



**National Institute of
Environmental Health Sciences**

Ethical Use of Artificial Intelligence in Scientific Research

David B. Resnik, JD, PhD, Bioethicist, NIH/NIEHS

The research was supported by the Intramural Program of the NIEHS/NIH. It does not represent the views of the NIEHS, NIH, or US government.

Some Principles of Research Ethics

- Honesty
- Openness
- Transparency
- Rigor
- Objectivity
- Accountability
- Fair sharing of credit
- Respect for colleagues, students, staff
- Protection of intellectual property
- Protection of confidentiality
- Protection of human and animals research subjects
- Social responsibility

Review and Verify AI Output

Examine

- Examine AI output to spot reasoning errors, misinterpretations, hallucinated citations or facts.

Check

- Check for verbatim plagiarism and plagiarism of ideas.

Understand

- Understand potential sources of bias and control for bias.

Validate

- Validate AI data analyses.

Disclose and Document AI Use



AI is not an author because it can't be held morally or legally responsible



Substantial AI use should be appropriately disclosed.

Using AI to write a first draft a document, translate, or substantially edit

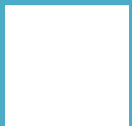
Using AI to analyze data or generate images

Using AI to model phenomena

Using AI to do literature review



Details related to disclosure (e.g., how much, what, where) should reflect the nature of AI use



AI use should be documented in the research record (where appropriate).

Protect Confidential Data



Do not download confidential information into commercial AI systems, such as peer review materials, identified human subjects data, personnel records, medical records, proprietary data.



Use AI systems that are behind a firewall to handle confidential data (but even this has its risks).

Take Responsibility for AI Output

Human beings must take responsibility for AI use.

Being a “human in the loop” involves direction of the project, active engagement in work done with AI, regular review, and relevant knowledge and expertise.

Using AI to write a first draft is problematic because it gives too much control over thinking and writing to the AI.

NIH Intramural AI Policies

- NIH has been encouraging researchers and administrators to use AI to increase efficiency.
- Use NIH approved AI, such as CHIRP— ChatGPT for the Intramural Program is available to NIH researchers.
- Guidelines for Ethical AI Use of in Research https://oir.nih.gov/system/files/media/file/2026-09/guidelines-conduct_research.pdf, page 61
- Ethical AI use as part of responsible conduct of research (RCR) training investigators, staff, and trainees