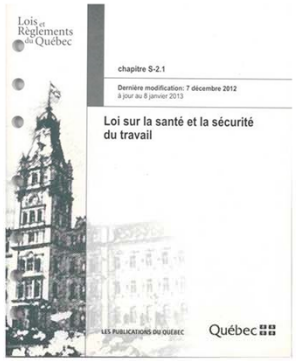
The respiratory protection program covers situations where exposure to particles justifies the use of a respirator. This program outlines the roles and responsibilities of key stakeholders and identifies risk situations.

The goal of this program is to ensure that all users who work in the animal facilities of Université Laval and its affiliated research centres receive information, training and equipment needed to protect themselves against the risks of exposure of airborne particles.

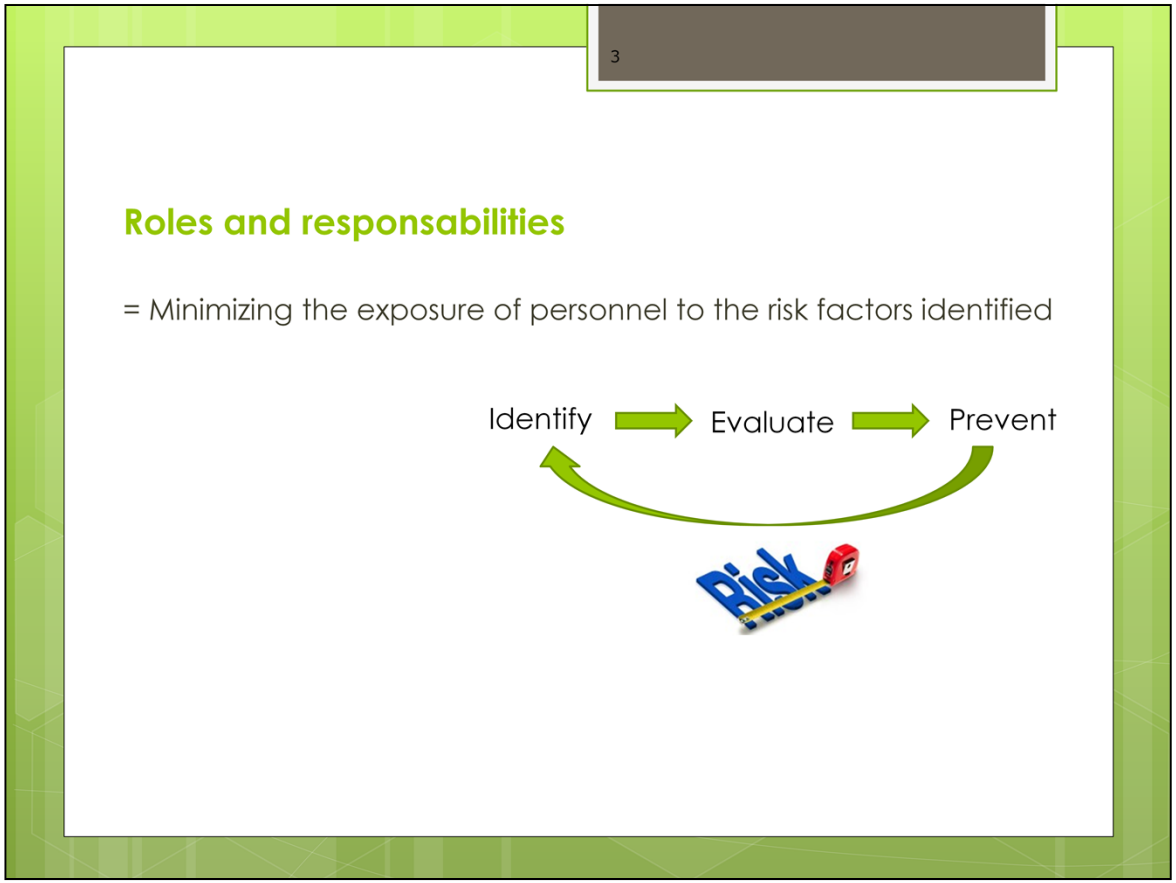
The program applies to all categories of staff working within the animal facilities of Université Laval and its affiliated research centres. It also applies to all subcontractors, contractors and their employees who work in these facilities.

Legal obligations



Wearing a respirator is required under laws and regulations concerning health and safety in any situation or work activity that could lead to respiratory exposure to a contaminant. In this case, the institution must implement a respiratory protection program and provide protection to those exposed.

Regulation respecting occupational health and safety defines the terms for wearing respiratory protection. For example, it is forbidden to wear a N95 respirator in an environment where there is less than 19.5% oxygen. Under current regulations, the establishment has identified the types of contaminants present in the animal facilities. Thus, the institution must provide respiratory protection for all users of the animal facilities.

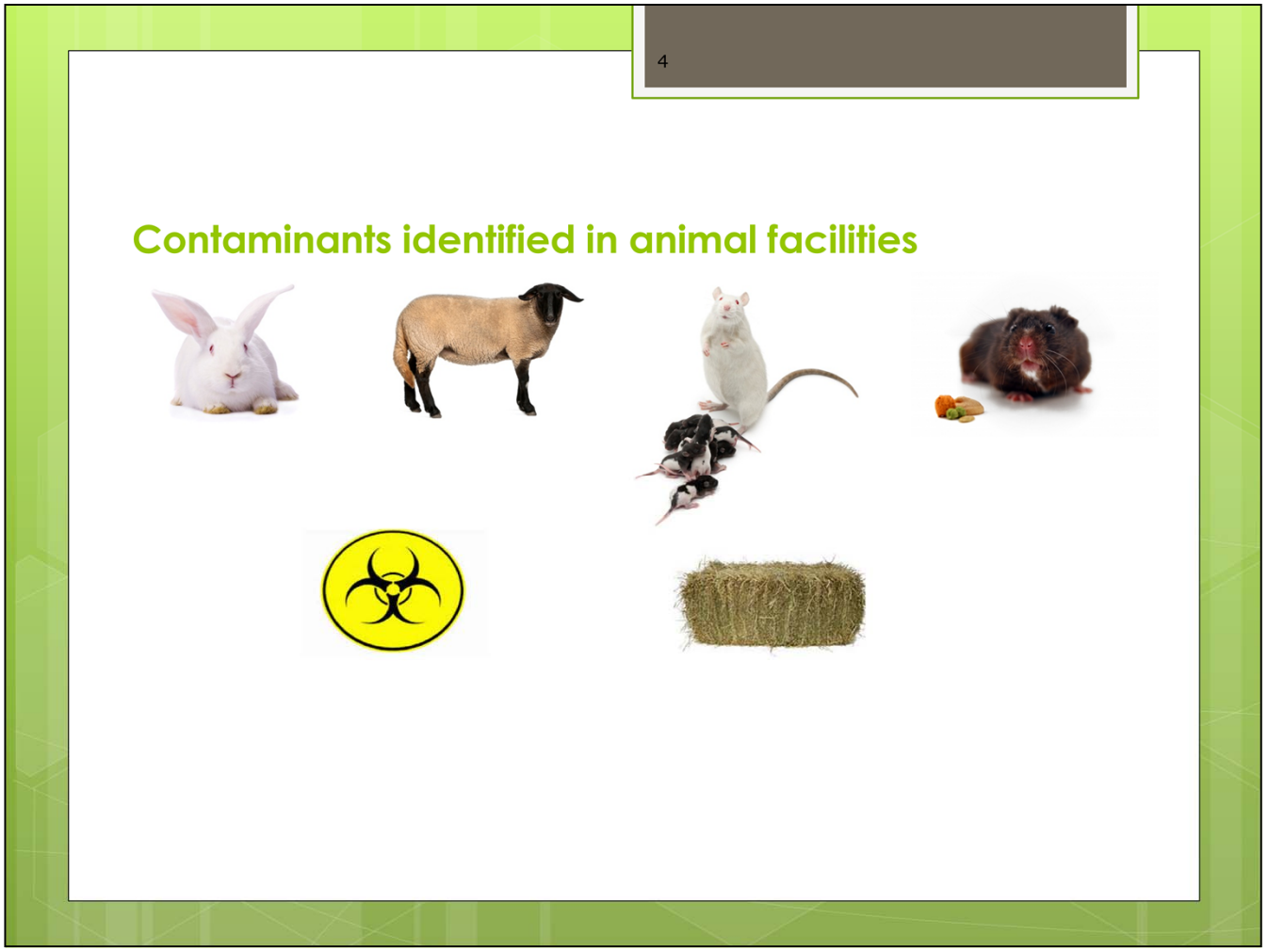


The manager and the user have a shared responsibility to ensure they are exposed to the identified contaminants to a minimum.

To do this, the training and fit testing should be performed at a maximum interval of 2 years. Each party is responsible for the proper implementation of the program; compliance with the methods taught for wearing the respirator is paramount.

In the animal facility, the N95 respirator must be worn in the following areas:

- In all rooms where animals of any species are housed, transported or handled.
- In areas where bedding is stored or treated.
- In containment level 2 and 3 areas.



As mentioned previously, the animal facilities of Université Laval and its affiliated research centres identified contaminants requiring the wearing of the N95 respirator. These are part of the particles family. Are considered particles: solid or liquid contaminants suspended in the air coming from laboratory animals, their bedding, or pathogens (bacteria, viruses and parasites).

5

Effects of contaminants

Symptoms

- Watery eyes
- Sore throat
- Sneezing
- Runny nose
- Headache
- .....

Adapted from Healthwise Inc.

Various contaminants in the animal facility can have significant effects on your health. These can be observed acutely or chronically depending on the contaminant, depending on your susceptibility and sensitivity, dose, the period of exposure, etc.

It is therefore possible, although you may have already been exposed to these contaminants with no observable effect, that effects occur after exposure to contaminants.

6

Allergy to laboratory animals

- Urine
- Hairs
- Saliva
- Serum

- 11-44% of animal facilities users have signs of allergy
- 3-22% of animal facilities users develop asthma

rhinoconjonctivitis (80%)
skin reactions (40%)
asthma (20%)

N95 respirator limits users exposure to animal particles. In some cases these particles may become or are sources of allergens. The urine, hair, saliva and serum among other are considered potentially allergenic.

In addition to respiratory protection, other measures must be implemented in order to reduce users exposure to these particles. The exposure is possible via direct contact with the skin or mucous membranes, inhalation of airborne allergens and percutaneous exposure.

The sources of contaminants from the animal are numerous and variable in quantity in the environment, without species specificity.

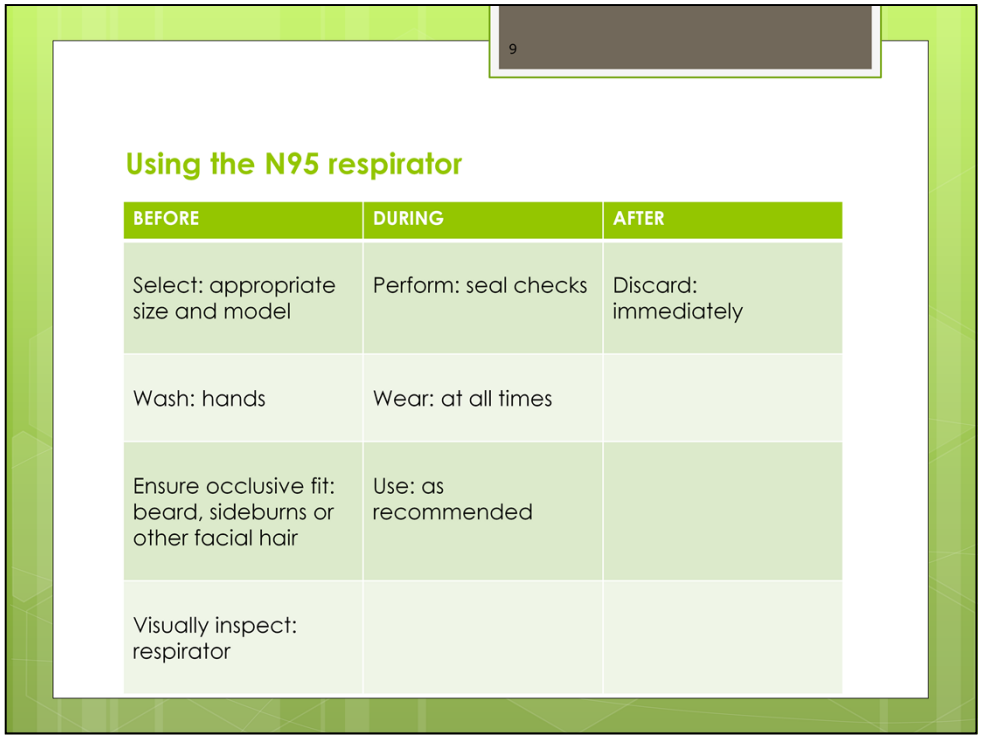
As there may be risk of developing allergies when working with laboratory animals, it is important to minimize contact with the particles that have been identified as potentially allergenic.

In the event that you experience allergy symptoms, it is important to complete the declaration form to inform your institution. The latter can then implement the necessary measures to ensure your health and safety in the performance of your duties.

8

Respirator	Mask
• Ajusted	• Loose fit
• Certified NIOSH	• Not certified
• Quality inspection	• No qualitiy inspection required
• Minimum efficiency requirements for its filter	• No efficiency requirements for its filter
• Designed to filter incoming and outgoing particles (**95%** of particles ≥ 0,3 microns)	• Designed to prevent the large particles from reaching the user (50% of particles ≥ 5 microns)

The choice of N95 respirator is based on its ability to filter particles in and out. In the animal facility, it is not possible to wear a mask that is not certified.



It is important to note that any person who should use a respirator for the first time may feel discomfort.

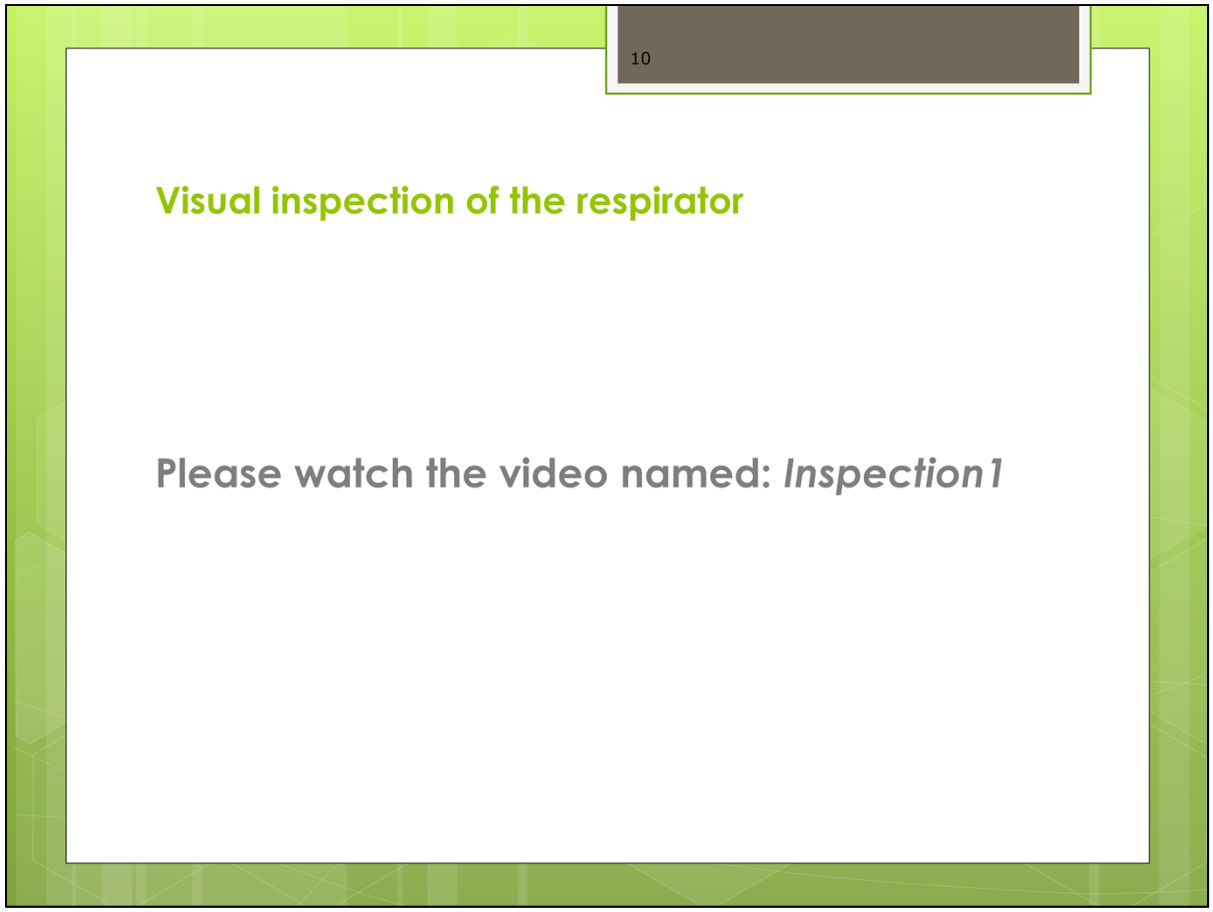
Several steps are required for wearing the respirator. You must only wear the model with which you have been tested. If your respirator is not available, you should not enter the contaminated area. Your hands should be washed before handling the respirator. So that the respirator completely adheres to the skin, your beard and your sideburns should be freshly shaven. Hair or other items should not interfere with the sealing of your respirator. Its condition must be checked and a deformed or damaged respirator must not be worn under any circumstances. You will later see a video showing the procedure for the inspection of a respirator.

Once you have donned the respirator, you must perform 2 seal checks as shown on one of the next slides. Instructions on how to don the respirator will be provided in an upcoming video.

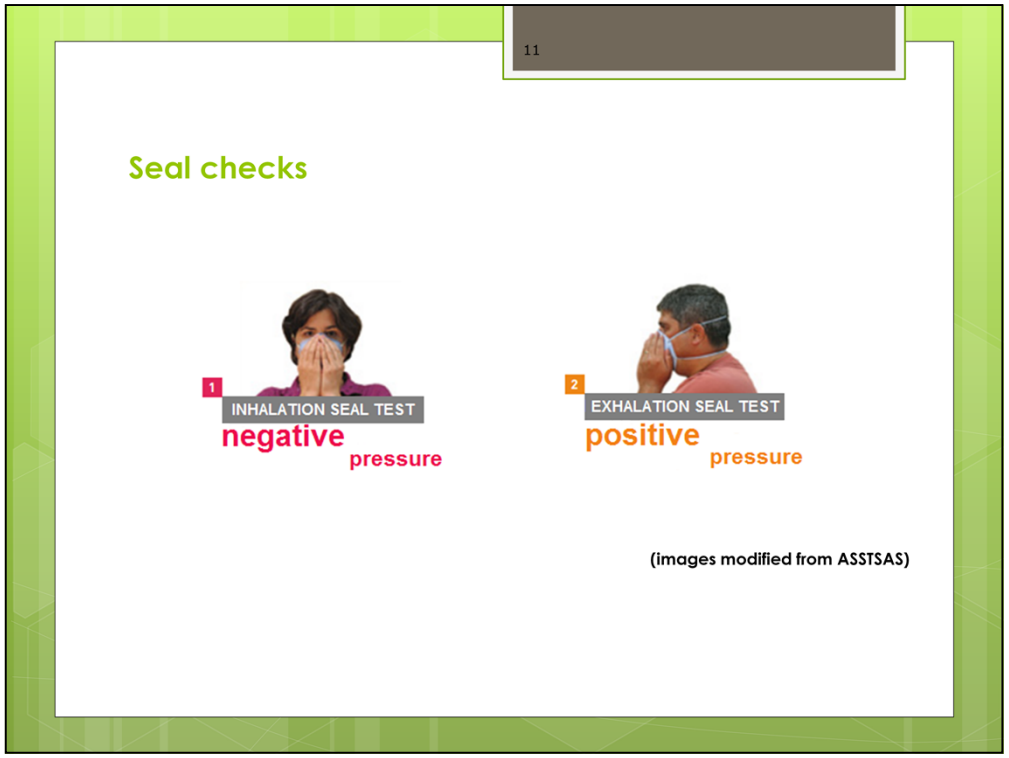
It is important to note that the presence of an air entry into the respirator creates a contaminated microenvironment exposing you more than if you were not wearing any protection.

You must keep your respirator at all times in the contaminated area. The respirator should not be modified or altered. There are no published data on the length of time the respirator is effective for the wearer. The respirator must then be replaced when you begin to have trouble breathing, if it is wet or after manipulations in a containment level 2 area. Without exception, it must be removed outside the contaminated area. The equipment must be discarded immediately. When removing the respirator, you must avoid touching the filter containing the contaminants: pass the bottom strap over your head, then pass the top strap over your head and put the respirator in the trash.

In the animal facility, the respirator can never be reused.



The respirator must be visually inspected prior to use. The headstraps, the nose piece and its general condition must be carefully checked. If any defect is detected, the respirator must not be used and it must be replaced.



The 2 seal checks must be performed before each use of a N95 respirator.

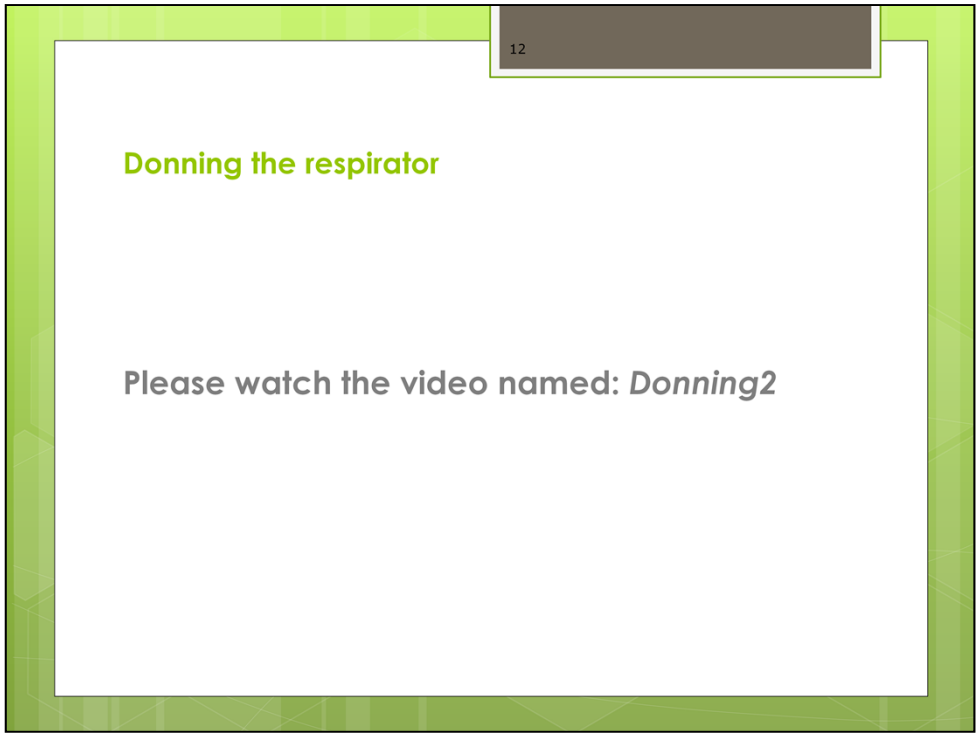
To test the seal in **negative** pressure:

- Place your hands on the respirator without crushing it;
- Then inhale deeply for a few seconds to create a vacuum;
- If the test is performed properly and the seal is good, the respirator should sag slightly on face;
- If the test fails, reposition the respirator and repeat the test. If necessary, make several inhalations.

The **positive** pressure seal test should be done after the negative pressure seal test. To test the seal in positive pressure:

- Place your hands on the respirator without crushing it;
- Then exhale sharply for a few seconds;
- If the seal is good, the respirator should buldge slightly;
- If air leaks around the nose or edges, readjust the respirator and repeat the test. If necessary, make several exhalations.

If you cannot achieve a proper fit, **DO NOT ENTER** the contaminated area. Contact the animal facility manager to reschedule a new fit test.



Please note that wearing a respirator is prohibited without prior fit testing. This must be done before you have access to the animal facility.

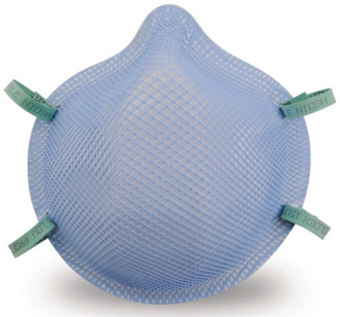
When donning the N95 respirator:

- If your respirator is a molded-type model, you must place it in the palm of your hand to allow the straps to hang freely;
- If your respirator is a model with nose clip and not molded, you must pass the headstraps to the front of the respirator as shown in this video. Make certain the panel is unfolded and completely open;
- Cup the respirator under your chin and place the nosepiece on the nose;
- Pull lower headband over your head and position it at the base of your neck (under the ears);
- Pull remaining headband over your head to position it on the crown of your head;
- Ensure the headbands are not crossed or turned on themselves. Under no circumstances should you shorten the straps by pulling at them at the tie. Place the hair behind the ears to prevent the slipping of the upper strap.

If there is a metal nosepiece as shown in the video, place fingertips of both hands **AT THE TOP** of the nose. Mold the nose area to the shape of your nose by pushing inward while moving your fingertips down. If you start down and go up, you might create an opening at the top of the nosepiece that would prevent adequate seal of the respirator.

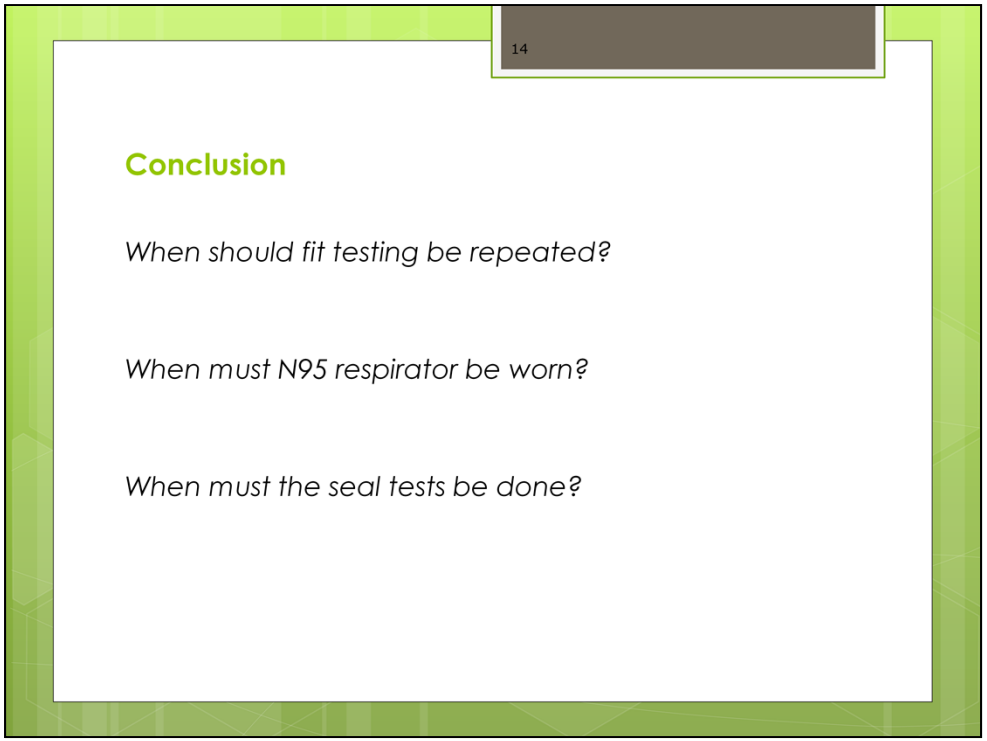
The user who does not use the respirator as required exposes himself to disciplinary measures or a ban from entering the facility.

Donning the respirator



"Molded type" N95 respirator

"Folding type" N95 respirator with nosepiece



Normally, the respiratory protection training and fit testing must be renewed at a minimum interval of 2 years. However, the frequency of fit testing can be changed if there has been a difficulty in relation of a recent use (for example: failure of the seal test before entering a contaminated area) or if there is a change in the morphology of the face due to a gain or loss of weight, trauma or surgery.

Users must wear N95 respirator:

- In all rooms where animals of any species are housed, transported or handled.
- In areas where bedding is stored or treated.
- In containment level 2 and 3 areas.

The negative and positive pressure seal tests must be performed before each use of a N95 respirator.

You may now proceed to the next step: fit testing the N95 respirator. Please note that before the fit test, an assessment of knowledge will be done and you must obtain a **minimum score of 80%**.