The Healthcare and Social Assistance Sector: Overview of Safety and Health Issues and Update on NIOSH Activities

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Washington, DC
Outline of Presentation

• Introduction
• National Occupational Research Agenda (NORA) Process
• NORA HCSA Council Evaluation of the Sector
• NORA Strategic Plan for the HCSA Sector
• Conclusion
Working in Healthcare is Hazardous

Healthcare and Social Assistance Sector:
Occupational Safety and Health Needs for the Next Decade of the National Occupational Research Agenda (NORA)

Healthcare and Social Assistance
Advancing priorities through research and partnerships

Most people think of the Healthcare and Social Assistance (HCSA) industry as providing clean, sterile and safe places to work. In reality, HCSA workers are exposed to many hazards that can affect their health and well-being. Their work exposes them to life threatening infections, such as SARS, HIV and hepatitis. They work with highly toxic cancer treating drugs and various chemical agents. They perform physically demanding tasks, such as lifting patients. In fact, this sector of the economy is highly hazardous and puts workers at a surprising risk for illness and injury.

http://www.cdc.gov/niosh/docs/2009-149/
88% of nurses reported that health and safety concerns influenced their decision to remain in nursing and the kind of work they chose to perform.

Unique Aspects of OSH in Healthcare

• The belief that patient care issues supersede the personal safety and health of workers
  – “Duty to treat”
  – This belief must not result in suboptimal protections

• The connection between patient safety and worker safety & health – there are many shared risks:
  – Lifting and safe patient handling
  – Slips, trips, and falls
  – Workplace transmission of infectious diseases
  – Workplace exposure to hazardous chemicals and teratogenic/carcinogenic drugs such as chemotherapeutic and immunosuppressive agents
  – Suboptimal work organization, resulting in stress, fatigue, and medical errors
Potential Benefits to the Healthcare System of Improved OSH

• Reduced costs
• Improved retention of healthcare personnel, including nurses
• National Health Care Workforce Commission
  – “…shall submit recommendations to Congress, the Department of Labor, and the Department of Health and Human Services about improving safety, health, and worker protections in the workplace for the health care workforce."
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What is NIOSH?

- The federal agency responsible for conducting research and making recommendations for the prevention of work-related injury and illness.
- Part of the Centers for Disease Control and Prevention (CDC) in the Department of Health and Human Services.
- NIOSH and OSHA are distinct, separate agencies. OSHA is in the U.S. Department of Labor. It creates and enforces workplace safety and health regulations in general industry.
- The Mining Safety and Health Administration (MSHA) is in the U.S. Department of Labor. It creates and enforces workplace safety and health regulations in the mining industry.
NIOSH Mission

• To generate new knowledge in the field of occupational safety and health and to transfer that knowledge into practice
National Occupational Research Agenda (NORA)

- An initiative organized by NIOSH to develop an occupational diseases research agenda for the nation.
- Seeks stakeholder input to identify research priorities for the nation.
- Builds collaborations to address priorities.
- Leverages funds to support research in priority areas.
1996: The National Occupational Research Agenda (NORA) addressed 21 priority areas*

Illustration of NORA Priority Areas across Sectors

<table>
<thead>
<tr>
<th>Sector</th>
<th>Allergic and Irritant Dermatitis</th>
<th>Asthma and COPD</th>
<th>Fertility and Pregnancy Abnormalities</th>
<th>Hearing Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Construction</td>
<td>X</td>
<td>-----</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Service</td>
<td>X</td>
<td>X</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>Mining</td>
<td>X</td>
<td>X</td>
<td>----</td>
<td>X</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

*Table is from NORA 1996

2006: NORA addressed priorities through 8 industrial sectors
NAICS Codes for 20 Sectors in 8 NORA Sector Research Councils

<table>
<thead>
<tr>
<th>Sector</th>
<th>NAICS Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, forestry, and fishing</td>
<td>11</td>
</tr>
<tr>
<td>Construction</td>
<td>23</td>
</tr>
<tr>
<td>Healthcare and social assistance</td>
<td>62</td>
</tr>
<tr>
<td>Mining</td>
<td>21</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>31-33</td>
</tr>
<tr>
<td>Services</td>
<td>51-56, 61, 71-72, 81, 92</td>
</tr>
<tr>
<td>Transportation, warehousing and utilities</td>
<td>48-49, 22</td>
</tr>
<tr>
<td>Wholesale and retail trade</td>
<td>42, 44-45</td>
</tr>
</tbody>
</table>
Sector Research Strategies

• Strategic goals to eliminate the worst problems in the sector or sub-sectors
• Analysis of needs, gaps, and barriers
• Intermediate goals and outcome measures
• Plans to assure funding, conduct of the research, and adoption of successful strategies for prevention through partnerships
• NORA HCSA Council web site: http://www.cdc.gov/niosh/nora/councils/hcsa/default.html
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Healthcare and Social Assistance “State of the Sector” Document

• Fact Sheet
  • http://www.cdc.gov/niosh/docs/2009-149/

• Executive Summary
  • http://www.cdc.gov/niosh/docs/2009-138/

• Complete Document
  • http://www.cdc.gov/niosh/docs/2009-139/
### Table 1. Number of employer and self-employed establishments by HCSA subsector and industry, 2002

<table>
<thead>
<tr>
<th>2002 NAICS</th>
<th>Industry</th>
<th>Number of establishments employer</th>
<th>Number of establishments self-employed (nonemployer)</th>
</tr>
</thead>
<tbody>
<tr>
<td>621</td>
<td>Ambulatory healthcare services</td>
<td>489,021</td>
<td>697,239</td>
</tr>
<tr>
<td>622</td>
<td>Hospitals</td>
<td>6,411</td>
<td>NA‡</td>
</tr>
<tr>
<td>623</td>
<td>Nursing and residential care facilities</td>
<td>69,342</td>
<td>42,571</td>
</tr>
<tr>
<td>624</td>
<td>Social assistance</td>
<td>139,752</td>
<td>717,105</td>
</tr>
<tr>
<td>62</td>
<td>Healthcare and social assistance</td>
<td>704,526</td>
<td>1,456,915</td>
</tr>
<tr>
<td></td>
<td>All industry sectors</td>
<td>6,891,382</td>
<td>17,646,062</td>
</tr>
</tbody>
</table>

*[U.S. Census Bureau 2002b]. Includes establishments of firms with paid employees and subject to payroll tax.
†[U.S Census Bureau 2002c]. Includes establishments of firms with no paid employees and not subject to payroll tax (typically self-employed individuals). Each distinct business income tax return filed by a nonemployer business is counted as an establishment. Nonemployer businesses may operate from a home address or a separate physical location.
‡Not applicable (NA); there are no self-employed establishments in this subsector.
§Excludes public administration, i.e., Federal, State, and local government agencies.
Dash (-) indicates that estimates are unavailable.

Employment in Health Care and Social Assistance Sector

*Private, government and self-employed workers:*

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambulatory Healthcare Services</td>
<td>6.83 million</td>
</tr>
<tr>
<td>Hospitals</td>
<td>6.32 million</td>
</tr>
<tr>
<td>Nursing and Residential Care Facilities</td>
<td>2.54 million</td>
</tr>
<tr>
<td>Social Assistance</td>
<td>3.22 million</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>18.9 million</strong></td>
</tr>
</tbody>
</table>

## Demographic Characteristics of the Healthcare and Social Assistance Sector, 2011

<table>
<thead>
<tr>
<th>Industry Sector/Subsector</th>
<th>Employed Persons (millions)</th>
<th>% Women</th>
<th>% Black</th>
<th>% Hispanic</th>
<th>% Asian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthcare and Social Assistance (62)</td>
<td>18.9</td>
<td>78.5</td>
<td>16.0</td>
<td>11.1</td>
<td>5.5</td>
</tr>
<tr>
<td>Social Assistance (624)</td>
<td>3.2</td>
<td>85.0</td>
<td>17.7</td>
<td>15.7</td>
<td>3.5</td>
</tr>
<tr>
<td>Total U.S. Work Force</td>
<td>139.9</td>
<td>46.9</td>
<td>10.8</td>
<td>14.5</td>
<td>4.9</td>
</tr>
</tbody>
</table>


NAICS codes in parentheses
### TABLE 1. Incidence rates of nonfatal occupational injuries and illnesses by case type and ownership, selected industries, 2011

<table>
<thead>
<tr>
<th>Industry</th>
<th>NAICS code</th>
<th>2011 Annual average employment (thousands)</th>
<th>Total recordable cases</th>
<th>Cases with days away from work, job transfer, or restriction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Cases with days away from work</td>
</tr>
<tr>
<td>All industries including State and local government</td>
<td>62,140.9</td>
<td>126</td>
<td>1.9</td>
<td>1.2</td>
</tr>
<tr>
<td>Private industry</td>
<td>107,654.2</td>
<td>3.5</td>
<td>1.8</td>
<td>1.1</td>
</tr>
<tr>
<td>Health care and social assistance</td>
<td>62</td>
<td>16,485.3</td>
<td>5.0</td>
<td>2.3</td>
</tr>
<tr>
<td>Ambulatory health care services</td>
<td>621</td>
<td>6,116.5</td>
<td>2.7</td>
<td>.9</td>
</tr>
<tr>
<td>Hospitals</td>
<td>622</td>
<td>4,889.3</td>
<td>6.8</td>
<td>2.7</td>
</tr>
<tr>
<td>Nursing and residential care facilities</td>
<td>623</td>
<td>3,151.9</td>
<td>7.8</td>
<td>4.7</td>
</tr>
<tr>
<td>Social assistance</td>
<td>624</td>
<td>2,527.6</td>
<td>3.6</td>
<td>1.9</td>
</tr>
</tbody>
</table>

1 The incidence rates represent the number of injuries and illnesses per 100 full-time workers and were calculated as: \((N/EH) \times 200,000\), where

- \(N\) = number of injuries and illnesses
- \(EH\) = total hours worked by all employees during the calendar year
- 200,000 = base for 100 equivalent full-time workers (working 40 hours per week, 50 weeks per year)

2 Totals include data for industries not shown separately.
3 North American Industry Classification System — United States, 2007
4 Employment is expressed as an annual average and is derived primarily from the BLS-Quarterly Census of Employment and Wages (QCEW) program.
5 Days-away-from-work cases include those that result in days away from work with or without job transfer or restriction.

Rate of nonfatal occupational injuries and illnesses involving days away from work, Slips, trips or falls, Overexertion in lifting, and Assaults and violent acts, Private industry and Hospitals, 2010

(source: Bureau of Labor Statistics)

From: http://www.cdc.gov/niosh/topics/ohsn/module.html
Incidence rate and number of injuries and illnesses for occupations with high incidence rates, 2008

These twelve occupations have at least 1/10 of one percent of employment and an incidence rate that was two and one-half times the average or greater. Nursing aides, orderlies, and attendants, and laborers and freight, stock and material movers both had the highest rates statistically. Emergency medical technicians and paramedics had a very high rate of injuries and illnesses, but a smaller number of cases.

Source: Bureau of Labor Statistics, U.S. Department of Labor, Survey of Occupational Injuries and Illnesses, cases involving days away from work. Chart 5
### Fatalities by event or exposure HCSA sector and Social Assistance Subsector, 2008

<table>
<thead>
<tr>
<th>Industry</th>
<th>Total Fatalities</th>
<th>Transportation Incidents(^1)</th>
<th>Assaults &amp; Violent Acts(^2)</th>
<th>Contact with Objects or Equipment</th>
<th>Falls</th>
<th>Exposure to Harmful Substances/Environments</th>
<th>Fires/Explosions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Private Industry</strong></td>
<td>4,670</td>
<td>1,854</td>
<td>685</td>
<td>898</td>
<td>658</td>
<td>409</td>
<td>155</td>
</tr>
<tr>
<td><strong>Healthcare and Social Assistance (62)</strong></td>
<td>113</td>
<td>59</td>
<td>28</td>
<td>3</td>
<td>8</td>
<td>15</td>
<td>-</td>
</tr>
<tr>
<td><strong>Social Assistance (624)</strong></td>
<td>18</td>
<td>6</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>-</td>
</tr>
</tbody>
</table>

\(^1\) Includes highway, non-highway, air, water, rail fatalities, and fatalities from being struck by a vehicle.

\(^2\) Includes violence by persons, self-inflicted injury, and attacks by animals.

NOTE: Totals for 624 include subcategories not shown separately. Dashes indicate no data reported or data that do not meet publication criteria. CFOI fatality counts exclude illness-related deaths unless precipitated by an injury event.

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National Agenda

Five Topic Areas for Goals

1. Safety and Health Programs
2. Musculoskeletal Disorders
3. Hazardous Drugs and other Chemicals
4. Sharps Injuries
5. Infectious Diseases

http://www.cdc.gov/niosh/nora/comment/agendas/hlthcaresocassist/
Strategic Goal 1

- Promote safe and healthy workplaces and optimize safety culture in healthcare organizations.
Occupational Safety and Health Programs

• Four broad areas where effective actions are needed:
  – Structure work organization to optimize safe and healthy workplaces for workers, patients, clients, and consumers;
  – Promote a culture of safety;
  – Establish effective injury and illness prevention programs;
  – Increase adoption of proven interventions
Culture of Safety

Definitions of the concept of a culture of safety vary, but organizations that establish a safety culture generally demonstrate the following characteristics (Singer et al, 2003):

• Safety is considered the highest priority of the organization
• There are strongly shared values and behavioral norms throughout the organization that are centered around safety
• Resources and incentives are available for the organization to pursue and implement a safety commitment
• There is non-hierarchical and open communication among workers – particularly in safety-related scenarios
• There are rare occurrences of errors, but open recognition and reporting of them is accomplished without blame for individuals
• Organizational learning is highly valued

IOM. Resident duty hours: enhancing sleep, supervision, and safety (2009)
Example: Resident duty hours

<table>
<thead>
<tr>
<th>Category</th>
<th>2003 ACGME Duty Hour Limits</th>
<th>IOM Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum hours of work per week</td>
<td>80 hours, averaged over 4 weeks</td>
<td>No change</td>
</tr>
</tbody>
</table>
| Maximum shift length                         | 30 hours (admitting patients up to 24 hours then 6 additional hours for transitional and educational activities) | • 30 hours (admitting patients for up to 16 hours, plus 5-hour protected sleep period between 10 p.m. and 8 a.m. with the remaining hours for transition and educational activities)  
• 16 hours with no protected sleep period |
| Maximum in-hospital on-call frequency         | Every third night, on average                                   | Every third night, no averaging                                                     |
| Minimum time off between scheduled shifts     | 10 hours after shift length                                      | • 10 hours after day shift  
• 12 hours after night shift  
• 14 hours after any extended duty period of 30 hours and not return until 6 a.m. of next day |
| Maximum frequency of in-hospital night shifts | Not addressed                                                   | 4 night maximum; 48 hours off after 3 or 4 nights of consecutive duty              |
| Mandatory time off duty                      | • 4 days off per month  
• 1 day (24 hours) off per week, averaged over 4 weeks | • 5 days off per month  
• 1 day (24 hours) off per week, no averaging  
• One 48-hour period off per month           |
| Moonlighting                                  | Internal moonlighting is counted against 80-hour weekly limit   | • Internal and external moonlighting is counted against 80-hour weekly limit  
• All other duty hour limits apply to moonlighting in combination with scheduled work |
| Limit on hours for exceptions                | 88 hours for select programs with a sound educational rationale | No change                                                                           |
| Emergency room limits                        | 12-hour shift limit, at least an equivalent period of time off between shifts; 60-hour work week with additional 12 hours for education | No change                                                                           |
Patient safety

Submit your hospital’s innovative practices that improve both patient and staff safety
In collaboration with the National Institute for Occupational Safety and Health (NIOSH), The Joint Commission is seeking examples of effective practices that integrate safety-related activities that improve processes and outcomes for both patients and health care workers, such as conducting security risk assessments. The examples will be considered for discussion at a roundtable meeting and potential inclusion in a free educational monograph intended to help organizations improve quality and safety. If your organization has an effective practice to submit, please completed the online survey at http://jointcommission.qualtrics.com/SE?SID=SV_1BT3uOdkKBFOryY. (Contact: Kristine Donofrio, kdonofrio@jointcommission.org)

Final Report to be released within the week!
Recent NIOSH NORA Collaborative Project with The Joint Commission

- Goal of recent Joint Commission health services research initiative was to identify, disseminate examples of effective practices across settings that
  - Functionally integrate safety-related activities for workers and patients, and
  - Improve processes and outcomes for both patients and workers
- Conducted national “call for examples of effective practices” (late 2010/11)
- NORA-supported invitational roundtable discussion July 2011
- Educational monograph forthcoming Nov. on www.jointcommission.org
Roundtable participants: 9 health care representatives + 8 safety experts

Examples of monograph case studies on patient & worker safety

- Ascension Health St Vincent’s CT: Building a high reliability culture for patients and health care workers
- Veterans Health Administration: 1) Building a culture of civility, respect, & engagement in the workplace 2) Behavioral threat management program
- Duke Home Care: Focusing on safety in home care—the Director Safety Rounds Program
- Lancaster General PA: Voluntary Protection Program initiative on bariatric patient safety
- Intermountain Health: Integrated safe patient handling
- Kaiser Permanente Mid-Atlantic Region: Slip, trip, fall prevention measure
- Lemuel Shattuck Public Hospital Boston: Reducing assaults in a behavioral health unit
- University of Missouri: Second victim rapid response program
Strategic Goal 2

• Reduce the incidence and severity of musculoskeletal disorders (MSDs) among workers in the HCSA sector.
Musculoskeletal Disorders

• Areas of focus
  – Evaluation of legislative mandates
  – Incorporation of Safe Patient Handling (SPH) in standards of care across healthcare settings
  – Implementation of SPH programs among homecare and home healthcare employees
Musculoskeletal Disorders...

– Address MSDs among non patient handling staff (laundry, housekeeping, etc)

– Incorporation of SPH in curriculums at allied health schools
Manually lifting and moving patients ("Patient Handling" "Patient Transfers") is characterized by forceful exertions and awkward postures – the two primary risk factors for musculoskeletal injury.
Ergonomics in Patient Care

• Eliminate or reduce forceful exertions and awkward postures
• Enhances safety for workers and patients

Assistive Devices – A few examples:

- Hoists/Lifts
- Lateral Transfer Aids
- Fast-Raising Beds
- Triangle Bars
- Gait Belts/Slings
- Slide Boards
- Lift Chairs
- Swivel Disks
- Grab Bars
- Raised Toilets
- Shower/Toilet Chairs
- Portable Bathing Units
Strategic Goal 3

• Reduce or eliminate exposures and adverse health effects caused by hazardous drugs and other chemicals
Hazardous Drugs and other Chemicals

• Areas of Focus
  – Hazard recognition
  – Promoting safe handling guidelines
  – Identifying barriers to implementation of best practices
  – Evaluating the effectiveness of interventions.
Recently updated

- 21 drugs with special handling requirements added to the original 2004 list

- Additions were new drugs or existing drugs that had new warnings from 2004 to 2007

- Review process described in Federal Register notice:

Document at:
Strategic Goal 4

• Reduce sharps injuries and their impacts among all healthcare personnel.
Sharps Injuries

• The majority of exposures to bloodborne pathogens among healthcare personnel are preventable. The goals were developed to promote the identification and implementation of workplace strategies to prevent sharps injuries.

• Surveillance, improved reporting, safety devices, best practices
Table 23. Frequency estimates for sharps injuries and related occupationally acquired health outcomes of healthcare workers, 1998

<table>
<thead>
<tr>
<th>Health outcome</th>
<th>Estimated number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sharps injuries</td>
<td>600,000–800,000</td>
</tr>
<tr>
<td>Occupationally acquired hepatitis B infection</td>
<td>461</td>
</tr>
<tr>
<td>Occupationally acquired acute hepatitis B</td>
<td>132</td>
</tr>
<tr>
<td>Occupationally acquired acute hepatitis C</td>
<td>70</td>
</tr>
<tr>
<td>Occupationally acquired HIV</td>
<td>1</td>
</tr>
</tbody>
</table>

Sources: [NIOSH 2000]; [Luckhaupt 2007]; [DoAN et al 2003]

http://www.cdc.gov/niosh/docs/2009-139
Strategic Goal 5

• STOP transmission of infectious diseases in healthcare and social assistance settings among workers, patients and visitors.
Infectious Diseases

• Focus areas
  – Understanding mechanisms and routes
  – Improving approaches to worker vaccinations
  – Improving hand hygiene
  – Improving disinfection and decontamination
  – Identifying and responding to highly infectious exposures
Infectious Diseases

• Focus areas....
  – Research and adopting best practices for personal protective equipment (PPE)
  – Designing facilities to facilitate appropriate work practices and incorporate protective engineering controls
  – Improving treatment after hazardous exposures
Airborne Influenza and Respiratory Syncytial Virus in an Urgent Care Medical Clinic

**Finding**: Likelihood of finding airborne influenza RNA was related to presence of cases; influenza A and RSV had very different airborne concentrations and size distributions.

Lindsley et al. Clinical Infectious Diseases 2010
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Examples of Other NIOSH Activities

- Health Hazard Evaluation and Technical Assistance Program  
  http://www.cdc.gov/niosh/hhe/
- Fatality Assessment and Control Evaluation Program  
  http://www.cdc.gov/niosh-face/
- OSH Surveillance  
  http://www.cdc.gov/niosh/topics/surveillance/
- Respirator information, research and certification  
  http://www.cdc.gov/niosh/npptl/default.html
- Extramural Grants Program  
  http://www.cdc.gov/niosh/oep/
- Information Dissemination  
  - Telephone: 800-CDC-INFO  
  - Web Page: http://www.cdc.gov/niosh