paper bag you use to store the mask
 - Do not write your name on the respirator itself, as this will damage the filter



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