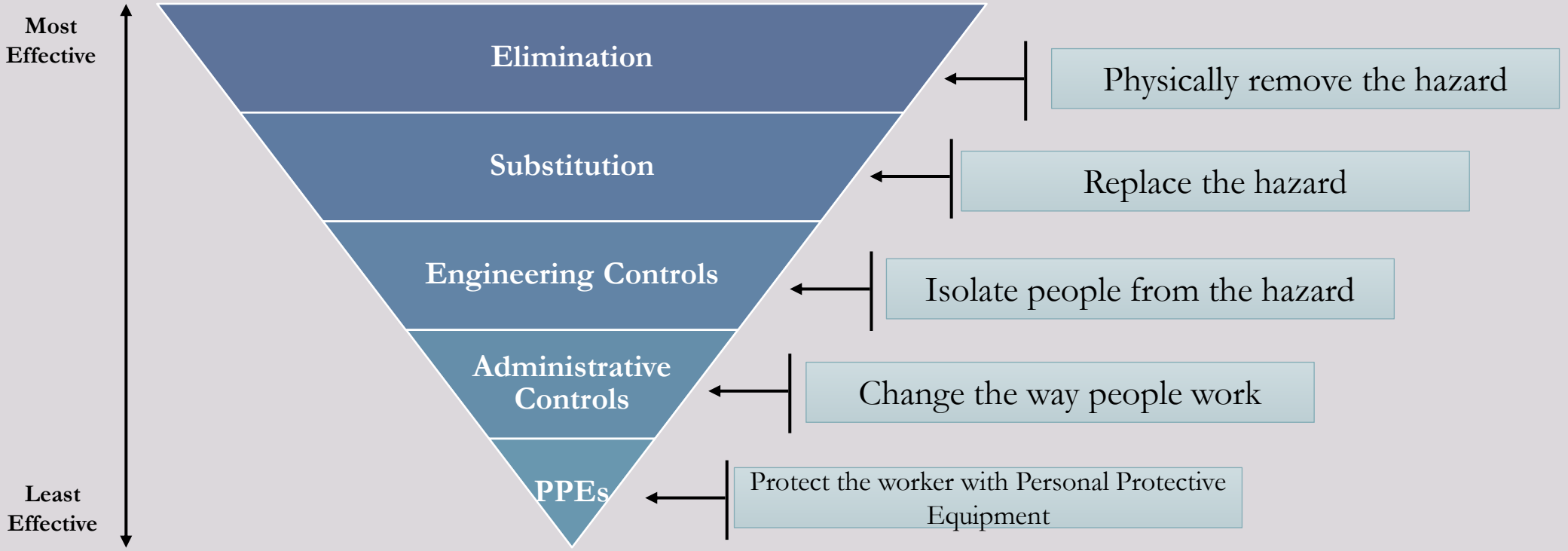
# Assessing and Minimizing the Risks from Hazards II

## Lecture # 9

# Hierarchy of Controls

- The systemized control measure approach used by companies of all kinds, sizes, and industries to protect people in the workplace is called Hierarchy of Controls.

- Specifically, the hierarchy of controls examines hazard control methodologies from a tiered perspective, ranking them from most effective to least effective as follows:



# 5 Levels of Hierarchy in Eliminating Hazards and Risks

The control measures in the hierarchy are placed in order of their effectiveness. These stages can be considered as lines of defense.

1. Elimination: Removing the hazard or risk entirely

2. Substitution: Replacing a hazard with safer alternative.

3. Engineering Controls: Replacing equipment, including a mechanical device, or process, or changing the work environment to separate workers from a hazard.

4. Administrative Controls: Developing procedures and processes for working safely under anticipated conditions.

5. Personal Protective Equipment's: Equipping workers with protective gears designed to reduce risk and severity of injuries.]

# Elimination

Elimination is the removal of the hazard completely and is the highest level of protection and the most effective control measure.

**How to use:** The source of hazard can be taken out of the environment or workplace entirely.

**Example:** Remove chemicals that could cause a severe irritation to the skin.

# Substitution

Substitution is the replacement of hazards with safer alternatives.

**How to use:** If eliminating the source of the hazard is not possible, the next level of defense is to substitute or replace it with a less hazardous source—thus minimizing the level of injuries or adverse effects on a person's health.

**Example:** Replace solvent-based paint with water-based paint.

# Engineering Controls

Engineering controls involve replacing equipment and processes or changing the work environment to separate or isolate workers from exposure to the hazard.

**How to use:** Given a source of hazard that can't be removed from the environment or can't be replaced with a safer option, management and employers may implement the next level in the funnel—reducing the risks through engineering changes or changes in the process or building.

**Example:** Use remote controls to operate machines.

# Administrative Controlsc

Administrative controls refer to any training, practice, policy, or design changes that reduces an individual's exposure to a hazard. This is a low level of protection and less reliable control.

**How to use:** If the implementation of an engineered solution is impossible, then the implementation of administrative controls is the next line of defense. This involves the use of warning labels, changes to corporate policy, and conducting workshops or training sessions.

**Example:** Develop guidelines on how to use the machines and tools safely.

# Personal Protective Equipment's

PPE refers to anything workers use or wear to reduce risks to their health and safety. This is the last line of defense in the hierarchy, the lowest level of protection, and the least reliable control.

**How to use:** Workers should wear protective gear such as ear plugs, goggles, face masks, respirators, gloves, aprons, safety harnesses, bodysuits, and others.

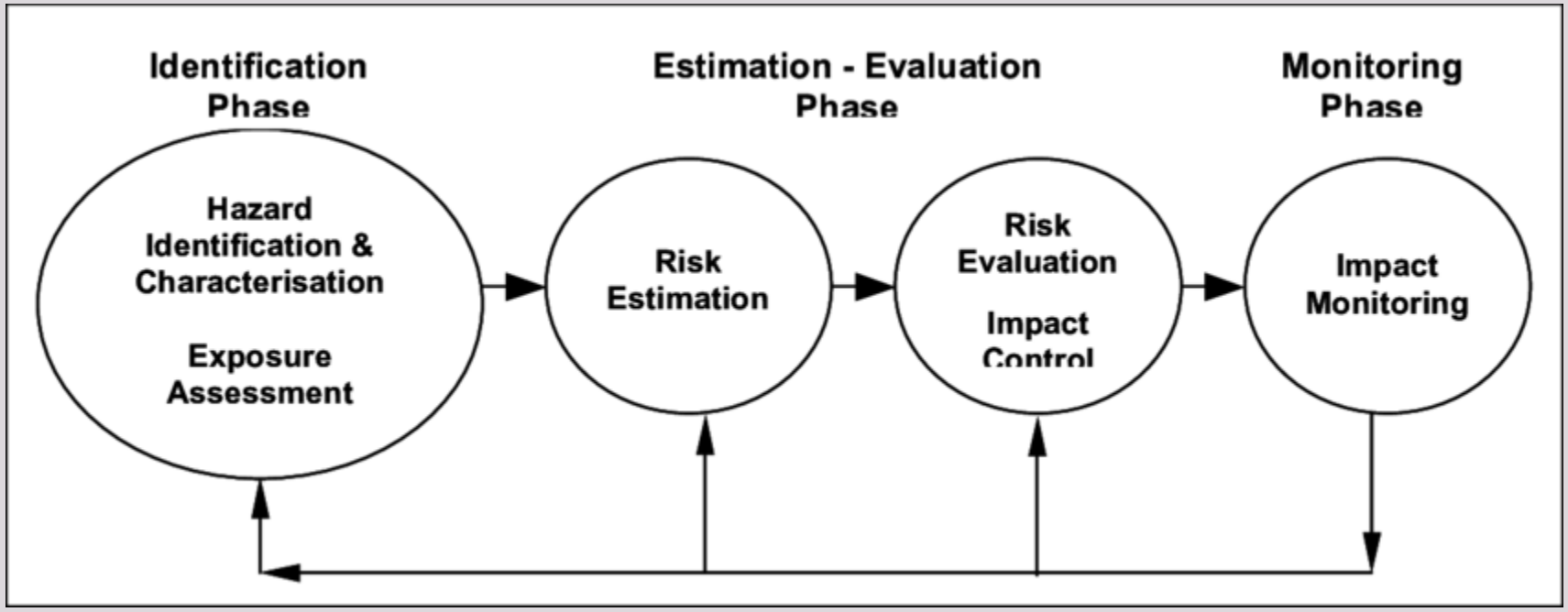
**Example:** Provide respirators to protect workers from inhaling toxic gases, fumes, and pollutants.

Managements or employers may consider using various controls in addressing hazards and minimizing risks.

# Hazard Audit

- A hazard audit or safety audit is a systematic and critical examination of a facility, its operations and safety systems.

- The objectives of a safety audit should be to maintain a safe place of work through hazard recognition and removal, to verify employees are following the most effective safety procedures, to make certain the facility, equipment, and operations meet the required local, state, and federal, health, and safety requirements and best industry business practices to produce a safe place of work.



# Steps for Safety Audit/ Hazard Audit