Occupational Safety and Health
Public Health

- Saves Lives
- Prevents Disease and Disability
- Improves the Quality of Health Care
- Helps Reduce Health Care Costs
The field of public health strives to create healthier communities.

Where medicine treats the individual, public health focuses on efforts to assess the health of people in relation to their environment.

The goal of public health is to prevent disease and disability before they occur.
Linkages and Overlaps

Public/Health Care Systems

Population Health

Personal Health
Shift from Narrow Focus on Science and Services to Treat Individual (Biomedical Model) to Population Health

Population health modeled on evidence that there are multiple determinants of health

- Medical care
- Behavior
- Biology (genetics)
- Physical environment
- Social environment
- Education
- Socioeconomic Status
- Employment
- Housing
MAGNITUDE OF THE PROBLEM

- 10 million work-related injuries/year
- 430,000 new work-related diseases/year

Each day:
- 9,000 sustain disabling injuries
- 16 die from injury
- 137 die from work-related disease
Global Burden of Occupational Injury and Illness

Each Year

- 1.1 million deaths
- 250 million workers sustain deadly injuries
- 12 million injuries among youth workers (12,000 fatal)

Source: ILO, 1999
Annual Economic Burden of Disease and Injury

THE US WORKFORCE

Size of workforce: 131 million
Unionized: 14%
Unemployed: 5%

Changing Demographics
Projected Changes in Civilian Labor Force 1994 to 2006

- Minorities: 24.4% in 1994, 28.7% in 2006
- Over Age 55: 11.9% in 1994, 15.4% in 2006
- Women: 46% in 1994, 47.4% in 2006
**Women Participating in the Global Workforce**

<table>
<thead>
<tr>
<th>Developed Countries</th>
<th>% of women who work</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweden and Denmark</td>
<td>75%</td>
</tr>
<tr>
<td>United States</td>
<td>60%</td>
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<tr>
<td>France and Germany</td>
<td>57%</td>
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<tr>
<td>Switzerland</td>
<td>53%</td>
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<tr>
<td>Netherlands</td>
<td>38%</td>
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<tr>
<td>Italy</td>
<td>37%</td>
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<tr>
<td>Spain</td>
<td>26%</td>
</tr>
</tbody>
</table>

Source ILO, 1995
# Women Participating in the Global Workforce

<table>
<thead>
<tr>
<th>Developing Countries</th>
<th>% of women who work*</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>80%</td>
</tr>
<tr>
<td>Mozambique</td>
<td>78%</td>
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<tr>
<td>Vietnam</td>
<td>77%</td>
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<tr>
<td>Thailand</td>
<td>67%</td>
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<tr>
<td>Brazil and Chile</td>
<td>33%</td>
</tr>
<tr>
<td>Mexico /Argentina</td>
<td>32%</td>
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<tr>
<td>Egypt, Saudi Arabia, Oman, and Jordan</td>
<td>10%</td>
</tr>
<tr>
<td>Algeria</td>
<td>8%</td>
</tr>
</tbody>
</table>

* Includes the informal workforce

Source, ILO, 1995
Aging Workforce

Workers Over Age 60

Source: Health Affairs, May/June 2000
Projected Changes in Employment by Industry

Source: Franklin, 1997
Growth of the Contingent Workforce

Source: Bureau of Labor Statistics
Informal Sector

- Majority of new jobs in developing countries
- Subcontracting
  - Independent, cater to markets at low end of income scale
- Household-based
  - Unpaid female labor, family members
- Independent service sub-sector
  - Bulk of informal sector, lowest skills
  - Maids, street vendors, cleaners, casual unskilled laborers

ILO 1999
Informal Workforce (% of Total Urban Employment)

- Africa – 60%
- Bolivia and Madagascar – 57%
- Tanzania – 56%
- Colombia – 53%
- Thailand – 48%
- Venezuela – 46%
- Industrialized Countries – 5-10%

ILO 1999/WHO 1995
Changing Nature of Work

- **Longer Hours:** Americans spend 8% more time on the job than they did 20 years ago
  - 47 hours a week on average
  - 13% also work a second job
- **More Stress:** One-fourth of employees view their jobs as the number one stressor in their lives
- **Job Insecurity:** 46% of workers frequently worry about being laid off (compared to 22% for 1988 and 25% for 1991)
Work Organization/Stress - Severity of the Problem

- No good surveillance systems and few studies in the U.S.
- Estimated 13% of U.S. worker compensation claims are for stress-related disorders
- 27% of U.S. workers reported jobs are greatest single source of stress
- 60% sampled women workers cited job stress as biggest problem at work
Work Organization

- Definition: the way work processes are structured and managed

- Involves:
  - Scheduling of work
  - Job design
  - Interpersonal aspects of work
  - Career concerns (e.g., job security)
  - Management style
  - Organizational characteristics
Organization of Work May Affect...

- Stress
- Occupational injury
- Musculoskeletal disorders
- Cardiovascular disease
- Other concerns (e.g. indoor air quality complaints)
Emotional Strain from Work

Workers who *often or very often* report they are …

- Emotionally drained from work 26%
- Used up at the end of the day 36%
- Burned out/stressed out by work 26%

Source: Work and Families Institute, 1998
U.S. Health System: You Don’t Get What You Pay For

- Highly fragmented at all levels
- Most expensive (14.2% of gross domestic product)
- One of least accessible (44 million uninsured, more underinsured)
- U.S. pays for half of all personal health care (e.g. Medicare/Medicaid, DOD, VA, federal worker insurance)
Current System

- Voluntary employer-based coverage
- 44 million in U.S. uninsured
  - Most (~85%) working poor
- Employers opted out in 1990s, unequally, in economic “good times”
- Expected further erosion in economic “bad times”
WHO ranked 191 countries
- U.S. 37th in overall performance
- U.S. 24th in overall health attainment

U.S. among its peers
- Of 29 countries in OECD—Organization for Economic Cooperation and Development
  - Ranked 23rd in infant mortality
  - Ranked 21st in male life expectancy
- Met only 15% of Healthy People 2000 objectives (deteriorated in 20% of objectives)
Does Being Uninsured Matter?

YES

- 20% uninsured (vs. 3% insured) did not get medical care for a serious medical problem
- 30% uninsured (vs. 12%) did not fill a prescription
- 39% uninsured (vs. 13%) skipped a recommended test or treatment
- 13% (vs. 4%) had trouble getting mental health care
Workers’ compensation pays only for conditions ultimately deemed work-related.

Traditional insurance does not usually cover conditions that are (even possibly) work-related.
Uninsured
(2002 Census Data)

Uninsured Americans 15.2%
Uninsured Californians 18.2%
Americans with job-based insurance 61.3%

Uninsured by Ethnicity

Latino 32.4%
African American 20.2%
Asian/Pacific Islander 18.4%
White 10.7%
Employer-Sponsored Health Insurance

Percent

- 1989
- 1993
- 1997
- 2001
Increases in Health Insurance Premiums

- Health Insurance Premiums
- Overall Inflation
- Workers' Earnings
Young Workers and Health Insurance

Workers age 18-34 with an Employer Health Plan

- White 51%
- African American 36%
- Latino 39%
Changes in Employer-Sponsored Insurance by Education

Source of Insurance Coverage by Size of Employer

Percent with Insurance Benefits

- Small business <25 employees
- Small business 25-100 employees
- Med. business 100-499 employees
- Large business 500+ employees
Trends Across Sectors
(Injuries per 100 full-time workers)

Source: Annual Survey of Occupational Injuries and Illnesses (BLS) *Baseline
Health care workers = 8% of U.S. workforce

1996-2006: 2 of the 4 fastest growing industries are HC-related (health services and health practitioners’ offices)

Health care services are growing at twice the rate of the overall economy
Health Care Worker Hazards

- Biological hazards
  - bacteria, viruses, fungi, parasites

- Chemical hazards
  - medications, solutions, gases

- Physical hazards
  - radiation, electricity, extreme temperatures, noise, lifting

- Psychosocial hazards
  - factors causing stress, emotional strain, interpersonal problems
Needlestick Injuries

- Exposure to bloodborne pathogens (HIV, Hepatitis B, and Hepatitis C)
- In the United States, approximately 800,000 needlestick injuries occur in hospitals annually -- an average of one injury every 10 seconds
- 1/3 of all sharps injuries have been reported to occur during disposal activities
Back Injuries and Health Care Workers

Hospitals are the leading and nursing homes the second leading workplaces for days away from work due to back injuries.

Back injuries:
- 27% injuries in all private industry
- 42% injuries in nursing homes

Contributing factors
- lack of assistive devices
- improper lifting techniques
- poor staffing
- long working hours
- poorly designed/inadequate equipment
- worker fitness
# Occupations of Victims of Nonfatal Workplace Violence 1992-96

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Annual Average</th>
<th># per 1,000 Workers</th>
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</thead>
<tbody>
<tr>
<td>Total</td>
<td>2,009,400</td>
<td>14.8</td>
</tr>
<tr>
<td><strong>Medical</strong></td>
<td></td>
<td></td>
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<tr>
<td>Physicians</td>
<td>10,000</td>
<td>15.7</td>
</tr>
<tr>
<td>Nurses</td>
<td>69,500</td>
<td>24.8</td>
</tr>
<tr>
<td>Technicians</td>
<td>24,500</td>
<td>21.4</td>
</tr>
<tr>
<td>Other</td>
<td>56,800</td>
<td>10.7</td>
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<tr>
<td><strong>Mental Health</strong></td>
<td></td>
<td></td>
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<tr>
<td>Professional</td>
<td>50,300</td>
<td>79.5</td>
</tr>
<tr>
<td>Custodial</td>
<td>8,700</td>
<td>63.3</td>
</tr>
<tr>
<td>Other</td>
<td>43,500</td>
<td>64.0</td>
</tr>
</tbody>
</table>

Source: Bureau of Justice Statistics, 1998

- Health Care Patient, 51%
- Other Person, 29%
- Worker/Former Coworker, 8%
- Other Source, 12%
Stressors in Health Care Settings

- Death and dying
- Floating
- Work overload
- Work environment
- Family stress
- Role conflict
- Shiftwork
Effects of Medical Error

- IOM estimates that medical errors cause 44,000-98,000 deaths annually
- Medical error = 8th leading cause of U.S. deaths
- Medical error causes more deaths than auto accidents, breast cancer and AIDS
- Chicago Tribune: “To compensate for understaffing, hospitals often rely on machines with warning alarms to help monitor patients’ vital signs. At least 216 patient deaths and 429 injuries have occurred in hospitals where registered nurses failed to hear alarms built into lifesaving equipment, such as respirators and blood-oxygen monitors.”
Adults believe medical mistakes are caused by:

#1: carelessness or negligence by health care professionals

#2: overworked, hurried and stressed health care professionals

Source: “National Patient Safety Foundation at the AMA”
Nursing View of Role of Health & Safety

- Sample: 4,826
- Major Health and Safety Concerns
  - Stress and overwork (70%)
  - Disabling back injury (60%)
  - Needlestick injury (46%)
- 88% cite health and safety issues as influential in decision making re: remaining in workplace
- 76% cite health and safety concerns affect quality of patient care
- 75% report deteriorating quality of care over past 2 years

*2001 ANA Health and Safety Survey*
Fewer People, Same Work

Work organization factors

- Downsizing
- Deskilling and collapsing of job titles
- More patients at higher acuity levels
- Decline of non-profit facilities

Fewer people + same work -> added stress and fatigue -> compromised patient care
Improving Worker Health and Safety Leads To:

- Improved health status
- Decreased health care/related costs
- Increased productivity
- Increased quality