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TEMPORARY PLAN FOR OPTIMIZING THE SUPPLY OF RESPIRATORS DURING COVID 19 RESPONSE

INCIDENT 2020-006: COVID-19

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1 Overview

The COVID-19 global pandemic has created an increased demand for N95 respirators, limiting availability for use in protecting workers. In response, the ND Department of Health (NDDoH) Department of Operations Center (DOC) and the ND Department of Emergency Services (NDDES) State Emergency Operations Center (SEOC) worked together to develop strategies and methods to conserve the use of these medical supplies.

1.1 Purpose

Protection of healthcare providers (HCPs) and first responders exposed to COVID-19 and other respiratory hazards may be impacted by a shortage of respirators from responding to the pandemic. This document includes strategies to consider for optimizing the use of N95 respirators and surgical masks and identifies other alternative respirators for HCPs and first responders. Patient flow and clinical care strategies are outside the scope of this document.

1.2 Assumptions

This document is intended to be time-limited to the current public health crisis.
The Occupational Safety and Health Administration (OSHA) has provided guidance for respiratory protection during N95 shortages due to the COVID-19 Pandemic. Because of the rapidly changing guidance, check OSHA's webpage for updates: www.osha.gov/coronavirus.

For purposes of this document, Healthcare Providers (HCPs) includes all persons working in healthcare settings engaged in healthcare activities, and first responders.

2 Respirator Protection Program (RPP)

Respirators must be used in the context of a RPP. COVID-19 currently is considered a respiratory droplet transmitted disease with potential for airborne transmission particularly during procedures that aerosolize respiratory droplets.

Any HCP staff or volunteer who has contact with known or suspected COVID-19 patients should wear a N95 respirator (or higher level of protection). During a shortage of N95s, the use of surgical masks may be considered after assessing the procedure or activity being performed and length of time of contact with patient to determine exposure risk level. N95s (or higher level of protection) should always be worn for high risk procedures. Selection of other Personal Protective Equipment should be based on OSHA Guidelines for PPE selection.

While N95s provide protection from airborne contaminants, not all N95s are splash or spray proof. Consider selecting N95 respirators and other PPE based on an assessment of the potential hazards during procedures being performed.

N95 level respirators or higher level of protection should be worn when present in the room for all high-risk procedures that generate aerosols or respiratory secretions including:

- Suctioning
- Intubation/Extubation
- Nebulizer therapy
- Sputum Induction
- Bronchoscopy
- CPR

Engineering Controls and Work Practices reduce the need for respiratory protection and should immediately be implemented into everyday practices:

Engineering Controls place a barrier between the hazard and the HCP:

- Airborne Isolation with negative pressure
- Physical barriers such as windows at reception areas
- Maintained ventilation systems to provide air movement from clean to contaminated flow direction
- Portable HEPA Room Purifying and Negative Pressure devices (previously distributed to all ND hospitals by a HPP grant)

Administrative Controls dictate work practices to reduce or prevent exposures:

- **Prioritize the use of N95s** for those with the highest risk of contracting infection
- Reduce face to face encounters with patients
- Exclude visitors
- Use source control-patients with known or suspected COVID-19 should consider wearing a surgical mask or use tissues
- Cohort patients-group patients who are infected with same organism
- Cohort HCPs-assign dedicated teams of HCP to provide care for all patients with suspected or confirmed COVID-19
- Optimize use of Telemedicine

*This document addresses respirator protection only; HCPs should assess each patient interaction for the need and selection of all other PPE.

3 Capacity Strategies

The Centers for Disease Control and Prevention (CDC) has defined categories of strategies to optimize limited disposable N95 respirators:

As of the distribution of this plan, North Dakota is in a **CONTINGENCY CAPACITY** phase.

3.1 CDC Surge Capacity Definitions

Conventional Capacity: providing patient care without any change in daily contemporary practices. This includes the use of facemasks according to product labelling and local, state, and federal requirements. OSHA requirements for Fit Testing, and one time use of each N95 mask.

Contingency Capacity: status of situation may change daily practices, which may not have an impact on the care delivered, or for the safety of the healthcare provider. These practices are usually temporary during the period of respirator shortages.

Crisis Capacity: not able to meet usual standards of care and medical respirator usage during this time period.

4. Types of Respirators

During shortages of N95 respirators, consider use of alternate NIOSH approved respirators providing equal or higher levels of protection than the N95 such as:

4.1 Non-disposable Powered Air Purifying Respirators (PAPRs):

Versaflo 3M HEPA PAPR

4.2 Disposable Filtering Facepiece Respirators:

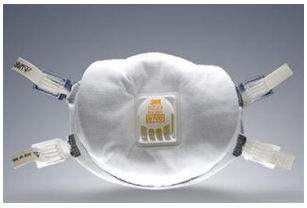
N95	R99
N99	P95
N100	P99
R95	P100

4.3 Respirators Requiring Fit Testing

N95, N99, & N100 Respirator Masks (filtering facepiece respirator)
There are numerous brands and models available in the state system.
Used to prevent airborne disease transmission.
Examples shown below.

Those brands/models stocked within the state cache include: 3M 1860, 1870, 1818, and 3M N100.






4.4 Full Face or Half Face or Elastomeric Respirators

Typical respirator worn by law enforcement, clean-up crews and other personnel.
Some hospitals have access to these types of respirators.
Can be disinfected and reused once new filters are in place.
Excellent for protection from aerosolized respiratory droplets.


4.5 Respirators or Masks Not requiring Fit Testing:

Surgical / Face / Dust Masks
(no filter or respirator component)
Are not respirators.
Do not provide protection against aerosol generation procedures.
Used to prevent respiratory droplet disease transmission.

Versaflo 3M PAPR (Respirator)

(used primarily for Biological/Infectious care of patients in a hospital setting)

Every hospital in the state received this equipment from a grant program through the ND DoH Hospital Preparedness Program (HPP). This is an ideal respirator when there is a shortage of disposable respirators, for those with facial hair, or other reasons a fit test could not be conducted or successfully passed.

Butyl Rubber 3M PAPR (Respirator)

(used primarily for Chemical Pt Decontamination in a hospital)

Used primarily for response and caring for patients in a hospital setting who have been exposed to a chemical, and for Chemical Patient Decontamination. Can be used for Biological response such as Covid 19 when necessary with the correct filters in place.

Escape Respirator

Provided through the HPP grant program to all hospitals & EMS units in the past. Can be used for either Biological or Chemical response. Considered a one-time use mask/hood and it is disposable. This device could be dried and allowed to be used by the same HCP during the next shift period to conserve on respirators during a Crisis Capacity response.

Face Shields (medical grade)

No filter or respirator component.

Should be worn during procedures that have the potential for splashes or sprays

The use of Cloth Face Masks has emerged during this pandemic. While this is not a respirator and is not recommended for use by HCPs, these masks may be an option to consider for source (patient) control of secretions in order to preserve surgical masks for HCPs.

5. Fit Testing Process Considerations

During periods of respirator shortages fit testing may need to be altered per Expanded Temporary Enforcement Guidance from OSHA to preserve respirator supplies and respond promptly to fit testing needs.

Agencies or facilities may adopt the "Just in Time" method for fit testing which has been incorporated into Pandemic plans for many facilities.

Consider implementing Qualitative Fit Testing to minimize destruction of N95 Respirators.

ND has a team of trained individuals available to conduct "Just in Time" fit testing throughout the state. For questions, or to schedule for fit testing in your area contact the ND Department of Health, Department Operations Center (DOC) by calling 701-328-0707.

5.1 CDC Fit Testing Capacity Strategies

Surge capacity is a useful framework to approach a decreased supply of respirators during the Covid-19 response. Three general concepts have been used to describe surge capacity and can be used to prioritize measures to conserve respirators.

As of distribution of this plan, ND was in a ***Contingency*** Capacity phase.

Conventional Capacity requires that OSHA Standards 1910.134 be adhered to when no emergency situation is ongoing.

Contingency Capacity would allow for "Just in Time" testing and using Qualitative test procedures to save on destroying N95 masks.

Crisis Capacity may lend consideration to waiving Fit Testing requirements, conserving on use of N95's, and consider using other types of respirators.

5.2 ND Fit Testing Requirements during COVID-19

1) Personnel requirements

   a. Training requirements from NDDoH: Under normal circumstances there is a process which is managed by Local Public Health Units with the NDDoH. During the COVID-19 response, the FIT trainer program will be allowed for the duration and once the threat is mitigated it will revert back to normal operating procedures.

b. Background of trainers: It does add to credibility that selected trainers have an emergency or medical background, however the most important component is that trainers successfully FIT test/train individuals.

2) Equipment requirements

a. Saccharine, Isoamyl acetate (banana smell), or Bitter test (when available.) Currently, the 8 lead Regional/District Health Units have routinely ordered through the Health Alert Network (HAN) to request the smell test, however it is backlogged. The smoke machine is identified as a suitable substitute for FIT testing until the saccharine or bitter tests are readily available.

b. Smoke test and smoke machines are available through local/regional fire departments. The DoH Warehouse has a reserve of the liquid utilize with the smoke machines. The POC for smoke machine operations is Jeff Thompson at JAThompson@nd.gov who has access to12 smoke machines throughout the state and is creating a comprehensive list.

3) PPE requirements by trainers at the location;

Trainers need to identify the number of personnel being trained and coordinate with the DOH Warehouse on procuring the masks (with a variety of sizes). The trainers will bring the N95 respirators with them to the Fit Test session. Different sizes are required to ensure trainers can properly get a fit on the individual.

4) Time requirements - optimal minimum requirements are 2 trainers and 1 smoke machine. **Two trainers can Fit Test 10 personnel every 30 minutes**

a. 2 trainers with 1 smoke machine in a 4 hour period - **80 trained**
b. 2 trainers with 1 smoke machine in a 8 hour period - **160 trained**

5) NDDoH is the Fit Testing program manager to oversee the operations and assists with credentialing of trainers. Current and future training courses and pre-coordination is conducted with Local Public Health.

Steps for requesting Fit testing:

1) Agency identifies Fit Testing is required for personnel.
2) State Health Dept, DOC is notified at 701-328-0707. NDDoH - George Gerhardt ggerhardt@nd.gov is the lead and Allen Aarhus aaarhus@nd.gov is the backup.
3) NDDoH DOC will call the Local Public Health Unit lead first to coordinate the process.
4) If the LPHU cannot conduct the testing, then the county Emergency Manager should submit a RFS through WebEOC, and request to conduct “Just in Time” FIT testing.

6) Pre-course communication talking points at the LPH and/or through NDDoH DOC to discuss requirements to ensure testing goes well: grooming standards (clean shaven/facial hair requirements, piercings, etc.) and OSHA medical forms are completed with a designated health care professional prior to Fit Testing (OSHA forms stay with the organization and are not collected by state Fit Tester faculty).

7) Testing room requirements – 110 power connection, proper ventilation (windows and doors with access to outside air or a fan to move the smoke or smell). The building manager needs to temporarily disarm or disable smoke/fire alarms during smoke tests.

6. Extended and/or Limited Reuse or Expired Respirators

In the event extended or reuse of N95 respirators becomes necessary, the same worker is permitted to extend or reuse the respirator, *as long as the structural and functional integrity and filter material is not physically damaged, soiled or contaminated*.

Decisions about extended or limited reuse should be made by the manager of the RPP. Refer to the CDC's ***Recommended Guidance for Extended and Limited Reuse of N95 Filtering Facepiece Respirators in Healthcare Settings*** for guidance.

Extended Use

- The practice of wearing the same respirator for repeated use with different patients without removing the respirator between patient encounters
- Preferred over reuse due to contamination risk associated with putting on and taking off during reuse
- Maximum recommended extended use period is 8 to 12 hours

Reuse

- The practice of using the same N95 respirator for multiple encounters with patients but removing it after each encounter (cdc.gov)
- Store respirator between encounters
- Only reuse N95 respirators for up to 5 times.

Use of Expired N95s

- Efforts to acquire respirators or use alternative options should be made before use of expired respirators
- Discretion may be used by employer to use N95s beyond manufacturer's designated shelf life
- **Expired N95s should not be used for surgical or high- risk procedures done on patients with known or suspected COVID-19**
- Use only previously NIOSH Certified expired N95s
- Notify workers they are using expired N95s
- Do not co-mingle expired respirators with those that are not expired
- Visually inspect respirators for signs of degradation

All users should perform a *USER SEAL CHECK* each time they donn (put on) a respirator and should not use any respirator on which they cannot perform a successful seal check. Instruction on performing a proper seal check are given at the time of respirator training.

Label containers used for storing respirators or label actual respirator on the straps between uses with username and date to avoid accidental use of another person's respirator.

7. HAN Inventory/ordering

In order to address a respirator supply shortage, local supplies should be used initially. ND has an inventory (Cache) of state supplies which can be ordered through the Health Alert Network (HAN) system by Healthcare facilities and Public Health Units.

To register or order: hanassets@nd.gov

8. Sources/References:

OSHA Enforcement Guidance for Respiratory Protection and the N95 Shortage Due to the Coronavirus Disease 2019 (COVID-19) Pandemic

CDC Strategies for Optimizing the Supply of N95 Respirators during the COVID-19 Response

Summary for Healthcare Facilities: Strategies for Optimizing the Supply of N95 Respirators during the COVID-19 Response

ND Department of Health, State Cache & Fit Testing, policies and procedures plan.