**COVID-19**

**Optimizing the Supply of N95 Respirators During COVID-19 Pandemic - Policy**

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**Policy**

It is the policy of this facility to optimize the use of N95 Respirators consistent with current CDC guidance.

**Purpose**

To provide strategies or options for the facility to optimize supplies of N95 Respirators when the facility is experiencing limited supply.

**“Surge capacity** refers to the ability to manage a sudden increase in patient volume that would severely challenge or exceed the present capacity of a facility. While there are no commonly accepted measurements or triggers to distinguish surge capacity from daily patient care capacity, surge capacity is a useful framework to approach a decreased supply of N95 respirators during the COVID-19 response. To help healthcare facilities plan and optimize the use of respiratory protection in response to COVID-19, CDC has developed a [Personal Protective Equipment (PPE) Burn Rate Calculator](https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/burn-calculator.html). Three general strata have been used to describe surge capacity and can be used to prioritize measures to conserve N95 respirator supplies along the continuum of care.1

* [**Conventional capacity**](https://www.cdc.gov/coronavirus/2019-ncov/hcp/respirators-strategy/index.html#conventional)**:** measures consisting of engineering, administrative, and PPE controls should already be implemented in general infection prevention and control plans in healthcare settings.
* [**Contingency capacity**](https://www.cdc.gov/coronavirus/2019-ncov/hcp/respirators-strategy/index.html#contingency)**:** measures that may be used temporarily during periods of expected N95 respirator shortages. Contingency capacity strategies should only be implemented after considering and implementing conventional capacity strategies. While current supply may meet the facility’s current or anticipated [utilization rate](https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/burn-calculator.html), there may be uncertainty if future supply will be adequate and therefore, contingency capacity strategies may be needed.
* [**Crisis capacity**](https://www.cdc.gov/coronavirus/2019-ncov/hcp/respirators-strategy/index.html#crisis)**:** strategies that are not commensurate with U.S. standards of care but may need to be considered during periods of known N95 respirator shortages. Crisis capacity strategies should only be implemented after considering and implementing conventional and contingency capacity strategies. Facilities can consider crisis capacity when the supply is not able to meet the facility’s current or anticipated [utilization rate](https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/burn-calculator.html).”2

**Note:** As PPE supplies availability returns to normal, healthcare facilities should promptly resume conventional practices.”2

The CDC Indicates that “While engineering and administrative controls should be considered first when selecting controls, the use of **personal protective equipment** (**PPE)**should also be part of a suite of strategies used to protect personnel. Proper use of respiratory protection by HCP requires a comprehensive program (including medical clearance, training, and fit testing) that complies with  [OSHA’s Respiratory Protection Standard](https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.134) and a high level of HCP involvement and commitment.”2

The program should include:

* Pandemic Planning and supply selection for N95 Respirators
* Determination of a Fit-testing protocol consistent with State and Federal Guidance
* Directions for cleaning, disinfection and/or decontamination and reuse in accordance with manufacturer’s recommendation and best practice approach
  + If using disposable filtering facepiece respirators (FFRs), it is recommended to follow the CDC “Implementing Filtering Facepiece Respirator (FFR) Reuse, Including Reuse after Decontamination, When There Are Known Shortages of N95 Respirators”: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/decontamination-reuse-respirators.html>
* Inspection
* Repair if indicated
* Storage in accordance with manufacturer’s recommendation
* Employee Education

Decisions to implement contingency and crisis capacity strategies are based upon current CDC assumptions on:

1. Inventory and supply chain
2. Understanding of utilization rate
3. System for communication with local healthcare coalitions and federal, state and local health partners to be able to identify additional supply availability
4. Implementation of other engineering and administrative control measures
5. Have provided healthcare workers with education, training and competency verification for PPE donning, doffing and use.

When no respirators are available, assignments can be prioritized to include:

1. Exclude any employees that are at increased risk of severe illness from COVID-19 from contact with residents with confirmed or suspected COVID-19 infection.

**Extended Use**: “the practice of wearing the same N95 respirator for repeated close contact encounters with several different patients, without removing the respirator between patient encounters.”2

**Limited Reuse:** “the practice of using the same N95 respirator by one HCP for multiple encounters with different patients but removing it (i.e. doffing) after each encounter.”2

* Follow the manufacturer’s recommendations on the maximum number of donnings or uses. If the manufacturer does not provide guidance, limit the number of reuses to “no more than five uses (five donnings) per device”7

**Decontamination**: “the process to reduce the number of pathogens on used FFRs before reusing them.”9

* Only use during N95 shortages
* The manufacturer must provide guidance on decontamination
* Decontamination may affect fit
* Employees must be trained on how to reuse and decontaminate N95 FFRs
* The employee should complete a performance seal check with reused FFRs
* For more information see: <https://www.cdc.gov/niosh/topics/hcwcontrols/recommendedguidanceextuse.html> and <https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/decontamination-reuse-respirators.html>
* Facility will need to show FDA Emergency Use Authorization: <https://www.fda.gov/emergency-preparedness-and-response/mcm-legal-regulatory-and-policy-framework/emergency-use-authorization#covidppe>

**Conventional Strategy**: An N95 is used for one resident contact and then discarded.

**Contingency Strategy**:

* Extended use: The N95 is worn for an extended period, with multiple resident contacts without removing the N95 between residents
* N95 is used past the manufacturer’s recommended shelf-life

**Crisis Strategy:** Only implement crisis strategy during shortages when options for conventional and contingency strategies have been exhausted. See CDC Flowchart to Determine if an N95 FFR Crisis Capacity is Needed: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/decontamination-reuse-respirators.html>

* N95 use beyond the manufacturer-designated shelf-life
* Use of N95 respirators approved under standards used in other countries similar to NIOSH-approved respirators
* Limited re-sue of N95 respirators
  + Consult with manufacturer on maximum number of donnings per model (“no more than five uses (five donnings) per device by the same HCP””2)
* Use additional N95 respirators beyond the shelf life designated by the manufacturer
* Prioritize use of N95 respirators and proper fitting facemasks

**When N95 Respirator Supply is Exhausted:**

* Identify employees at an increased risk for severe illness from COVID-19. Exclude from contact with residents with confirmed or suspected COVID-19.

**Recommendations, References and Resources**

* Review the Summary for Healthcare Facilities: Strategies for Optimizing the Supply of N95 Respirators during the COVID-19 Response: <https://www.cdc.gov/coronavirus/2019-ncov/novel-coronavirus-2019-SupplyChecklist_of-N95-Respirators_COVID-19_4_6_20_num.pdf>
* 1 Hick JL, Barbera JA, Kelen GD. Refining surge capacity: conventional, contingency, and crisis capacity. Disaster Med Public Health Prep. 2009;3(2 Suppl): S59-67
* 2 Centers for Disease Control and Prevention. “Strategies for Optimizing the Supply of N95 Respirators” Updated Feb. 10, 2020, at: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/respirators-strategy/index.html>
* Centers for Disease Control and Prevention. Implementing Filtering Facepiece Respirator (FFR) Reuse, Including Reuse after Decontamination, When There Are Known Shortages of N95 Respirators. October 19, 2020: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/decontamination-reuse-respirators.html>
* Centers for Disease Control and Prevention. The National Institute for Occupational Safety and Health (NIOSH). Pandemic Planning. Recommended Guidance for Extended Use and Limited Reuse of N95 Filtering Facepiece respirators in Healthcare Settings. March 27, 2020: <https://www.cdc.gov/niosh/topics/hcwcontrols/recommendedguidanceextuse.html>
* Centers for Disease Control and Prevention. The National Personal Protective Technology Laboratory (NPPTL) Healthcare Respiratory Protection Resources. Fit Testing NIOSH Documents. May 7, 2020: <https://www.cdc.gov/niosh/npptl/hospresptoolkit/fittesting.html>
* United States Department of Labor. Occupational Safety and Health Administration (OSHA), Temporary Enforcement Guidance – Healthcare Respiratory Protection Annual Fit-Testing for N95 Filtering Facepieces During the COVID-19 Outbreak. March 14, 2020: <https://www.osha.gov/memos/2020-03-14/temporary-enforcement-guidance-healthcare-respiratory-protection-annual-fit>
* Centers for Medicare & Medicaid Services. COVID-19 Long Term Care Facility Guidance. April 2, 2020. <https://www.cms.gov/files/document/4220-covid-19-long-term-care-facility-guidance.pdf>