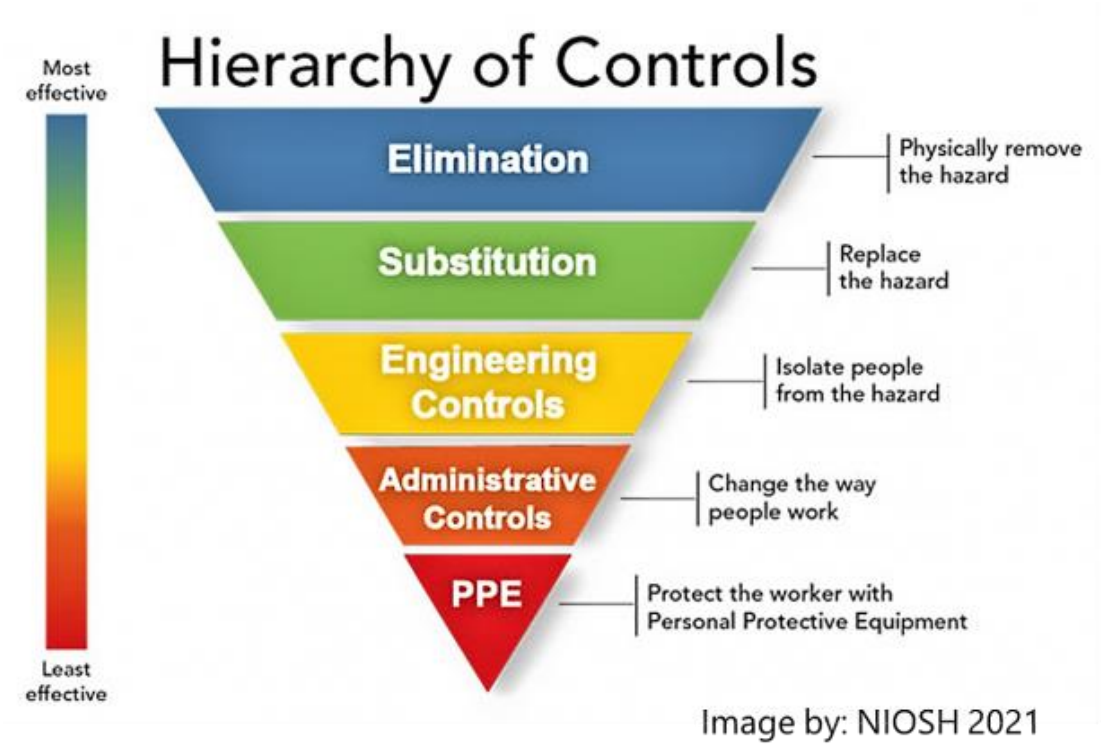
The Hierarchy of Controls - How Does it Apply to My Lab?

The hierarchy of controls is a method that is used throughout safety to rank safeguards that protect individuals from hazards. When taken individually, the controls are organized from the most effective (Elimination) to the least effective (Personal Protective Equipment or PPE). So, how does the hierarchy of controls apply to your lab? Below is a list of various options that are common to labs for each control measure. The overall strength of a hazard control effort typically depends on the institution of multiple items. That said, this list is not exhaustive but shows most of the more common considerations organized into the hierarchy of controls for addressing hazards in laboratories.



Elimination

Makes sure the hazard no longer exists

- Replacing a hazardous material with a nonhazardous material
- Replacing equipment that poses a hazard with one that doesn't

Substitution

Means changing out the material or process to reduce the hazard

- Switching to a less hazardous material
- Switching to a process that uses less heat, force, speed, temperature, or current

Engineering Controls

Controls exposure by preventing hazards from coming into contact with people

- Chemical fume hoods
- Biosafety cabinets
- Safety curtains
- Interlocks
- Machine guards
- Local and area ventilation

Administrative Controls

Change the way activities are done or give people more safety information

- Training
- Committee review
- Signage
- Institutional EHS Plans
- Labels/Instructions
- Inspections
- Alarms
- Safety Data Sheets
- Preventative maintenance
- Lab hygiene
- Equipment certifications
- Chemical Storage

PPE

Clothing and wearable devices to protect people against exposure or contact

- Gloves
- Safety glasses
- Lab coat
- Safety goggles
- Lab attire
- Hearing protection
- Dust masks
- Face shields
- Protective clothing

Sources: National Institute for Occupational Safety and Health (NIOSH), Occupational Safety and Health Administration (OSHA), Centers for Disease Control and Prevention (CDC)

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