

Fact Sheet: Artificial Intelligence

Introduction

Artificial Intelligence (AI) has the potential to transform nursing practice and healthcare systems; however, as with any evolving technology, nurses¹ must understand these technologies in relation to their [Standards of Practice](#) and [Code of Ethics](#). As such, it is important for nurses to consider the potential benefits associated with AI, as well as the ethical and legal considerations when integrating AI technologies into practice. This fact sheet provides an overview of AI; examples of AI across domains of nursing practice; and ethical and legal considerations in relation to these technologies. Appendix A includes a checklist of considerations to review before implementing AI technologies into nursing practice or the workplace.

What is Artificial Intelligence?

AI broadly refers to computer programs performing tasks historically undertaken by human intelligence (von Gerich et al., 2022). AI is computer code that carries out rapid analysis and evaluation of data, similar to human intelligence processes, such as reasoning, decision-making, or learning from prior experiences (Kooli & Al Muftah, 2022). These processes become outputs such as written information, robots performing tasks, pictures, predictions based on historical data, or other outputs (World Health Organization, 2021).

The AI algorithms that produce rapid outputs have established advantages. These include timely topic summaries; customizable and efficient tools for practice, research, and/or education; and the potential to reduce administrative burdens (Rahimzadeh et al., 2023; von Gerich et al., 2022). Furthermore, AI is projected to reduce costs and increase efficiencies within healthcare systems (Matheny et al., 2019).

As with any technology, limitations and potential risks exist. Using AI programs, such as ChatGPT, generates unverifiable information with limited quality controls (Rahimzadeh et al., 2023). Another major concern relates to how AI algorithms are trained to generate outputs and manage data bias (von Gerich et al., 2022). Furthermore, concerns have been raised that AI has the potential to replace or significantly reduce human interactions which may compromise nursing care (Stokes & Palmer, 2020).

Examples of AI Applications Across Domains of Nursing Practice

AI has the potential to affect every domain of nursing practice. Table 1 provides examples of how AI technologies could be implemented into various environments or practice settings. The purpose of the examples is to illustrate the vast potential of AI implementation within healthcare systems.

¹ For the purposes of this fact sheet, the term “nurse” refers to graduate nurses, registered nurses, and nurse practitioners.

Table 1.

Domain of nursing practice	AI Application Examples
<p>Practitioner- a nurse who is engaged in the direct care of clients</p>	<p>Robotic home telehealth monitoring for cardiac clients.</p> <p>Pattern recognition from client photos, client vital signs, client wearable smart devices, or other client data.</p> <p>Home monitoring of falls, amount of time in bed, etc. for geriatric clients.</p> <p>Personalized chemotherapy and response to treatment.</p> <p>Client-specific clinical decision support tools that account for individualized diagnoses and comorbidities.</p> <p>Targeted population health campaigns based on geographical demographics and socioeconomic markers in a particular community.</p>
<p>Educator- a nurse who is engaged primarily in the teaching of those who are or will be involved in giving care to clients</p>	<p>AI powered simulation training for nursing students to practice nursing assessments, interventions, and evaluations.</p> <p>Adaptive learning platforms that adjust difficulty level of content based on individual student progress.</p>
<p>Administrator- a nurse who is engaged primarily in the management of nursing services or nursing education</p>	<p>Summarize documentation data into trends for reporting and decision-making.</p> <p>Optimize client and/or staff scheduling.</p> <p>Automate decisions related to organizational processes or tasks.</p>
<p>Researcher- a nurse who is engaged primarily in research activities related to nursing</p>	<p>Literature review tools to identify relevant key terms, articles, and/or pertinent evidence.</p> <p>Analysis of large data sets to identify trends, patterns, or other correlations.</p>
<p>Consultant- a nurse who is engaged primarily in an advisory capacity regarding nursing or some specific area of healthcare</p>	<p>AI analytic tools to identify gaps in client care or quality metrics to suggest areas of improvement.</p> <p>Continuing education tools to tailor training to specific nurse and/or work environment needs.</p>

Critical Questions to Consider Before Implementing AI into Practice

Introducing AI into practice environments has the potential to optimize nursing care and health systems, but it is important to ensure there is enough evidence to support the technologies (Matheny et al., 2019). It is equally important to ensure that AI technologies do not hinder the nurse's ability to adhere to their standards of practice and code of ethics. The following questions are intended to help nurses and employers reflect upon the benefits and risks of introducing AI into nursing practice or the workplace.

What is the purpose of AI being implemented into practice?

It is important to reflect at the outset the rationale for introducing AI technology or tools into practice. Nurses should be able to explain how the AI can serve either the client or the nursing care process. Just because the technology exists does not mean that the benefits outweigh the potential risks (Healthcare Excellence, 2021; Vollmer et al., 2020).

Does the AI technology align with the *Code of Ethics for Registered Nurses*?

The *Code of Ethics for Registered Nurses* includes seven primary values, three of which are especially important in relation to AI technologies. These include maintaining privacy and confidentiality; promoting and respecting informed decision-making; and promoting justice.

Maintaining Privacy and Confidentiality

Nurses have an ethical and legal obligation to maintain client privacy and confidentiality as outlined in NANB's [Practice Guideline: Privacy and Confidentiality](#). Nurses must ensure that any AI tool being implemented into practice complies with the [Personal Health Information Privacy and Access Act](#). It is important to consider the mechanisms in place to ensure that the AI system being used will not result in breaches of privacy.

Nurses must never enter identifiable personal health information into publicly available AI tools such as ChatGPT. These tools collect information from users; providing this type of tool with private health information would be considered a breach of privacy.

Promoting and Respecting Informed Decision-Making

Nurses must ensure that they recognize, respect, and promote a client's right to be informed and make decisions. It is important to be transparent about any AI technologies being used in the nursing care process. Nurses should provide clients with information on the AI tool and discuss the benefits and risks of this technology in practice (Kooli & Al Muftah, 2022). It is equally important to allow opportunity to raise questions and address concerns in relation to the AI technology or tools that impact client care.

Promoting Justice

It is important to consider that the data generated by AI may not consider or address the cultural, racial, gender, or linguistic needs of the client (Healthcare Excellence, 2023). There is acknowledgment that AI outputs may not be relevant or accurate for individual clients and may even exacerbate existing societal biases (Madaio et al. 2020). As such, nurses should consider how the AI technology was designed and whose data is being used to generate outputs. Nurses should advocate for AI technologies and tools to be developed collaboratively with the clients who will be affected by it (WHO, 2021).

Is there a chance that the information may be inaccurate, unreliable, or unverifiable?

It is important to consider the evidence that supports the AI tool. As per standard 2, indicator 2.6 of the [Standards of Practice for Registered Nurses](#), “the nurse uses credible research findings and applies evidence-informed practices”. Nurses must be able to explain how the AI technology or tool is evidence-informed and has sufficient quality controls. For more information on the accountabilities of nurses pertaining to accurate and reliable information, please refer to the [Fact Sheet: Misinformation and Disinformation](#).

Chatbots (such as ChatGPT) may be able to answer questions about health-related topics. It can generate key terms or summarize concepts; however, the information is not verifiable and is not considered evidence-informed nursing care. Nurses are accountable to use credible sources to inform their nursing practice. Therefore, these specific tools must be used with caution and only when combined with other forms of credible evidence and information.

Finally, using AI technologies to write documents such as briefing notes, research articles, or nursing resources may be considered a form of plagiarism. It is important to understand employer and organizational policy, and advocate for the development of policies if none exist.

Has there been sufficient education, training, and organizational support to effectively implement the AI tool?

Organizational readiness will influence the success of implementing the AI tool into practice (Healthcare Excellence, 2021). If it is determined that the AI technology is appropriate, reliable, and aligns with the standards of practice and code of ethics, then it is important to ensure that the tool is supported by the employer. Nurses are accountable for practicing within their own level of competence and to seek additional knowledge when necessary. Therefore, sufficient education and training to be competent in the use of AI technologies is essential.

It is important to ensure the necessary clinical supports are available to safely perform activities. If the employer does not have the appropriate provisions to support AI tools, then the nurse should advocate for and potentially assist in the development of supporting policies, directives, or guidelines to support the safe implementation of AI into practice.

Are there mechanisms in place to ensure the AI tool’s outputs can be evaluated (for unintended consequences or otherwise)?

A potential issue that can arise with AI use is confusion regarding the lines of accountability and responsibility, and the perception of decreased human responsibility should errors causing client harm occur (Kooli & Al Muftah, 2022). As per standard 1, indicator 1.6 of the [*Standards of Practice for Registered Nurses*](#), “the nurse recognizes and takes action in situations where client safety is potentially or actually at risk”. It is important to ensure that mechanisms are in place to continually monitor and evaluate the AI outputs to safeguard against negative consequences. Nurses should also have processes in place to be able to identify and report any negative consequences arising from AI technologies.

Conclusion

AI has the potential to revolutionize nursing practice and healthcare systems. There are both associated benefits and potential risks that must be considered prior to implementing AI technologies into nursing practice or healthcare systems. It is important to reflect upon the highlighted critical questions and considerations before implementing AI tools into practice to ensure that the nurse remains accountable to their standards of practice and code of ethics.

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Appendix A: Critical Considerations before Implementing AI into Practice

Begin with the first consideration. Answering 'Yes' allows you to proceed to the next point. Answering 'No' to any consideration means that AI may not be appropriate at this time or in this setting and additional consultation with the employer or NANB may be required. If 'Yes' is selected for all questions, then the AI technology may be appropriate to implement into nursing practice or the workplace.

Critical Considerations	Yes/No
The purpose of AI implementation into nursing practice is clear and the benefits and risks have been considered.	
The AI technology will allow nurses to maintain privacy and confidentiality.	
The use of AI in practice is transparent and the client can make informed decisions related to the AI technology.	
Data bias has been considered and addressed, and the AI implementation is equity-focused and promotes justice.	
The AI tool is accurate, reliable, and supported by credible evidence.	
There has been sufficient education, training, and organizational support to effectively implement the AI tool into practice.	
There are mechanisms in place to ensure the AI outputs can be evaluated.	
The implementation of AI technology or tools is supported by employer policy.	