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Biorisk Assessment – Session 2

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





Group Exercise 3, Step 1

Consider this scenario:

A young child is left alone in a kitchen while there is pot of water heating on the stove

- ⦿ What could go wrong? List all the possibilities
- ⦿ Choose the single most important risk for this scenario
- ⦿ Identify the hazard for that risk
- ⦿ 10 Minutes. Be prepared to report to the rest of the class



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What is a hazard?

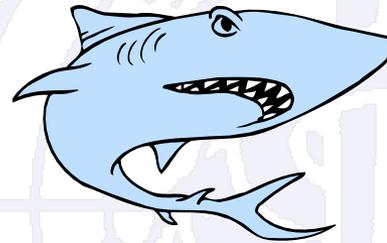




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Hazard

☠ **Hazard** is a source that has a potential for causing harm



☠ **Hazard** is not a risk without a specific environment or situation





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What is risk?





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Risk

- ⚠ Risk is the **likelihood** of an undesirable event, involving a specific hazard, that has **consequences**





Small Group Exercise 3, Step 2

Consider again the young child in the kitchen scenario:

Risk: child being burned by the boiling water

Hazard: pot of water heating on the stove

- ④ Identify the factors that influence the likelihood and consequences of the risk.
- ④ Write one factor per post-it note
- ④ Evaluate the risk (low, moderate, high)
- ④ Report your results to the class



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What would be different if the risk were the child being injured by an older brother, whose toy had just been broken by the two-year-old?

What is the hazard (threat) now?





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What is the difference between
a hazard and a threat?





Hazard, Threat, and Risk

- ⚠️ A **hazard** is an inanimate object that can cause harm
- ⚠️ A **threat** is a person who has intent and/or ability to cause harm to other people, animals, or the institution
- ⚠️ A **risk** can be based on either a hazard and/or a threat



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Review: define risk, likelihood,
and consequences?





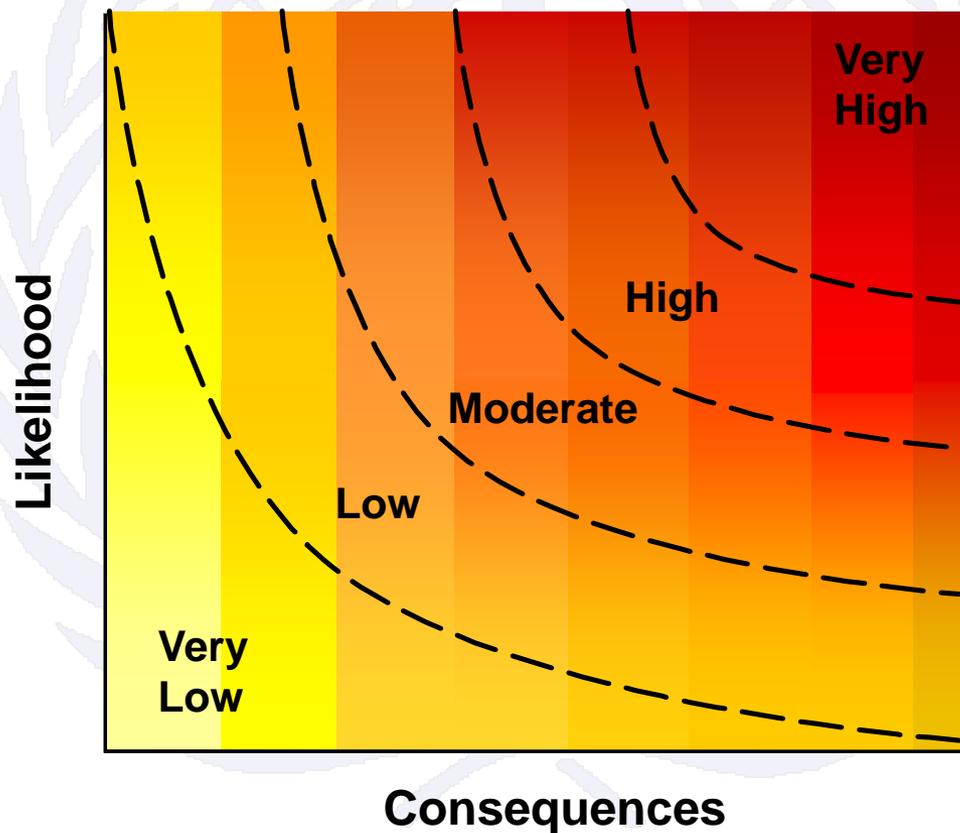
Risk, Likelihood, and Consequences

- ⚠ **Risk** is the likelihood of an undesirable event, involving a specific hazard (or threat), that has consequences
- ⚠ **Likelihood** is the probability an event occurring
- ⚠ **Consequences** is the severity of an event



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Risk is a function of likelihood and consequences $R = f(L,C)$

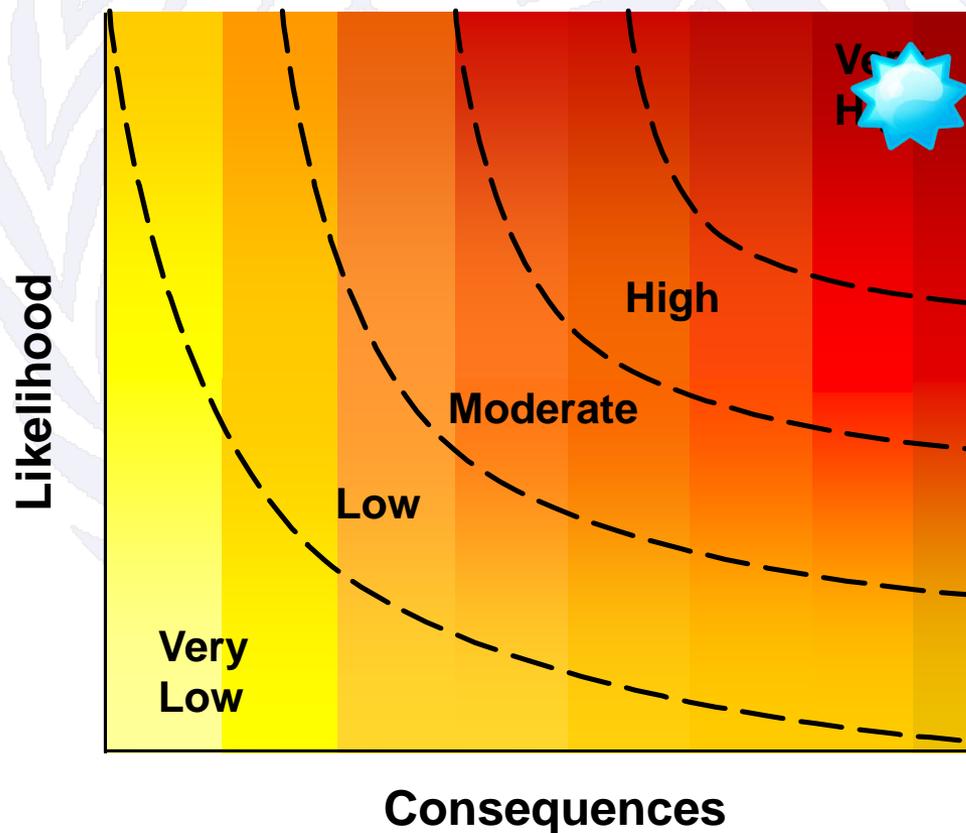




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Risk Graph I

Large amount of boiling water on front of stove, step stool next to stove, child not restrained

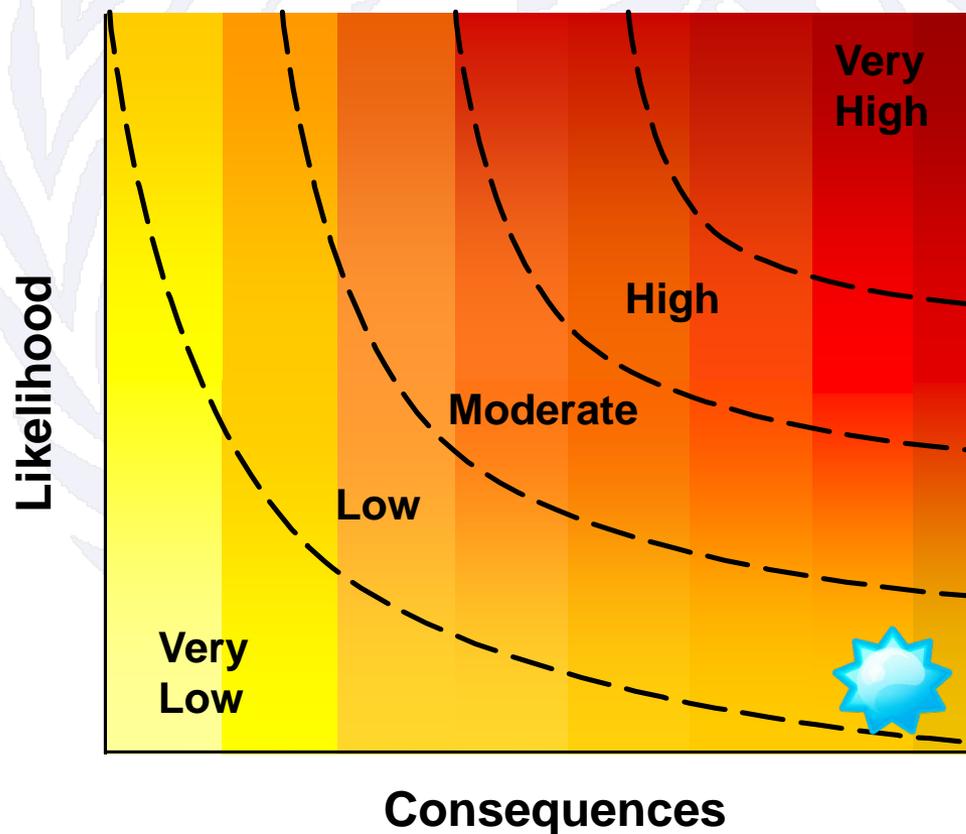




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Risk Graph III

Large amount of boiling water, no step stool, child strapped in a high chair

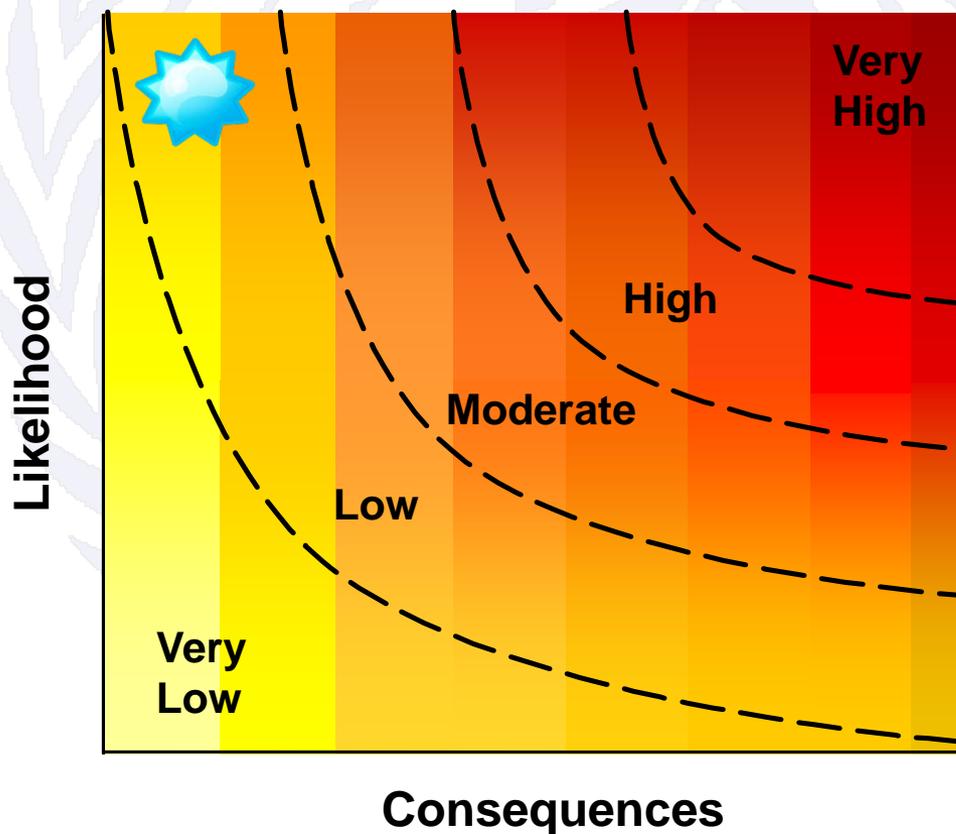




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Risk Graph IV

Small amount of cold water in the pan, step stool next to stove, child not restrained

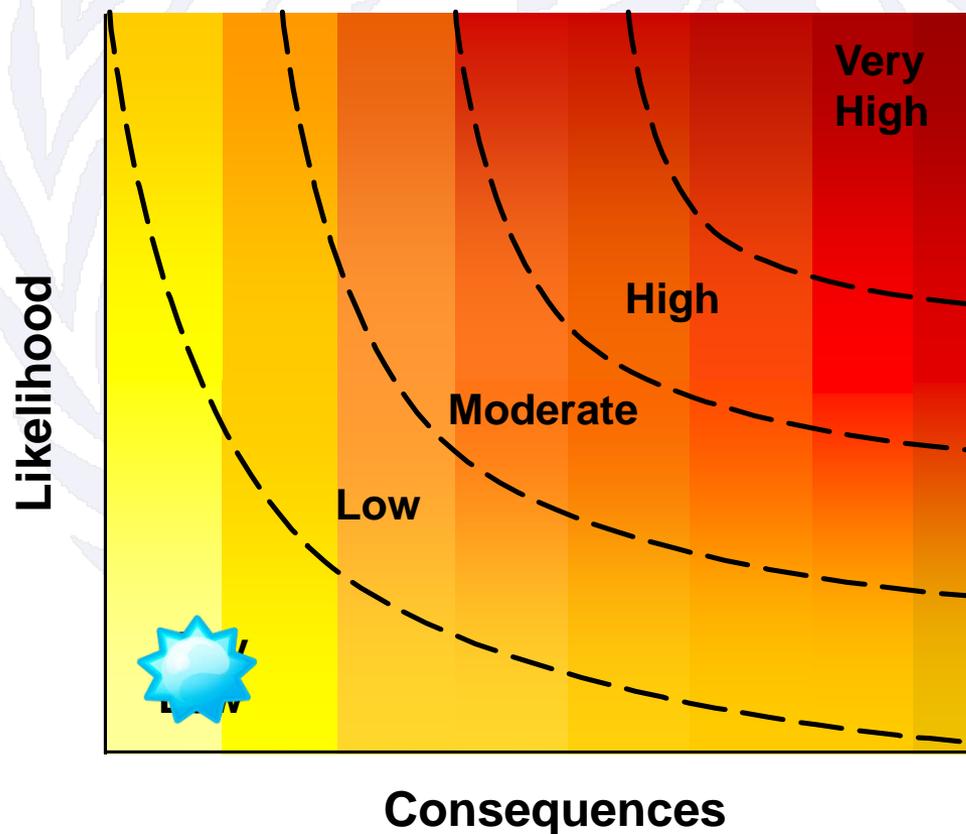




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Risk Graph V

Small amount of cold water, no step stool, child strapped in a high chair





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Individual reflection

- ⚠ How do you assess risk in your own labs?
- ⚠ Write down your own answers, and then share with others at your table

If you wish, share with the class

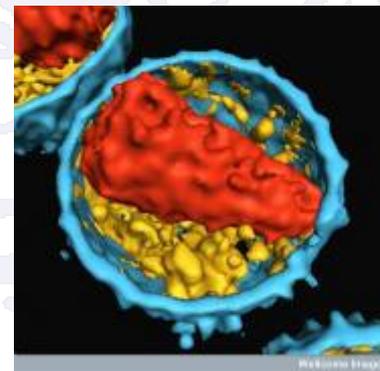
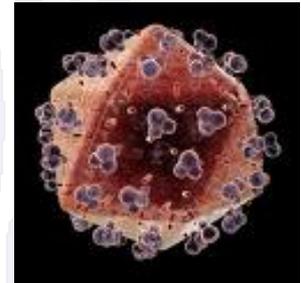




Group Exercise 4, Step 1

Consider the first biological scenario (HIV):

- ⚠ Define the risks in this scenario
- ⚠ Report out to the class





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What aspect of biorisk did you focus on?



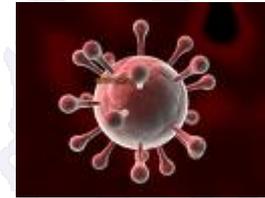


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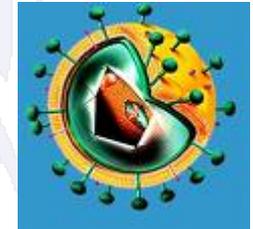
Group Exercise 4, Step 2

Using the HIV scenario:

☣ Choose one risk to assess



☣ Define the hazard and/or threat



☣ Can you evaluate the risk of this scenario? If so, what is it (low/moderate/high)?

☣ Capture answers on a flip chart, and report to the class

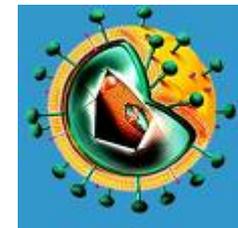


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Group Exercise 4, Step 3

Using the HIV scenario:

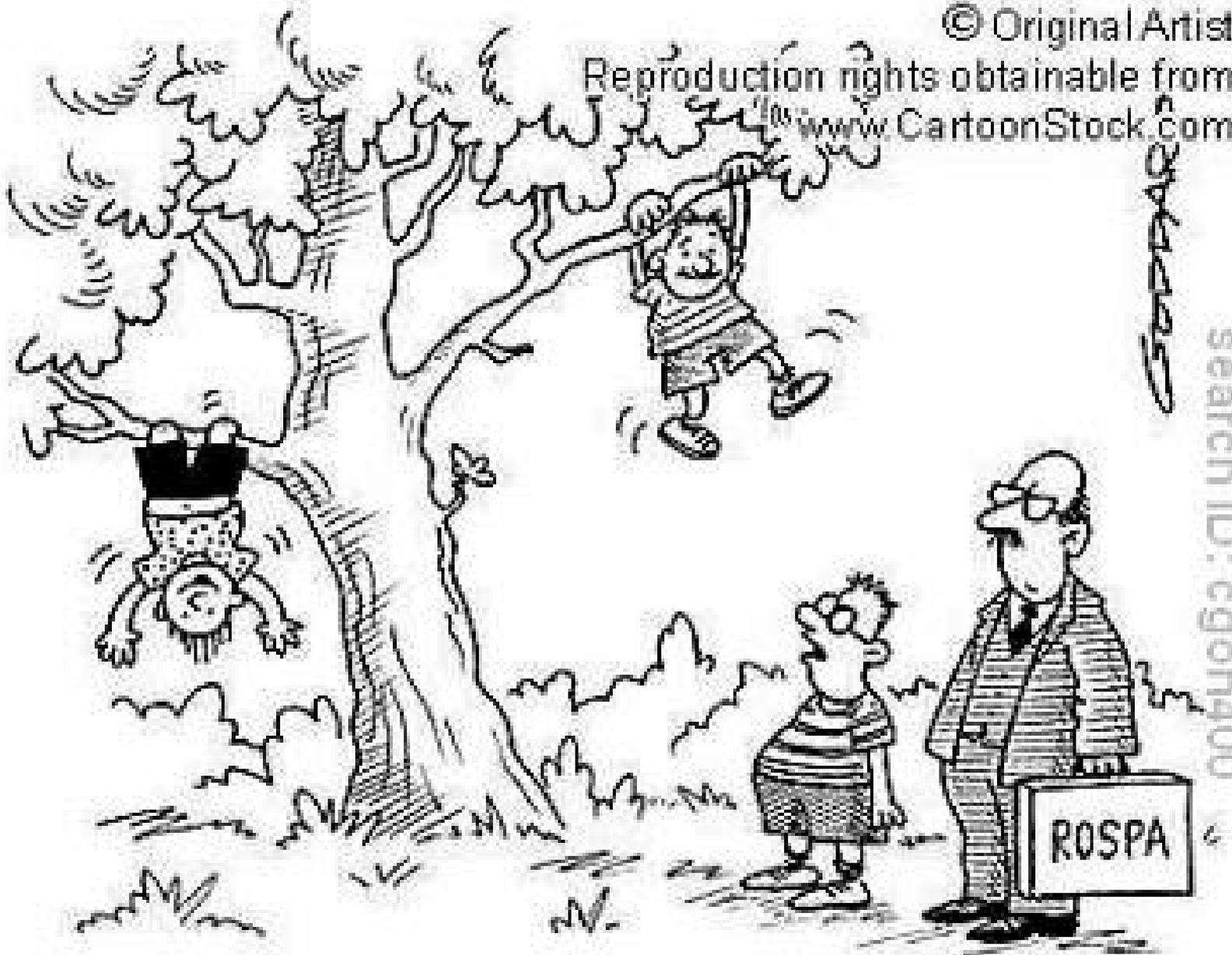
- ❗ What different types of information do you need to do a risk assessment?
- ❗ Use post-it notes, one idea per note, and place your post-it notes on a flip chart.



2010



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**'Some bloke wants to know if we've carried
out a thorough risk assessment?'**



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What are the benefits of a robust risk
assessment?



RISK ASSESSMENT



Benefits of a Robust Risk Assessment

- ⚠ Facilitate a risk assessment process that is reproducible, transparent, repeatable
- ⚠ Facilitate risk mitigation decisions
- ⚠ Provide quality control documentation



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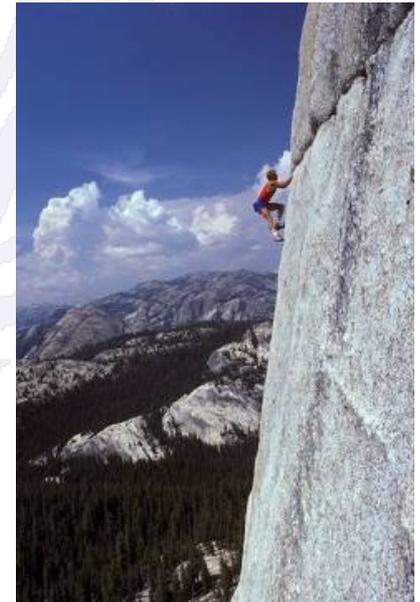
What might be missing from this
technical risk assessment?





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What is 'acceptable risk'?





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Technical Risk Assessment

- Technical risk assessments are generally based on scientific data and/or observations, and/or expert opinion

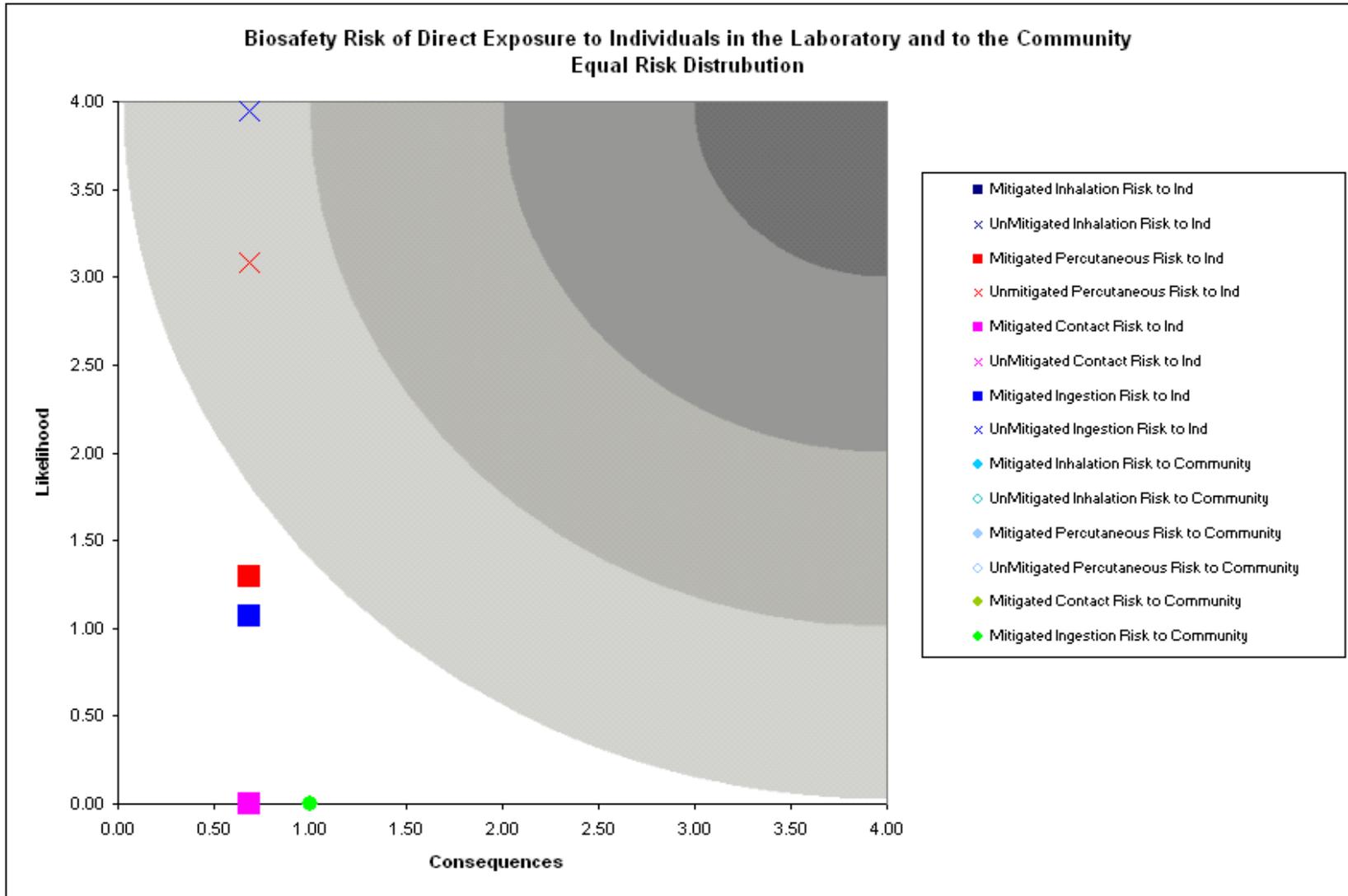


- Concern assessments are generally based on risks 'perceived' by management and/or the general public



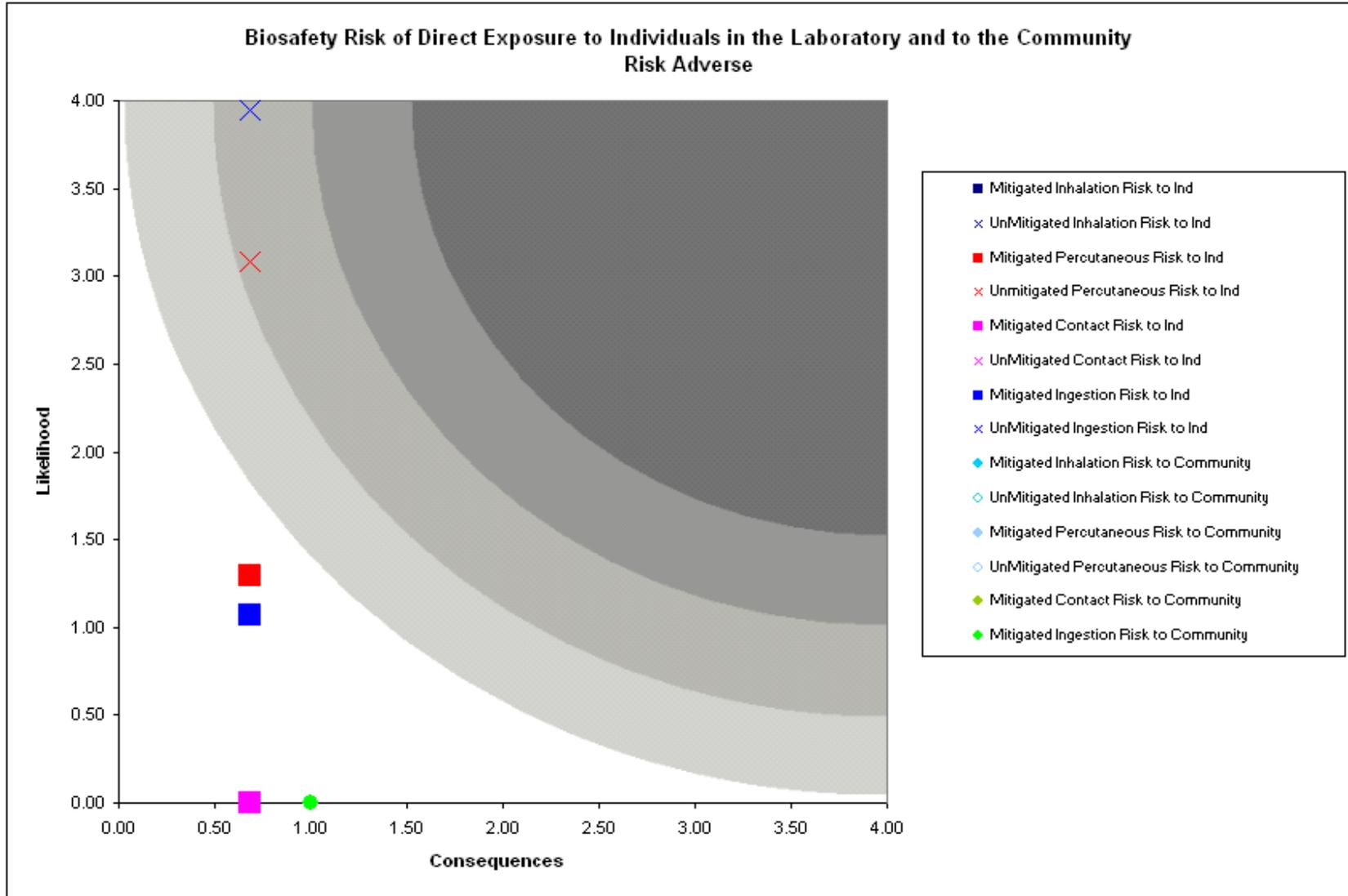


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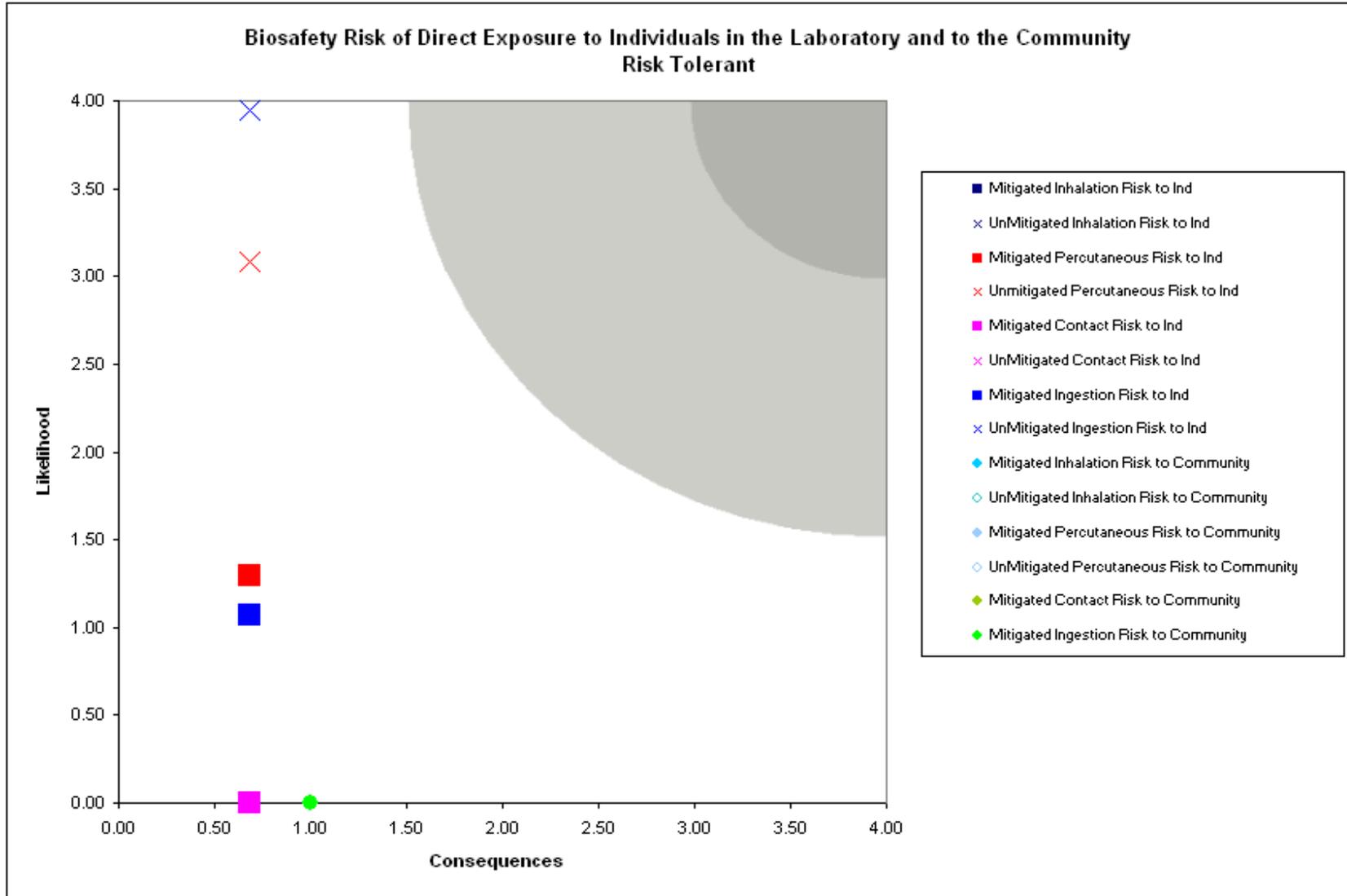


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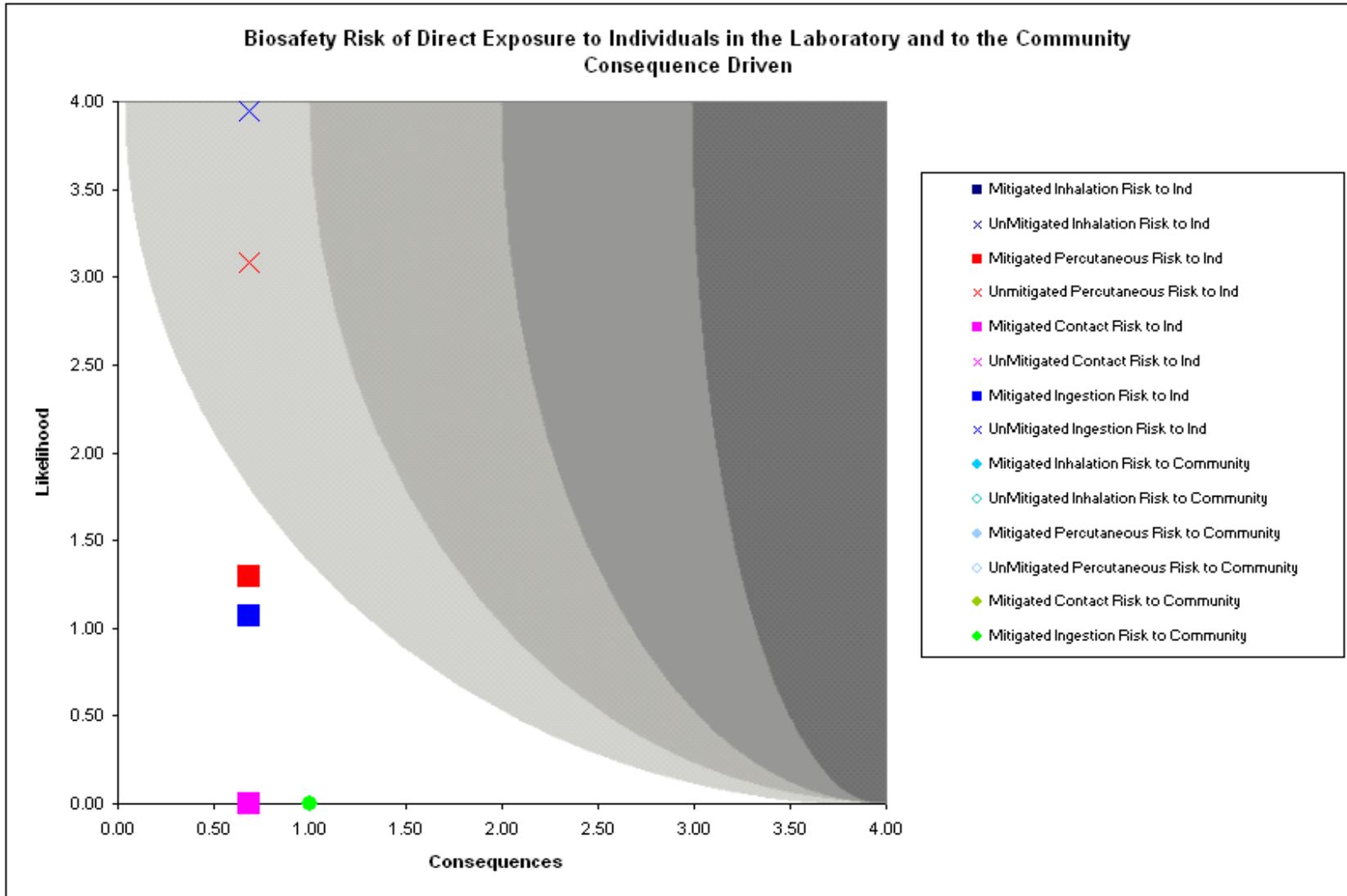


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Individual reflection

- ⚠️ What was new today?
- ⚠️ What insights have you had? What implications are there for you?
- ⚠️ What will you change when you return to your home institute?

If you wish, share your thoughts with the class





Summary I

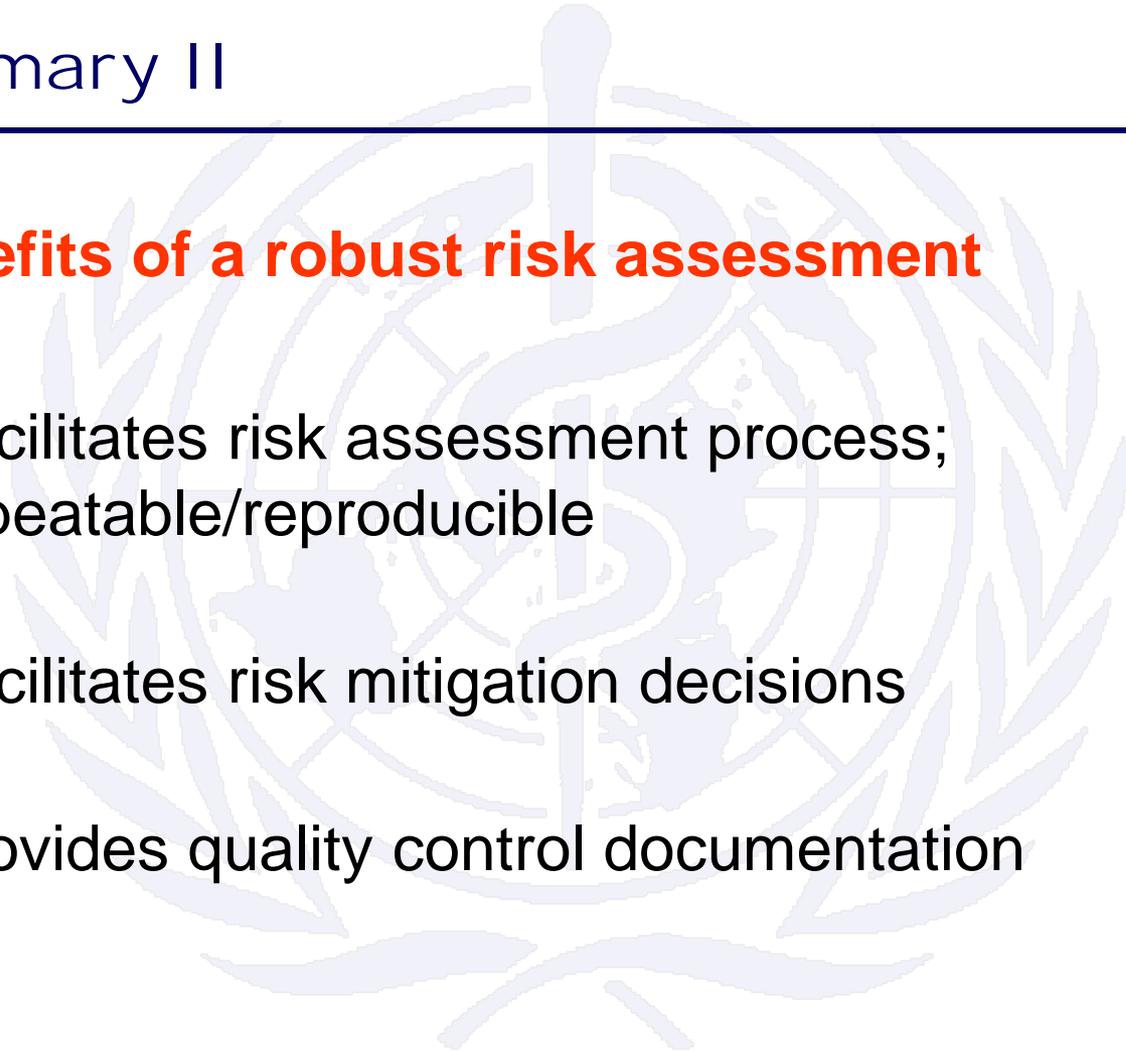
- ⚠ **Hazard** (threat) is a source that can cause harm
- ⚠ **Risk** is the combination of the likelihood and consequences of an undesirable event related to a specific hazard (or threat)
 - ➡ $R = f(L, C)$
- ⚠ **Likelihood** is the probability of an event occurring
- ⚠ **Consequences** is the severity of an event



Summary II

Benefits of a robust risk assessment

- ❖ Facilitates risk assessment process; repeatable/reproducible
- ❖ Facilitates risk mitigation decisions
- ❖ Provides quality control documentation





Summary III

- ❗ **Technical risk assessments** generally do not include perceived social, cultural, political concerns
- ❗ **Risk acceptance** will depend on the 'owner' of the risk: risk averse or risk tolerant

