

Artificial Intelligence in Nursing Practice and Education: Opportunities, Risks, and the Need for Critical Thinking Background

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The American Nurses Association – Michigan convened a multidisciplinary nursing panel of Artificial Intelligence (AI) experts made up of nurse leaders, informaticists, and clinicians from around the state to discuss a central question: Is AI in nursing a help, hype, or a hazard? Barbara Medvec, an Associate Professor at the University of Michigan School of Nursing and organization president, emphasized that AI is not going away and that the rapid pace of AI adoption in healthcare outpaces that of the early internet adoption. Dr. Medvec highlighted that in recent discussions with healthcare and AI leaders, many organizations are already integrating some form of AI into clinical or operational workflows. For nursing, this rapid evolution presents both significant opportunity and uncertainty. As a profession grounded in clinical judgment, relationship care, and continuous patient assessment, nursing occupies

a unique and sustainable position in the broader conversation about AI's role in healthcare (George & Peirce, 2025). The panel discussion was guided by two primary learning objectives: 1) to enhance nurses' understanding of AI's impact on daily practice and 2) to support safe, ethical, and appropriate use of AI technologies.

AI as Augmentation, Not Replacement

A consistent and dominant theme among panel members emphasized an important point: healthcare professionals need to recognize that AI is a tool to augment, not replace, nursing care. Olivia Holtcamp, a Critical Care Clinical Nurse Specialist for Trinity Health in Oakland Hospital, highlighted the potential for AI to streamline documentation and reduce the administrative burden nurses face every day,

freeing them to spend more time with patients. The panelists emphasized that nursing practice is dynamic, requiring interpretation of complex clinical cues, adaptation to evolving patient conditions, and nuanced decision-making. Mike Walker, a nursing leader at Michigan Medicine, underscored the important role AI can play in identifying and organizing trends and relationships in the massive amounts of electronic health record (EHR) data collected for each patient. Moreover, Colby Anderson, the Director of Health Informatics for Trinity Enterprise for Trinity Health, reinforced that while AI can augment nursing and identify key factors in patient data, it is nurses' clinical judgment and critical thinking skills that are required to make decisions about patient care.

Panelists emphasized that while AI can enhance efficiency and support task-based activities, it cannot replicate the core elements of nursing, including clinical judgment, critical thinking, advocacy, and the relationship aspects of patient care. Dr. Michelle Aebersold, a Clinical Professor at the University of Michigan School of Nursing, gave the example of how AI can serve not as a tool that provides medical advice or offers clinical judgement, but as a tool that can serve as a front line support for patients in their home, listen to their symptom, and based on the AI algorithms, connect a patient to a nurse when necessary. Collectively, panelists reinforced a central principle that AI supports data processing, task efficiency, and enhances nursing practice, but it cannot replace the cognitive, relationship, and ethical dimensions that define the

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nursing profession.

Critical Thinking in the Age of AI

A key concern raised during the discussion was whether AI might erode nurses' critical thinking skills. Panelists consistently challenged this notion, arguing that AI requires a higher level of critical thinking. Rather than generating answers independently, nurses must now evaluate, validate, and interpret AI-generated results (Woo, Song, Middleton, Fijačko, & Cato, 2025). This includes recognizing inaccuracies, identifying potential bias, and cross-checking information with other sources (Alkan & Kirmaci, 2025). Dr. Aebersold recommended a "trust but verify" approach as a guiding principle when evaluating AI-generated information. She added that while instances of incorrect data, otherwise known as hallucinations, seemed to have decreased, any AI-generated data requires scrutiny and validation. Panelists emphasized that, despite rapid advances in AI, critical thinking remains central to nursing practice. In this context, AI shifts the nature of critical thinking rather than diminishing it, requiring nurses to function as evaluators, interpreters, and decision-makers in increasingly data-rich environments.

Unlocking Data to Support Decision-Making

Multiple panelists recognized the important role AI can play in unlocking and operationalizing clinical data. Olivia Holtcamp stressed that, despite the vast amount of information stored in electronic health records (EHRs), nurses often struggle to access relevant data in real

time, creating inefficiencies and limiting their ability to fully leverage data for clinical decision-making. Panelists discussed how AI enables natural language queries, creating the opportunity to automate data synthesis. For example, Mike Walker suggested that, rather than relying on manual chart audits or complex reporting processes, nurses could interact with data more intuitively, generating insights that support patient care and quality improvement efforts. Panelists agreed that such advancements could significantly enhance clinical reasoning and support more informed, timely decision-making at the bedside.

Reducing Cognitive and Administrative Burden

Another prominent theme was the potential for AI to reduce cognitive workload and administrative burden. Nurses routinely manage high volumes of information while navigating complex documentation requirements and competing priorities. Panelists highlighted opportunities for AI to streamline documentation, reduce duplication, and simplify access to policies and procedures. Mike Walker and Sandy Rye, a doctoral student at the University of Michigan School of Nursing, discussed the opportunity for AI-enabled tools to allow nurses to quickly retrieve institutional guidelines or summarize patient data without navigating multiple systems. Olivia Holtcamp stressed that in high-acuity settings, such as critical care, where decisions must be made rapidly, reducing cognitive load could have a meaningful impact on patient outcomes. However, panelists noted that efficiency

gains do not automatically translate into improved patient care. There is a risk that time saved through AI could be redirected toward increased workload rather than enhanced patient interaction. This underscores the need for thoughtful implementation and leadership oversight to ensure that efficiency gains benefit both nurses and patients.

Transforming Nursing Education Through AI

From an educational perspective, AI presents transformative opportunities for simulation-based learning and competency development. Dr. Aebersold highlighted the use of AI-driven avatars and conversational agents to support deliberate practice, particularly in communication and clinical reasoning. These tools allow learners to engage in deliberate, adaptive practice with real-time feedback, creating psychologically safe environments where students can refine skills without risk to patients. For example, the use of AI-supported scenarios to teach structured communication (e.g., SBAR) has demonstrated improvements in learner performance and confidence. Importantly, AI enables scalable, sustainable opportunities to address challenges in nursing education related to variability in clinical experiences and limited opportunities for repetition (Bradley et al., 2025).

Risks: Overreliance, Bias, and Alert Fatigue

While the discussion identified numerous opportunities and meaningful benefits, the panelists identified several risk areas that nurses must proactively manage. The most prominent concerns were patient safety, the potential for overreliance on AI, and the risk of bias. Overreliance is particularly concerning for less experienced nurses, who may be more likely to accept AI output without sufficient scrutiny. Bias can emerge from how users frame queries, potentially reinforcing existing disparities or incorrect assumptions (Ramírez Baraldes, García Gutiérrez, & García Salido,

2025). Olivia Holtcamp identified alert fatigue as a significant risk. She emphasized that nurses already manage multiple sources of alarms and notifications, and poorly implemented AI systems could exacerbate this burden rather than alleviate it. These risks highlight the importance of intentional design, rigorous evaluation, and ongoing monitoring of AI systems in clinical practice.

The Need for AI Literacy and Education

Panelists emphasized the growing need for digital literacy and AI competency among nurses. Dr. Aebersold highlighted that while deep technical expertise in AI is not required, nurses must understand how AI works, its limitations, and how to use it effectively. Panelists agreed that AI competencies include the ability to evaluate AI outputs, recognize bias, understand system limitations, and appropriately integrate AI into clinical workflows. Panelists also highlighted the need to incorporate AI education into nursing curricula, including ethical considerations and responsible use. And faculty development was identified as a critical component, as educators must not only be prepared but

also competent to teach and model appropriate AI use.

Nursing Leadership and Advocacy in AI

A powerful theme emerging from the discussion was the importance of nursing leadership and advocacy in shaping AI. Tricia Thomas, a Professor at Kirkhof College of Nursing at Grand Valley State College, emphasized that nurses must have “a seat at the table” in the design, implementation, and evaluation of AI systems. Panelists argued that failing to engage in these processes risks developing tools that do not align with nursing workflows or patient care needs. Dr. Medvec discussed how advocacy extends beyond clinical practice to include policy, regulation, and perception. For example, discussions around the appropriate use of the term “nurse” in relation to AI systems highlight the need for professional representation. The panelists agreed that ultimately, nurses bring a unique patient-centered care perspective to healthcare, making their involvement essential to ensuring that AI supports safe, equitable, and effective healthcare delivery.

Conclusion

Artificial intelligence represents a significant and inevitable shift in healthcare, with the potential to enhance nursing practice, improve efficiency, and transform education. However, its success depends on thoughtful integration, ongoing evaluation, and strong nursing leadership. AI must be viewed not as a replacement for nursing, but as a tool that amplifies the profession’s strengths. Clinical judgment, critical thinking, and compassionate care remain irreplaceable. As AI continues to evolve, nurses must actively engage in its development, ensuring that these technologies align with the values and realities of patient care. The future of AI in nursing is not predetermined. It will be shaped by how nurses choose to engage, advocate, and lead in this rapidly changing landscape. ■

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