

Health Data Science: Homework 3

1. What is the primary goal of data anonymization?
 - a. The goal of data anonymization is to make it difficult to identify the individual whose data is being collected.
2. What is the Havasupai Tribe case about?
 - a. The Havasupai Tribe case deals with the importance of informed consent for individuals whose data is being collected. Secondly, this case deals with the necessity for transparency in research, where researchers will disclose their purposes of research and how they intend to use the results.
3. What was the largest data breach in history?
 - a. The largest data breach in history resulted in 2015, when Anthem Inc. disclosed that it had been the victim of a cyberattack, which exposed private information about 78.8 million individuals.
4. What is the pulse oximeter controversy about?
 - a. The pulse oximeter controversy pertains to bias in healthcare, in which the clip-like devices that are attached to a patient's finger are three times more likely to miss hypoxemia or low blood-oxygen levels in patients of color. This represents a bias in the testing/implementation of medical technology.
5. What is the role of an Institutional Review Board (IRB) in research?
 - a. IRB's are independent committees that ensure research studies are conducted in ethical and responsible ways that treat participants fairly and with respect.
6. What is the difference between spreadsheet software and database software for health data management?
 - a. Spreadsheet softwares is less private and can analyze different variables as databases. In comparison, databases are adept at handling large amounts of data and ensuring that information remains confidential.
7. What is a conflict of interest in public health research?
 - a. Common conflicts of interest in public health research are financial conflicts, academic conflicts, or personal conflicts. These are harmful because a person or organization involved in research has a secondary interest that can influence or insert bias into the conclusions drawn from that research.
8. What is informed consent in the context of health data collection?
 - a. Informed consent requires that individuals are provided with enough accurate information to make educated decisions about participation in research studies.
9. What is data masking in the context of de-identification of health data?
 - a. Data masking is the replacing of information that could identify an individual by including characters or removing identifiers altogether.
10. What is the principle of k -anonymity in the context of de-identification of health data?
 - a. This involves grouping data together in 'k' amounts to ensure that individuals cannot be identified.
11. What is the main concern about conflicts of interest in public health research?
 - a. The main concerns about conflicts of interest in public health research are the misuse of health data, loss of public trust, and breaches in confidentiality or health data security.
12. What is the first step in managing conflicts of interest in public health research?

- a. The first step in managing conflicts of interest that may arise in public health research is transparency. Researchers must disclose whether they have any notable conflicts of interest that could interfere with the study at hand.
- 13. What is the role of independent oversight in managing conflicts of interest in public health research?
 - a. IRB's can provide committees to oversee potential conflicts that may arise, and review findings before publication to ensure the absence of bias.
- 14. What is one strategy for mitigating conflicts of interest in public health research?
 - a. A strategy for mitigating conflicts is avoidance. If there is a researcher that may have a notable conflict of research, they can be removed from the study altogether.
- 15. What is the potential impact of not properly managing conflicts of interest in public health research?
 - a. Potential consequences of allowing conflicts of interest to remain in close proximity to the study could be loss of public trust, damage to the reputation or integrity of the study, or bias being introduced into the results.