WELLNESS for all WORKERS

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Total Worker Health
a NIOSH initiative

Clearly, the overall health of workers is influenced by factors both inside and outside the workplace: stress at work and home; unhealthful diet and limited exercise; smoking; chronic conditions such as hypertension, asthma, and diabetes, to name a few. The effects of these various factors cannot be artificially divided between “at work” and “non-work.” Just as workplace conditions can affect health and well-being at home and in the community, exposures and activities outside of working hours can substantially determine health, productivity, and well-being during work.

http://www.cdc.gov/niosh/worklife/
Time use on an average work day for employed persons ages 25 to 54 with children

NOTE: Data include employed persons on days they worked, ages 25 to 54, who lived in households with children under 18. Data include non-holiday weekdays and are annual averages for 2009.

SOURCE: Bureau of Labor Statistics
Time use on an average work day for employed persons ages 25 to 54 with children

- Caring for others (1.3 hours)
- Eating and drinking (1.1 hours)
- Household activities (1.1 hours)
- Leisure and sports (2.6 hours)
- Total= 24.0 hours
- Other (1.5 hours)
- Sleeping (7.7 hours)
- Working and related activities (8.7 hours)

NOTE: Data include employed persons on days they worked, ages 25 to 54, who lived in households with children under 18. Data include non-holiday weekdays and are annual averages for 2009.

SOURCE: Bureau of Labor Statistics
Leading causes of death for all ages

Deaths per 100,000 population (log scale)

- All causes
- Heart disease
- Cancer
- Stroke
- Unintentional injuries
- Chronic lower respiratory diseases

Year


NOTE: Death rates are age adjusted.
SOURCES: CDC/NCHS, *Health, United States, 2008*, Figure 16. Data from the National Vital Statistics System.
Determinants of Health and Their Contribution to Premature Death
Actual Causes of Death in the United States in 2000:

<table>
<thead>
<tr>
<th>CAUSE</th>
<th>ESTIMATED #</th>
<th>% TOTAL DEaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobacco</td>
<td>435,000</td>
<td>18.1%</td>
</tr>
<tr>
<td>Diet/Physical Inactivity</td>
<td>400,000</td>
<td>16.6%</td>
</tr>
<tr>
<td>Alcohol</td>
<td>85,000</td>
<td>3.5%</td>
</tr>
<tr>
<td>Microbial Agents</td>
<td>75,000</td>
<td>3.1%</td>
</tr>
<tr>
<td>Toxic Agents</td>
<td>55,000</td>
<td>2.3%</td>
</tr>
<tr>
<td>Motor Vehicles</td>
<td>43,000</td>
<td>1.8%</td>
</tr>
<tr>
<td>Firearms</td>
<td>29,000</td>
<td>1.2%</td>
</tr>
<tr>
<td>Sexual Behavior</td>
<td>20,000</td>
<td>0.8%</td>
</tr>
<tr>
<td>Illicit use of Drugs</td>
<td>17,000</td>
<td>0.7%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1,159,000</td>
<td>48.8%</td>
</tr>
</tbody>
</table>
Employee Wellness Practices: What’s the Evidence?

• Evidence:
  ▪ More than opinion, anecdote or testimonial

• “…Growing body of *empirical* evidence*
  ▪ Large proportion of diseases are preventable (risks are modifiable)
  ▪ Targeting risk can decrease costs/increase productivity
  ▪ Worksite health promotion and disease prevention programs save companies money and produce + ROI

* Goetzel & Reuters, Value in Health Care, Institute of Medicine (2010)
Review of 42 Published Studies of Worksite Health Promotion Programs Shows:  

- Average 28% reduction in sick leave absenteeism  
- Average 26% reduction in health costs  
- Average 30% reduction in workers’ compensation and disability management claims costs  
- Average savings of $5.93 for every $1 spent

Worksite Health Promotion Programs Yield an Average Return on Investment of Nearly $4 for Each $1 Spent on Direct Health Care Costs  
Reduce the Cost of Absenteeism by $5 for Every $1 Spent

Harvard Business Review  
“Fruits of Workplace Wellness”  
- Lower costs  
  Claims $1,500 higher in non-participants (H-E-B Supermarket Chain)  
  Moving 10% of employees from high/medium risk to low yields ROI estimates of 6 to 1  
- Greater productivity  
  - Lost productivity costs 2.3x higher than medical & pharmacy costs  
  - Higher morale – no data

Examined employee health care costs and absenteeism over a 2 year period:  
No significant differences in health care costs  
Significant negative association between participation and absenteeism  
Cost savings of $15.60 for every dollar spent on the program

References:  
Evaluation of a program over 4 years using more a sophisticated methodology to control for the biases found in other studies and found ROI of $1.65 per dollar spent on the program.¹

Related 11 modifiable health risks to medical care costs, absenteeism, presenteeism in a large company. Obesity, HBP, high blood glucose, high triglycerides, inadequate exercise had most impact on medical costs.³

Worksite programs can save about $3 for every dollar invested over 3 years, manifested as reduced health care spending and lower absenteeism.²

³ Kowlessar, Goetzel, Smith Carls, Tabrizi, Guindan. JOEM 53:5, 2011
Chapman meta analysis

- Varied measures
- Health care costs most common
- Sick leave absenteeism 2\textsuperscript{nd} most common measure
- Health and productivity measures becoming more common
- Few looked at workers’ compensation or disability management – indicates few targeted injury prevention
- Newer studies report average cost/benefit ratio of 1:6.3 Vs. 1:3 in earlier studies
Where to start?
Criteria for Health Promotion Programs

A health promotion program should address one or more risk factors that are:

- Carefully defined
- Measurable
- Modifiable
- Prevalent among the members of the chosen target group
- Constitute a threat to the health status and the quality of life of the target group members

Basic Musts

• Management support
• The right team
• Data for pre and post assessments
  – Demographics, absenteeism, disability and workers’ compensation claims, turnover, health benefit plan costs
• Employee input
  – needs and interest surveys, focus groups, health risk assessments (HRAs)

Planning Worksite Programs: workforce considerations

- Demographics – age and gender
- Marital status
- Family status
- Education level
- Income level
- Access to computers and other resources

The Challenge:

• Program components vary
• Outcomes vary
• Methods vary
• Populations vary
• Work environments vary
Traditional Health Promotion vs. Occupational Safety and Health

• “Traditional health promotion involves interventions aimed at reducing lifestyle risk factors by promoting healthy behaviors and actions, often focusing on promoting individual change.”

• “Traditional occupational safety and health programs focus on reducing hazards and exposures at the workplace to prevent occupational injury and illness, optimally promoting collective change; programs are often mandatory or regulated heavily.”

• The Total Worker Health approach attempts to integrate the benefits of both to maximize worker health, broadly defined.
health promotion

health protection
Rationale for Integrating OSH with Health Promotion*

1. Workers’ risk of disease is increased by exposure to both occupational hazards and risk-related behaviors

2. Workers at highest risk for exposures to hazardous working conditions are often those most likely to engage in risk-related health behaviors and live in higher risk communities

3. Integrating OSH with HP may increase program participation and effectiveness for high-risk workers

4. Integrated OSH and HP may benefit broader work organization issues and the work environment

* Sorensen and Barbeau at http://www.cdc.gov/niosh/worklife/steps/default.html
Examples of Integrated Programs

- Respiratory protection programs that comprehensively address tobacco abuse
- Ergonomic consultations that include arthritis management strategies
- Stress management efforts that first seek to diminish workplace stressors, and only then work on building worker resiliency
- Integrated training and prevention programs (falls, motor vehicle safety, first aid, hearing conservation, stretching, & flexibility and lifting programs)
Hygiene
anti-flu campaigns

• Good thing - eating / smoking in workplace can lead to ingestion of toxins

• Maybe not so good – skin is usually a protective barrier, but trauma can make skin susceptible, increase absorption across skin. If some hand washing is good, more is not necessarily better!
Liver Function

• Preexisting liver problems increase susceptibility
  e.g., hepatitis, cirrhosis

• Hepatotoxin may affect liver’s ability to detoxify other substances
Kidney Function

• Renal damage can lead to ongoing exposure

Effects:
• Direct damage to kidneys
  heavy metals, carbon tetrachloride, chloroform
• Damage from dehydration
Smoking and Asbestos

• Risk of lung cancer for smoking alone is 23 X for men and 13 x for women compared to non-smokers

• A smoker who is exposed to asbestos has a 50 to 84 times greater chance of developing lung cancer!
Hearing

• Noise-related hearing loss in range of 4000Hz range loss

• Interaction of noise and age?

• Chemicals may cause hearing loss
  o carbon monoxide
  o solvents

• Interaction of chemicals and age?

• Hearing hazards outside of work!
NIOSH Hearing Loss Simulator

- http://www.cdc.gov/niosh/mining/topics/hearingloss/hlsoundslike.htm
Obesity and Work Injuries

• Large aluminum manufacturing plant
• Highest level of obesity group had 2.2 X greater chance of work injury compared to normal weight workers
  – Adjusted for age, sex, education, smoking, physical demands of the job, plant location and processes, time since hire, time on the job
• Leg and knee injuries prevalent

Challenges to Older Workers

- Increased prevalence of chronic diseases
- Diseases with long latency periods
- Effects of long term work and environmental exposures
- General changes that occur with aging
Activity limitation among adults due to chronic conditions, 2005–2006

18–44 years
- Mental Illness: 13
- Fractures or joint injury: 5
- Lung: 6
- Diabetes: 3
- Heart or circulatory: 18
- Arthritis or musculoskeletal: 11
- Mental retardation: 23

45–54 years
- Mental Illness: 13
- Fractures or joint injury: 14
- Lung: 25
- Diabetes: 11
- Heart or circulatory: 26
- Arthritis or musculoskeletal: 19
- Mental retardation: 21

55–64 years
- Mental Illness: 31
- Fractures or joint injury: 31
- Lung: 21
- Diabetes: 19
- Heart or circulatory: 63
- Arthritis or musculoskeletal: 25
- Mental retardation: 3

Number of persons with limitation of activity per 1,000 population

SOURCES: CDC/NCHS, Health, United States, 2008, Figure 12. Data from the National Health Interview Survey.
Cardiopulmonary System

• Work capacity declines 20% between ages 40 and 60
• High prevalence of chronic diseases such as hypertension, and atherosclerosis
• Decreased respiratory capacity and efficiency of oxygen utilization
Psychomotor Functioning

- Average reaction time and motor speed slow slightly with age
- Accuracy not generally affected
- Speed affected in complex jobs with rapid choices, decisions

- Machine paced and piecework jobs can be problematic
- These jobs are stressful for all!
Home Exposures
independent or cumulative effect

• Pesticides
• Noise
• Paint, solvents, other chemicals
• Lead
• Injuries
• .................

• Also possibility of taking work exposures home
“Without work all life goes rotten”

Albert Camus

Rosemary Sokas, 2004
Occupational Safety and Health Act

• “Congress declares it to be its purpose and policy ... 
  – To assure as far as possible every working man and woman in the Nation safe and healthful working conditions and 
  – To preserve our human resources--”

• By providing for research in the field of occupational safety and health, including the psychological factors involved, and by developing innovative methods, techniques, and approaches for dealing with occupational safety and health problems.”