

Presentation Title	Place in Schedule
How TWH Intervention Research Employs the Hierarchy of Controls	Poster Session <i>Day 2 – Wednesday – May 9th, 2018</i> <i>8:30am-9:30am</i>
Description of Presentation	Presenter Name(s) And Credentials
<p>NIOSH recommends that Total Worker Health® (TWH) interventions prioritize intervention change strategies according to the Hierarchy of Controls, an approach validated over decades of safety interventions. The Hierarchy of Controls, more recently adapted to accommodate the breadth of TWH research and practice, prioritizes efforts in this order: 1) Eliminate the hazard (toxic exposures, negative working conditions); 2) Substitute safer and healthier conditions, processes, practices; 3) Redesign the work environment to improve or enhance working conditions; 4) Educate employees on safety, health, well-being; and 5) Encourage or reinforce adoption of safe and healthy work practices and lifestyles. Strategies (or Controls) that Eliminate hazards are recommended as the first choice, because the problem is eliminated.</p> <p>To examine current TWH intervention research in the context of the Hierarchy of Controls, 37 peer-reviewed studies that met criteria for Total Worker Health by addressing workplace safety, health and well-being were identified. Their intervention methods were classified according to the five hierarchical levels. The majority of the 37 studies employed Control tactics or methods classified as Educate (34), followed by Encourage (30), Redesign (20), and Substitute (7); only four interventions employed a tactic that would Eliminate the negative work condition. Three intervention studies employed tactics classified in all five levels of Control, while three others employed only one. Most studies addressed two (17) or three (13) levels of the Hierarchy.</p> <p>Examples of the Eliminate method of Control from our review include no-smoking policies and engineering controls to reduce hazardous exposures. Substitute control tactic examples included using safer chemicals in place of carcinogens and replacing high-fat foods with heart healthy choices in vending machines. Examples of Redesign tactics included installation of sit-stand desks, shift schedule changes, and job task redesign. The Educate methods included trainings for work safety and healthy lifestyles.</p>	<p>W. Kent Anger, PhD <i>Oregon Health & Science University</i></p>

Lastly, Encourage tactics included behavior prompts, peer-led activities, and health ambassadors.

The levels of the Hierarchy that were employed together most often in the 37 studies were Redesign, Educate, and Encourage.

Eliminate and Educate tactics were most often used with other tactics. All five levels of Control were implemented in an organization-wide smoking intervention program as well as in a complete redesign or restructuring of a company's occupational safety and health systems. The intervention with the largest effect sizes employed the Educate and Encourage levels of the Hierarchy. Overall, intervention tactics from each Hierarchy level have produced measurable, positive changes in the workplace.

TWH interventions are often extensive and even complex due to the multiple tactics or methods used to achieve broad changes in the workplace anticipated by the goals of TWH. This review shows that they often have employed tactics that reflect more than one type of Control in their quest to improve safety, health and well-being. Per the Hierarchy, future intervention designers should begin by determining whether it is possible to Eliminate the adverse conditions or hazards (e.g., engineer out risks) and only then consider employing other Controls in the priority order of the Hierarchy.