



*A NIOSH Center for Excellence to Promote a Healthier Workforce*

# **Workplace as Community: Influence of Working Conditions on Health Behaviors**

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# NIOSH “Total Worker Health™”

- ❁ Implement and compare multiple strategies or models for integrating two core public health areas: occupational health/safety (OHS) and health promotion (HP)
- ❁ Evaluate opportunities for, and obstacles to, these integration efforts
- ❁ Evaluate whether this strategy provides enhanced health benefits and/or greater cost-effectiveness



# CPH-NEW (Center for the Promotion of Health in the New England Workplace)

-  **Workplace conditions cause injury and illness and contribute to unhealthy behaviors.**
-  **Worker health programs require fully **participatory approaches** to engage workers in prioritizing and designing meaningful, effective, sustainable interventions.**

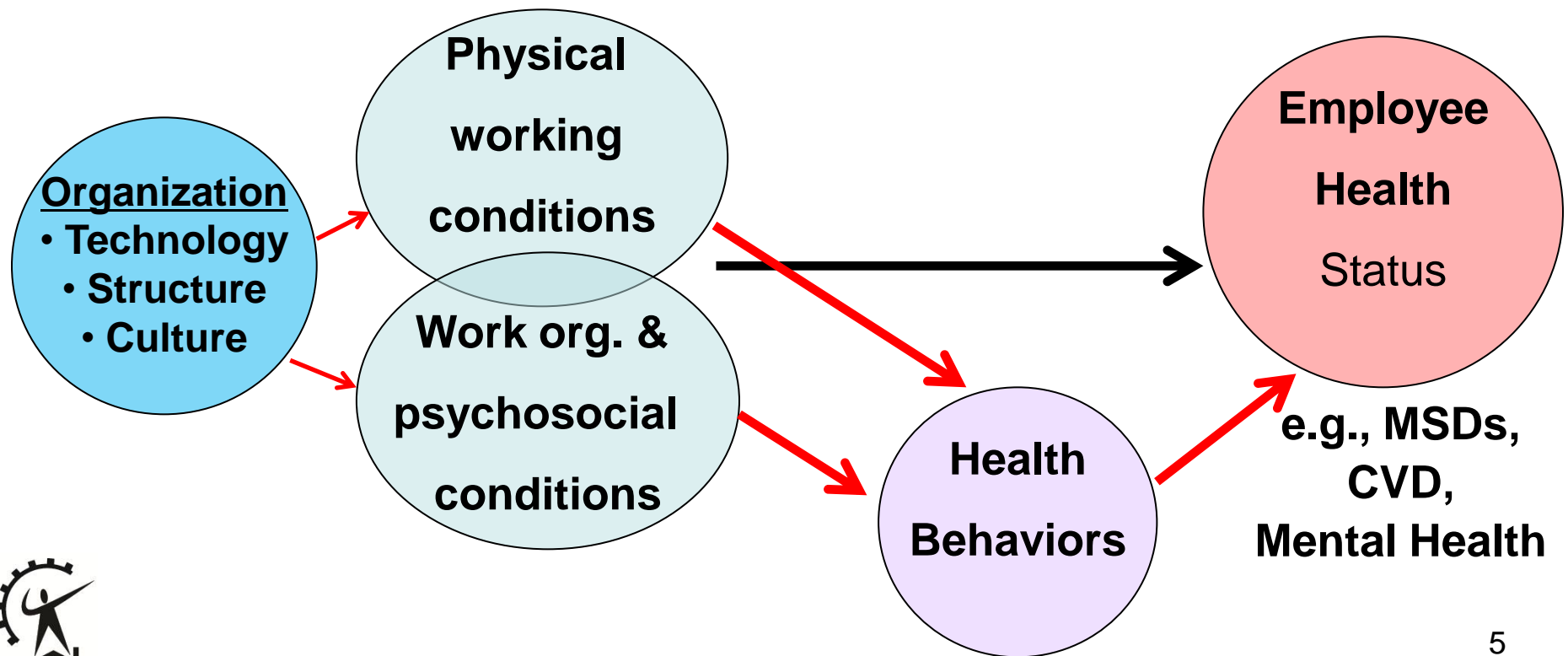


# Health Behaviors & Working Conditions

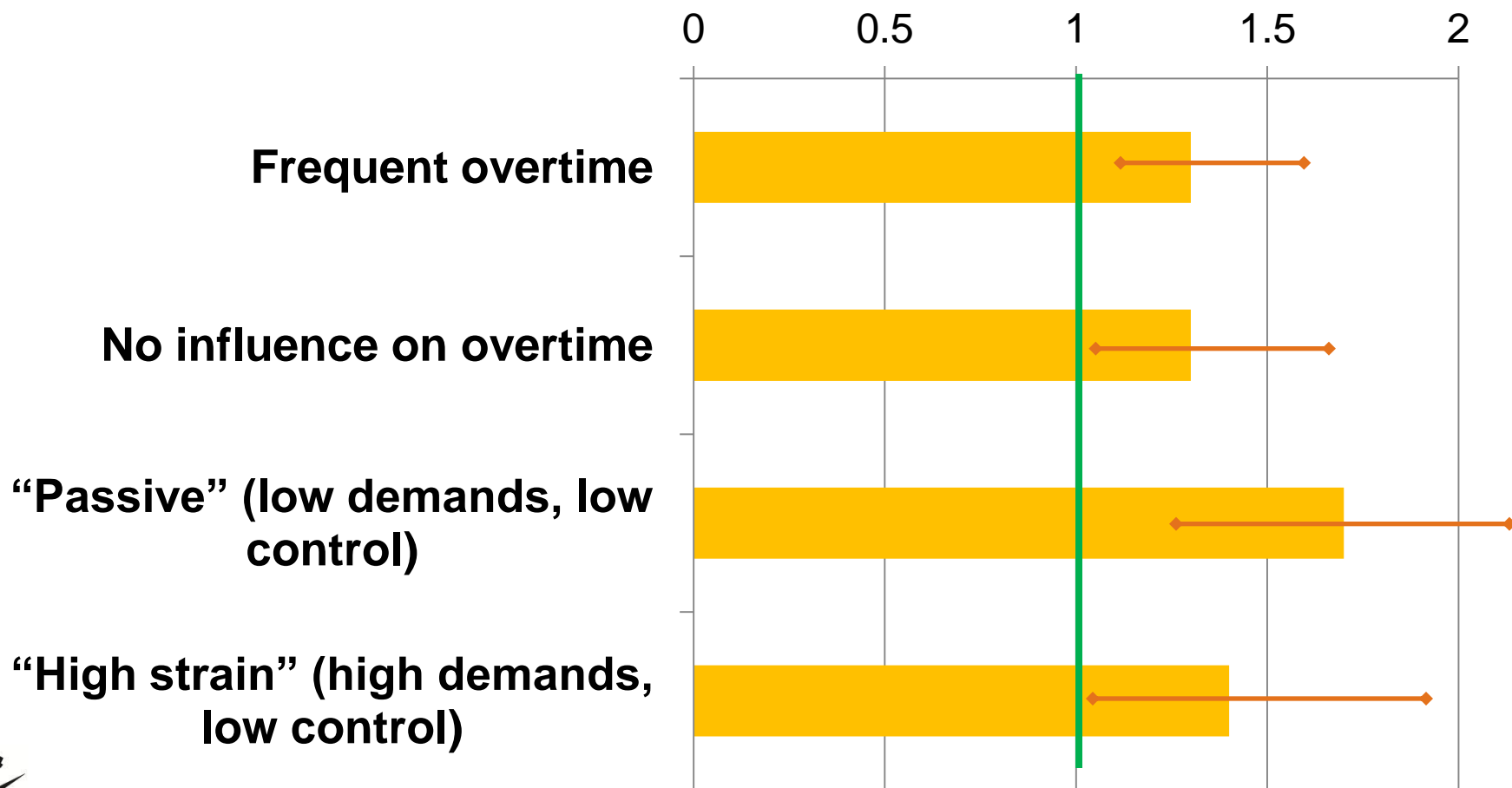
- ❁ Traditional HP behavioral targets: Exercise, diet, smoking, obesity, etc.
- ❁ Well-known risk factors for cardiovascular disease, diabetes, & other chronic diseases – possibly musculoskeletal disorders (MSDs))
- ❁ These so-called “personal” or “lifestyle” risk factors **are also affected by psychosocial features of work, esp. decision latitude**



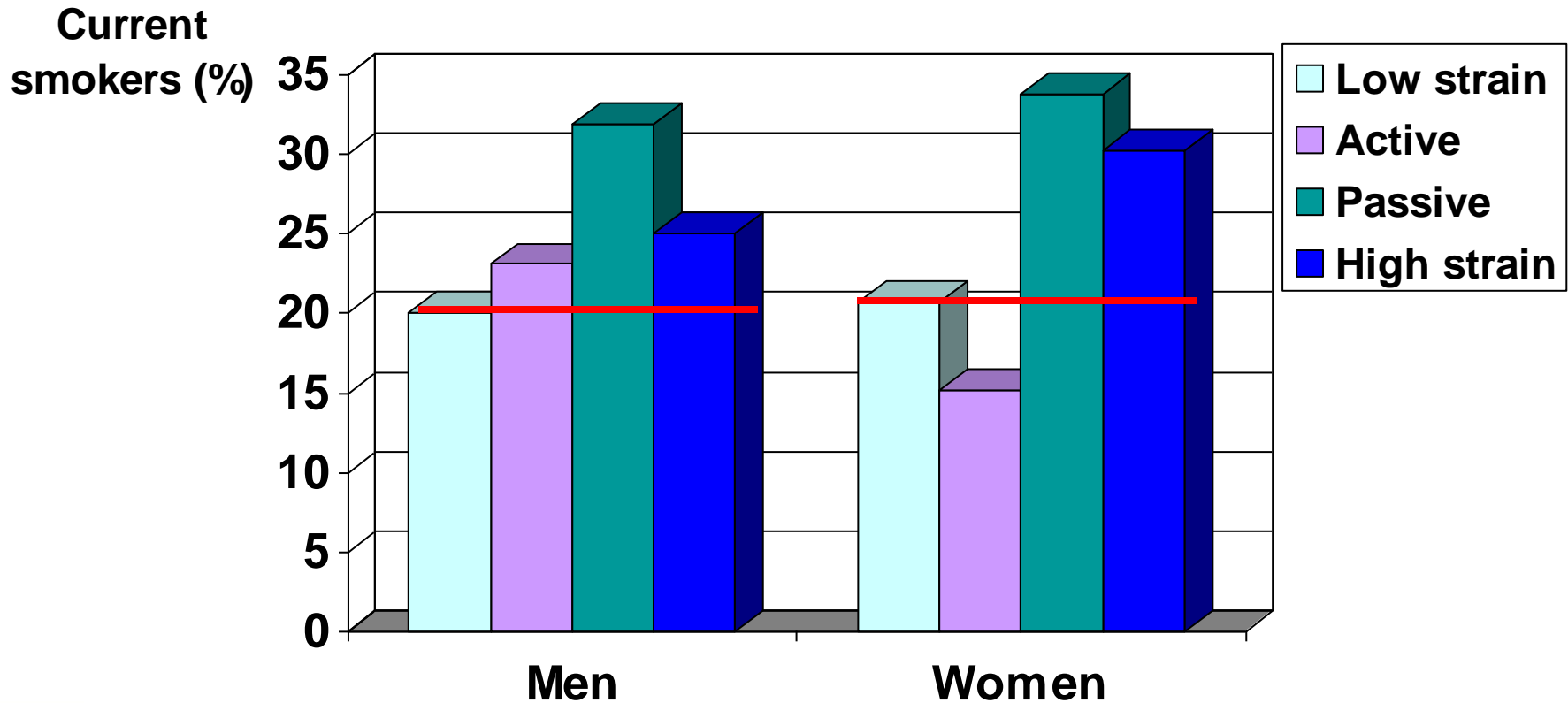
# Working conditions link to health outcomes directly, and through **health behaviors**



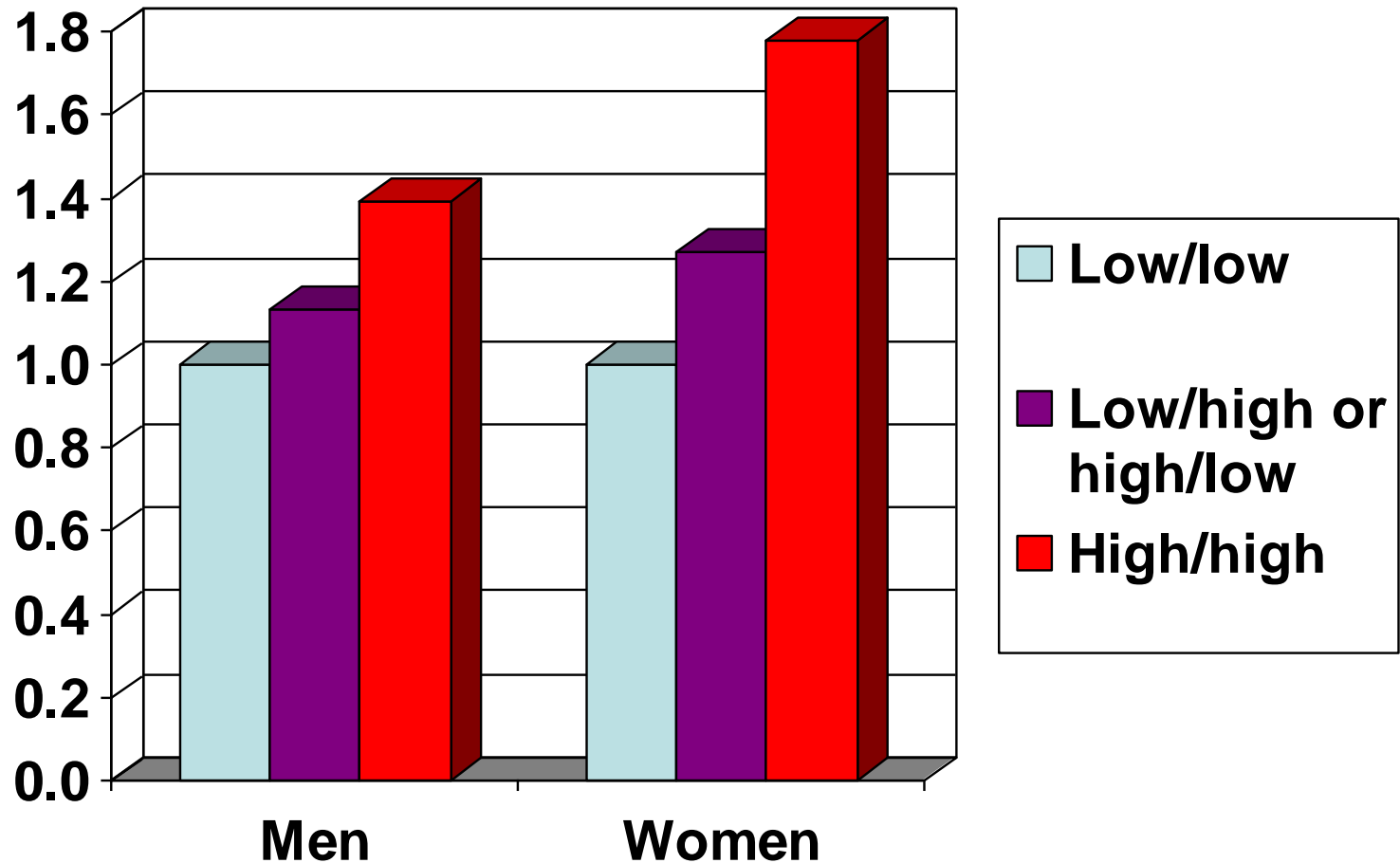
# Work environment factors and physical inactivity in men [Wemme et al. 2005]



# Work environment factors and smoking [Radi et al. 2007]



# Change in waist circumference by job iso-strain group: Ishizaki et al. 2008





# “ProCare” Study of Nursing Home Workers

- ❁ 18 nursing homes: All direct care workers (Registered and Licensed Practical Nurses, Certified Nursing & Medical Aides)
- ❁ Four consecutive annual surveys:
  - F0: Baseline (week of department heads meeting)
  - F1: 3 months after baseline
  - F2: 12 months after baseline
  - F3: 24 months after baseline
- ❁ Self-administered questionnaires distributed and collected at the workplace (no release time)
- ❁ \$20 compensation for time and effort



# Survey Results

**Response rates:** > 70% of workforce roster in each survey

**Total 4757 questionnaires from 1506 workers:**

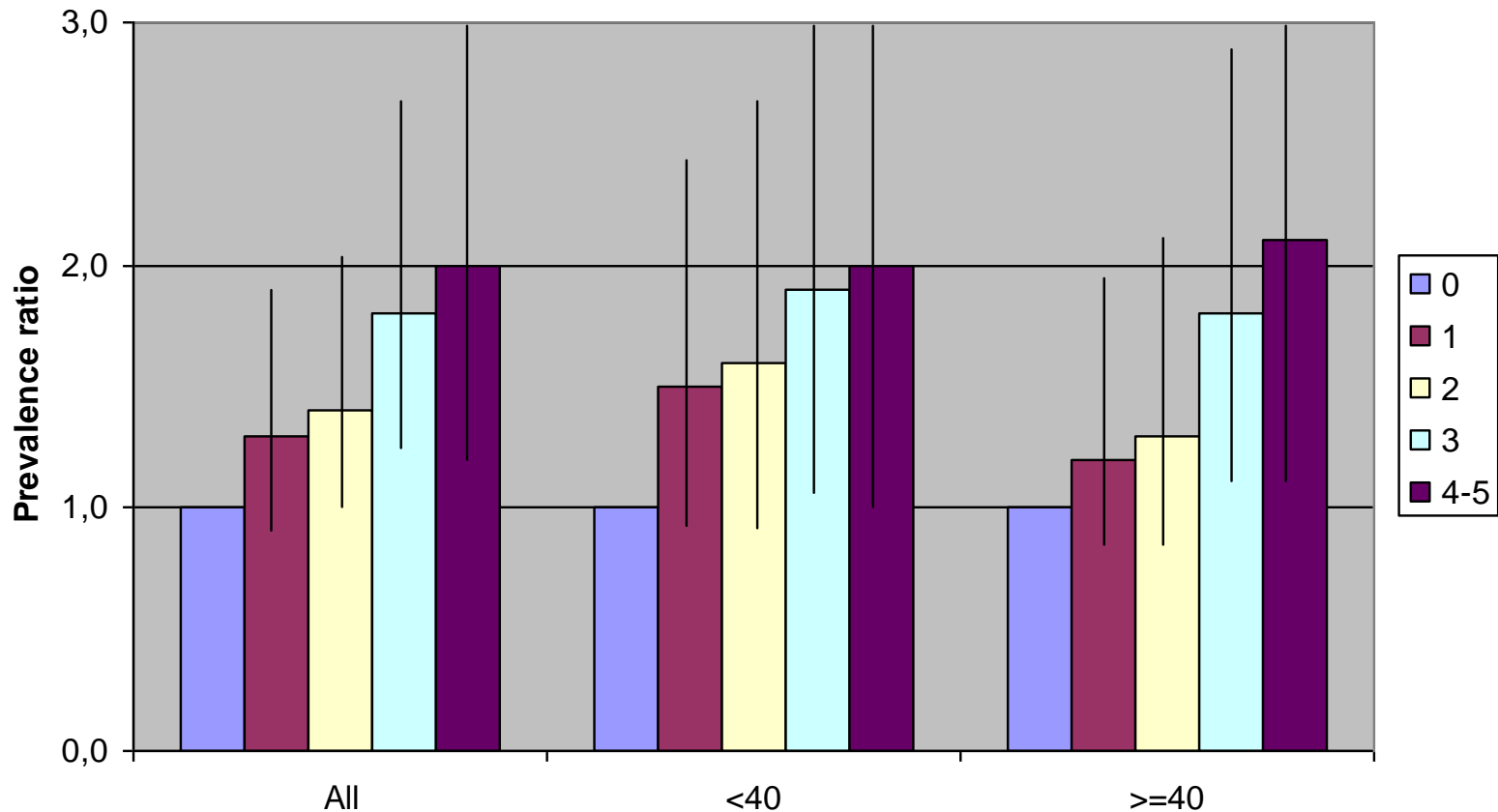
- 89% female
- Over 50% nursing aides
- Average age:  $41 \pm 13$  yr
- Experience in same type of work:  $11 \pm 10$  yr
- All shifts:

Day	47%
Evening	21%
Night	14%
Rotate/other	18%



# ProCare: Risk of physical inactivity, by number of occupational hazards\* and age group

PR  
and  
95%  
CI

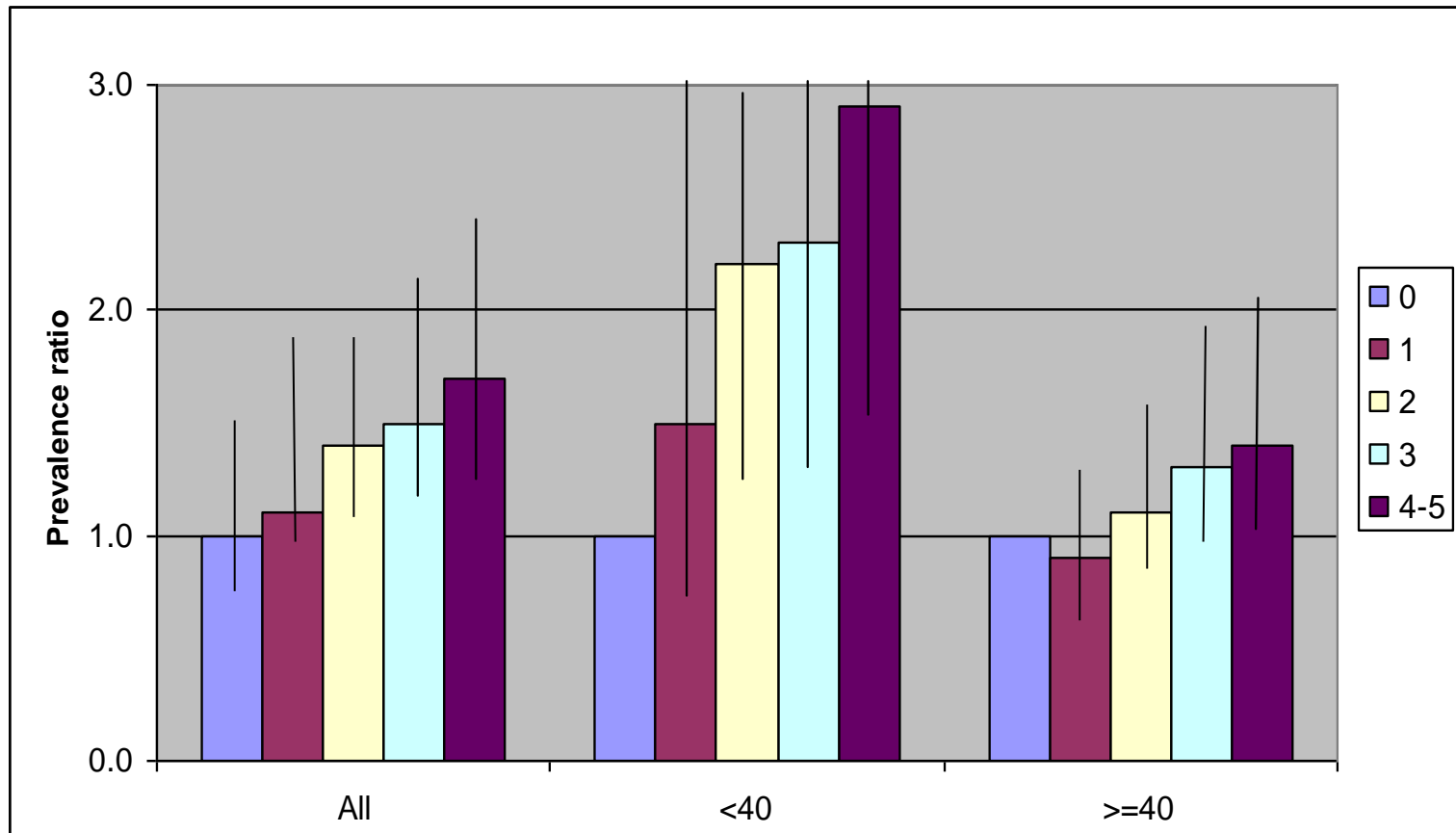


\***Hazards:** low co-worker support, low decision latitude, night work, work-family imbalance, employer tolerates discrimination at workplace. All models adjusted for gender, education, region, & age (unless stratified).



# ProCare: Risk of obesity, by number of occupational hazards\* and age group

PR  
and  
95%  
CI



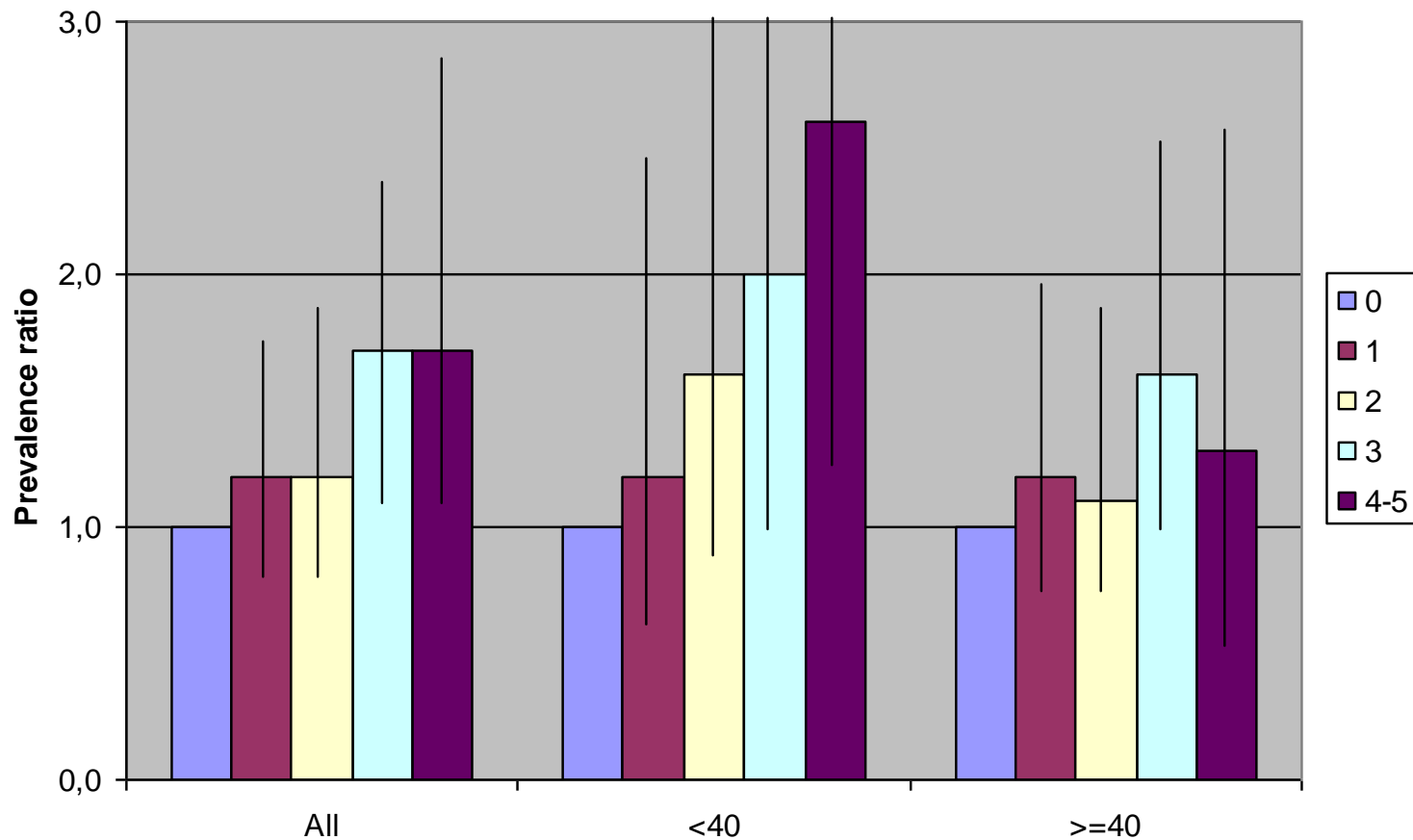
\* **Hazards:** poor co-worker support, low decision latitude, night work, physical assault at work, lifting heavy loads.

All models adjusted for gender, education, region and age (unless stratified)



# ProCare: Risk of current smoking, by number of occupational hazards\* and age group

PR  
and  
95%  
CI

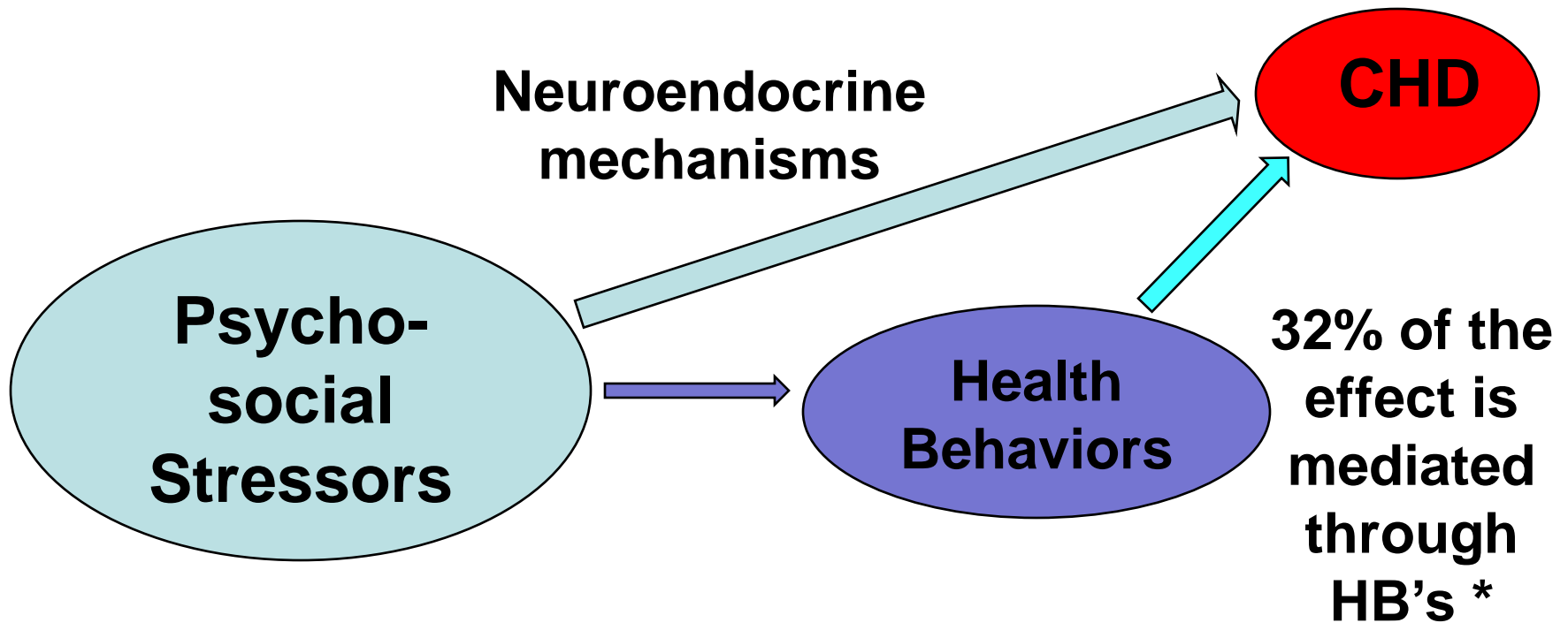


\***Hazards:** low decision latitude, low supervisor support, second paid job, physically demanding work, physical assault at work.

All models adjusted for gender, education, region and age (unless stratified)



# Job Strain, Health Behaviors, and CHD\*



\* [Chandola T, et al. *European Heart Journal*, 2008]



# What is Health Promotion?

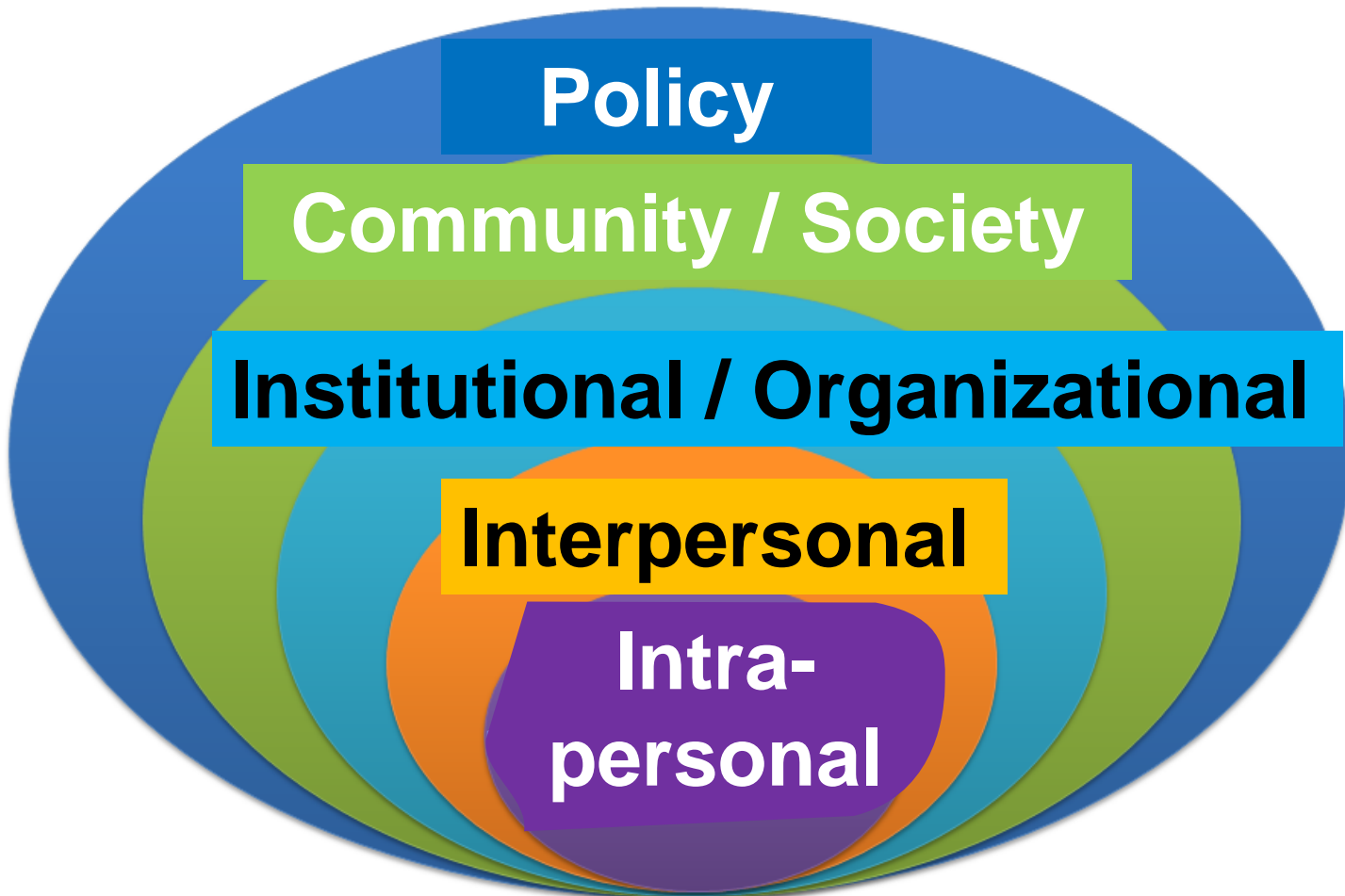
## Fostering positive decision-making about health

- ❁ Traditional focus on the individual's behavior
  - Stop smoking, healthier diet, cope with stress
- ❁ “Social health promotion” - activities at the community or societal level [WHO]
  - Environmental conditions that foster healthy behaviors
  - Positive human relations at work that foster decision-making and self-efficacy



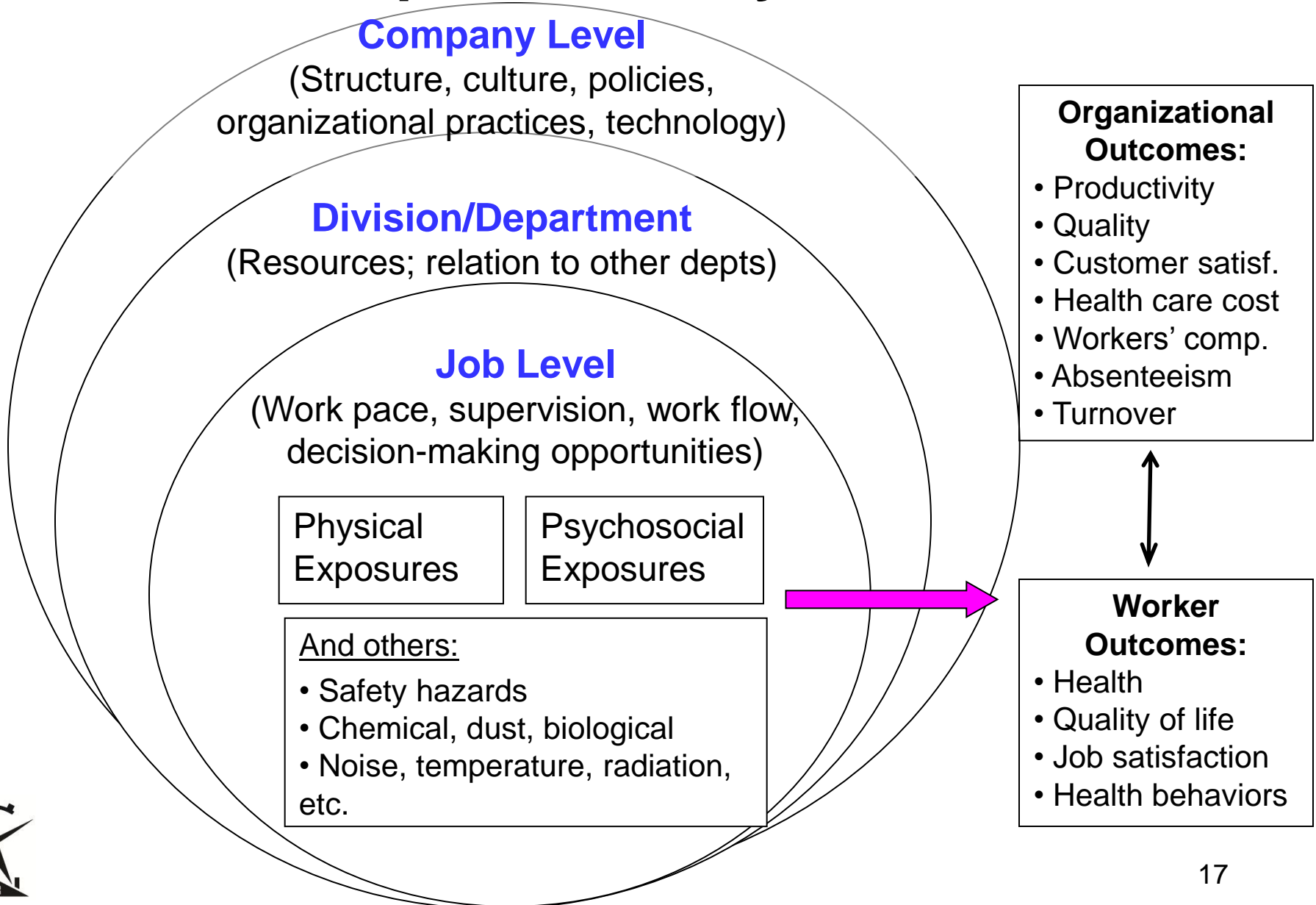
# Social-Ecological Model

Linnan et al., 2001: “individual behavior (e.g., participation in a work-site health promotion program) is affected by multiple levels of influence”





# The Workplace as a System



# Implications for health disparities

- ❁ Low-SES workers tend to have lower decision latitude, more physically strenuous jobs, and more exposure to safety and other workplace hazards.
- ❁ WHP programs often have uneven scope, with higher participation and effectiveness among higher-SES employees.



# Obesity/overweight and the role of working conditions

- 8 focus groups of lower-wage workers
  - Recruited through 2 community NGO's
  - Spanish-speaking (6 groups)
  - English-speaking (2 groups)
- Topic: how the workplace affects dietary and/or exercise behaviors
- 63 participants
  - 65% female; 83% Latino & 22% African/Afro-American (not mutually exclusive)
  - Cleaning, restaurants, construction, manufacturing, health care/human services



# Workload and Schedules

## **Physically demanding job:**

- *“I don’t have the desire to do exercise after standing for 15-16 hours. I just want to eat and sleep. The next day is the same thing all over again.”*
- *“You come home and you are so tired that you either don’t want to eat, or you want to eat a lot.”*

## **Meal breaks:**

- *“At 10:00 a.m., they give me a 15-minute break. I don’t have time to eat healthy food, even if I bring homemade food.”*



# Psychosocial Stressors at Work

## High demands

- *“The work that three people used to do is given to one person. That creates more stress and eating more...”*

## Low control

- *“Working in factories, you have to eat fast or you get fired.”*

## Low social support

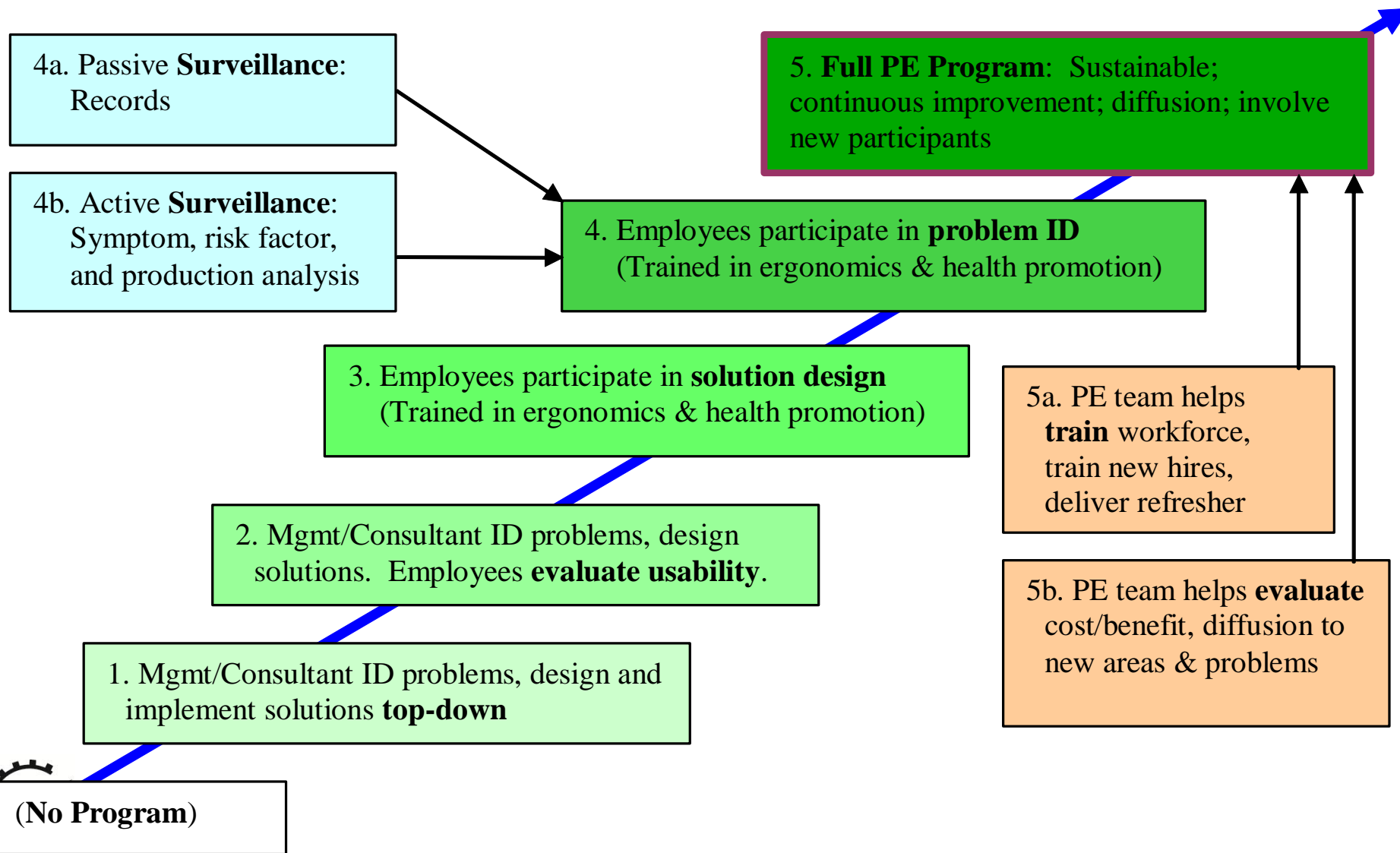
- *“A lot of harassment...it was really stressful so the depression really set in.”*



**Framing HP in terms of healthy  
decision-making implies that a  
program's *process* is as important as  
*its content.***

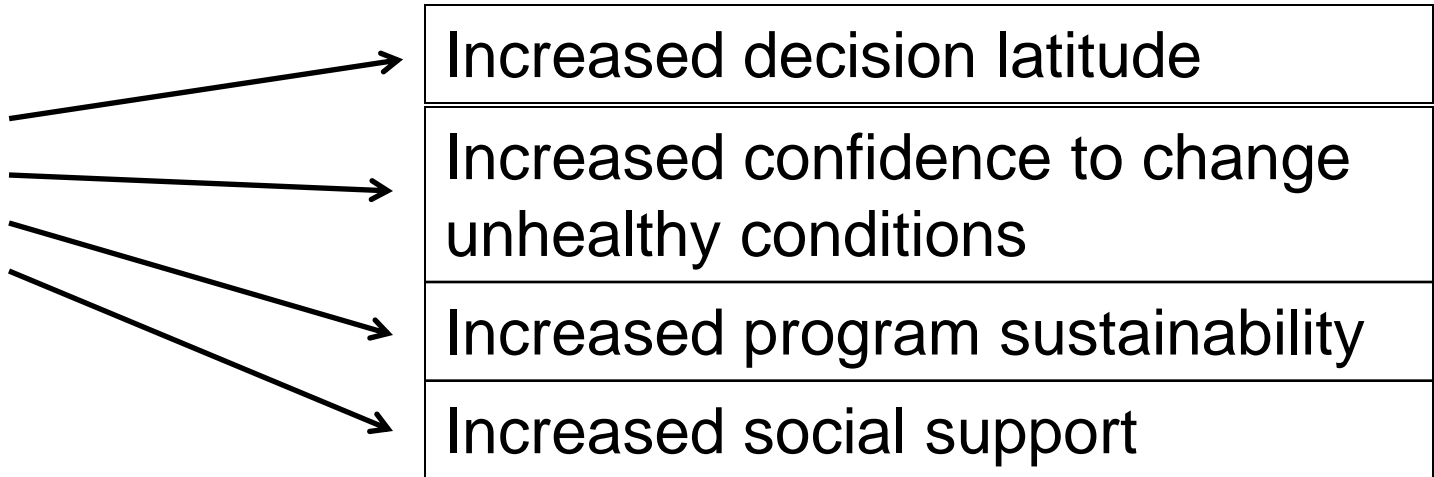


# Levels of Employee Involvement

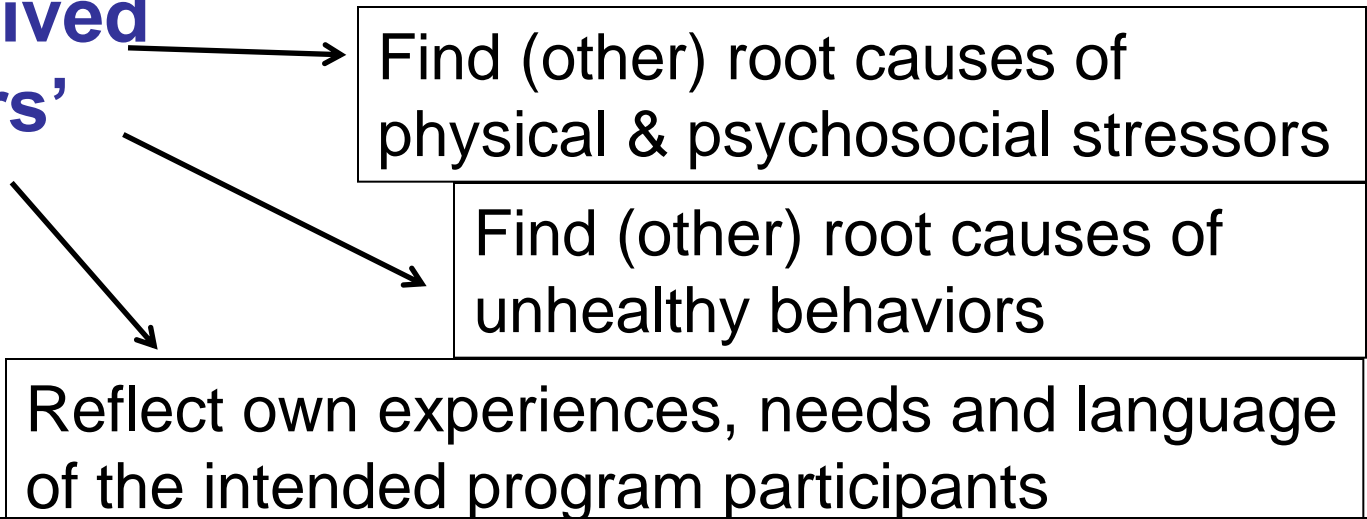


# *Benefits of a (facilitated) participatory workplace process*

**Employee empowerment**



**Insights derived from workers' perspective**



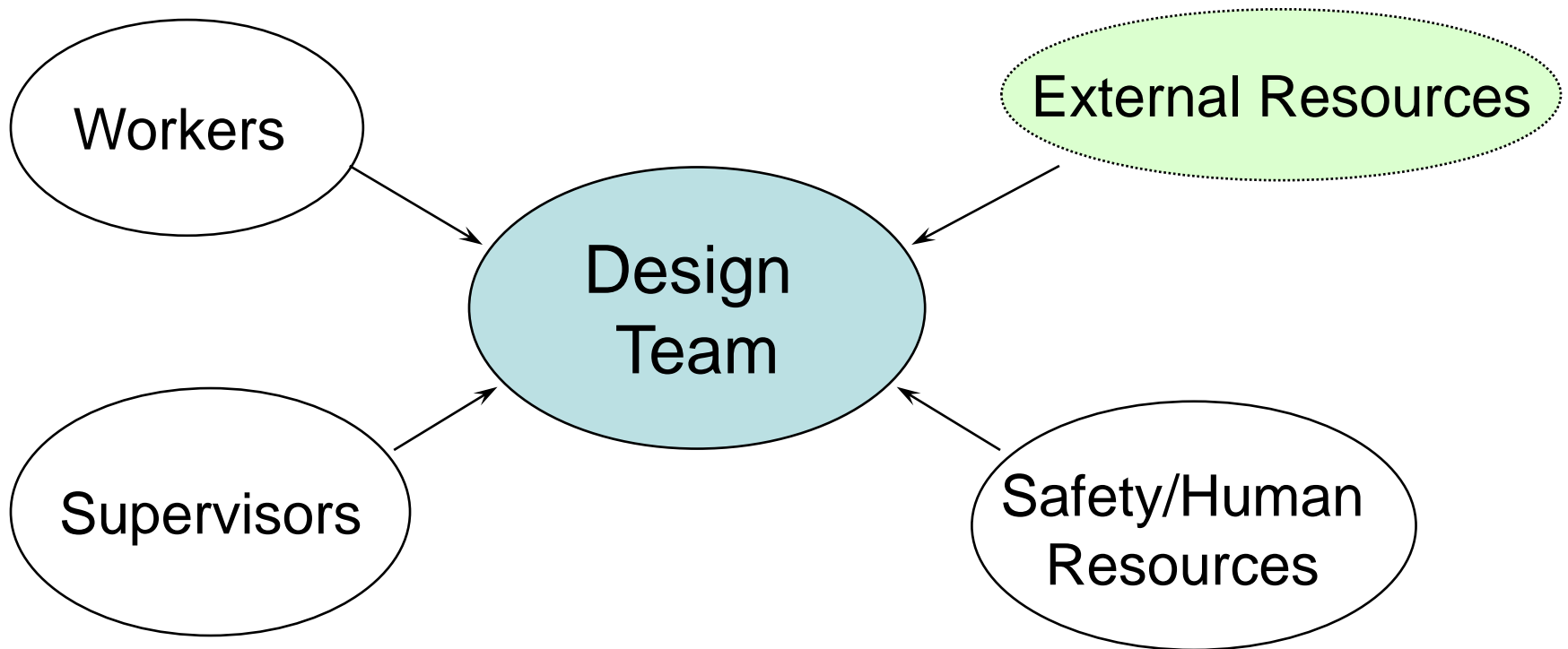


# Occupational ergonomists address *workplace organization* as well as physical risk factors

- ⌚ Increase employee autonomy and decision-making (“job control,” health self-efficacy)
- ⌚ Encourage participation and creativity in problem-solving
- ⌚ Structure healthier schedules
- ⌚ Enhance interpersonal relationships at work
- ⌚ Promote consistent and constructive feedback, fair recognition, and rewards for good work



# CPH-NEW Participatory Model



*Involvement and control by all parties is crucial for sustainability & organizational learning.*



# Health Improvement through Employee Control (HITEC)

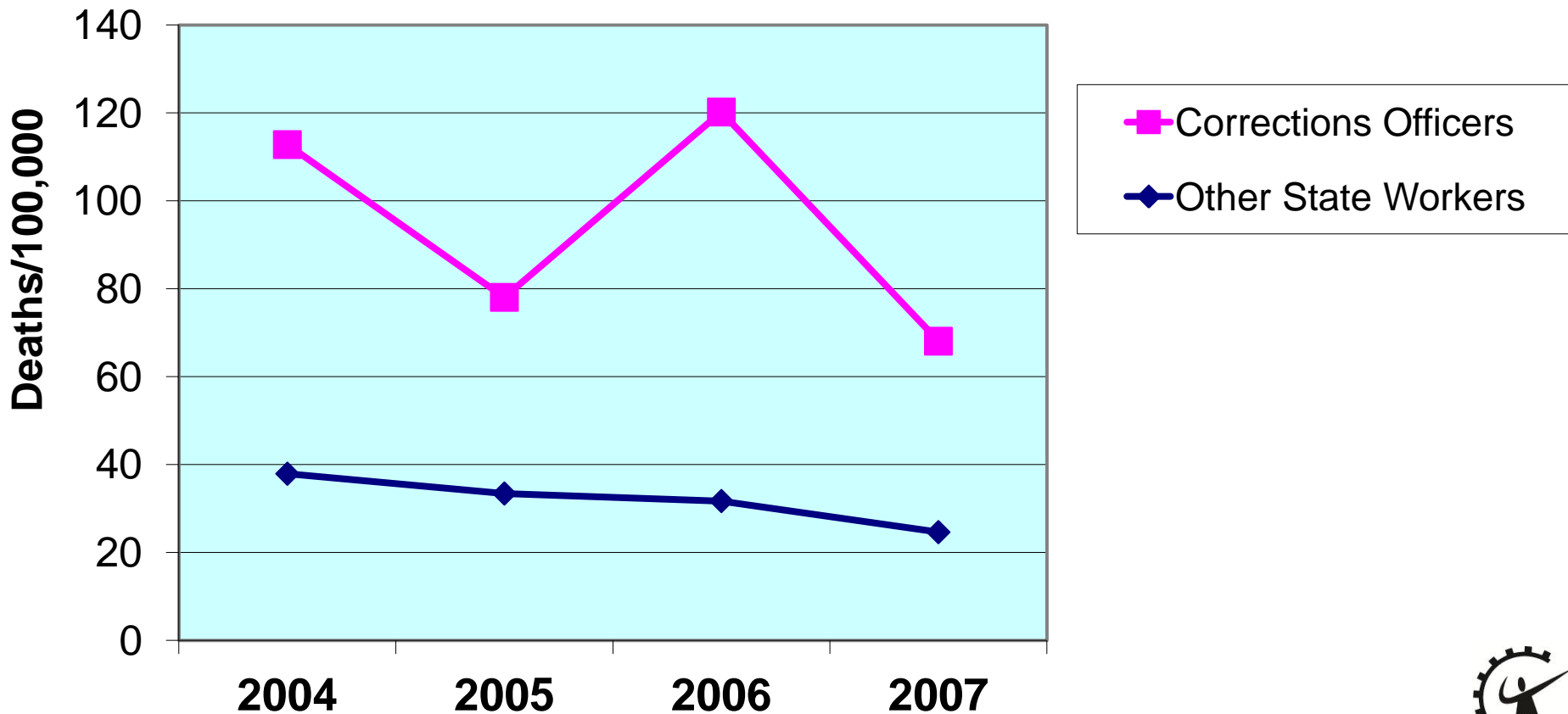
Compares 2 health promotion/workplace intervention programs, similar content, differing in process:

- 🕒 Best practices, “top-down” (control site)
- 🕒 Experimental program featuring employee control, through participatory design teams

Two sites comparable in size, staffing, security level, physical plant, and ‘readiness to change.’



# CT State Workers, Ages 30-49: Crude Mortality Rate (2003-2007)



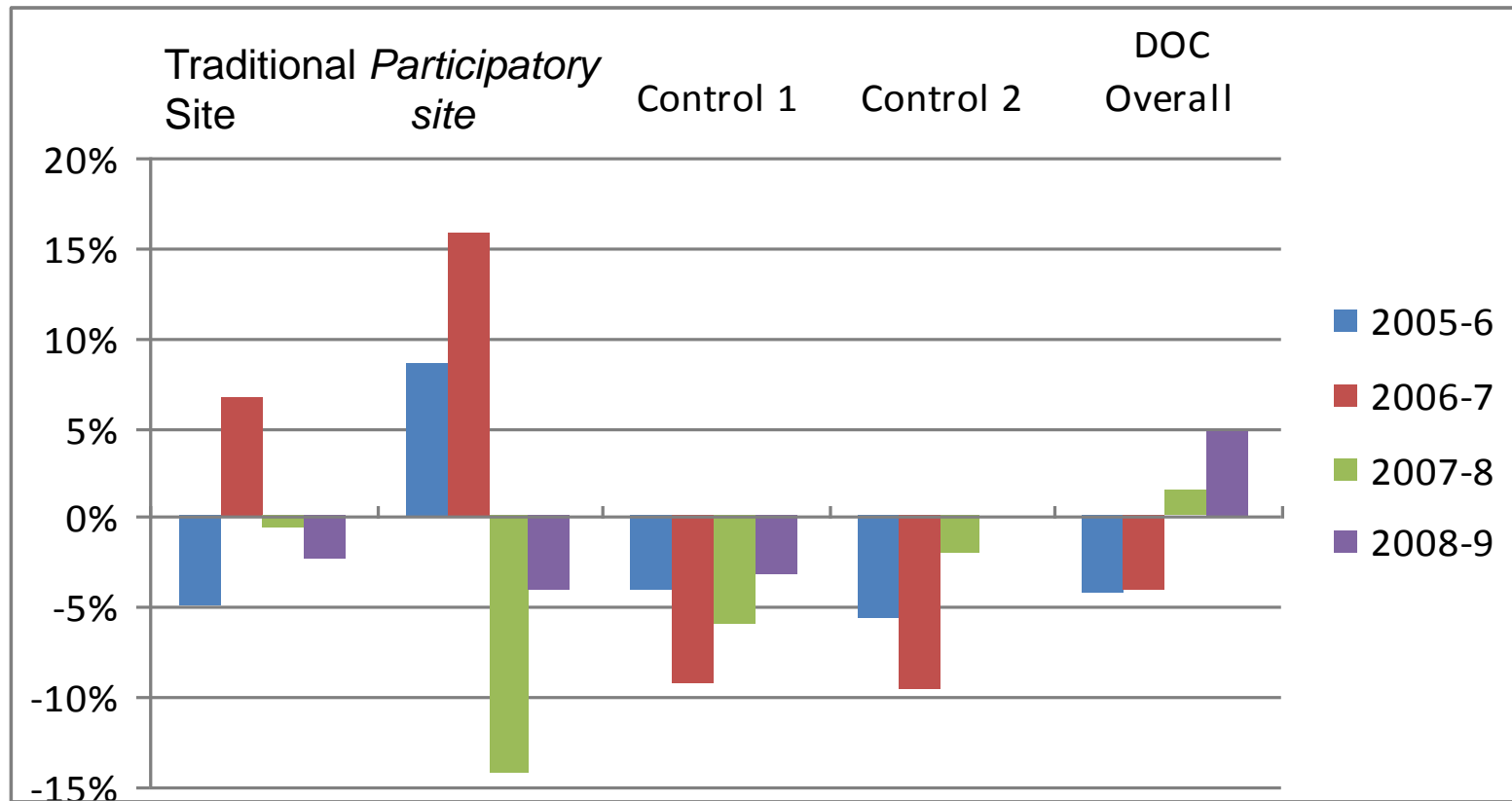
# Social-Ecological Model



# HITEC program effectiveness

Weight loss (20 weeks): -1.8 BMI ( $\pm 0.4$ ) or 5% in *Participatory site*, vs. slight increase in BMI in Traditional site

## Annual Change in Sickness Absenteeism



# “Research to Practice” (R2P) Toolkit

- Developed, field tested, and refined a participatory intervention **TOOLKIT** to be used by health practitioners
- Field tests at four workplaces:
  - Self-selected employers
  - Public & private sector, small & large
  - Recruited from the “Working on Wellness” program, MA Dept. of Public Health



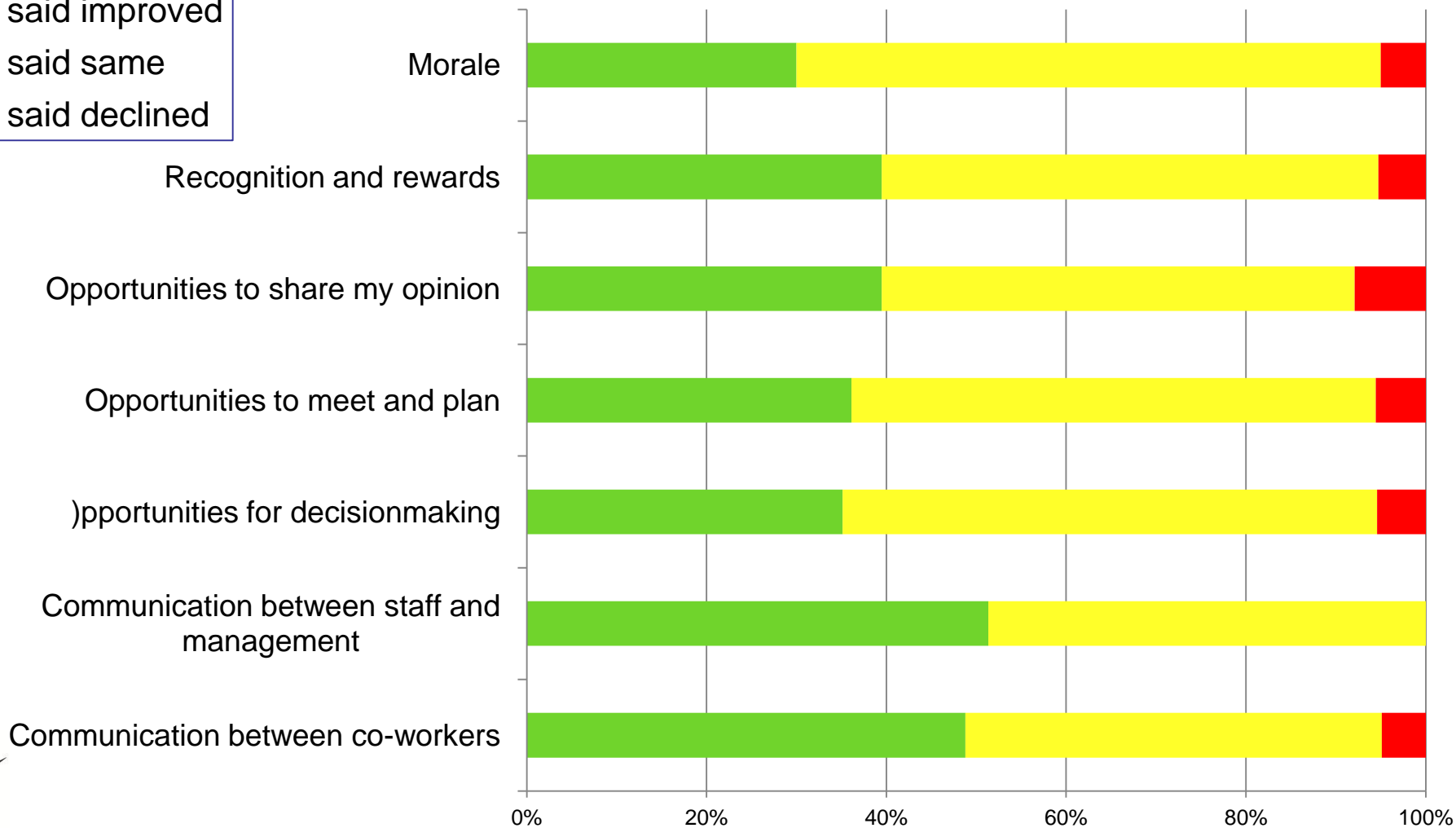
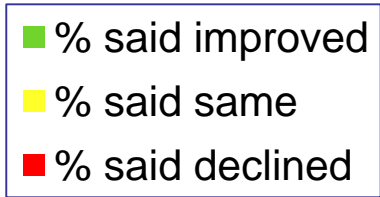
# Toolkit Key Program Start-up Guides & Component Tools

1. Worksite readiness checklist
2. Key personnel interview guide
3. Steering committee creation & orientation guide
4. All-employee survey & feedback report guide
5. Employee focus group guide (optional)
6. Employee design team creation & orientation guide
7. Ergonomics training and walk-through evaluation
8. Health promotion training
9. Business decision scorecard (see flow chart)
10. Design team effectiveness evaluation survey
11. Design process tracking software for facilitators





# Real estate maintenance workers: Perceived changes in company climate in the past year



# “Toolkit” Site: Program Evaluation

## Design Team Members:

- A **useful forum** / tool for making **improvements**
- Solution-driven: Made **change** happen
- Interaction-driven: Improved **communication** between technicians and management
- Felt **engaged** and **invested** in the program

## Management:

- More **aware** of workers’ concerns
- Good solutions: resident education **materials**
- Personal **development** of DT members: problem-solving, communication skills, pride, accomplishment
- Wish to see the **program continue**



# CPH-NEW R2P Toolkit promotes Total Worker Health™

- **Engages** employees in setting priorities and developing solutions – facilitates sense of employee ownership.
- Improves organizational **communication & collaboration** about H&S.
- **Integrates** health promotion initiatives with attention to the work environment.
- Workers learn how to develop a **contextual business case** for H&S interventions.
- Establishes a **sustainable** process for continuous health/safety improvement.



# A Research-to-Practice Toolkit for Participatory Health Promotion (HP) combined with Health Protection

**PExHP** addresses 3 needs:

- Achieve more effective integration of HP with overall work organization
- Facilitate sense of employee ownership
- Enhance program sustainability

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Assoc. Prof. Manuel Cifuentes of the Work Environment Department at UMass Lowell is testing the use of treadmills and sit-to-stand electric desks as promising solutions to help people stay healthy, and avoid a sedentary lifestyle that can cause cardiovascular disease, diabetes, obesity, depression and more. [Learn more.](#)

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**Emerging Topics**

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- CPH-NEW Understanding and Counteracting the Obesogenic Work Environment

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# Partial CPH-NEW Bibliography

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