



Safe Workers, Safe Workplace: Primary Prevention Through Designing Work Practices

Chairperson:

Dean Hashimoto, MD, JD

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Professor of Law, Boston College Law School

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Monday, March 25th, 2024

2:00-2:40pm



Primary Prevention: Safe Workers Safe Workplace **Ergonomic Design of Work Practices**

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Work Health Coach Development
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Ergonomics

- **Goal:**

- To prevent soft tissue injuries and musculoskeletal disorders (MSDs) caused by sudden or sustained exposure to force, vibration, repetitive motion, awkward posture or a combination of these risk factors

- **Covers three domains:**

- **Organizational**

- Communication, teamwork, shift scheduling

- **Cognitive**

- Mental workload, stress

- **Physical**

- Posture, repetition, individual anatomy, physical layout of the work environment, design of tasks

- Centers for Disease Control and Prevention. (2018). *Ergonomics and musculoskeletal disorders*. <https://www.cdc.gov/niosh/topics/ergonomics/>
- International Ergonomics Association. (2002). *What is human factors/ergonomics*. <https://iea.cc>

Considerations

Prevention through ergonomics (PTE)

- Area of opportunity for reducing risk and improving workplace health and safety culture
 - No national OSH standard exists
 - ANSI/ASSP Z590.3-2021: Prevention through Design Guidelines
 - ANSI/HFES 100-2007: Human Factors Engineering of Computer Workstations
- Human-centric
- Uses system approach
 - Cross-functional/multi-disciplinary
 - “Human” (employee) is not the cause
- Assumes management commitment
- Employs process for “bottom-up” communication
- Acknowledges association between MSDs and psychosocial factors



Ergonomics Process

Participatory approach is key

- **Involve all employees who touch process**
 - Hazard identification, concerns
 - Solutions
 - Prioritize easy fixes first
 - Training
 - Evaluation
 - Identify what success means
 - Plan for continuous process improvement (refinement, redesign)
 - Sustainability



Washington State Department of Labor & Industries. (n.d.). *Ergonomics process*. <https://lni.wa.gov/safety-health/preventing-injuries-illnesses/sprains-strains/ergonomics-process#step-5-check-for-success>

What Might This Look Like?

From understanding concerns to sustaining solutions

- Review of injury and incident data
 - Lost time and medical only
 - Near-misses/incident only
- Distribution of pre-assessment discomfort surveys
- Conducting walk-throughs, observations and interviews with staff
 - Leadership
 - Front-line staff
- Use of measurements/tools (if needed)
- Completion of analysis with recommendations
- Establishment of ergonomic committee/ergonomic champions
- Re-evaluation, refinement and re-design where needed

Organizational Opportunities for Involvement

Early involvement and information gathering

- Vendor selection
- Vendor processes/materials management
- Real estate and planning
- Participation on and leading cross-functional teams
- Attendance at regular meetings, such as:
 - Occupational Health and/or Workers' Compensation
 - Quality
 - Safety
 - Patient Safety (healthcare)
 - Patient Experience (healthcare)
- Orientation

Benefits of Ergonomic Design

For organizations and employees

- Lowers costs associated with injury/illness
- Improves employee health and well-being
- Design process provides opportunity for two-way communication between front-line staff and management
 - Empowers employees and increases engagement
 - Supports retention and recruitment
- Increases productivity and efficiency
- Improves health and safety culture
- Improves product quality (patient care)

Key Takeaways

Ergonomic design of work practices

- Incorporating ergonomics into design of tasks, environments and products has **benefits for both employees and organizations**
- By designing “out” risk factors, we can **prevent future costs**
- **Employee involvement is central** to the design process and key to sustainability
- Ergonomic design considerations **can be applied in many areas of an organization** – the earlier in design and decision processes, the more effective ergonomic efforts will be



Hazard Elimination

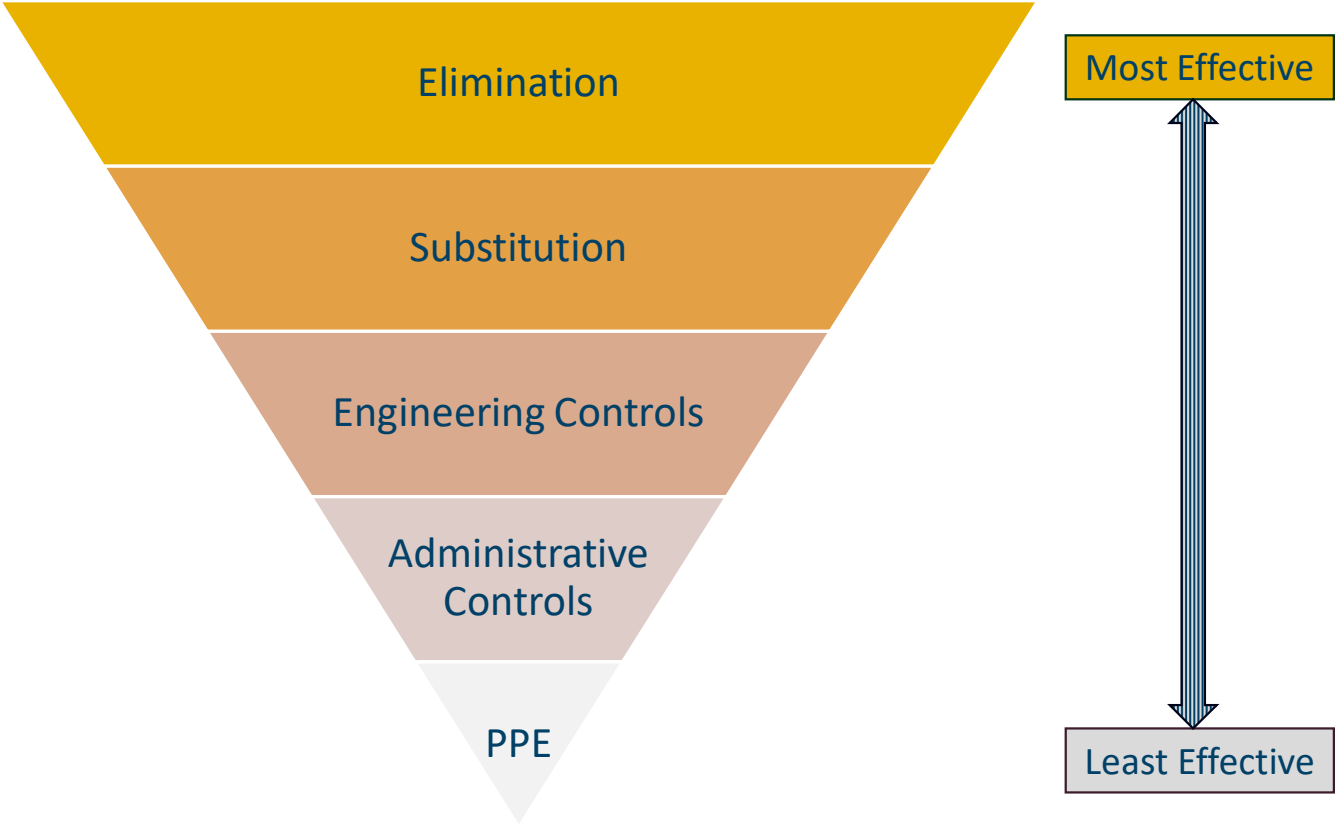
Meghan Church, DPT
Sr Program Manager: Employee
Safety and Injury Prevention
Boston Children's Hospital

OHSA

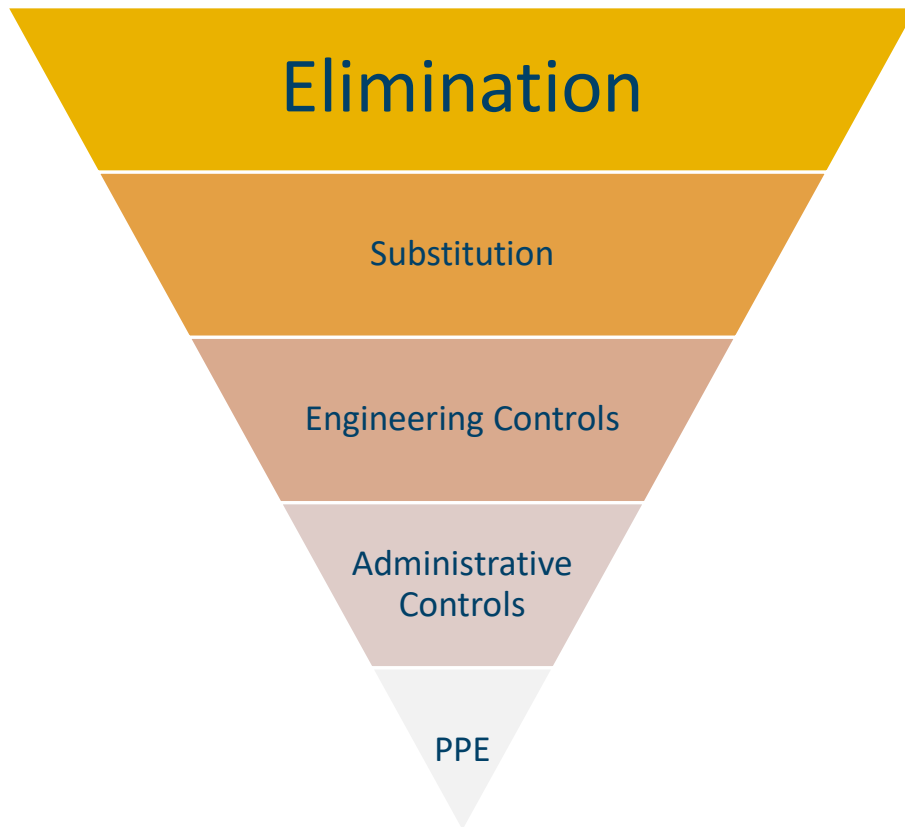
RECOMMENDED PRACTICES FOR SAFETY & HEALTH PROGRAMS

- Management Leadership
- **Worker Participation**
- **Hazard Identification and Assessment**
- **Hazard Prevention and Control**
- Education and Training
- Program Evaluation and Improvement
- Communication and Coordination for Host Employers, Contractors, and Staffing Agencies

NIOSH Hierarchy of Controls

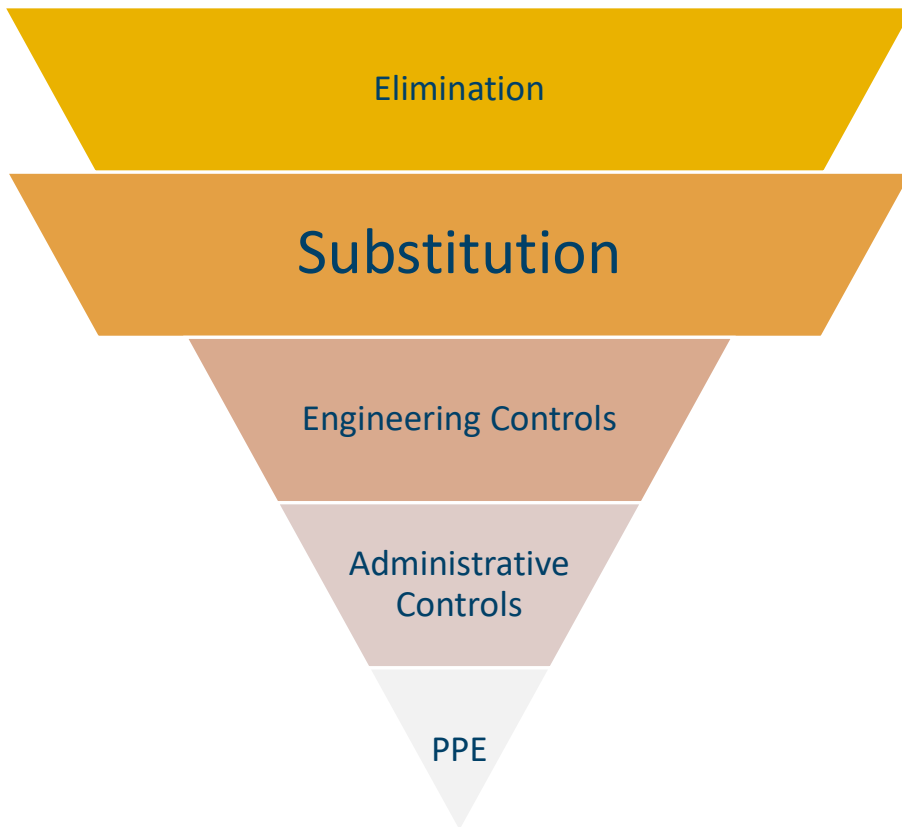


NIOSH Hierarchy of Controls



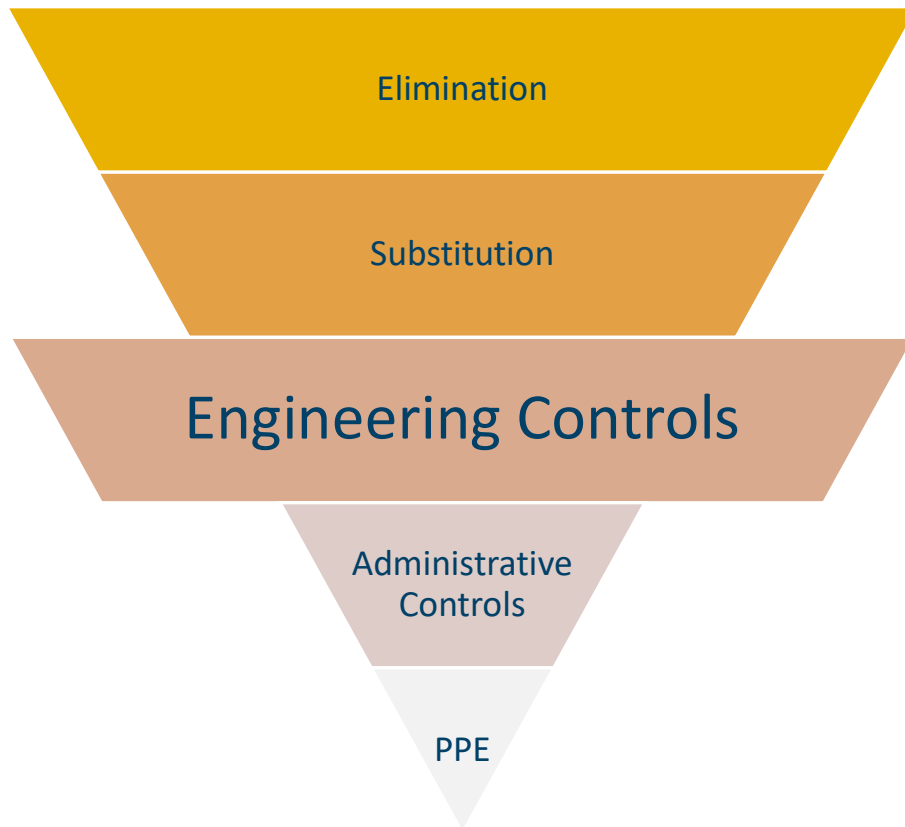
- Physically removes the hazard at the source
- Best used during design and development
- Can be difficult to implement in existing process
- Examples:
 - Toxic chemical
 - Heavy object
 - Sharp tool
 - Trip hazard

NIOSH Hierarchy of Controls



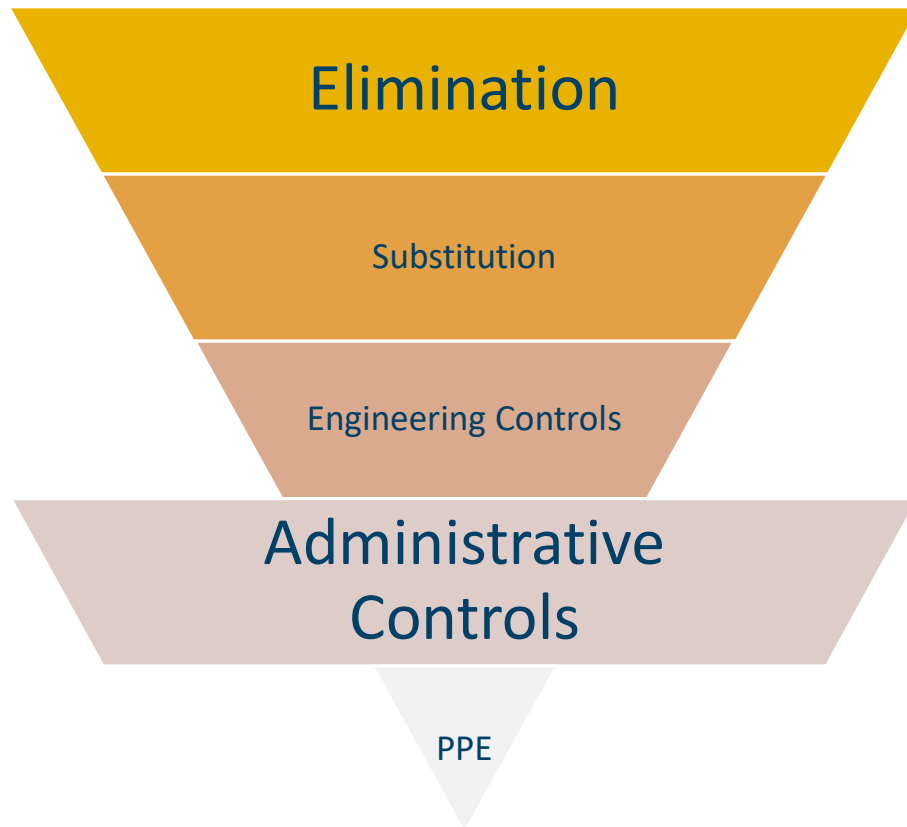
- Replace the hazard with a safer alternative
- Assess potential for new hazards with the alternative
- Examples:
 - Change chemical used
 - Automate a process

NIOSH Hierarchy of Controls



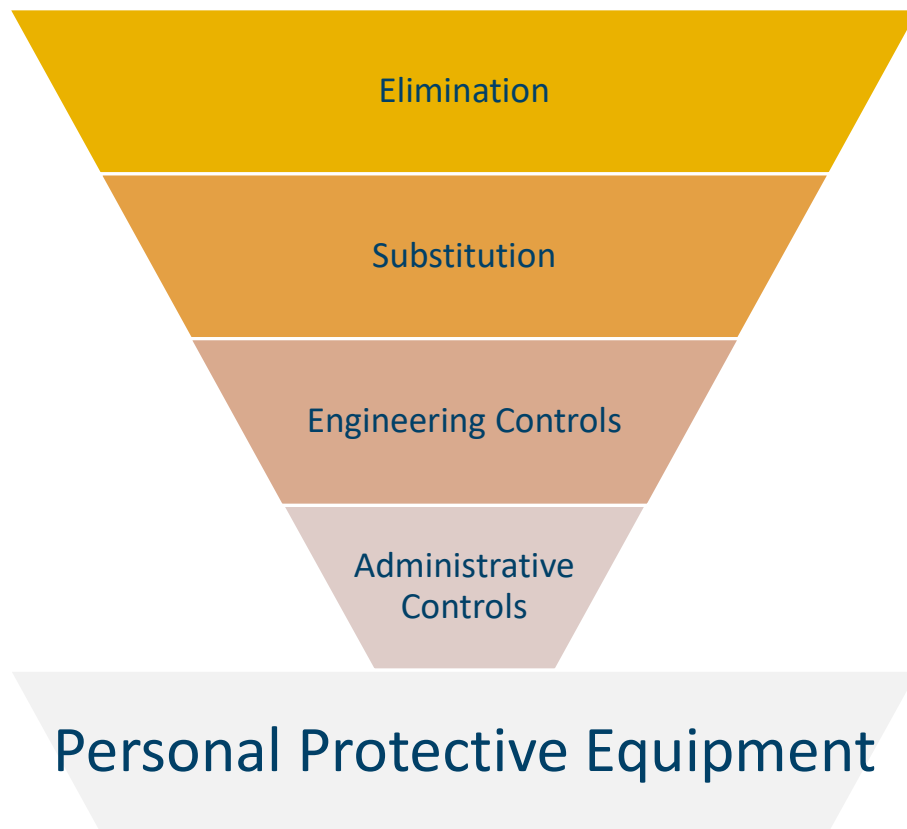
- Reduce or prevent hazards from coming into contact with workers
- Prevent users from modifying or interfering with the control
- Do not interfere with the work process
- Examples:
 - Modifying equipment
 - Converting manual to hydraulic or electric
 - Modifying workspace
 - Protective barriers
 - Ventilation
 - Adjustable equipment

NIOSH Hierarchy of Controls



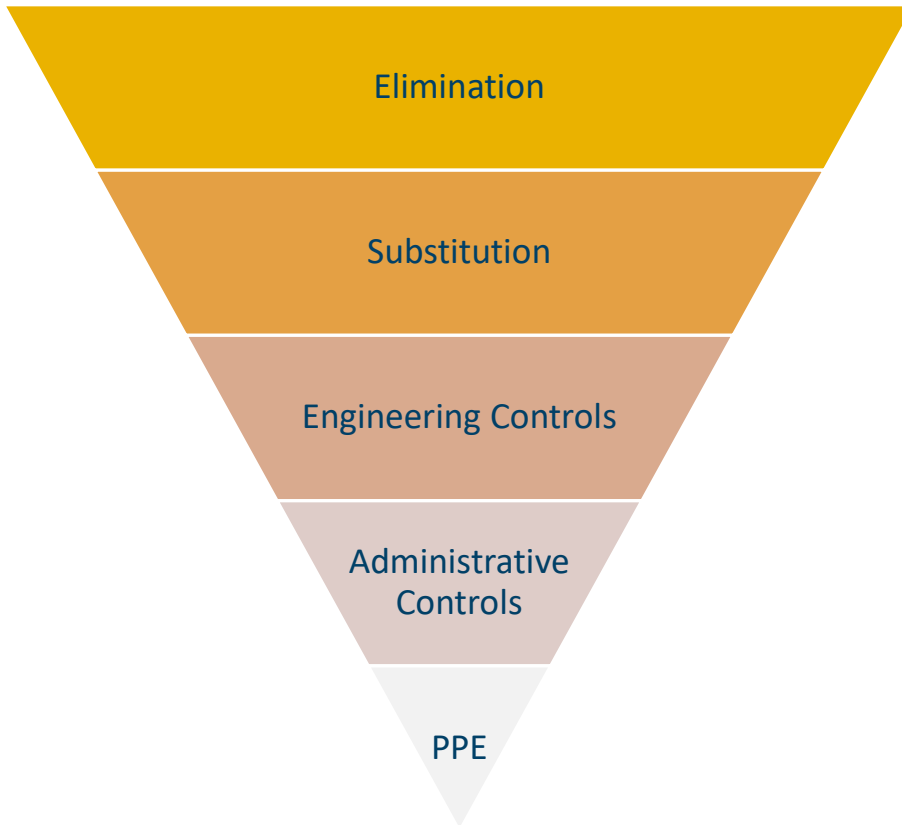
- Establish policies that reduce the duration, frequency or intensity of exposure to the hazard and/or change worker behavior
- Examples:
 - Work process training
 - Job rotation
 - Rest breaks
 - Adjusting speed
 - Signage
 - Safety meeting
 - Hazard evaluation and planning

NIOSH Hierarchy of Controls



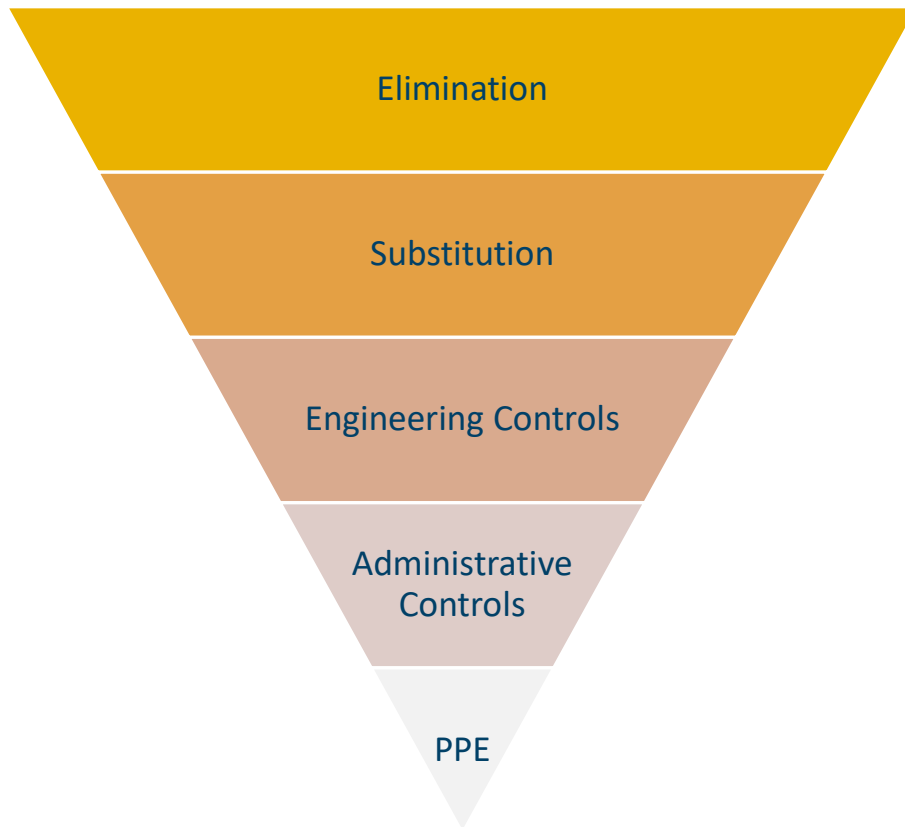
- Equipment that is worn to minimize exposure to hazards
- Should not rely alone on PPE alone
- Effective only if workers use correctly and consistently
- Examples:
 - Hearing protection
 - Eye protection
 - Respiratory protection
 - Gloves
 - Aprons

Case Study: Safe Patient Handling and Transport



- New transport route to avoid ramps
- Lifts, air-assisted technology, friction-reducing sheets
- Electric bed movers or beds with power drive
- Use stretchers instead of beds
- Policies for use of equipment
- Decision tree for using correct equipment

Case Study: COVID-19



- Isolation
- Quarantine

- Remote work and learning
- Outdoor activities

- Barriers and partitions
- Ventilation and filtration systems

- Restrictions on indoor shopping and dining
- Social distancing
- Mask mandates

- Respirators and medical face masks
- Face shields

References

- Ajslev, J. Z. N., Møller, J. L., Andersen, M. F., Pirzadeh, P., & Lingard, H. (2022). The hierarchy of controls as an approach to visualize the impact of occupational safety and health coordination. *International Journal of Environmental Research and Public Health*, 19(5), 2731. <https://doi.org/10.3390/ijerph19052731>
- Deziel, N. C., McKenzie, L. M., Casey, J. A., McKone, T. E., Johnston, J. E., Gonzalez, D. J. X., Shonkoff, S. B. C., & Morello-Frosch, R. (2022). Applying the hierarchy of controls to oil and gas development. *Environmental Research Letters*, 17(7), 071003. <https://doi.org/10.1088/1748-9326/ac7967>
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- Sehgal, N. J., & Milton, D. K. (2021). Applying the hierarchy of controls: What occupational safety can teach us about safely navigating the next phase of the global COVID-19 pandemic. *Frontiers in Public Health*, 9, 747894. <https://doi.org/10.3389/fpubh.2021.747894>





Primary Prevention: Safe Workers Safe Workplace **Psychologically Safe Workplaces**

Steven P. Dickens, MA
Licensed Psychologist-Master
Director of Research
Invest EAP Centers for Wellbeing

Goals

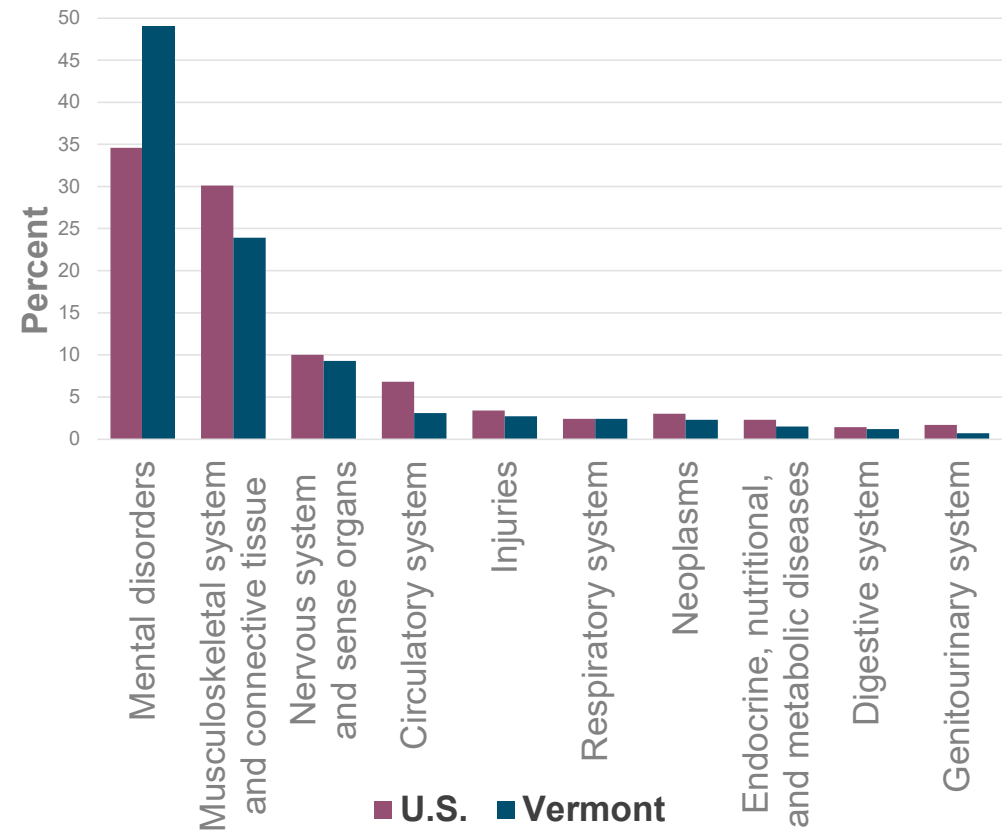
1. Protect workers from **psychological harm**
 - Work stressors that contribute to adverse mental health conditions
2. Protect workers from **physical injuries** that may result from cognitive impairments associated with psychological distress



Mental Health Disorders

- In many high-income countries, mental disorders are the most rapidly rising category of disorders leading to early exit from the workforce onto disability pension.¹
- Claims for work-related mental health problems have become a major cost for workers compensation systems.²

Top 10 diagnoses of U.S. and Vermont SSDI beneficiaries



¹ Organisation for Economic Co-operation and Development. Sick on the job? Myths and realities about mental health and work. 2012. <https://doi.org/10.1787/9789264124523-en> (accessed Feb 28, 2022).

² LaMontagne AD, Martin A, Page KM, et al. Developing an integrated approach to workplace mental health. In: Hudson HL, Nigam JAS, Sauter SL, Chosewood LC, Schill AL, Howard J, eds. Total Worker Health: integrative approaches to safety, health & wellbeing. Washington, DC: American Psychological Association; 2019: 211–27.

Work-related causes of mental health conditions

Umbrella review of 27 meta-analyses*

- Adverse psychosocial work exposures were associated with onset of depressive disorders
- Exposure to bullying assoc. w/ 2.58 times increased risk of depression, strongest of all work conditions
- Workplace violence threats: 1.42 times increased risk depressive disorders
- 77% of pooled estimates indicated exposure to adverse working conditions associated w increased risk mental disorders

* Rugulies, R, Aust B, Arensman, E, et al. Work-related causes of mental health conditions and interventions for their improvement in workplaces. Lancet 2023; 402: 1368–81.



WHO Guidelines on Mental Health at Work Intervention Areas:

1. Organizational
2. Manager and worker training
3. Individual interventions
4. Screening programs



2024

Work Related Injuries
Workshop



**RESILIENT
WORKPLACE**
CERTIFICATION PROGRAM

FOSTERING A CULTURE OF PRODUCTIVITY & WELLBEING



Leadership
Environment



Supervisory
style



Peer
Relations



Individual
Supports

Psychologically Healthy Workplace

- Strategic Planning
- Training
 - Management
 - Supervisors
 - Employees
- Assessment/Benchmark
- EAP

EAP

- Short-term solution-focused counseling
- Resources
- Referrals

Divorce



Alcohol/Drugs



Legal Issues



Eldercare



Depression/Anxiety



Financial Problems



Family



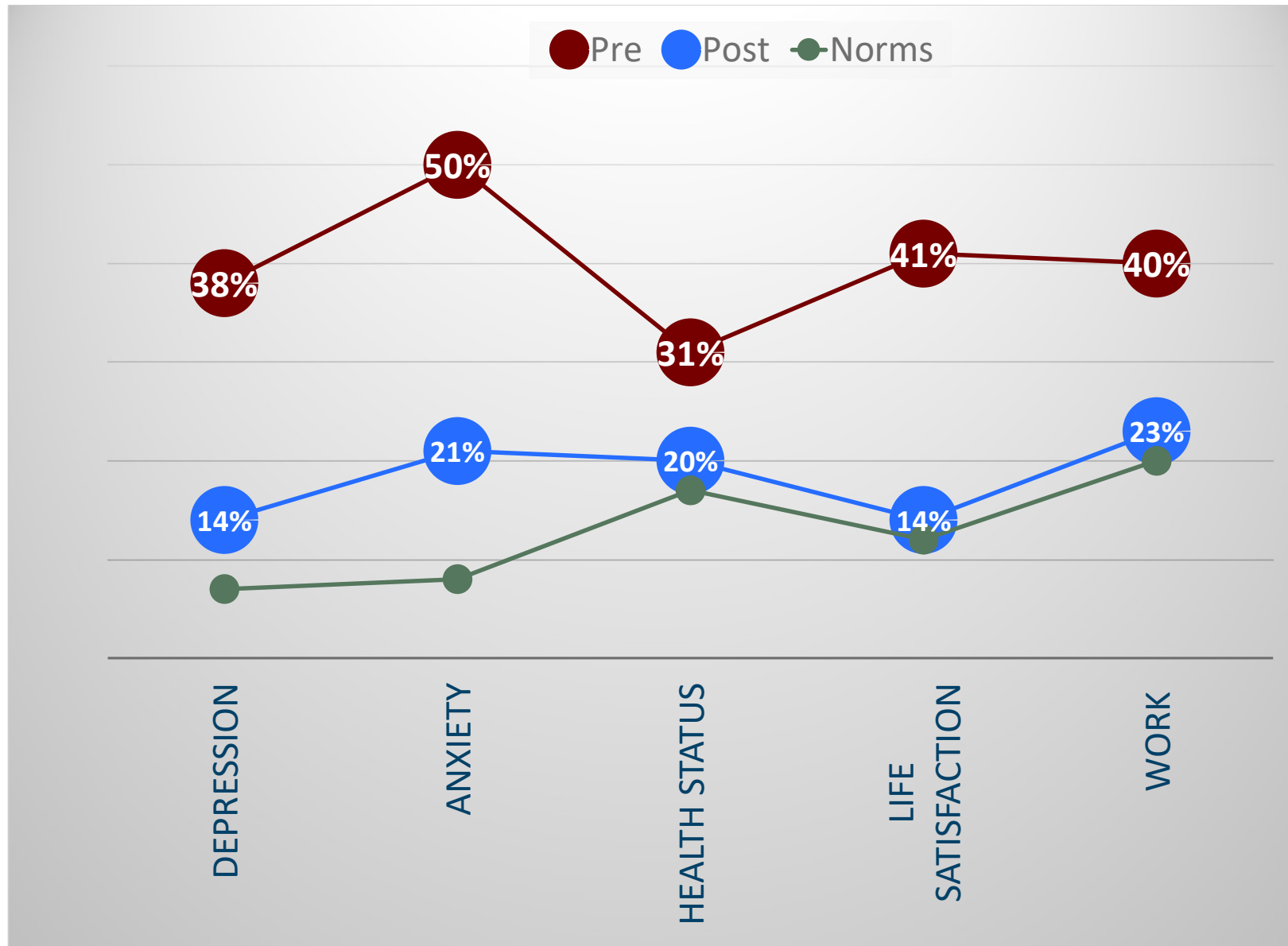
Childcare



Workplace Issues



Percent Cases at Risk



Life Resources

For lower wage earners

- Resource counselor in workplace
 - Gets to know workers
 - Offers educational sessions
 - Provides support and resource info.
- Access to low interest loans
 - Partner with credit union
 - Employer guaranteed
 - Repaid through paychecks



Lower Wage Employees

- Workers of lower occupational grade most exposed to working conditions adversely affecting mental health, yet least likely to be provided with workplace mental health interventions*
- Working conditions of workers of lower occupational grade are often more rigid and less amenable for modifications*
- Organization-level changes important



* Rugulies, R, Aust B, Arensman, E, et al. Work-related causes of mental health conditions and interventions for their improvement in workplaces. Lancet 2023; 402: 1368–81.

Corporate policies & benefits

that make a difference

- Flexible scheduling
- Robust EAP
- Low deductible health plans
 - Encourage employees to get help
 - Reduce barriers to access
 - Significant return on investment



Behavioral Health Risk Screening & Intervention

Proactive Incentivized Wellbeing Screening

- Anxiety
- Depression
- Substance Use
- Short-term evidence-based counseling

