

# Infection Prevention and Control (IPAC) Hub Congregate Living Organizations Webinar N95 Respirators

Presented by:

ESC IPAC Hub | GB IPAC Hub | HNHB IPAC Hub | SW IPAC Hub | WW IPAC Hub

February 22, 2022 | 1:00 p.m. - 2:00 p.m.



**Ontario Health**  
West



# Poll Questions

# What area do you work in?

- A. Erie St. Clair (ESC)
- B. Grey Bruce (GB)
- C. Hamilton Niagara Haldimand Brant (HNHB)
- D. South West (SW)
- E. Waterloo Wellington (WW)

# What setting do you practice in?

- A. Adult Developmental/Intervenor Services' Congregate Residential Programs
- B. Anti-Human Trafficking Residential Programs
- C. Assisted Living
- D. Children's Residences
- E. Indigenous Healing and Wellness Strategy Residential Programs
- F. Long-Term Care Home & Retirement Home
- G. Shelters & Supportive Housing
- H. Violence Against Women Shelters/Residential Programs
- I. Youth Justice Facilities and Open and Secure Custody Setting
- J. Other

# What is your role in the setting you work in?

- A. Administrative
- B. Case Management
- C. Direct Care
- D. Infection Prevention and Control
- E. Health Professional
- F. Other



# Agenda

# Agenda

Item	Topic
1	Welcome   Introductions
2	N95 Respirators: What, Why, When and How?
3	Fit Testing
4	Donning & Doffing
5	Seal Checks
6	Extended Use Strategies
7	Questions & Answers
8	Summary   Wrap-Up





# Review of N95 Respirator Use

What they are

Why they are used

When to use them

How they work



# Types of Respirators



Non-powered air purifying (disposable)



Non-powered air purifying (reusable)



Powered air purifying respirator

# NIOSH N95 Respirators

- The US National Institute of Occupational Safety and Health (NIOSH) is responsible for:
  - setting standards in the US related to occupational safety and health;
  - the certification of products against those standards, which come from 42CFR84 of US legislation.
- The NIOSH N95 respirator is one of those certified products.



# N95 Respirator



Class	Efficiency
• N – Not Oil Resistant	• 95 %
• R – Oil Resistant	• 99%
• P – Oil Proof	• 100%

# *What is an N95 respirator?*

- Special mask designed to protect the wearer from breathing in very small particles, which might contain viruses.
- It must fit tightly to the face so that most air is inhaled through the filter material.
- Designed to achieve a very close facial fit and very efficient filtration of airborne particles.
  - Edges of the respirator form a seal around the nose and mouth



# *What is an N95 respirator?*

- N95 refers to the filtering efficiency of a respirator based on the percentage of small particulate they filter from the air when properly used.
- **To work the best way, N95 respirators must be specially fitted for each person who wears one** (this is called "fit-testing" and is usually done in a workplace where respirators are used).
  - “unfitted” refers to a respirator that does not require fit testing (KN95) or one that the user has not been fitted for.



# *Why do I need to wear a respirator?*

- Historically, N95 Respirators were used by healthcare workers for contact with tuberculosis (TB), varicella (chicken pox), or measles.
  - These agents may be spread by **airborne transmission** and are expelled into the air when a person coughs, sneezes or talks.
  - They can travel long distances (> 2m).
- These diseases can damage the lungs, can cause serious illness, and are highly communicable.

# *Why do I need to wear a respirator?*

- Recent updated Chief Medical Office Of Health directives now require an N95 respirator to be worn (in addition to gown, gloves, and eye protection) for **all workers providing direct care to or interacting with a suspect or confirmed case of COVID-19.**
  - interim due to uncertainty around the mechanisms of transmission of COVID-19 Omicron variant.
    - Used for cases placed in precautions as high risk contact, in an outbreak zone of the facility, or recently transferred from a facility in outbreak.



Photo credit: James Gathany



# ***When do I need to wear an N95 Respirator?***

- N95s are required during aerosol generating medical procedures (AGMs) because during these procedures fine aerosols are created that may not be filtered by a regular procedure mask.
- An N95 will provide you with the best protection possible.

# *How does the respirator work?*

- The respirator filters the air before it is inhaled by the person wearing the respirator.
- It is made of fabric that has an electrostatic charge that acts to trap particles, preventing filter penetration.

# *How does the respirator work?*

- For the mask to filter out droplet nuclei, the air must pass through and not around the mask.

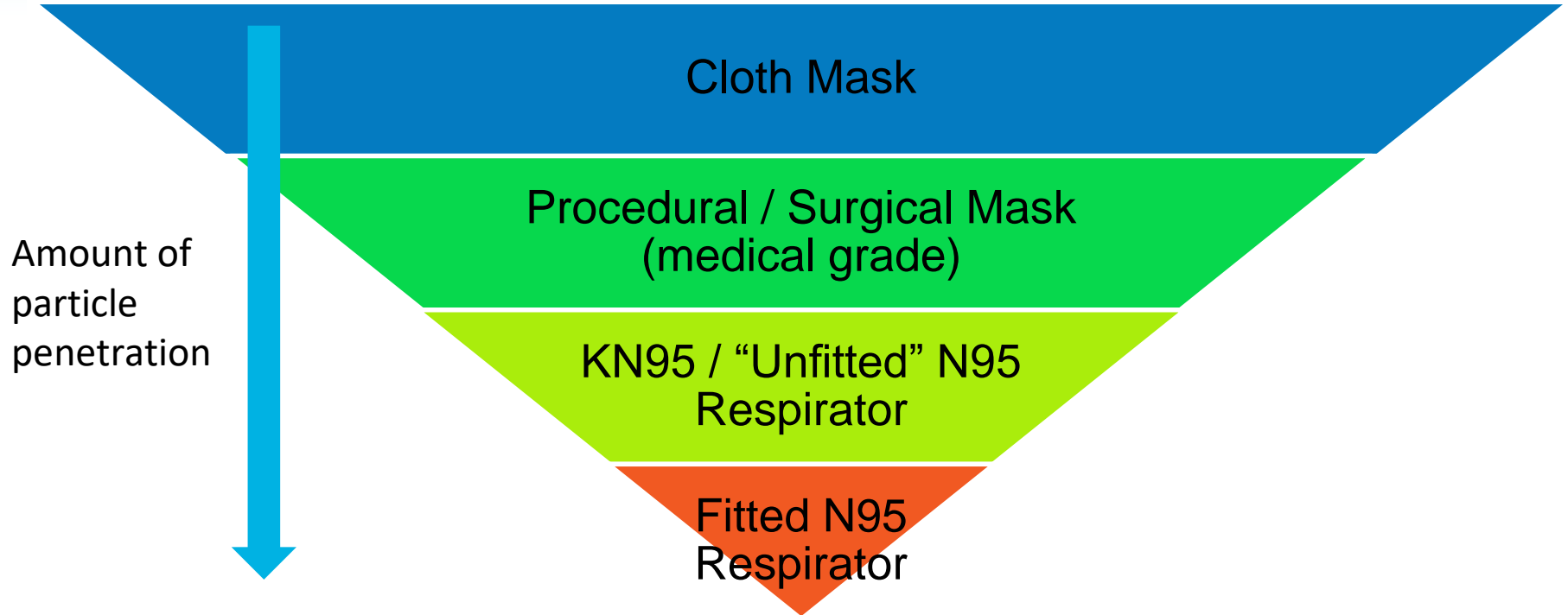


# *How does the respirator work?*

- When gaps are present between the face and the mask resulting in a poor facial seal, air will preferentially flow through the gaps and bypass the mask filter.



# Various Masks and Particle Penetration





# Poll Question

**I know the process to get my staff fit tested within my organization.**

- A. yes
- B. no

# Which of the following statement best describes your organization/setting?

- A. We have a respiratory protection program in place with clear policy and procedure around the use of N95s
- B. We fit test our staff for N95s, but have yet to develop a respiratory protection program with clear policy and procedure
- C. We do not fit test for N95s because we are permitted to use N95s without being fitted
- D. Other





# N95 Respirator Fit Testing

**Why and when it is done**  
**Responsibilities of Employers & Employees**

# Respiratory Protection Program

- A respiratory protection program is required for staff who will be required to wear an N95 respirator (Ministry of Labour, Training and Skills Development (MLTSD) requirement).
- The program must include:
  - a health assessment;
  - N95 respirator fit-testing;
  - training - proper use & how to perform a seal check.

# Fit Testing

- Is required prior to using respirators to make sure that the respirator seals to the user's face properly.
- Should be carried out at least every **2 years** because the user may have to change the size or make of the respirator due to physical changes.
  - e.g. facial changes, piercings, weight loss/gain
- Wearer is required to perform a “**user-seal check**” each time the respirator is worn to check the respirator-to-face seal.



# Quantitative vs. Qualitative Fit Testing

- **Quantitative fit testing** measures the effectiveness of a respirator's fit by numerically measuring the amount of leakage into the respirator.
  - PortaCount machine
- **Qualitative fit testing** is a pass/fail test that relies on the person's response to a test agent.
  - Saccharin/Bitter solution and hood



# Fit Testing Kit



# Fit Testing Considerations

- No eating/drinking/chewing gum 15 minutes prior to fit test.
- Must complete Medical Screening.
  - e.g. Pregnant workers, asthma, Chronic Obstructive Pulmonary Disease (COPD)
- Must be clean shaven where the respirator contacts the skin for fit testing and for use.



# Fit Testing Considerations, Cont'd

- Clean shaven allows for short stubble or minimal facial hair growth that does not interfere with or prevent a seal.
  - Should not be more than a “5 o’clock shadow”
  - i.e. growth since shaving this morning
- Individuals with bona fide human rights reasons that cannot be clean shaven may need to be provided with Powered Air Purifying Respirator (PAPR) or other appropriate option.

# Fit Testing Challenges

- Difficulty fitting into respirators available in facility.
  - Attempt to source a different size
  - Focus on sizes that have a more universal fit (e.g. 1870+)
- Staff cannot taste the sweet or bitter solutions
  - Have employee get a quantitative fit test



# Preventing Skin Breakdown

- Ensure the respirator is well-fitting and comfortable to wear without too much friction or pressure on the skin
  - An ill-fitting or uncomfortable respirator may indicate a different brand or model of respirator would be more suitable
- Follow manufacturer's instructions for use for strap placement
  - Headbands can prevent excessive pressure against the skin and are usually on the crown of the head and behind the neck, not resting on ears

# Preventing Skin Breakdown

- Take regular breaks when the respirator is doffed to relieve pressure on skin
- Complete facial skin care with a product intended to be used on the face to avoid irritation
- Apply moisturizers and lotions well in advance of respirator use to ensure any residual is absorbed
  - Follow manufacturer's instruction as lotion, cream, or ointment, including make-up residue could interfere with fit and seal of a respirator

# Employer Responsibilities

- Provide fit testing every 2 years.
  - Make every attempt to get fitted for an appropriate respirator
  - If staff continue to fail both qualitative and quantitative fit tests then consider fitting to a reusable respirator
  - May use a reputable external vendor
- Keep records of the N95 respirators that each staff has been fitted for and ensure they are readily available.
- Provide education on the proper use of N95 respirators



# Employee Responsibilities

- Know which N95 respirator(s) they have been fitted to and where they are located.
  - N95 are not interchangeable, and are not to be modified
- Use the fitted N95 respirator(s) when indicated.
- Complete regular education on the proper use of N95s.
- Report to employer if they are having difficulty obtaining a seal with their fitted N95.



# Fit Testing Services

- For a list of companies that provide fit testing or fit test trainer testing refer to the HMMS website under resources:
  - [Regional COVID-19 Portal \(hmmscovid19.ca\)](https://hmmscovid19.ca)
- Note: Ministry of Children, Community and Social Services (MCCSS)-funded and licensed congregate living settings can also contact their MCCSS IPAC Champion for information, support and guidance on fit testing



# General Donning / Doffing Instructions for the N95

The following instructions must be followed  
each time the respirator is worn

# Before you begin...

- Before donning an N95:
  - ✓ Perform hand hygiene.
  - ✓ Inspect the respirator to ensure the integrity of the components, including the shell, straps, and metal nose-clip.

# Donning Instructions

- 1. Cup the nosepiece in your hand with the nosepiece at fingertips, allowing the headbands to hang freely below hands





# Donning Instructions

- 2. Position the respirator under your chin
- The nosepiece should be over the bridge of your nose



# Donning Instructions

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



# Donning Instructions

- 4. Pull the bottom strap over your head and position it around neck below ears
- Make sure the bottom strap is under your hair
- **Tip – use a mirror!**



# Donning Instructions

- 5. Using both hands, mold the metal nosepiece (if present) to the shape of your nose by pushing inward while moving fingertips down both sides of the nosepiece



# User Seal Check

## 6. The User Seal Check

- Place both hands over the respirator without disturbing its position
- The respirator seal **MUST** be checked before each use



# Two Types of Seal Checks

## 1. Negative Pressure Seal Check

- With the respirator securely in place inhale deeply
- The respirator should collapse slightly

## 2. Positive Pressure Seal Check

- Place both hands over the respirator without disturbing its position
- Exhale sharply
- Air should not leak around the respirator edges



# How to Readjust Your N95?

- If air leaks around your nose, adjust the nosepiece
- If air leaks at the respirator edges, adjust the straps back along the sides of your head

# How to Readjust Your N95? Cont'd

- If continued readjustment does not fix the air leak, try another respirator that you have been fitted for
  - same brand, or a different type if fitted to more than one
- If fit issues continue, escalate to manager/supervisor



# Doffing the N95

To safely remove the N95:

While leaning forward:

1. Lift the bottom strap over your head first
2. Then lift the top strap
3. Lift away from face while holding the strap only
4. Discard in regular waste container



# Special Considerations

- Staff that have a heart or lung disease or other health condition, may have trouble breathing through respirators and should talk with their doctor before using a respirator.
- Visitors should not be given N95 respirators for use since they have not been fit tested.
  - No added benefit over a well fitted medical grade mask



# Poll Question

# You are wearing an N95 respirator as extended use and remove it for a drink. What do you do ?

- A. Put it on a clean surface and don it when finished drinking
- B. Pull it under your chin
- C. Doff the respirator, discard it and obtain a new one
- D. Other



# Extended Use Strategies

To preserve supply

# Extended Use Strategies

- Refers to the practice of wearing the same N95 respirator for repeated close contact encounters with several different patients/residents/clients without removing the respirator between encounters
  - **Remove and discard** if **wet, contaminated, damaged, hard to breathe through**, at break times, or following an AGMP
  - N95 respirators should be discarded **immediately after being removed**
  - During extended use for N95 respirators, always change gloves and gown between patient/resident/client encounters
    - *Eye protection can also be used for multiple encounters*



# ***Does wearing a mask over the N95 help to extend its use?***

- Wearing a surgical mask or cloth covering over an N95, is not approved or recommended by NIOSH because it is not consistent with the conditions of the approval, therefore voiding the certification
- When protection against surface contamination is needed, Centers for Disease control and Prevention (CDC) recommends wearing a cleanable face shield over an N95 respirator

Link: <https://blogs.cdc.gov/niosh-science-blog/2020/06/16/covering-n95s/>







# Other Key Points

- The following practices **are not recommended**:
  - Reprocessing (or sterilizing N95 respirators)
    - Much discussion and review in summer 2020, but not recommended
  - Using the same respirator for multiple days
- **RE-USE – should only be used when there is a supply crisis**
  - Only consider after exhausting all other alternatives, and consulting with the local PHU





# Questions and Answers



# Summary | Wrap-Up

# Key Points

- Ensure staff:
  - ✓ Know their N95 size and where to find it.
  - ✓ Know how to properly don and doff their N95.
  - ✓ Know how to perform a user seal check.
- Always take care when removing PPE as this is when self-contamination may occur.
- Need to discard after use, it is a disposable piece of PPE.

# IPAC Hub and Public Health Ontario (PHO)

## Regional Team Contacts

Erie St. Clair (ESC) IPAC Hub:

[ESC\\_IPACHub@wrh.on.ca](mailto:ESC_IPACHub@wrh.on.ca)

Grey Bruce (GB) IPAC Hub:

[ipachub@publichealthgreybruce.on.ca](mailto:ipachub@publichealthgreybruce.on.ca)

Hamilton Niagara Haldimand Brant (HNHB) IPAC Hub:

[hnhbipachub@stjosham.on.ca](mailto:hnhbipachub@stjosham.on.ca)

South West (SW) IPAC Hub:

[ipachub@swpublichealth.ca](mailto:ipachub@swpublichealth.ca)

Waterloo Wellington (WW) IPAC Hub:

[wwipachub@smgh.ca](mailto:wwipachub@smgh.ca)

PHO IPAC Support Central West (WW, HNHB):

[ipacentralwest@oahpp.ca](mailto:ipacentralwest@oahpp.ca)

PHO IPAC Support West (SW, ESC):

[ipacwest@oahpp.ca](mailto:ipacwest@oahpp.ca)

OH IPAC Support: [Lesley.hirst@ontariohealth.ca](mailto:Lesley.hirst@ontariohealth.ca) and [michelle.wilband@ontariohealth.ca](mailto:michelle.wilband@ontariohealth.ca)



# Resources

# Videos and Other Resources

- [Putting on Flatfold N95 Respirator](#)
- [Taking off Flatfold N95 Respirator](#)
- [Putting on Cone N95 Respirator](#)
- [Taking off Cone N95 Respirator](#)
- [How to Use Your N95 Respirator \(cdc.gov\)](#)
- [Skin Irritation from Prolonged Use of Tight-Fitting Respirators](#)  
[| Blogs | CDC](#)

