Respiratory Protection for Healthcare Workers

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Learning Objectives

- Describe the epidemiology of poor adherence to respiratory protection among healthcare workers
- Describe how the respiratory protection training was developed
- Provide a preview the Respiratory Protection for Healthcare Workers Training
- Describe how healthcare organizations can utilize this training for their workers
NIOSH Divisions & Laboratories

- Division of Respiratory Disease Studies (DRDS)
- Division of Safety Research (DSR)
- Health Effects Laboratory Division (HELD)
- Education and Information Division (EID)
- Division of Applied Research and Technology (DART)
- Division of Surveillance Hazard Evaluations and Field Studies (DSHEFS)
- Division of Compensation Analysis and Support (DCAS)
- Office of Research and Technology Transfer
- Spokane Research Laboratory

- Office of the Director, NIOSH
- Office of Extramural Programs
- Office of Mine Safety and Health Research
- National Personal Protective Technology Laboratory (NPPTL)
Mission

To prevent work-related injury, illness, and death by advancing the state of knowledge and application of personal protective technologies (PPT)

Vision

To be the leading provider of quality, relevant, and timely PPT research, training, and evaluation
Surveillance

Interventions

Identification of best practices

Improved respirator designs and Development of National Surveillance System

Early intervention response and Improved Workplace Practices

PPT Research
Companies must follow the Standard if they have employees who are required to wear a respirator to perform their job.
Nine Required OSHA Program Elements

Required to have procedures in place for...

1. Selecting respirators
2. Medical evaluations of employees required to use respirators
3. Fit testing for tight-fitting respirators
4. Proper use of respirators in routine and reasonably foreseeable emergency situations
5. Cleaning, disinfecting, storing, inspecting, repairing, discarding and otherwise maintaining respirators
6. Adequate air quality, quantity, and flow of breathing air for atmosphere supplying respirators
7. Training of employees in the respiratory hazards
8. Training of employees in the proper use of respirators
9. Evaluating the effectiveness of the respiratory protection program
The protective effect of PPE is inconsequential if a HCW is non-compliant.
There is an urgent need to address the lack of preparedness regarding effective personal protective equipment (PPE) for use in an influenza pandemic.

PREPARING FOR AN INFLUENZA PANDEMIC: PERSONAL PROTECTIVE EQUIPMENT FOR HEALTHCARE WORKERS

During an influenza pandemic, healthcare workers will be on the front lines delivering care to patients and preventing further spread of the disease. Protecting the more than 13 million healthcare workers in the United States from illness or from infecting their families or the patients in their care is critical to limiting morbidity and mortality and preventing progression of a pandemic. As the nation prepares for pandemic influenza, multiple avenues for protecting the health of the public are being carefully considered, ranging...
Respiratory Use Evaluation in Acute Care California Hospitals

REACH I & REACH II
HCWs Self-Reported Respiratory Protection

![Bar chart showing HCWs self-reported use of respiratory protection]

- Surgical Mask: 0%
- Mask or N95 Resp: 20%
- N95 Respirator: 100%
- N95/PAPR: 0%

Source: CDC Workplace Safety and Health, NIOSH, NPPTL Research to Practice through Partnerships
Problems with N95 Respirators

- Difficult to breathe: 16%
- Moisture buildup: 13%
- Interferes w/ eyeglasses: 4%
- Interferes w/ other PPE: 21%
- Speaking/being understood: 20%
- Uncomfortably warm: 39%
- Claustrophobic: 10%
- Other: 8%
- No problems: 35%

Note - More than one response may have been selected by each respondent
"Have you ever reused an N95 respirator when in close contact with patients who have confirmed or suspected H1N1?"

- **Yes:** 42%
- **No:** 58%

"If yes, why did you reuse the respirator?"

- Standard practice: 38%
- Shortage: 37%
- Other reason: 12%
- Don't know: 13%

**Note -** More than one response may have been selected by each respondent

N=85
REACH II Findings

80% of the study hospitals adhered to OSHA requirements for...

- Medical evaluation conducted prior to initial respirator use
  - But poor adherence to annual medical evaluation

- Fit Testing conducted prior to respirator use
  - But poor adherence to informing staff about the model and size of respirator they have been fit tested for
  - Ongoing preparedness of workers was poor
REACH II Findings

- Employees received training on how to properly use a respirator
  
  *But were unclear about:*

  - **WHEN** to use respiratory protection.
  - **WHAT** type of respirator should be used.
  - **HOW** to properly donn and doff respirators (strap positions, seal checks, disposal).

- Hospital Managers and Unit Managers had high adherence to respiratory protection guidelines
  
  - *But workers closest to the bedside did not*
Phase 2: Administration of the AAOHN Respiratory Protection Survey (2012)

- High comfort with performing respiratory medical evaluations
- Low comfort with writing the respiratory protection program, inspection, cleaning and repair of respiratory equipment
- Explaining the difference between a N95 Respirator vs. Surgical Mask

Air Leakage
Phase 3: Development of the AAOHN Respiratory Protection Program Competencies for OHNs (2014)

Respiratory Protection Competencies for the Occupational Health Nurse

Candace Burns, PhD, ARNP; Ann M. Lachat, RN, BSN, COHN-S/CM, FAAOHN; Kimberly Gordon, MSN, MA, BAN, RN, COHN-S, FAAOHN; Mary Gene Ryan, MSN, MA, BSN, RN, COHN-S, FAAOHN; MaryAnn Gruden, RN, CRNP, MSN, COHN-S/CM NP-C; D. Paxon Barker, PhD, MS, RN; Deborah Taormina, MS, RN, NP-BC, COHN-S
Phase 4: Development of the AAOHN Respiratory Protection Education and Resources (RPP) Webkit (2014)

Respiratory Protection Webkit

The Respiratory Protection Webkit includes a Respiratory Protection course and accompanying resources. The course is ideal for the occupational and environmental health nurse (OHN) who wants to learn more about OSHA’s Respiratory Protection Standard and the role of the OHN as the Respiratory Protection Program Administrator. This training includes numerous resources for the OHN which are provided here in the Webkit.

Respiratory Protection Education

The Respiratory Protection Course is a ten-module online learning tool designed to train the OHN as their organization’s Respiratory Protection Administrator (RPA) for purposes of meeting the requirements of the Federal OSHA Respiratory Protection Standard CFR 1910.134. This course includes an overview of the OSHA Respiratory Protection Standard; OSHA’s permissible practice and respiratory hazard assessment; NIOSH approved respirators including the certification process; respirator selection and maintenance; medical evaluation; fit testing and worker training; developing a written respiratory protection program and evaluation of the respiratory protection program.

The course runs approximately 90 minutes and includes numerous online links to external respiratory protection program resources. It is self-paced and you can do it anywhere, anytime. If you have to go away and return later, you can pick up where you left off.

Upon completion of the training and the accompanying evaluation tool, you will be awarded 1.5 CNE.
Overview

✓ Online
✓ Free!
✓ 1.5 Continuing Nursing Education Credits
✓ Interactive
✓ Videos
✓ 60 to 90 minutes to complete
✓ Packed with respiratory protection resources for the respiratory protection administrator
✓ Webkit includes all resources covered in training
✓ Webkit resources are always available
An Overview of OSHA’s Respiratory Protection Program: The Role of the Occupational Health Nurse

Course length: approximately 1 to 1.5 hours

>> Click the Next button to begin the course
Respiratory Protection Resources

To supplement the Respiratory Protection Education Modules, this guide has been organized for rapid access to links for the resources mentioned in the training. For ease of location, it is organized by the same titles used in the training modules.

- OSHA's Respiratory Protection Standard
- Leading Work-Related Respiratory Illnesses
- Respiratory Hazard Assessment
- Consulting Industrial Hygiene Services
- Hazard Communication & The Safety Data Sheet (SDS)
- Occupational Exposure Limits
- Respirator Selection
- Respirator Cleaning, Maintenance & Storage
- Medical Evaluation
Phase 5: Development of the AAOHN Respiratory Protection Training for Healthcare Workers
Advisory Board


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Training Details

- Two Modules (~18 minutes each)
- Free
- Online for hospitals to use!
- 1 CNE
- Covers the bulk of the required elements of the OSHA Respiratory Protection Standard Training
- Interactive quiz questions
- Resources
- Available at www.aaohnacademy.org
Training Content

- Biological respiratory pathogens in healthcare
- CDC’s Airborne Precautions
- Steps your organization must take before you can wear a respirator:
  - The N95 Respirator
- Medical signs & symptoms that limit/prevent respirator use
- What to do when the N95 Respirator does not work or is not available for use
CDC’s Standard Precautions

Assume that every patient is potentially infected with a biological pathogen that could be transmitted to you and others.
Hand Washing
Personal Protective Equipment (PPE)
CDC’s Transmission-Based Precautions

- Contact Precautions
- Droplet Precautions
- Airborne Precautions
Airborne Transmission
Aerosol Transmissible Diseases (ATDs)

Transmitted in small droplets and particles over long distances

- Tuberculosis
- H1N1 influenza
- Measles
- Smallpox
- Chickenpox
- Severe acute respiratory syndrome (SARS)
- Emerging diseases associated with emerging pathogens
Airborne Precautions

PPE Recommended
- Respirator (e.g., N95)
- Gloves
- Gown
- Goggles/Face Shield
Airborne Precautions

Respirator (N95) (protects your airway)

Droplet Precautions

Surgical Mask (physical barrier)
Airborne Precautions: Environmental Controls

Airborne Infection Isolation Room (AIIR)
- Special air handling and ventilation system
- Self-closing doors
- Respiratory protection needed
Transporting with Droplet or Airborne Precautions
ATDs & Aerosol Generating Procedures

- Bronchoscopy
- Endotracheal intubation
- Open suctioning of the respiratory tract
- Pulmonary function testing
- Tracheostomy care
- Cardiopulmonary resuscitation (CPR)
Identify Potentially Infectious Persons

Tuberculosis

- Cough
- Fever
- Fatigue
- Night sweats
- Loss of appetite
- Unexplained weight loss
Protect your loved ones by wearing a respirator
What is a respirator?

- N95 Respirator
- Powered Air Purifying Respirator (PAPR)
- Full-Face Elastomeric Respirator
N95 Respirator: Filtering Facepiece Respirator

- Filter
- Tight Fit
- Single Use / Disposable
NIOSH Approved N95 Respirator
Respiratory Protection Team

Occupational Health Nursing

Occupational Safety Professional

Infection Control Professionals

Occupational Medicine Physician
Biological Hazard Evaluation: Job Tasks
Before you can wear a N95 respirator

1. Medically Evaluated & Cleared
2. Respirator Fit Tested
3. Trained on Workplace Respiratory Hazards, Respirator Storage, Use and Disposal
Medical Evaluation

- Type of respirator
- Workplace conditions during respirator use
- Physical exertion required
Limit/Prevent Respirator Use

- Respiratory Conditions (e.g., asthma, emphysema)
- Difficulty breathing
- Feeling overheated
- Feeling claustrophobic
Fit Testing Procedures

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Find a Respirator that Fits!
Tight fitting respirators require fit testing

Loose fitting respirators do not require fit testing

N95 Respirator

Powered Air Purifying Respirator (PAPR)
For A Tight Fit: **No** Facial Hair Allowed

- N95 Respirator
- Powered Air Purifying Respirator (PAPR)
Fit Testing Frequency

- Annually
- Change in respirator make, model, size
- Changes in face that alter respirator fit
  - Weight loss
  - Facial surgery
  - Dental changes
Your Fit-Tested N95 Respirator

Know the Make, Model and Size of your Fit Tested Respirator!
Respirator Make, Model and Size

Make: 3M  
Model: 1860  
Size: Regular
Respirator Insert

Make: 3M
Model: 1860
Before Use
Storage
Inspect
Put On (Don)
User Seal Check
Take Off (Doff)
Locate Where Your N95 Respirator is Stored

Contact your manager immediately if your respirator is not available or stocked on your unit
Respirator Training & Frequency

- Training at least every 12 months
- Conducted during work time at no cost
- Understandable to you

Additional training required:
- Change respirator
- Change work process
- Change in work hazards
- Infrequent respirator use, refresher training needed
Steps in N95 Respirator Use

- Before-Use Storage, Expiration Date
- Inspect Respirator
- Putting on (donning) the respirator
- User seal check
- Taking off (doffing) the respirator
- Discard after use
- Hand hygiene
Respirator Storage & Expiration Date
Respirator Inspection
Putting Respirator On (Donning)
Tight Fit
N95 Respirator Nose Piece
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<th>NEGATIVE PRESSURE SEAL CHECK</th>
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<td><img src="image2" alt="Negative Pressure Seal Check" /></td>
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N95 and Goggles/Glasses

- **Fit over** the respirator straps
- Fog indicates that the respirator seal is not adequate
Taking N95 Respirator Off (Doffing)
Discard Respirator
Disposable Respirator

- Discard after use
- Do **not** store for future use
Doffing Respirator with other PPE
Keep contaminated hands away from face

Wash hands and don clean gloves between each step
Do not stay in patient room without respirator

Exit room and wash hands with soap and water
Immediately Notify Your Supervisor

Concerns about…

- Wearing a respirator
- Being exposed to a biological pathogen or ATD
- Unable to locate the same make/model/size respirator you were fit tested to wear
- Experience health problems while wearing a respirator
Respiratory Protection Team

- Occupational Health Nursing
- Occupational Safety Professional
- Infection Control Professionals
- Occupational Medicine Physician
Other Respiratory Protection Devices

- Powered Air Purifying Respirator (PAPR)
- Full-Face Elastomeric Respirator
- Half-Mask Elastomeric Respirator
CDC’s Airborne Precautions
Respiratory Protection for Healthcare Workers

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