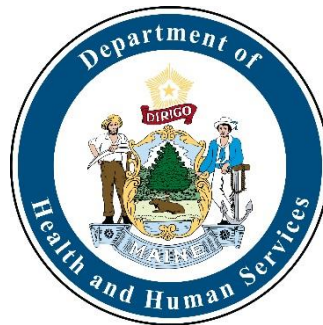


SARS-CoV-2 Infection Prevention and Control: Healthcare Source Control & Respiratory Protection

Maine CDC Healthcare Epidemiology Program 2/7/2022

This presentation replaces the previously titled “Improving Mask Fit & Filtration”. Slides with additions or changes are noted at the top



Source Control refers to the use of **masks** to cover a person's mouth and nose and to help reduce the spread of large respiratory droplets to others when the person talks, sneezes, or coughs.

- Purpose: to help reduce the spread of SARS-CoV-2 by reducing the spread of the virus through respiratory droplets from asymptomatic individuals. Masks are recommended as a barrier to help prevent large respiratory droplets from traveling into the air and onto other people when the person wearing the mask coughs, sneezes, talks, or raises their voice.
- Unlike respirators, masks are **not evaluated by NIOSH** for their effectiveness to protect the wearer from airborne hazards.

Respiratory protection refers to the use of **respirators**, which are protective devices that cover a person's nose and mouth or the entire face or head to help reduce the wearer's exposure from breathing in air that contains contaminants, such as small respiratory droplets from a person who has COVID-19. This type of protection can include **filtering facepiece respirators (FFRs)**, like N95 respirators.

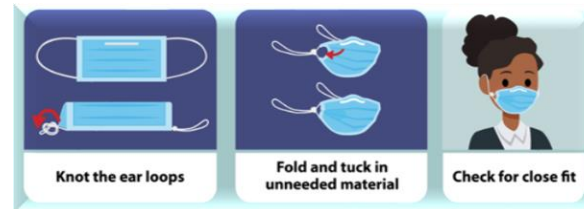
- Respirators remove particles from the inhaled airstream of the wearer through a filter media. When used in accordance with the manufacturer's recommendations, respirators are highly effective at reducing the wearer's exposure to bacteria and viruses, as well as other airborne particles like mold and dust, in their inhaled airstream.
- If the respirator **does not form a tight seal with the face, it cannot provide the expected level of protection**. Fitting the user's face snugly minimizes the number of particles that bypass the filter and get into the breathing zone through gaps between the user's skin and the respirator seal. A good seal helps ensure that the air goes through the filter. Fit testing ensures that respirator users are receiving the expected level of protection by minimizing contaminant leakage into the facepiece.
- **When wearing a N95 for respiratory protection as personal protective equipment it must be fit-tested. See [Slide 9](#) for more details.**
- It is important to note that a respirator that has earned NIOSH approval will have specific labeling printed on the facepiece

Source Control: Mask Fit and Filtration

Improved fit and filtration

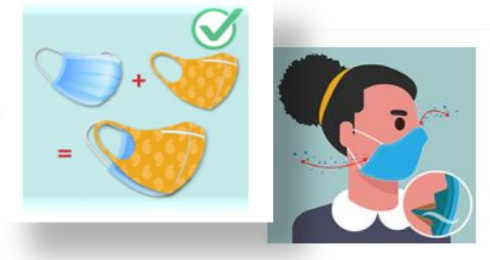
• Fit:

- Use facemasks that conform to the wearer's face (*i.e., fits snugly against face*) so that more air moves through the material of the facemask rather than through gaps at the edges are more effective for source control.
- Chose a mask with a nose wire as they prevent air form leaking out the top
- Use a mask fitter or brace to prevent air from leaking around the edges
- Check it fits snugly over the nose, mouth, and chin
 - Check for gaps by cupping your hands around the outside edges of the mask. Make sure no air is flowing from the area nears your eyes or form the sides of the mask. If you have a good fit, you will feel warm air come through the front of the mask and may be able to see the material move in and out with each breath.
- Knot and tuck ear loops of a 3-ply mask
 - For instructions, see the following <https://youtu.be/GzTAZDsNBe0>external icon



• Filtration:

- The more layers a facemask has will help in reducing the number of respiratory droplets containing the virus that comes through the mask. A single layer mask is not sufficient.
- Layers will stop more respiratory droplets getting inside your mask or escaping from the mask if the wearer is sick
 - Use a cloth mask that has multiple layers of fabric.
 - Wear a disposable mask underneath a cloth mask.
 - The cloth mask should push the edges of the disposable mask against your face.



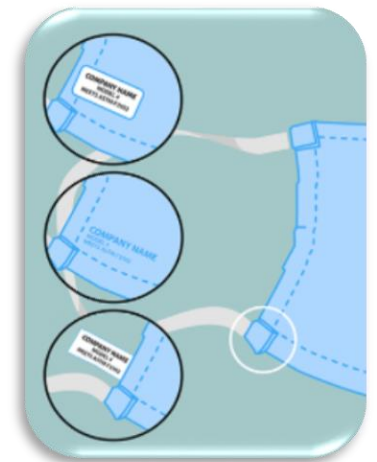
- **Other Considerations:**

- Ensure breathing is not difficult
- Vision should not be obstructed
- Certain types of facial hair, like beards, can make mask fitting difficult. People with beards can do one or more of the following:
 - ❑ Shave
 - ❑ Trim the beard close to the face
 - ❑ Use a mask fitter or brace
 - ❑ Wear one disposable mask underneath a cloth mask that has multiple layers of fabric. The second mask should push the edges of the inner mask snugly against the face and beard.



- Some face masks are designed and tested to meet a standard. These are labeled “[MEETS ASTM F3502external icon](#), [MEETS WORKPLACE PERFORMANCE](#) , [MEETS WORKPLACE PERFORMANCE PLUS](#)” . These are new standards. Lists of masks that meet these standards and more information on their availability can be found on the [NIOSH Personal Protective Equipment Information \(PPE-Info\) webpage](#). These masks have markings printed on the product to indicate they are authentic.

- Wear masks that meet a standard if:
 - ❖ You can get a proper fit over your nose and mouth
 - ❖ They have multiple layers of no-woven material
 - ❖ They have a nose wire



In general, per Federal CDC, NIOSH does not approve KN95 units or any other respiratory protective devices certified to international standards. Check the [NIOSH Certified Equipment List](#) to identify all NIOSH-approved respirators.

- Healthcare facilities should stop purchasing non-NIOSH approved respirators for use as respiratory protection.
- Any non-NIOSH approved respirators that have been stored can be used for source control **where respiratory protection is not needed**.
- **KN95** respirators should not be used as replacements for FDA-regulated surgical masks used during medical procedures or for droplet precautions. This is because KN95s are not evaluated for their fluid barrier protection that is part of the FDA-clearance process.
- **KN95s** can be used for source control, that is, protecting others from the exhaled breath of the person wearing the KN95. In this respect, KN95s can be used as a replacement for cloth face coverings or non-medical masks used for source control. In situations when KN95s are being used as alternatives to facemasks, no fit testing is required.

Resource Links: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/respirators-strategy/index.html>

Substantial – High Community Transmission

New

Given the increased transmissibility of the Omicron variant, in areas of substantial – high transmission HCW working in facilities should use Personal Protective Equipment as described below:

- **NIOSH-approved fit-tested N95 or equivalent or higher-level respirator**
 - ✓ Should be used for all AGPs procedures – see HAI website: <https://www.maine.gov/dhhs/mecdc/infectious-disease/hai/resources.shtml> document “Aerosol Generating Procedure Prevention Measures During SARS-CoV-2” for full details
 - ✓ Should be used for all surgical procedures that might pose higher risk for transmission if the patient has SARS-CoV-2 infection (e.g., *that generate potentially infectious aerosols or involving anatomic regions where viral loads might be higher, such as the nose and throat, oropharynx, respiratory tract*).
 - ✓ Can consider using N95 or equivalent higher-level respirator for HCW working in other situations where additional risk factors for transmission are present. They may also be considered if healthcare-associated SARS-CoV-2 transmission is identified and universal respirator use by HCW working in affected areas is not already in place.
 - **To simplify implementation**, facilities in counties with substantial or high transmission may consider implementing universal use of NIOSH-approved N95 or equivalent or higher-level respirators for HCW during all patient care encounters or in specific units or areas of the facility at higher risk for SARS-CoV-2 transmission.

Notes:

- Regardless of community transmission, full PPE (*gowns, gloves, eye protection, N95 or higher-level respirator*) should always be used for patients/residents who are suspect, confirmed, isolated, and quarantined for SARS-CoV-2).
- There may be additional circumstances, based on setting where full PPE is required.

Mask Do's



①

Carefully unite the strings behind your head or stretch the ear loops.



②

Handle only by the ear loops or ties.



③

Discard.
If cloth, fold outside corners together and follow instructions for cleaning.



④

Be careful not to touch your eyes, nose, and mouth when removing and perform hand hygiene immediately after with an alcohol-based hand sanitizer or soap and water.

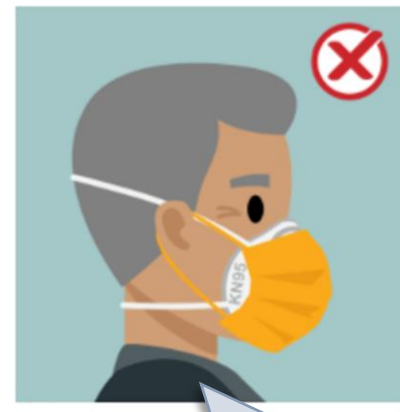
Federal CDC video tutorial: <https://www.youtube.com/watch?v=dSvff0QljHQ>

Masks Don'ts

Updated



Do not combine two disposable masks.
Disposable masks are not designed to fit tightly and wearing more than one will not improve fit.



Do not combine a KN95 mask with any other mask.
Only use one N95 or KN95 mask at a time.



Masks with one layer



Masks that do not fit properly (large gaps, too loose or too tight)



Not recommended: Evaluation of face shields is ongoing, but effectiveness is unknown at this time.



Have exhalation valves or vents which allow virus particles to escape



Are made of fabric that makes it hard to breathe, for example, vinyl



Around your neck



On your forehead



Under your nose



Only on your nose



On your chin



Dangling from one ear



On your arm

For any product chosen it should provide a good fit (*i.e., fitting closely on the face without any gaps along the edges or around the nose*) and be comfortable enough when worn properly (*covering your nose and mouth*) so that you can keep it on when you need to. **A mask or respirator will be less effective if it fits poorly or if you wear it improperly or take it off frequently.** Options:

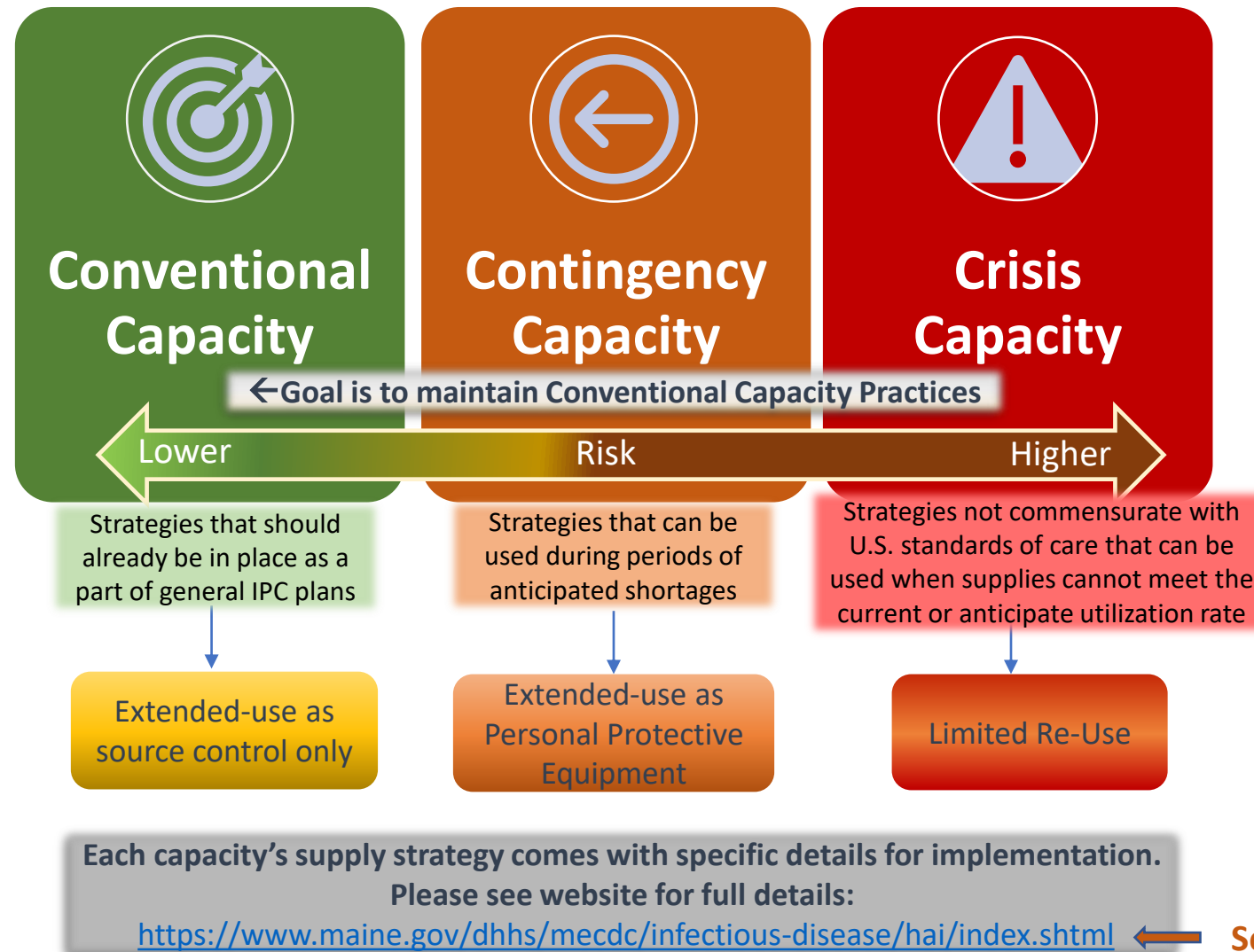
- **Facemask with improved fit and filtration** (See previous slides)

– OR –

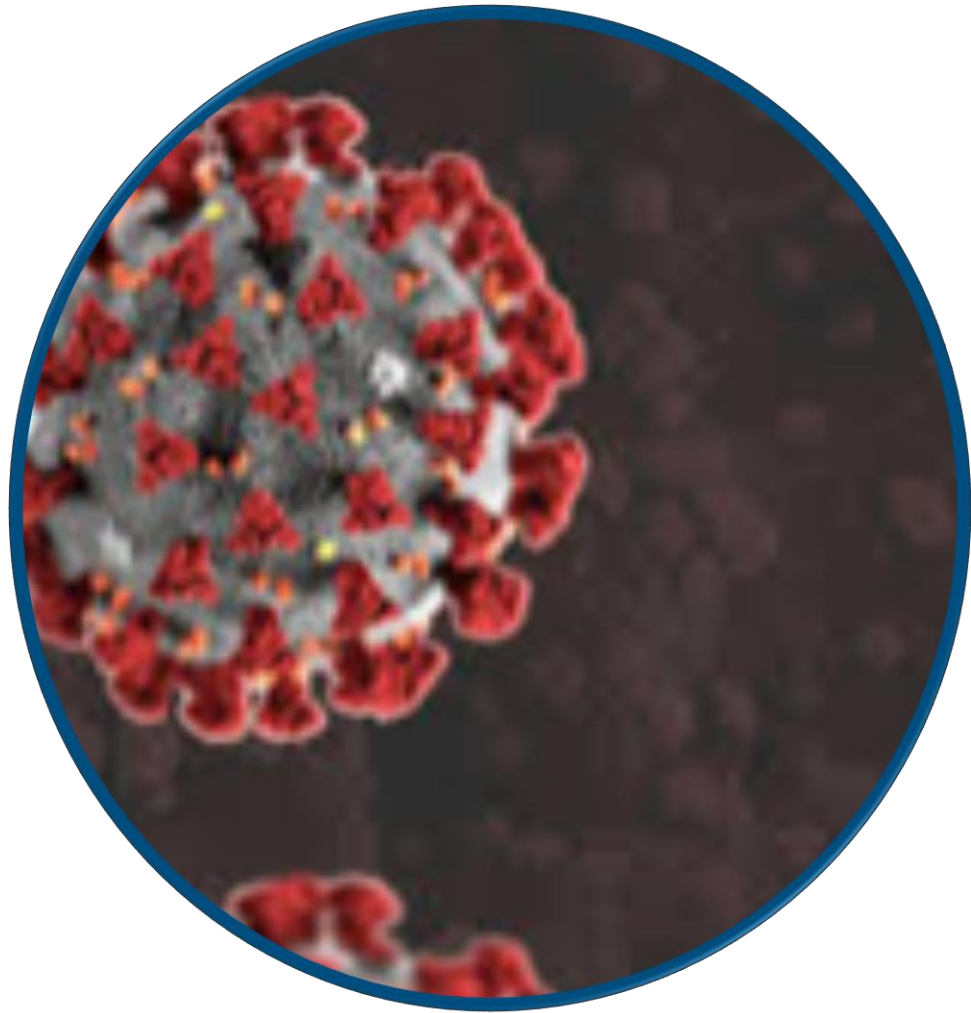
- **NIOSH approved N95 respirator**
 - A respirator has better filtration, and if worn properly the whole time it is in use, can provide a higher level of protection than a cloth or procedural mask.
 - **If wearing a respirator for personal protective equipment** for protection against airborne transmission organisms, you must be medically cleared and fit-tested Per OSHA 1010.134 Respiratory Protection Program (RPP) requirements
 - **When generally workers are not exposed to suspected or confirmed sources of COVID-19 but could voluntarily choose to wear** as the respirator could offer enhanced worker protection per the OSHA Mini Respiratory Protection Program. *Note: the Mini Respiratory Protection Program does not replace or substitute for OSHA's normal Respiratory Protection standard (29 CFR 1910.134).*

Respirator Use Required Elements	Mini RPP Respirator as Source Control Only	Normal RPP	
		Respirator as Source Control Only	Respirator as Source Control & PPE OR Respirator as PPE only
Written Program Plan		✓	✓
Staff Training	✓	✓	✓
Choosing respirator that fits well	✓	✓	✓
Medical Evaluation			✓
Fit-Testing			✓
User Seal (fit) Checks (<i>when donning</i>)	✓	✓	✓
N95 used for source control - follow Extended-Use guidelines listed in Conventional Capacity supply strategies • May be used until they become soiled, damaged, ok hard to breathe through. Should be immediately discarded after removal.	✓	✓	✓
If during practice of extended-use of N95s as source control, N95s are also used as respiratory protection (PPE), it is considered a Contingency Capacity Strategy and facility would need to follow those guidelines		Not/applicable as Respirator would be considered PPE and all apply	✓

Supply Capacities



Note: recommended the person responsible for respiratory protection at the facility/facilities, review the above Federal CDC guidance on PPE capacity and extended-use limited-reuse to determine if they can safely implement. Although extended use and reuse of respirators have the potential benefit of conserving limited supplies of disposable N95 respirators, it comes with potential risk. The most significant risk is of contact transmission from touching the surface of the contaminated. Note, some devices have not been FDA-cleared for reuse. Some manufacturers' product user instructions recommend discard after each use (i.e., "for single use only"), while others allow reuse if permitted by infection control policy of the facility.



References

- <https://www.maine.gov/dhhs/mecdc/infectious-disease/hai/resources.shtml>
- <https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/face-masks.html>
- <https://www.cdc.gov/coronavirus/2019-ncov/your-health/effective-masks.html>
- <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cloth-face-cover-guidance.html>
- <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/mask-fit-and-filtration.html>
- <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/about-face-coverings.html>
- <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/types-of-masks.html>
- <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/use-n95-respirator.html>

Questions? E-mail MECDC.HAI@maine.gov

