

Guidance on the use of Artificial Intelligence for research at Northern health

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The Northern Health Research Development and Governance Unit recognizes the role of Artificial Intelligence (AI) in boosting productivity by streamlining processes like literature reviews, and content creation. However, the use of AI necessitates guidelines to ensure ethical and effective use.

This document aims to offer general advice on utilizing AI in research at Northern Health, emphasizing that detailed policies from journals or institutions, such as the University of Melbourne, take precedence over this guidance.

Scope of Document

The guidelines in this document refer to the use of AI for supporting research activity. If researchers intend to use AI in a clinical capacity within their project, they must first obtain the appropriate ethics and governance approvals before commencing. Refer to the Research Governance SOP ([Research - Governance SOP](#)) for additional details.

A brief overview of AI

This guideline includes all forms of AI used for research, but is specifically concerned with the use of Generative AI (GAI). GAI refers to a wide category of artificial intelligence models that are designed to generate new content including text, images, music, video and code. Large Language Models (LLMs) are a subset of generative AI that are focused on text. Whilst LLMs appear to be able to understand and respond coherently, they are in fact probabilistic models that work by deciding what word comes next in a sentence based on probability.

Widely used LLMs include ChatGPT, Gemini, Perplexity, and Claude and many others (Meta's LLaMA, Mistral, Cohere). Various other solutions make use of LLM technology, but configured and presented for specific purposes; for example Microsoft Copilot is powered by ChatGPT technology but it is specifically tailored to integrate into Microsoft office software.

Basic Principles for Using AI in Research

1. Check the Requirements of Your Research Organisation or Publisher

- Always consult the **specific policies of your institution, university, or journal** before using AI.
- *Example:* University of Melbourne and journal publishers like *Nature* or *The Lancet* may have distinct rules.
- This local guidance is only a starting point—**compliance depends on context**.

2. It's Not *Can* You Use AI — It's *How* You Use It

- AI can be incredibly helpful, but its ethical use hinges on **intention, transparency, and human oversight**.
- Using AI to *enhance* your thinking or writing is fine; using it to *replace* core academic work is not.

3. Always Be Transparent About AI Use

- If required, clearly disclose if and how AI tools were used—whether in writing, coding, literature review, or editing.
- Journals vary about declaration of use, and how to record it within a manuscript

4. Double Check All Facts, Citations, and Outputs

- Generative AI tools (including LLMs) are known to “hallucinate”.
- When they hallucinate, they will **confidently present false or misleading information that will read as fact**.
- This occurs because LLMs are trained to predict the next word in a sequence, based on massive patterns in language. The primary goal of an LLM is to produce plausible, coherent and contextually appropriate language, not necessarily factual correctness.
- This means you must always verify AI-suggested facts, statistics, and references using **trusted sources**.

5. Always Edit AI Output Before Using It

- Never copy and paste raw AI-generated content into your final manuscript.

- Use suggestions to help you formulate your thoughts but always make sure the final written manuscript is your own.
- **You are responsible for the integrity and accuracy of all outputs, regardless of AI tool use.**

6. Ensure the confidentiality of scientific data

- **Never upload sensitive, private or identifiable data to publicly accessible AI tools.**
- Always assume that any information shared on the platform could be accessed by third parties, and that there is a risk of data breaches or unauthorized access.
- Always utilise secure, institution-approved systems for handling and analysing sensitive information.
- Consider using AI tools to help develop the syntax, codes or scripts for your data analysis for use in a recognised statistical package, rather than asking it to do the analysis itself.

7. Good prompts improve accuracy

- Be specific about what you want the AI models to do e.g. summarise, outline or refine, and outline specific contextual constraints (e.g. pitch the material for an undergraduate nursing course)
- Set boundaries to avoid hallucination. For example, ““Based on existing literature (do not invent studies and do not overgeneralise findings), what are common healthcare navigation models?”
- Ask the model to help you refine or improve clunky or repetitive sections, but specify that you don’t want to change the meaning.

Common Workflows in Research, and appropriate / inappropriate use of AI

The following table outline some common scenarios where AI may be used and how the use of AI may be used, whether the use of AI is appropriate (green), inappropriate (red), or needs to be approached with caution (yellow).

Scenario	Rating	Guidance
Brainstorming research ideas / refining questions	Green	Ask questions of AI (and ask it to ask probing questions back) to stimulate thinking and refine an initial idea.
Mapping the literature / finding related papers	Green	Use tools like semantic scholar, Elicit, SciSpace (which can be used in ChatGPT), Claude or Perplexity to perform an initial literature search/scan.
Data extraction from papers for reviews (systematic, scoping, rapid reviews)	Green	Use tools that are purpose built for this task (Elicit, SciSpace), however always have a human do the second check of all extractions.
Improving grammar and phrasing in a draft	Green	Use with editing tools like Grammarly. Final text must be yours.
Checking for inconsistencies or unclear logic in your manuscript	Green	Helpful as a final review step. You must judge what to revise.
Drafting reviewer response letters (tone/style help)	Green	OK for polishing or organising responses to reviewer comments. Substantive responses must come from the author.
Using AI-generated citations or bibliographies	Red	High risk of fabricated or incorrect references. Always verify manually (or just don't do it in the first place)
Submitting unedited AI output	Red	Violates academic integrity. Must be human-reviewed, fact-checked, edited.
Letting AI make scientific arguments or conclusions	Red	Only researchers can interpret results and draw conclusions.

Scenario	Rating	Guidance
Uploading confidential data to public AI tools	Red	Serious breach of privacy and data governance policies.
Listing AI as an author	Red	Not permitted under ICMJE, COPE, and journal policies.
Using generative AI to suggest new references or studies	Yellow (Caution)	Acceptable if you verify every suggestion with a trusted academic source. Use caution due to the high risk of hallucination. References generated with sound convincing.
Summarising papers or long documents	Yellow (Caution)	Useful for initial scan. Never rely without reading the source. AI may generate inaccurate summaries and has been found to overgeneralise/ overemphasise results.
Writing code for analysis	Yellow (Caution)	Useful for drafting initial code set or automatic common queries. Analytic approach may be inappropriate to answer statistical question so always double check with a statistician if unsure.