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Respiratory Protection in Health Care: Opportunities for Risk Reduction

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Presentation Overview

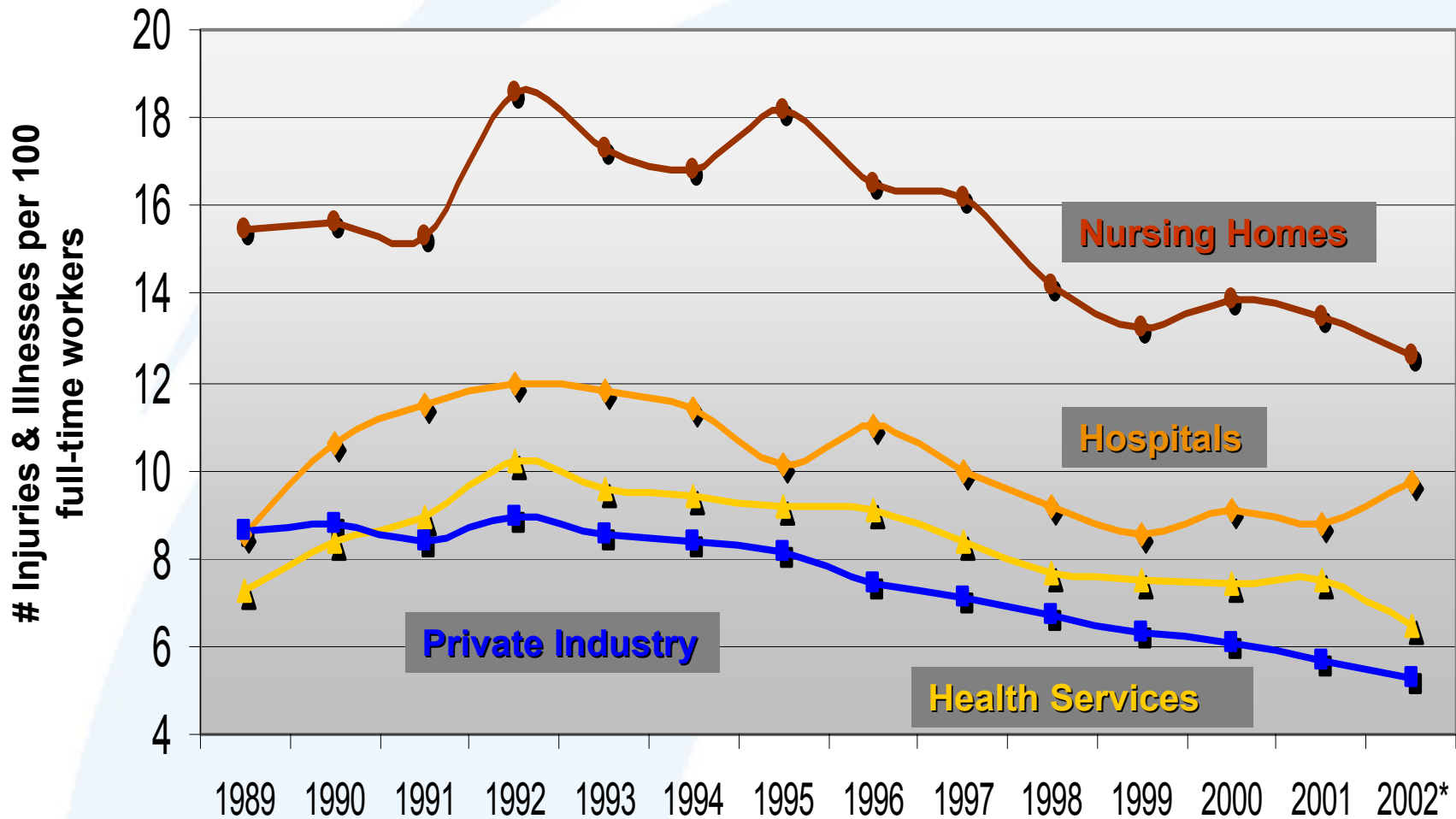
- **Report on the State of Occupational Safety and Health in the Healthcare Industry**
- **Respiratory Hazards in Healthcare**
- **Case Study: Model Practice in Hospital Respiratory Protection**

Healthcare Workers: Workforce at Risk

- **US Healthcare industry employs approximately 10 million workers**
- **Healthcare workers compose 8% of workforce**
- **Healthcare industry illness and injury statistics are high**



Work injury and illness rates in health services and all private industries, 1989-2002



Source: BLS survey of Occupational Injuries & Illnesses

2002* - There is a break in series due to definitional changes to the injury and illness recordkeeping requirements

Occupational Hazards in Healthcare

- **Chemical – Solvents, Antineoplastic drugs, etc.**
- **Biologic – TB, HIV, SARS, HBV**
- **Physical – Ionizing Radiation, Noise**
- **Musculoskeletal – Patient handling**
- **Work Organization – Shift work, Stress, Workplace violence**

Respiratory Hazards in Healthcare

- **Patient – Biologic**
 - **Tuberculosis**
 - **SARS**
 - **Pertussis**
 - **Varicella**
 - **Anthrax**
 - **Plague**
 - **Smallpox**



Respiratory Hazards in Healthcare

- **Diagnosis - Treatment**
 - **Radiation**
 - **Pharmaceuticals**
 - **Disinfectants**
 - **Chemical Reagents**
 - **Anesthetic Gases**
 - **Formalin**



Emerging Respiratory Hazards in Healthcare: Terrorism

- **Chemical Agents**
 - Nerve Agents – Sarin
 - Blister Agents - Mustard
- **Biologic Agents**
 - Anthrax
 - Smallpox
 - Plague
- **Radioactive Agents**
 - “Dirty Bomb”



Respiratory Protection in Healthcare: A Critical Need

- **Hospital employees are potentially exposed to a wide variety of air contaminants**
 - **Chemical agents**
 - **Infectious agents**
 - **Terrorism agents**
- **Engineering controls may not be adequate or feasible**

Model Practice: Hospital Respiratory Protection

Dartmouth-Hitchcock
Medical Center (DHMC)



Dartmouth-Hitchcock Medical Center



DHMC

Mary Hitchcock Hospital

- 396 Inpatient beds
- Tertiary Care Center,
New Hampshire

Dartmouth Hitchcock Clinic

- Physicians
throughout
NH & VT

Dartmouth Medical School

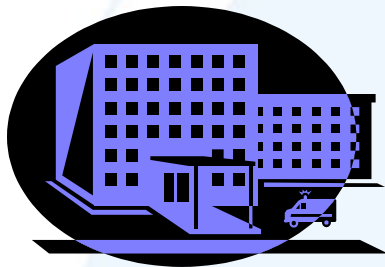
- 600 Students
- 16 Departments

Total Employees = 6300
4300 Direct Patient Care

DHMC Respiratory Protection Program

**Program Administrator
Safety and Environmental Program Manager**

Industrial RPP



Clinical RPP



- **Written RPP**
- **Hazard Assessment**
- **Select Respirator**
- **Maintain Records**
- **Evaluate Program**
- **Fit Test – Champions**
- **Training – Champions**
- **Medical Certify – OM**

Industrial Respiratory Program



- **75 certified for industrial respirator use**
- **Spill Response Team – Chemical Spills**
- **Engineering- Change HEPA filters**
- **Lab Workers– Formalin, Xylene, Biologic Agent**
- **Pharmacy – Antineoplastic Drugs**
- **Safety and Environmental Program Employees**

Chemical Agents

Hazard	Respirator	Filter	Activity
Particulates	N 95	White	Maintenance personnel when sweeping etc.
Acids (Muriatic/HF)	APR	White/ Magenta	Facilities maintenance
Formalin	APR	Olive	Path Lab activities/ spills
Org Vapors	APR/P100	Black	Spray painting application
Antineoplastic Drugs	APR N100	Magenta	Pharmacy – Cleaning of hoods and spills

Clinical Respiratory Protection Program: Patient Portals of Entry



Identified 19 departments with “increased risk” of exposure to infectious aerosol patients

- Emergency Dept.
- IV Team
- Occupational Medicine
- ICU
- Radiology
- Housekeeping
- Transportation
- General Med Clinic
- Fast Track
- Infectious Disease

Infectious Agents

Infectious Agent	Respirator	Activity
TB/ SARS etc Routine Patient Care	N 95 Filtering Face Piece Respirator	Routine Patient Contact
TB/SARS Aerosol Generating Procedures	Powered Air Purifying Respirator	Aerosol Generating Procedures Facial Hair

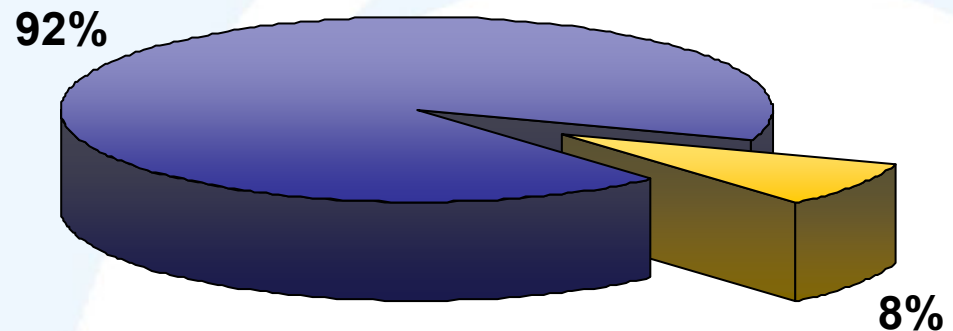
Departmental program champions manage the respiratory protection program.

- **One Champion per shift in “high risk” departments**
- **Champions: manage departments RPP**
- **Receive comprehensive “ Train the Trainer” training**
- **Fit Test and Educate Personnel**
- **Track Departments Respirator Qualified Personnel**
- **Ensure 24/7 coverage of “infectious aerosol” patient**
- **Departments receive periodic audits from SEP**



Departmental program champions are an efficient utilization of resources.

- **Approximately 350 employees certified (8% of staff)**
- **Approximately 4 cases of TB per year**
- **Have treated other airborne infectious diseases, such as Pertussis**



Terrorism and Respiratory Response

- **Trauma Decontamination Team**

- **Supplied Air Respirators (SAR)**
- **Reevaluating use of SAR (tripping hazard)**



- **Ambulatory Decontamination Team**
 - **PAPR with Protective Clothing**

DHMC: Preparing for the Infectious Crisis

- **Program Champions can rapidly certify additional users if situation demands**
- **ID Readiness Committee (SARS group)**
- **Contingency Plan to convert wing to Respiratory Isolation if demand requires**
- **Field Hospital – Off-Site Location Identified**
- **Testing the Plan: Table Top Exercise**

“Protective” Code Blue

- **Response to “real time” incident**
- **Large numbers of staff respond to Code Blue**
- **“Protective” Code Blue limit responders**
- **Six responders– MD, Nurse, RT, CPR Team**
- **Pre-positioned Respiratory Response Cart**
 - **2 PAPR on top**
 - **6 Tag Locked PAPR in drawer**
 - **All CPR supplies**

Tabletop Exercise

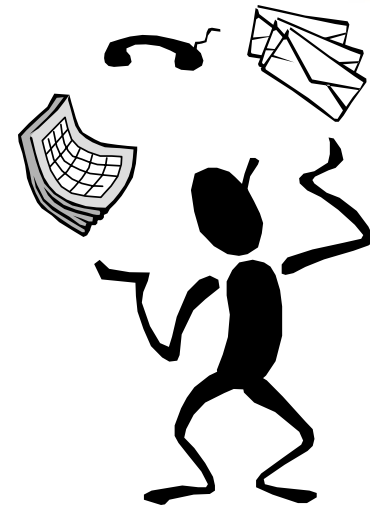


Lessons Learned

- **Form ID Disaster Work Group**
- **General audit system (supplies/training)**
- **Proactive work by Public Affairs**
- **Improve method of staff notification**
- **Clarify facilities covered by lockdown**
- **Adopt color system for restricting access**
- **Drill operations and decision making**

Program Challenges

- **Employee Turnover**
- **Communication and Education with Units**
- **Availability of Clinical Staff**
- **Management “Buy In”**
- **Decontamination of PAPR**
- **Audit Process**



Take Home Message

- **Injury/Illness rates in healthcare are high**
- **Hospitals have numerous and varied respiratory hazards**
- **Hospital need a comprehensive RPP**
- **Respiratory protection programs can be both comprehensive and preserve valuable financial resources.**