

# Optimizing Supply of Disposable Face Masks and Respirators

Summary of evidence for extended use, limited re-use, use beyond shelf life, and decontamination

Health care facilities or independent practices may need to implement the following measures to optimize their existing supply of personal protective equipment during capacity surges related to COVID-19.



**Contingency capacity measures** may need to be used when demand for disposable medical face masks and N95 respirators exceeds resources.

This includes:



Extended use ..... pg 2



**Crisis capacity measures** may need to be used during periods of expected or known shortages of disposable medical face masks and N95 respirators.

These include:



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*Note: 'face masks' refers to both procedure masks and surgical masks. None of the literature reviewed distinguishes between these terms and/or Level 1, 2 and 3 masks according to ASTM Standards.*



## Extended Use: Summary of Guidance

Extended use means continuing to wear the same mask for close contact with several different patients without removing it.

	Surgical/Procedure Masks	Disposable N95 Respirators
<b>Length of use</b>	<ul style="list-style-type: none"> <li>Use for as long as possible before it needs to be discarded (see below).</li> </ul>	<ul style="list-style-type: none"> <li>Experience in other industries indicates that respirators can function within their design specifications for 8 hours of continuous use.</li> </ul>
<b>During use</b>	<ul style="list-style-type: none"> <li>Do not touch the facemask. If you touch or adjust it, perform hand hygiene.</li> <li>Leave the patient care area if you need to remove the mask.</li> </ul>	<ul style="list-style-type: none"> <li>Perform hand hygiene before and after touching or adjusting the respirator (if necessary for comfort or to maintain fit).</li> </ul>
<b>When to discard / discontinue use</b>	<ul style="list-style-type: none"> <li>The facemask should be removed and discarded if it gets wet, soiled, damaged, or hard to breathe through.</li> <li>Place unsoiled, undamaged masks in a clearly labelled, dated receptacle for possible reprocessing/decontamination after use. Use the bin only for surgical/procedure masks.</li> </ul>	<ul style="list-style-type: none"> <li>Discard when contaminated with blood, respiratory or nasal secretions, or other bodily fluids from patients.</li> <li>Discard following close contact with any patient co-infected with an infectious disease requiring contact precautions.</li> <li>Discard after performing aerosol-generating procedures.</li> <li>Place unsoiled, undamaged respirators in a clearly labelled, dated receptacle for possible reprocessing/decontamination after use. Use the bin only for N95 respirators.</li> </ul>



## Limited Re-Use: Summary of Guidance

Limited re-use is the practice of using the same mask by one health care provider for multiple encounters with different patients but removing it after each encounter.

	Surgical/Procedure Masks	Disposable N95 Respirators
<b>Selecting masks for re-use</b>	<ul style="list-style-type: none"> <li>• Facemasks with elastic ear hooks are most suitable for re-use. Those that fasten with ties tend to tear when being removed.</li> </ul>	<ul style="list-style-type: none"> <li>• <i>No specific guidelines provided.</i></li> </ul>
<b>During use</b>	<ul style="list-style-type: none"> <li>• Do not touch the facemask. If you touch or adjust it, perform hand hygiene.</li> <li>• Leave the patient care area if you need to remove the mask.</li> </ul>	<ul style="list-style-type: none"> <li>• Perform hand hygiene before and after touching or adjusting the respirator (if necessary for comfort or to maintain fit).</li> </ul>
<b>During donning, doffing, and storage</b>	<ul style="list-style-type: none"> <li>• Carefully fold masks so that the surface is held inward against itself to reduce contact with surfaces when storing.</li> <li>• Store folded masks in a clean sealable paper bag or breathable container. Clean or dispose of the storage container regularly.</li> </ul>	<ul style="list-style-type: none"> <li>• Use clean (non-sterile) gloves when donning the used respirator and performing a seal check. Discard gloves after the respirator is donned and any adjustments are made.</li> <li>• Avoid touching the inside of the respirator with your hands while donning or doffing. If you make contact accidentally, perform hand hygiene.</li> <li>• Label containers used for storing respirators or label the respirator itself (e.g., on the straps) to prevent sharing.</li> <li>• Hang used respirators in a designated storage area or keep them in a clean, breathable container such as a paper bag. Do not allow respirators to touch each other. Clean or dispose of the storage container regularly.</li> </ul>
<b>When to discard / discontinue use</b>	<ul style="list-style-type: none"> <li>• Discard if it gets wet, soiled, damaged, or hard to breathe through.</li> <li>• Place unsoiled, undamaged masks in a clearly labelled, dated receptacle for possible reprocessing/ decontamination after use. Use the bin only for surgical/procedure masks.</li> </ul>	<ul style="list-style-type: none"> <li>• Discard when contaminated with blood, respiratory or nasal secretions, or other bodily fluids from patients.</li> <li>• Discard following close contact with any patient co-infected with an infectious disease requiring contact precautions.</li> <li>• Discard after performing aerosol-generating procedures.</li> </ul>



## Use Beyond Shelf Life: Summary of Guidance

Use beyond shelf life is the practice of using a mask that has passed the expiration date designated by its manufacturer.

### Selecting masks for droplet/contact precautions

#### Surgical/Procedure Masks

- There is no specific timeframe beyond the expiry dates for masks at which they would no longer be considered suitable for use.
- Do not use masks if they are damaged, soiled, discoloured, or if any of the materials are degraded.

#### Disposable N95 Respirators

- There is no specific timeframe beyond the expiry dates for respirators at which they would no longer be considered suitable for use.
- Any model can be used (it doesn't need to be a model that you are fit tested to).
- Do not use respirators that have already been used for extended use or re-reuse.
- Do not use respirators that are distorted or damaged in any way (this includes headbands, nose clip, nose foam, shell, and all other components).
- Do not use respirators that are soiled or contaminated with sprays.

### Selecting masks for airborne precautions

- *No specific guidelines provided.*

- There is no specific timeframe beyond the expiry dates for respirators at which they would no longer be considered suitable for use.
- Do not use respirators that have already been used for extended use or re-reuse.
- Do not use respirators that are distorted or damaged in any way (this includes headbands, nose clip, nose foam, shell, and all other components).
- Only use masks that can be fit-tested.
- Perform a seal check to ensure the seal is intact.
- Disclose to health care workers that the respirators are expired and have been inspected distributing them.



## Decontamination and Re-use: Summary of Guidance

Decontamination for re-use is the practice of using ultraviolet germicidal irradiation, vaporous hydrogen peroxide, or moist heat to decontaminate an N95 respirator before re-using it. Evidence for these methods is limited.

	Disposable N95 Respirators
<b>Collecting respirators</b>	<ul style="list-style-type: none"> <li>Collect used respirators in a clearly labelled and dated bin for possible decontamination. Use the bin only for N95 respirators. Inspect respirators to ensure they are still suitable for reprocessing after storage.</li> </ul>
<b>Selecting a decontamination method</b>	<ul style="list-style-type: none"> <li>Limited research shows that ultraviolet germicidal irradiation (UVGI), vaporous hydrogen peroxide (VHP), and moist heat show the most promise as potential methods to decontaminate respirators. These methods do not appear to break down filtration, however they may only be effective for a limited number of uses.</li> <li>For more information about each method and a table that breaks down the methods that have been evaluated for each model of respirator, see the <a href="#">CDC's evidence summary</a>.</li> <li>Review <a href="#">Health Canada's Regulatory Considerations</a> * and consult the respirator manufacturer about the potential impact on the respirator.</li> </ul>
<b>Selecting decontaminated respirators for droplet/contact precautions</b>	<ul style="list-style-type: none"> <li>When droplet/contact precautions are required, decontaminated respirators can be used for patient care activities, even if:                             <ul style="list-style-type: none"> <li>the manufacturer cannot provide information on the impact of your chosen decontamination method on the respirator</li> <li>information is available that decontaminating the respirator may negatively impact performance</li> </ul> </li> <li>Do not use respirators that are distorted or damaged in any way (this includes headbands, nose clip, nose foam, shell, and all other components).</li> </ul>
<b>Selecting decontaminated respirators for airborne precautions</b>	<ul style="list-style-type: none"> <li>When airborne precautions are required, only use decontaminated respirators for patient care activities when information from the manufacturer or a third-party shows that the respirator can be successfully decontaminated without impacting its performance.</li> <li>Do not use respirators that are distorted or damaged in any way (this includes headbands, nose clip, nose foam, shell, and all other components).</li> </ul>
<b>During donning and doffing</b>	<ul style="list-style-type: none"> <li>Use clean (non-sterile) gloves when donning the respirator and performing a seal check. Discard gloves after the respirator is donned and any adjustments are made.</li> <li>Avoid touching the inside of the respirator with your hands while donning or doffing. If you make contact accidentally, perform hand hygiene.</li> </ul>

## Sources:

1. Ontario Ministry of Health. [Information on the Use of N95 Filtering Facepiece Respirators beyond the manufacturer-designated shelf life.](#)
2. Health Canada. [Optimizing the use of masks and respirators during the COVID-19 outbreak](#)
3. Ontario Health. [Personal Protective Equipment \(PPE\) use during the COVID-19 Pandemic](#)
4. Ontario Health. [Optimizing use of Personal Protective Equipment during the COVID-19 Pandemic.](#)
5. Centers for Disease Control and Prevention. [Strategies for Optimizing the Supply of N95 Respirators: Contingency Capacity Strategies](#)
6. Centers for Disease Control and Prevention. [Recommended Guidance for Extended Use and Limited Reuse of N95 Filtering Facepiece Respirators in Healthcare Settings](#)
7. Centers for Disease Control and Prevention. [Strategies for Optimizing Supply of Facemasks](#)
8. Centers for Disease Control and Prevention. [Decontamination and Reuse of Filtering Facepiece Respirators.](#)

\*Health Canada's Regulatory Considerations for the Reprocessing of Single-use N95 Respirators does not apply to on-site reprocessing and decontamination performed by hospitals, however health care organizations that are considering on-site reprocessing should review the principles included to ensure the safety of their chosen reprocessing method.