Work and Health: Evidence on the Pathways to Implementing Total Worker Health

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Glorian Sorensen, PhD, MPH
Center Director
Center for Work, Health and Well-being
Professor of Social and Behavioral Sciences
Harvard T.H. Chan School of Public Health
Dana-Farber Cancer Institute
Boston, Massachusetts

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Work matters for health
• 4 in 10 working adults say their job has an impact on their health (good: 28%; bad: 16%)

• Workers most likely to say that work has a bad impact were those --
  • With disabilities (35%)
  • In dangerous jobs (27%)
  • In low paying jobs (26%)
  • Working in retail (26%)
  • Working > 50 hours per week (25%)
NPR/RWJF Survey findings continued

• Negative impact related to:
  • Stress level (43%)
  • Eating habits (28%)
  • Sleeping habits (27%)
  • Weight (22%)

• Top health concerns include:
  • Contaminants (30%)
  • Unhealthy air (13%)
  • Accidents/injuries (12%)
  • Stress (11%)
Session Objectives

- **What is it?**
  - Describe what is meant by an integrated approach to worker health

- **Why do it?**
  - Describe the rationale for this approach

- **Will it work?**
  - Describe the evidence for this approach

- **How to make it work?**
  - Recommendations for practice
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NIOSH Total Worker Health®

Total Worker Health® is defined as policies, programs, and practices that integrate protection from work-related safety and health hazards with promotion of injury and illness prevention efforts to advance worker well-being. (http://www.cdc.gov/niosh/twh/)

• Funds 4 Centers for Excellence, including the Harvard Center
Work-based Strategies to Improve Health

**Work-based Health Protection and Promotion Strategies**

1. **Supporting healthier behaviors through workplace environments and services offered at work**
   - Health screening & services
   - Promoting healthy behaviors
   - Creating a health-promoting environment

2. **Preventing work-related illness and injury**
   - Workplace safety measures
   - Control of workplace hazards
   - Improved ergonomics
   - Health and safety training

3. **Reducing work-related stress**
   - Decreasing job strain
   - Fostering social support among workers
   - Stress management
   - Supporting work-family balance (e.g., through flexible schedules)

4. **Expanding work-related resources and opportunities**
   - Medical care benefits
   - Paid sick and personal leave
   - Child and elder care services
   - Job training & education
   - Adequate wages and salaries

*Egerter et al., Commissionhealth.org, RWJF, 2008.*

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## Comparison of Worksite Intervention Models

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Defining integrated approaches to worker health

“A strategic and operational coordination of policies, programs & practices designed to simultaneously prevent work-related injuries & illnesses & enhance overall workforce health & well-being”

• Coordination and linkage of separate policies, practices & programs
• Continuum of approaches exists

Sorensen, et al, JOEM 2013

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Center for Work, Health and Well-being Conceptual Model

**Enterprise Characteristics**

**Integrated Policies, Programs, and Practices**

**Worker / Work Force Characteristics**

**Conditions of Work**
- Physical Environment
- Organization of Work
  - Psychosocial Factors
  - Job Design & Demands
  - Health and Safety Climate

**Worker health & safety behaviors, knowledge and skills**

**Worker Outcomes**
- Injury
- Illness
- Wellbeing

**Enterprise Outcomes**
- Productivity & Quality
- Turnover & Absence
- Health Care Costs
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• **How?**
  • Recommendations for practice
Worker health is influenced by exposures to occupational hazards, risk-related behaviors, and other factors.
• 4,821 occupational fatalities in 2014
• 3 million non-fatal injuries and illnesses in the private sector in 2014
• Estimated direct cost for occupational injuries and illnesses reached $50.1 billion in 2011
• Between 21% and 49% of people reporting disability cite work as the cause

Source: Census of Fatal occupational Injuries, BLS: 2014 Annual survey of Occupational Injuries and Illnesses, BLS; the Liberty Mutual Workplace Safety Index, 2011; Reville 2001
Worker health behaviors: A couple examples

- 440,000 premature deaths annually associated with cigarette smoking and exposure to tobacco smoke -- $97 billion in productivity losses, and $96 billion in health-care costs annually
- 19.6% of working age adults are current smokers (age adjusted) - highest among those in construction (39%), mining (30%), food service (30%)
- One in every three adults is obese. Obesity also has been linked with reduced worker productivity and chronic absence from work.
- An estimated 112,000 deaths are contributed to obesity each year.

CDC Targeting the Nation’s Leading Killer At A Glance 2013, CDC MMWR September 30th 2011, CDC MMWR Nov. 14 2008 Obesity Halting the Epidemic by Making Health Easier At A Glance 2011
Risks may be additive and sometimes synergistic

A few examples – Tobacco and work-related exposures
- Additive: Benzene in tobacco smoke and as hazard at work
- Synergistic: Tobacco smoke and exposure to asbestos at work (50 fold increased risk of lung cancer among smokers with asbestos exposure)
Business Outcomes

- Health care costs
- Disability costs
- Workers’ Comp. costs

Workforce Health & Safety

Productivity & Performance

Employer of Choice

- Absenteeism
- Presenteeism
- Performance

- Turnover
- Recruitment
- Workforce engagement

Source: NBGH
Some Evidence for Employer Benefits

- Literature review and meta analysis on health promotion efforts
- Worksite Health Promotion programs can generate positive ROI for medical- and absenteeism-related savings:
  - Medical: 3.27 : 1
  - Absenteeism: 2.73 : 1

*Baicker et al, Health Aff, 2010; Soler et al. Am J Prev Med 2010*
The Full Cost of Employee Poor Health

Personal Health Costs
- Medical Care
- Pharmacy

Productivity Costs
- Absenteeism
- Presenteeism
- Short-term Disability
- Long-term Disability
- Overtime
- Turnover
- Temporary Staffing
- Administrative Costs
- Replacement Training
- Off-Site Travel for Care
- Customer Dissatisfaction
- Variable Product Quality

Disparities in risk

The workers at highest risk for exposure to hazardous working conditions are also those most likely to engage in risk-related health behaviors.
Examples of disparities in risk: Blue collar vs. white collar worker

Blue collar workers are --

• More likely to be exposed to job hazards.
• At higher risk for disease because of exposure to job hazards and risk-related behaviors
• Eight times more likely to be at risk for all types of cancer due to occupational exposures
• Less likely to participate in health promotion activities

Just released findings – NPR, RWJF, Harvard Chan School Survey (July 11, 2106)

• Low-wage workers face worse conditions than other workers, including
  • Dangerous conditions at work (45% vs 33% other)
  • Report job has a bad impact of stress levels (51% vs 41% other)
  • Go to work when they are sick (65%)
• Workers in dangerous jobs (40% of working adults)
  • 52% say the job has a bad impact on stress levels, 38% on sleeping habits, 35% on eating habits
  • 25% say their workplace is not working to reduce dangerous conditions
Work matters for health and safety

- Potential exposures to safety and health hazards
- Hours worked
- Workload and pace of work
- Job stress
- Supervisor support
- Co-worker social norms
- Wages
- Access to resources on the job
- Culture of health and safety at work

Conditions of work

Organization

Physical

Worker

Health and Safety

Psychosocial
Attending to the Conditions of Work: Summary Findings for Healthcare Workers

CONDITIONS OF WORK

Physical Environment
• Job Demands

Organization of Work
• Ergonomic Practices
• Job Flexibility
• Inadequate staffing
• Shift schedule/control

Psychosocial Factors
• Low decision latitude
• Coworker/supervisor support
• Work-family conflict
• Harassment

WORKER OUTCOMES
• Pain
• Work interferences
• Cardiometabolic risk

WORKER PROXIMAL OUTCOMES
• Sleep deficiency
• Fatigue
• Physical Activity
• Psychological distress
• BMI


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• Additive and synergistic effects related to occupational and chronic disease outcomes
• Impact on employer outcomes (e.g., cost, turnover)
• Disparities in health and safety outcomes
• Work matters for health and safety
• What else?

Summary – Why do it?
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Benefits of integrated approaches

- Greater improvements in behavior change (Sorensen et al., Cancer Cause Control 2002; Sorensen et al., Am J Public Health 2005)
- Higher rates of employee participation in programs (Hunt et al., Health Educ Behav 2005)
- Potential reductions in occupational injury and disability rates (Shaw et al., Work 2006; Shaw et al., J Occup Rehabil 2003)
- Stronger health and safety programs (LaMontagne et al., Occup Environ Med 2004)
- Potentially reduced costs (Goetzel et al., J Occup Environ Med 2001)
- Improved market performance (Fabius et al, J Occup Environ Med 2016)
Examples in Two Industries

- Manufacturing: WellWorks-2
- Healthcare: Two examples from our recent work
WellWorks-2: Study hypothesis

The integration of health protection with health promotion will enhance the intervention impact on behavior change over and above health promotion alone.
Integrated prevention approaches needed
WellWorks-2: Manufacturing

- Labor - management participation in program planning
- Management consultation for changes in the work environment
- Group and individual education for workers

Baseline Assessments in 15 worksites (n=9,019)

Randomization

Health Promotion

Health Promotion plus OSH Intervention

Final Assessments

Sorensen et al, Cancer Causes Control 2002;13:493-502

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Adjusted six-month quit rates at final by intervention and job type
(cohort of smokers at baseline: n=880)

Sorensen et al, Cancer Causes and Control, 2002
WellWorks-2 OSH Results Summary

• Improvements in exposure protection (NS)
  – HP/OSH: Source focused
    HP Only: Worker focused
  – Increase duration/intensity of intervention

• Significant improvements in management commitment and employee participation

LaMontagne, et al, Occup Environ Med 2004
Example: Health Care Workers

- 2\textsuperscript{nd} highest number of nonfatal injuries and illnesses
- Risk of musculoskeletal disorders (MSDs) associated with:
  - inadequate physical activity,
  - overweight and obesity and associated dietary patterns,
  - night or rotating shifts and related sleep deficiencies
- Risks in the work environment impact both MSDs and health behaviors:
  - high work demands
  - low co-worker and supervisor support
  - long work hours
Proof-of-Concept Trial: Be Well Work Well

- 8 in-patient units randomly assigned to intervention/control
- 12 month intervention (Jan 2013 - Jan 2014)
  - Unit-level for managers
    - Ergo walkthrough and organizational assessment
    - Integrated feedback report
    - Action plan + Leadership consultations
  - Individual–level for staff
    - 8 on-unit events
    - Off-unit opportunities
- No significant effects for outcomes (pain, safety practices, dietary patterns, physical activity, sleep)

Process Evaluation & Qualitative Results

- Limited intervention time on the units
- Barriers to worker participation
  - Patient care responsibilities and competing priorities
  - Physical demands
- Cultural commitment to putting patients first
- Few changes made in policies/practices at unit level
- Need for system-wide norms/policies and infrastructure supports can then be translated to the unit level.

Hospital-Wide Safe Patient Handling and Mobilization Program (SPH&M)

• Program Evaluation of SPH&M aimed at increasing work practices within the context of increasing patient mobility
  • Instilled worker safety into hospital processes by integrating equipment use and procedures into each patient’s plan of care.

• 8-month intervention
  • Engage multiple departments with upper management support
  • Enforce hospital-wide SPH policy
  • Hospital-wide communications by upper management
  • Training mandated by upper management
  • Coordination of efforts across departments
  • Investment in equipment

• Significant reductions in recordable lifting and exertion injuries

Dennerlein, et. al, OEM Revision under review
Need for leadership commitment and support

• *These studies point to need for embedding unit level efforts into system-wide initiative responding to working conditions*

• Upper and middle level managers can create:
  • Climate for policy implementation
  • Support for workforce development & training
  • Necessary resources

• Coordination and communication
Integrated approaches are recommended by:

- International Association of Worksite Health Promotion
- World Health Organization
- American College of Occupational and Environmental Medicine
- American Heart Association
- Institute of Medicine
- National Institute of Occupational Safety & Health

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• *Will it work?*
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• **How to make it work?**
  • Recommendations for practice
What is included in an integrated approach?

• Starting point: Safe working environment for all employees.
• Systems-wide strategies to prevent work-related injuries and illnesses and enhance employee health & safety.
• Improving conditions of work that contribute to employee safety and health
• Involving employees across all levels.
• Communication with all organizational stakeholders and transparency to building trust and successful efforts
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Conceptual Model

Integrated Policies, Programs, and Practices

Conditions of Work
- Physical Environment
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  - Health and Safety Climate

Worker health & safety behaviors, knowledge and skills

Worker Outcomes
- Injury
- Illness
- Wellbeing

Enterprise Outcomes
- Productivity & Quality
- Turnover & Absence
- Health Care Costs
Integrated policies, programs and practices

- Leadership commitment to protect & promote health
- Supportive Organizational Policies & Practices
  - Collaboration to protect & promote safety & health
  - Integrated Program Content

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Leadership commitment

• Developing and communicating a vision
• Committing adequate human and financial resources
• Management engagement
• Involving employees and their representatives in the vision-setting process
Supportive Organizational Policies And Practices

- Training and accountability
- Management and employee involvement
- Benefits and incentives to support a culture of safety and health
- Integrated data and surveillance
Collaboration To Protect And Promote Safety And Health

- Across departments that collaborate and coordinate on efforts to protect and promote the safety, health, and well-being of employees
- Focus on upstream organizational and environmental aspects of work
Integrating Program Content System-wide

- Comprehensive content addressing occupational hazards and chronic disease risk.
- Integration of programs for employees with supportive policies and practices.
- Linking health and safety messages to employee’s experiences on the job.
Workplace Health Model

1. ASSESSMENT
   - INDIVIDUAL (e.g., demographics, health risks, use of services)
   - ORGANIZATIONAL (e.g., current practices, work environment, infrastructure)
   - COMMUNITY (e.g., transportation, food and retail, parks and recreation)

2. PLANNING & MANAGEMENT
   - LEADERSHIP SUPPORT (e.g., role models and champions)
   - MANAGEMENT (e.g., workplace health coordinator, committee)
   - WORKPLACE HEALTH IMPROVEMENT PLAN (e.g., goals and strategies)
   - DEDICATED RESOURCES (e.g., costs, partners/vendors, staffing)
   - COMMUNICATIONS (e.g., marketing, messages, systems)

3. IMPLEMENTATION
   - Programs (e.g., education and counseling)
   - Policies (e.g., organizational rules)
   - Benefits (e.g., insurance, incentives)
   - Environmental Support (e.g., access points, opportunities, physical/social)

4. EVALUATION
   - Worker Productivity (e.g., absenteeism, presenteeism)
   - Healthcare Costs (e.g., quality of care, performance standards)
   - Improved Health Outcomes (e.g., reduced disease and disability)
   - Organizational Change, "Culture of Health" (e.g., morale, recruitment/retention, alignment of health and business objectives)

Contextual Factors (e.g., company size, company sector, capacity, geography)

http://www.cdc.gov/workplacehealthpromotion/model/

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Setting Priorities

- What is the physical environment
- What are the job tasks and work organization
- What employees do at work
- (Health or safety problem)

Outcomes


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Setting Priorities

What are the job tasks and work organization:
- Few rest breaks
- Short staffing
- Mandatory overtime

What employees do at work:
- Forgo breaks to take care of patients
- Work consecutive shifts
- Leave work tired and stressed

What is the physical environment:
- Inadequate patient lift equipment
- Inadequate work stations

Outcomes:
- Absenteeism
- Increased worker compensation costs

Priority: Back pain

Adapted from Transit Operators Manual

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Example: Using integrated approaches to address back pain--Contributors

Conditions of Work
- Workstation design
- Sedentary work
- Repetitive motions
- Worksite clutter

Worker Outcomes
- Inactivity
- Stress
- Low back pain
- Depression
- Obesity
Example: using integrated approaches to address back pain—*Solutions*

- **TWH solutions**
- Leadership, management, and employee engagement
- Trans-departmental initiative (OSH, WHP, HR)
- Supportive health benefits
- Reduce the hazards
- Changes to worksite environment
- Changes to scheduling
- Appropriate training

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Conceptual Model

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Worker Proximal Outcomes
- Health & Safety Behaviors
- Engagement in Programs
- Beliefs
- Knowledge
- Skills

Worker Outcomes
- Injury
- Illness
- Wellbeing

Enterprise Outcomes
- Productivity & Quality
- Turnover & Absence
- Health Care Costs

Sorensen et al Prev Med Submitted
Adapting to the Setting

• Organizational, job and worker characteristics
• Risks related to the job and setting
  • Nature of work/job
  • Work environment/organization
• Existing resources—budget, staff, prior programs, leadership support
• Key priorities as gatekeepers to TWH
  • Examples: Safe patient handling in health care; project planning in construction; continuous improvement processes in manufacturing
Other Considerations?

- What has worked in your organization?
- Where have you encountered barriers?
- What adaptations needed?
Research gaps: Epidemiological research

- Understanding pathways of systems-level approaches to improving working conditions
- Synergies across pathways
  - Do factors in the work organization interact with the physical work environment?
- Relationships over time
- Disparities in health effects
  - By worker or workplace characteristics
  - Shared impact of working conditions on multiple worker and enterprise outcomes
Research gaps: Intervention Research

• Assess efficacy of integrated approaches in an expanded range of work settings
• Determine strategies to improve the conditions of work
• Define best practices and processes for diverse settings and types of workers
• Assess cost and related factors to support the business case
• Assess strategies to improve sustainability and institutionalization for systems-level changes
• Determine best processes to support dissemination and knowledge transfer
The Center’s vision:

• *Optimal employee safety and health and employer outcomes through policies and practices focusing on the conditions of work* -- **integrating protection from work-related hazards with promotion of health and prevention.**
Research: Expand the scientific evidence base for protecting and promoting worker safety, health and well-being through system-level approaches
Practice: Develop and disseminate resources and best practices
Policy: Explore the policy implications
Capacity-building: Workforce development and training
SafeWell Practice Guidelines

- **SafeWell Practice Guidelines: An Integrated Approach to Worker Health**
- available at: [http://centerforworkhealth.sph.harvard.edu](http://centerforworkhealth.sph.harvard.edu)
- **Purpose**: To provide a real-world model of evidence-based guidelines and tools for TWH programs

*McLellan et al, 2012*
At the vanguard of integrated worker health
Work, Health, and Well-being: Executive Continuing and Professional Education — February 6-8, 2017 • Boston, MA

- Hands-on, applied program
- Provides the knowledge and skills needed to improve workplace health and safety programs
- Ideal for anyone with direct responsibility for employee health, safety, or wellness

For more information or to register, visit: https://ecpe.sph.harvard.edu/WHW
Thank you!

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How might this work in your world?

• What opportunities do you see for improving employer adoption of TWH approaches?
• Where to start? What are vanguard employers already doing, and how can that be leveraged?
• What processes have you seen work well? Where?
• Will a more broad and integrated approach stimulate economic and public/population health improvements?