

Chemical Risk, Exposure, and Data Ethics

g11_u08_w31

Purpose and boundary

Use original fictional information cards only. No chemical handling, personal exposure assessment, medical advice, regulatory interpretation, or risk decision is requested.

Targets: I can distinguish hazard from exposure, identify a bounded data claim, and examine fairness/privacy limits. **Vocabulary:** hazard, exposure, dose, uncertainty, privacy, bias. **Prerequisites:** systems boundaries, evidence claims, proportional reasoning.

All cards are fictional teaching scenarios. A comparison is not a health, safety, or regulatory conclusion.

1. Define hazard and exposure as distinct concepts.

2. Why does hazard information alone not determine risk in a specific situation?

3. Why does exposure information alone not identify a material's hazard?

4. A fictional card lists 2.0 units of a model concentration for 3.0 h. Find the simple concentration-time product.

5. A second card lists 1.0 unit for 8.0 h. Find its simple product.

6. Compare items 4–5 only as arithmetic summaries.

7. Why do those products not establish an actual dose or effect?

8. Name one missing variable that could change an exposure-model comparison.

9. Explain why an average value can hide unequal conditions across a fictional group.

10. What is one privacy reason not to collect unnecessary personal data?

11. A fictional data table has 12 observations from Site A and 2 from Site B. Identify one representation limitation.

12. A graph omits units. Why is its quantitative claim weak?

13. A card reports an estimate with no uncertainty. Name one question to ask.

14. A student says a correlation proves an exposure pathway. Correct the claim.

15. Explain why data categories can embed bias even when calculations are correct.

16. A fictional study excludes a group without explanation. Name one fairness question.

17. State one supported and one unsupported claim from a fictional concentration-time table.

18. Explain why a threshold in a classroom card is not a legal or medical standard.

19. Propose one data-minimization practice for a fictional survey.

20. Write a two-sentence bounded evidence claim that includes a privacy or representation limitation.
