



Biorisk Mitigation

**Biorisk Management =
Assessment, Mitigation, Performance**



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Group Exercise 1, Step 1

Using the HIV risk assessment scenario, identify **six** different risk mitigation measures

- ⚠ At least **Four for safety** and
- ⚠ **Two for security**

Use a *post-it note* for each mitigation measure you identify

Report on your answers to the class





Mitigation Control Measures

- ⚠ **Engineering Controls:** Physical changes to work stations, equipment, materials, production facilities, or any other relevant aspect of the work environment that reduce or prevent exposure to hazards
- ⚠ **Administrative Controls:** Policies, standards and guidelines used to control risks
- ⚠ **Practices and Procedures:** Processes and activities that have been shown in practice to be effective in reducing risks
- ⚠ **Personal Protective Equipment:** Devices worn by the worker to protect against hazards in the laboratory



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Group Exercise 1, Step 2

Place your *post-it notes* in the appropriate columns on the flip chart:

Engineering Controls	Administrative Controls	Practices and Procedures	Personal Protective Equipment (PPE)
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Report your results to the class





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Advantages/Disadvantages

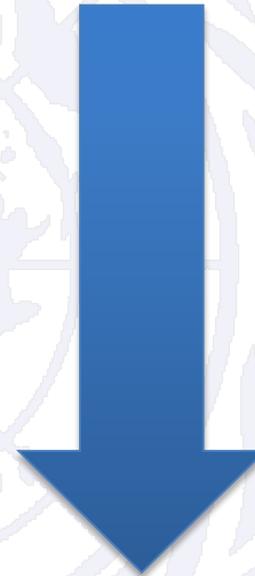
Control Measure	Advantages	Disadvantages
Engineering	Efficient, eliminates hazard	Cost, complexity
Administrative	Authority approach	Indirect approach, primarily addresses the human factor
Practices & Procedures	SOP based (standardized approach)	Training and supervision requirements
PPE	Ease of use, relative cost	Does not eliminate hazard, PPE fails exposure happens, uncomfortable, limits ability



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Hierarchy of Controls (HOC)

- 🦠 Elimination or Substitution
- 🦠 Engineering Controls
- 🦠 Administrative Controls
- 🦠 Practices and Procedures
- 🦠 Personal Protective Equipment

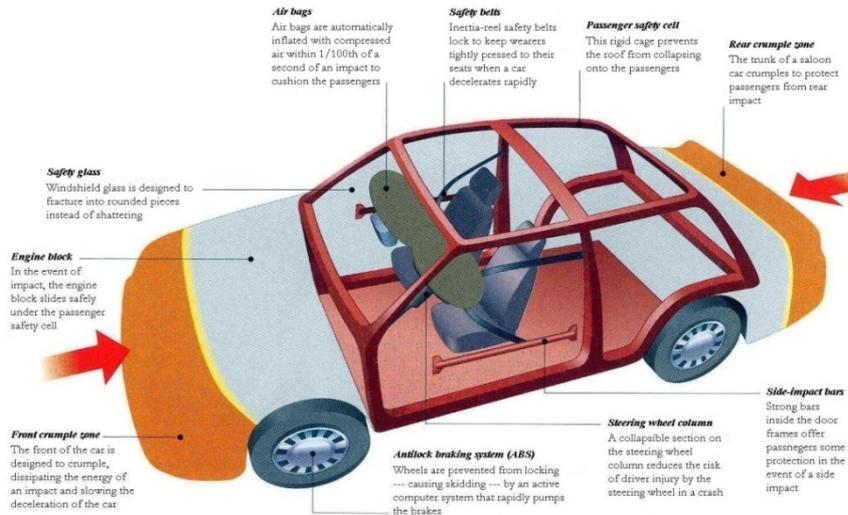


Control methods at the top of the list are in general more effective and protective than those at the bottom.



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Car vs. Motorcycle Safety



🚫 Car safety is all about engineering systems

🚫 Motorcycle safety is all about PPE





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Video Clip

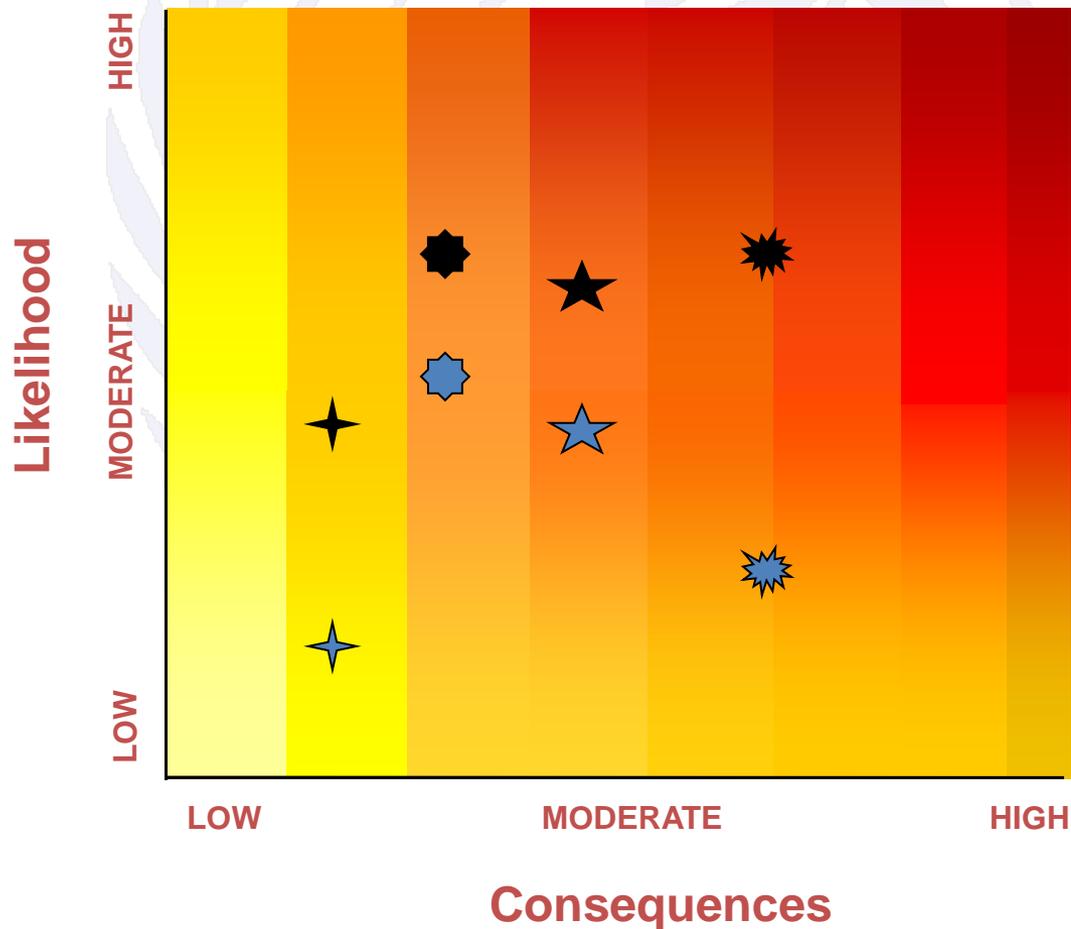
**Which category of
mitigation controls appears
in this video clip?**





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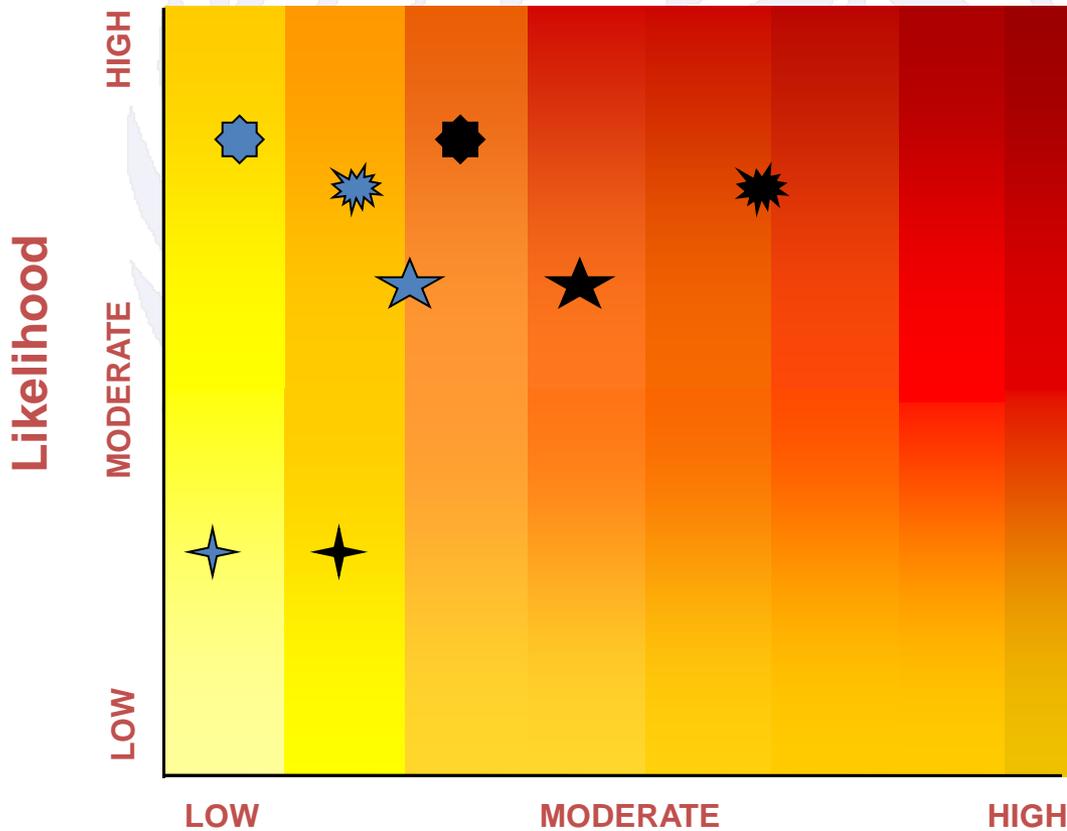
Mitigation measures most affect which variable of the risk assessment equation?





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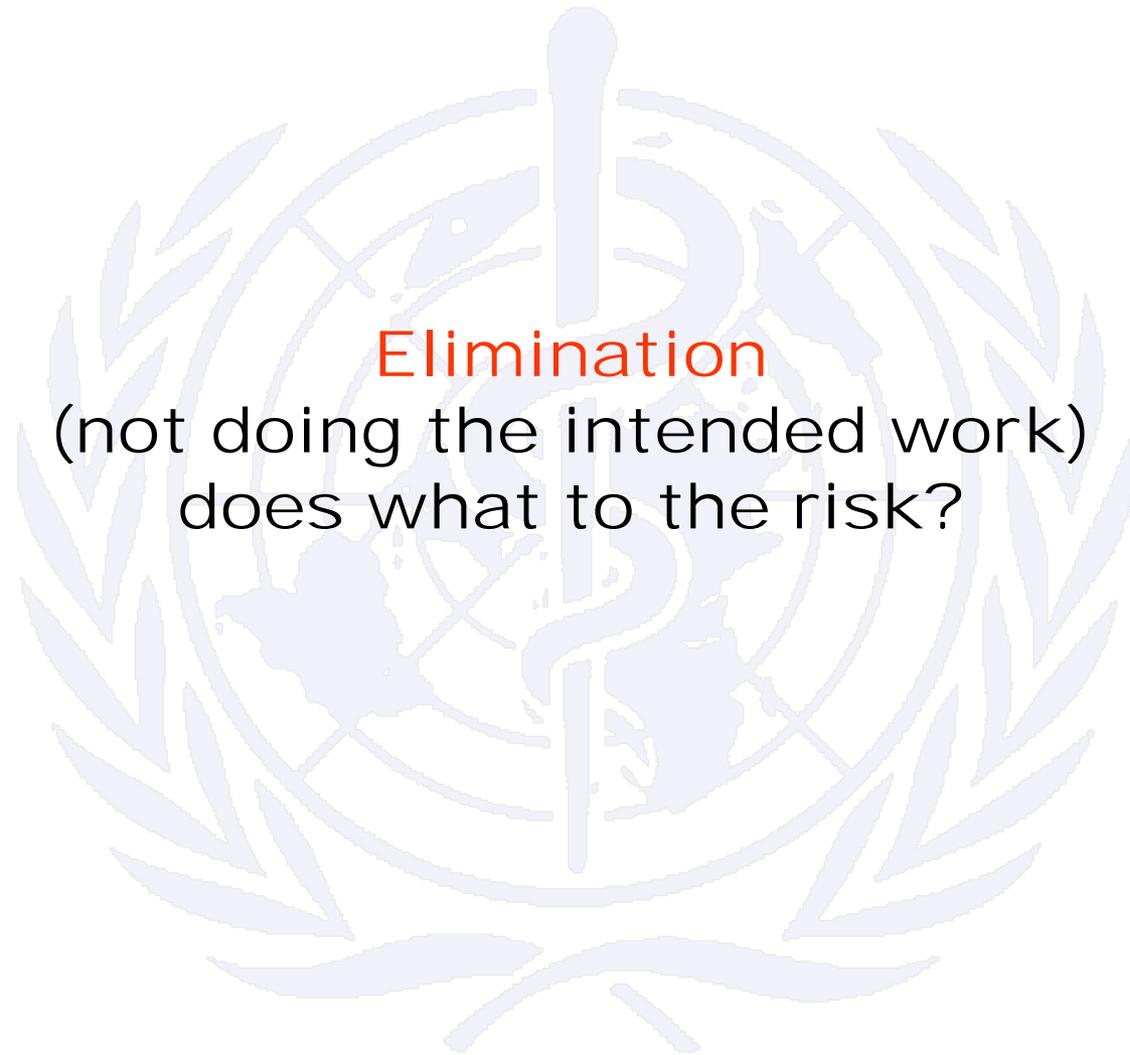
Substitution
 (using different materials)
 affects what side of the
 risk assessment equation?



Consequences



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Elimination

(not doing the intended work)
does what to the risk?





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Implementing Mitigation Measures

Mitigation measures should be implemented based on a thorough risk assessment.

Ideally, you should first consider elimination or substitution

A combination of control measures should be used based on their effectiveness and your ability to implement them

☣ 'acceptable risk'





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Robust risk mitigation

A robust methodological approach to risk mitigation gives you the ability to:

- ⊕ Justify decisions
- ⊕ Evaluate the impact of certain risk mitigation decisions
- ⊕ Compare the cost effectiveness of various risk mitigation decisions





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Biorisk Management

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Risk identification
Hazard/threat identification
Likelihood evaluation
Consequences evaluation



Elimination or Substitution
Engineering Controls
Administrative Control
Practices and Procedures
Personal Protective Equipment



Summary

- ❖ **Four categories of mitigation control measures**
 - ❖ Engineering Controls
 - ❖ Administrative Controls
 - ❖ Practices and Procedures
 - ❖ Personal Protective Equipment

- ❖ **Implementing mitigation controls**
 - ❖ Should first consider elimination or substitution
 - ❖ A combination of control measures should be used based on their effectiveness and your ability to implement them
 - ❖ Should be based on the results of the risk assessment, “acceptable” risk