

HMBS Placements

Respiratory Protection Equipment (RPE)

When to use an N95 mask

How to manage mask discomfort

How to wear a N95 mask

What to expect during a fit testing session

How to remove an N95 mask

Learning Overview

The purpose of the following slides is to;

- Understand respiratory hazards in clinical settings
- become familiar with wearing and removing an N95 mask
- manage mask discomfort; and,
- to understand the N95 “Fit Testing” process

Respiratory hazards in clinical settings

The most common respiratory hazards in a clinical setting are **airborne contaminants or aerosols** such as biological contaminants, dusts, mists and fumes

More than one respiratory hazard can be present at the same time

Work activities can result in airborne contamination in the form of **Particulates** - e.g., biological contaminants, dusts, mists, fumes, smokes, fibers.

These tiny particles float in the air but are often not detectable by sight or smell. When inhaled, they can become trapped in your respiratory system and cause irritation or health problems

Respiratory Protective Equipment (RPE)

Respiratory Protective Equipment (RPE) is used when other controls are either not possible or not sufficient on their own

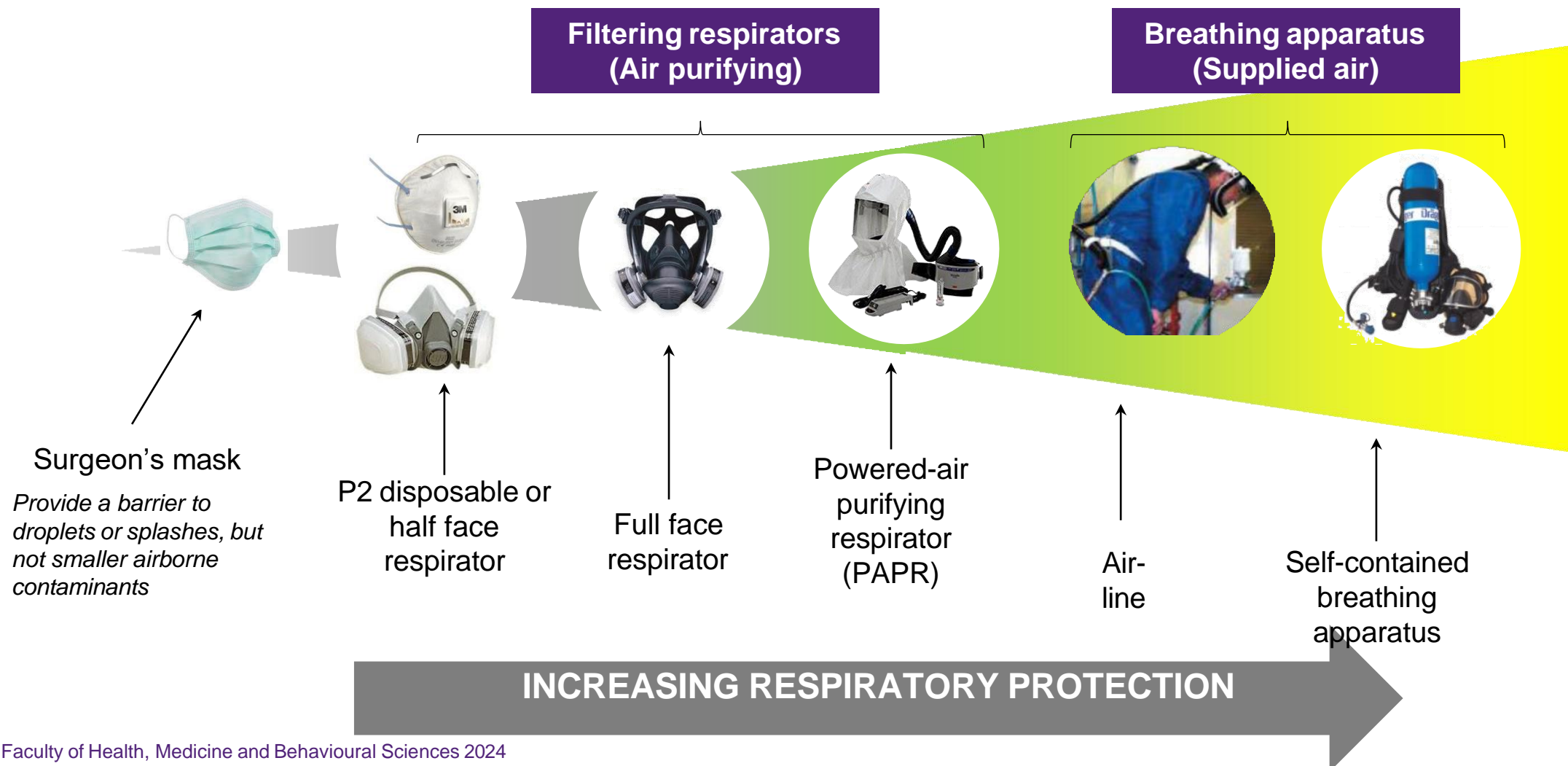
Correctly wearing RPE can stop you from developing the symptoms of respiratory illness caused by inhalation of hazardous substances at work

The two main types of RPE are:

- **FILTERING RESPIRATORS** (or air purifying respirators), which filter the air to remove harmful substances to **purify the air** the worker breathes
- **SUPPLIED-AIR RESPIRATORS** (or Breathing Apparatus (BA)), which **provide a supply of clean air** for the worker to breathe from a compressed air tank or an air line. The air supply is separate from that of the work environment

For the purpose of this training, only filtering respirators (N95) will be covered.

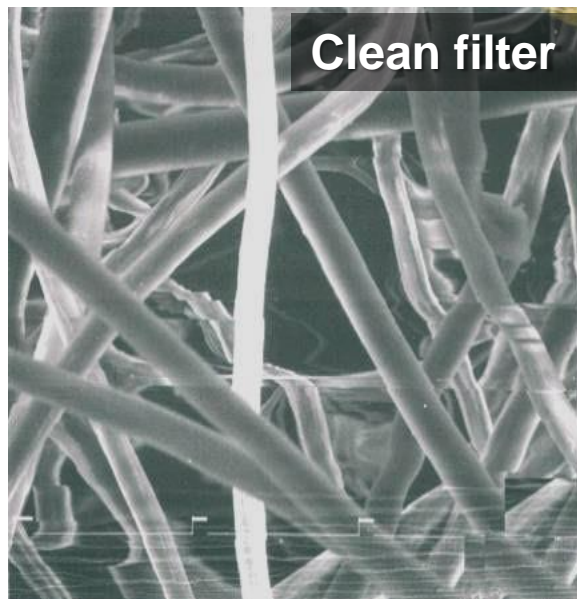
Respirator protection spectrum



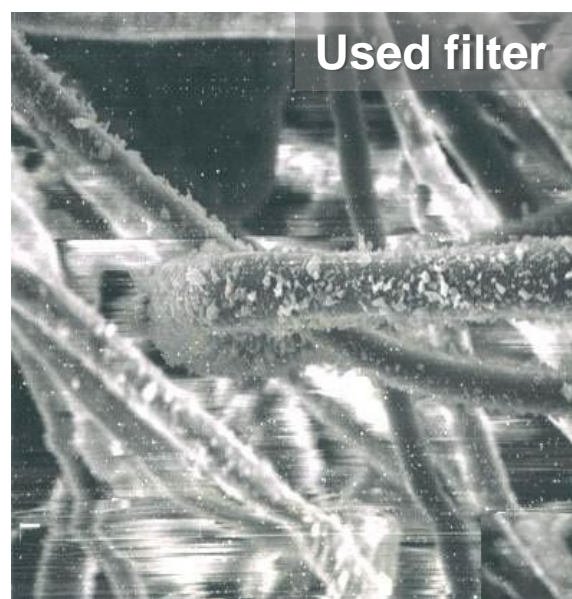
How do particulate air purifying masks work?

A particulate filter is NOT a screen or sieve, and particles are not collected by layering on 'top' of a filter; instead, they are captured as they pass through the filtering material

Filters are made of many layers of randomly oriented fibers - the more fibers and the thicker the filter the more efficient the filter at capturing particles



Clean filter



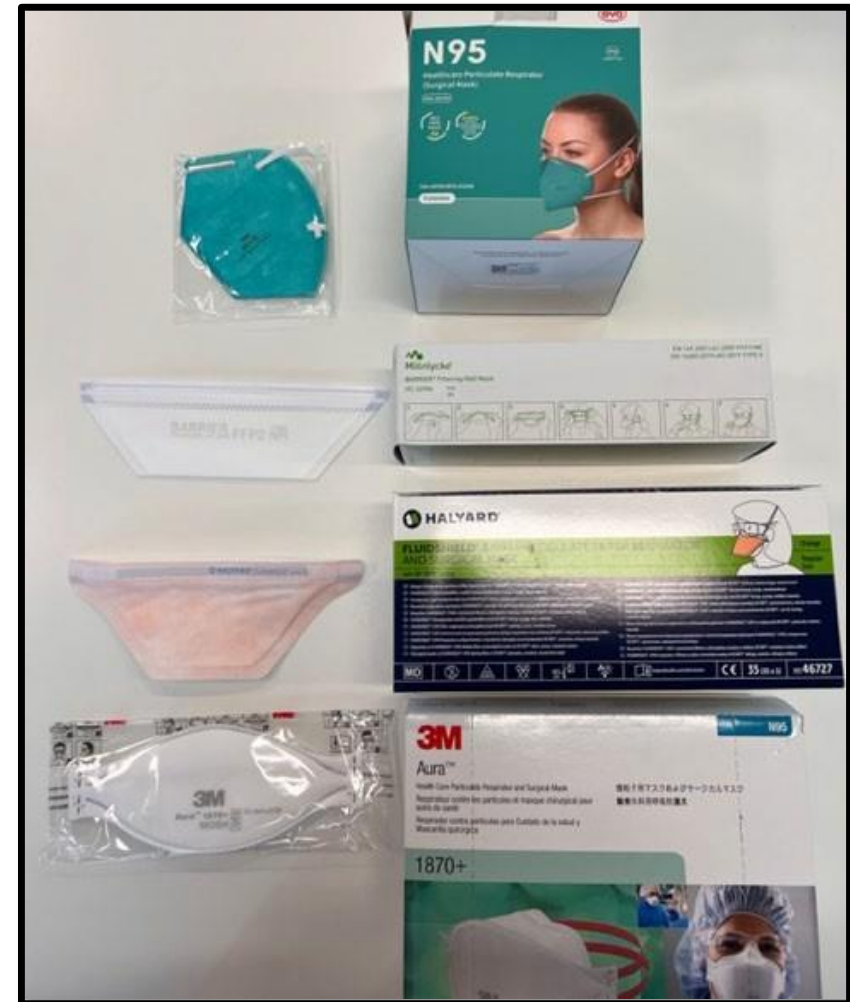
Used filter

Queensland Health requirements for placement students

COVID is now widespread in our community, in response Queensland Health has escalated the risk level to High.

This means that anyone working in a hospital or health service requires additional personal protective equipment, that includes wearing an N95 mask.

Before an N95 mask can be worn in a Queensland Health facility, fit testing must be performed in accordance with the relevant Australian Standard. AS/NZ 1715 – Respiratory protective equipment.



Mask or skin discomfort

You may experience some mask discomfort and experience some skin irritation when wearing these masks for a prolonged period of time. These can be managed by

1. **Take time** to fit your mask before starting a clinical consultation. Ensure all folds in your mask have been used to optimise the correct fit for you and do not over-tighten following fit check procedures.
2. **Increase** the frequency of application of moisturisers and emollients and consider using a richer and thicker type to protect dry skin. Apply before going to bed.
3. **Hydrate**. Make sure you are drinking plenty of water as this can easily be forgotten.
4. **Sleep**. Getting plenty of sleep and a skin-friendly diet with plenty of omega-3 and omega-6 fatty acids all support a healthy skin barrier.
5. **Take regular breaks** - ideally hourly - from wearing the masks to relieve pressure, reduce moisture build up and allow the skin time to recover.
6. **Seek advice**. If you experience severe skin problems, please seek medical advice from your GP.

Medical Assessments

Physiological and psychological considerations

Physiological considerations

Regular wearing of P2/N95 masks imposes an extra burden on cardiac and respiratory systems. Thus, a person with a history of disorders in these areas should be medically assessed by a medical practitioner or an occupational health physician, especially where heavy work or prolonged wearing of RPE is anticipated.

Psychological considerations

Helmet, hood and full facepiece RPE, especially when combined with full body protection, may give rise to feelings of claustrophobia, isolation and anxiety in some people. Such people will find it difficult to perform their work satisfactorily under these conditions. Training programs are available to assist users in overcoming such feelings of anxiety.

Respirator fit testing

Preparing for your fit testing session

Before attending a fit testing session, please ensure you familiarize yourself with the following points to achieve a quality fit, failure to do so may prevent your mask sealing properly:

1. Clean shaven face - No beards or any stubble length
2. Long hair tied back
3. No heavy foundations/makeup



How to wear a respirator / N95 mask – Halyard (Duckbill)

- 1** Separate mask edges (put a small bend in nose wire if needed)
- 2** Ensure nose piece is at the **top** and bottom is completely unfolded
Cup the mask under your chin and pull the head bands up and over your head.
- 3** Pull the top strap over your head.
Position it high on the back of your head, above your ears
Holding the respirator, pull the bottom strap over your head and position around your neck and below your ears



Reference: Donning & Fit Checking of Respirator in NSW Healthcare Settings: Duckbill style P2 or N95 Respirator <https://www.youtube.com/watch?v=OloUcaHPKSQ>

How to wear a respirator / N95 mask

- 4** Check that the mask is not folded as that will prevent you from achieving a seal



- 5** Starting at the bridge of your nose and using fingertips on either side of your nose, firmly conform the nose piece to your nose and across cheek bones (pushing inward) - Do not pinch the nose piece with one hand as this may create a gap!



- 6** Continue to adjust the respirator and secure the edges until you feel you have achieved a good facial fit.

Proceed to fit checking.

Fit checking must be performed every time you put on a new N95/P2 mask.

CAUTION
An incorrectly fitted mask will not provide you with the intended level of protection from airborne infectious diseases!

Fit checking



POSITIVE seal fit check

- Exhale sharply. While doing so, feel for air seeping through the mask.
- An unsatisfactory seal is indicated by the feel of an airstream channelling through a leak

NEGATIVE seal fit check

Disposable masks

- Inhale sharply (face-piece may collapse onto face)
- An unsatisfactory seal is indicated by the feel of an airstream channelling through a leak

If you find a leak, adjust the mask and repeat until you get a good fit!

What to expect during the fit testing process

1

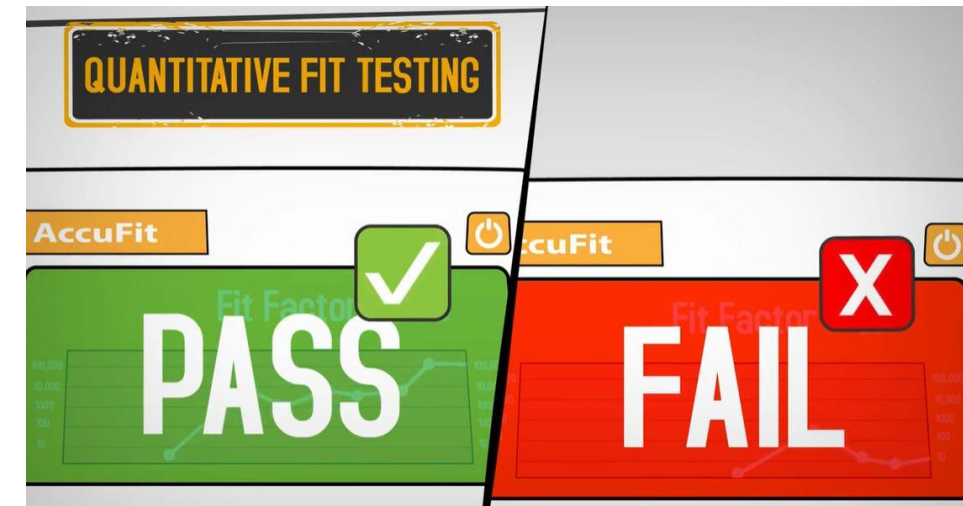
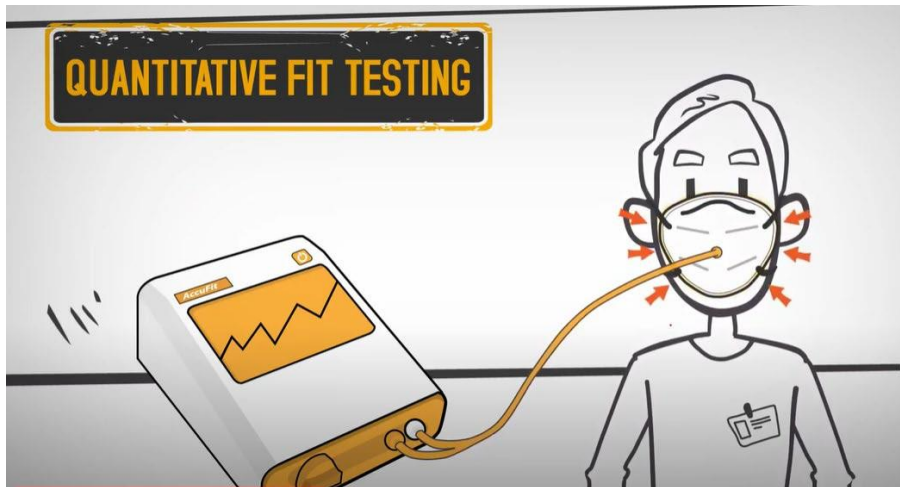
The quantitative fit testing process uses a fit testing machine that counts the microscopic particles inside and outside the respirator to ensure a good face fit.

2

While wearing the respirator, you will be asked to perform 4 exercises –Turn head left/right, head up/down, talking and bending over.

3

As you complete the exercises, the machine counts the microscopic particles inside and outside the respirator and determines whether the mask pass or fail the test. If a fail is received, you will be tested on a different mask.



Reference: <https://www.youtube.com/watch?v=5X3rmuMnpC8>

Respirator removing (doffing)

- 1 Bring bottom strap overhead to front of mask, keeping the respirator seated against your face

Never remove the respirator inside the space with the contaminant

- 2 Change gloves if necessary (your hands will be near your face and therefore the mucous membranes of your eyes, nose, and mouth, so you need to protect yourself from contaminants on your hands)

- 3 Lift off the top strap and carefully remove the respirator by the straps, without allowing the outside to touch you. Do not touch the front of the mask as this is likely the most heavily contaminated part



Summary of requirements

Requirements for wearing an N95 mask

Training

You must have training in the selection, care and use of the respirator

No facial hair

You must be clean shaven on the respirator seal line to wear a negative pressure air-purifying respirator such as a N95 disposable respirator

Fit checking and fit testing

You understand the processes of donning and doffing a N95 mask

You must “fit check” every time you put on a new N95 mask.

You must have passed a fit test for all N95 masks you wear on an annual basis.

Other considerations

Note, some medical or psychological conditions may restrict the wearing of a respirator, e.g., chronic lung disease, claustrophobia and anxiety