An Ethics of Artificial Intelligence for Nursing

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Article

Abstract

While “Artificial intelligence” has been around for decades, the explosion of artificial intelligence in the popular imagination, transdisciplinary research, smart devices, and healthcare is more recent, confronting the profession of nursing with problems it needs new tools to parse. With this article, we wish to thoughtfully consider the ethical implications of artificial intelligence in the context of nursing care. To this discussion, we bring an affirmative ethic of care that invites nurses to think beyond the surface and really dig into the worlds we build in adopting technologies for the provision of nursing care. With this article, we refuse binary narratives of artificial intelligence as savior or threat. Instead, we argue for a more engaged, relational approach to both care and artificial intelligence reckoning with both the potential of AI to harm or help as contingent on its design, implementation, and orientation within healthcare systems. In resisting reductive approaches to AI, we attend not only to the most distal application of AI/ML in the care setting but also to the practices and problems that are less visible, such as upstream harms often invisible to end users unless they dig into the nuts and bolts of how AI is created. By foregrounding an ethic of care, the discussion explores how reframing AI as a relational and participatory tool could mitigate current and ongoing harms while addressing inequities and fostering sustainable, patient-centred innovation.

Key Words: artificial intelligence, care ethics, ethics, machine learning, nursing, prefigurative practice, technology

“Artificial intelligence” (AI) is an umbrella term that serves as a nonspecific catch-all for many different types of automated decision-making, machine learning, and large-language modeling in computer science. While “artificial intelligence” as an academic concept has been around for decades, the explosion of artificial intelligence in the popular imagination, transdisciplinary research, smart devices, and healthcare is more recent. This article is designed to think about the ethics of artificial intelligence in the context of nursing. Because the ethics typically take a little while to catch up to the technology, we are using affirmative care ethics to think beyond the surface of AI in healthcare and really dig into the worlds we build in adopting technologies for the provision of nursing care.

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We start by defining our terms, reflecting on what “artificial intelligence” means in healthcare and what ethics looks like in nursing practice. We go on to consider the promise of artificial intelligence in nursing and healthcare, recognizing that AI solutions often strive to solve real world healthcare problems. From there, we turn to ethical considerations of AI for nursing, situating artificial intelligence and its ethics in the political economy of healthcare. We consider ways that nursing ethics lag behind technology and consider other modes that might help close the gap. Healthcare landscapes in institutional settings focus on individual instances of care, drawing our gaze downstream. This sometimes overshadows the complexity of nursing care, including the development and implementation of technologies like AI.

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In this article, we refuse binary narratives of artificial intelligence in healthcare as either a labor-saving Godsend or an existential threat. We argue instead for a more nuanced approach that recognises the potential of AI to harm or help, as contingent on application design, implementation, and orientation within healthcare systems. One important point of entry we rely on for resisting reductive approaches to healthcare is by integrating transnational nursing perspectives, drawing on our experiences in the US (Jess)

and the UK and Germany (Jamie). In resisting reductive approaches to AI and its complement, Machine Learning (ML), we attend not only to its most visible applications but also to the practices and problems that are less visible. For example, upstream harms are often obscured from end users unless they dig into the nuts and bolts of how AI is created. By foregrounding an ethic of care, this article explores how reframing AI as a relational tool could mitigate current and ongoing harms while addressing inequities and fostering sustainable, patient-centered innovation. We invite readers to consider AI not as a static solution or problem but rather as a dynamic technology shaped by human values, priorities, and collective action.

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Background and Key Concepts

Thinking "artificial intelligence" in nursing leads in a couple of different and opposing directions. The first is characterized by a technological optimism that heralds the promise of processes and decision-making offloaded to algorithms, a utopian vision for AI in healthcare that extends human capacity and access. At the other end of the spectrum is an anxiety-fueled vision of nursing work replaced by smart robots. Both of these visions are future-facing and divert our attention from important considerations for nursing and healthcare in the present. At least as far back as the beginning of the organized profession, nursing has been engaged in questions concerning technology (Sandelowski, 2000). Throughout the 20th century, as medical technologies have advanced, nursing care has adopted more and more sophisticated technologies. At one time, the stethoscope was the sole purview of physician care and it is now ubiquitous in nursing; similarly, at points past, nurses were legally prohibited from performing their venipuncture (Sandelowski, 2000). In this context, we can understand AI/ML as part of a broader trend of technological adoptions in nursing.

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We now turn to the present realities of AI/ML and the histories on which they are built. Nurses see the value of and potential for AI/ML in nursing and healthcare (Swan, 2021). According to data collected by McKinsey (2024), a healthcare consulting firm, attitudes towards the integration of AI/ML in nursing work are mixed but broadly characterized by cautious optimism. This is rooted in nurses' perception of the potential of AI/ML to improve quality of care and worklife.

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As we think about how AI/ML is proliferating, it is important to note that it is already a reality in healthcare settings and has been for some time. In 1962, for example, pioneering psychiatric nurse and visionary nurse leader Hildegard Peplau invited nurses to consider the implications of automation for nursing, imploring them to recognize that "now is the time for nurses to stop and take a look, to consider the clues to large-scale automation of our society and bring to bear their collective judgements on the professions" (p. 39). While Peplau (1962) was thinking about data processing, assembly line models of care, and mechanization of healthcare processes, less than a decade later, AI in the form of INTERNIST-I was introduced to healthcare (Myers, 1987).

Realizing that the base of medical knowledge had surpassed what it is possible for a person to know, INTERNIST-I was developed to facilitate diagnostic decision making in 1971 (Myers, 1987). By the 1980s, the journal *Artificial Intelligence in Medicine* boasted an international audience (Quest et al., 2021). Since then, AI has proliferated in fits and starts across healthcare settings, fueling diagnostic algorithms, augmenting radiology readings, enhancing colonoscopies, and more (Kaul et al., 2020).

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While AI application is clear in medical contexts, it is sometimes less so in the work of nursing. AI/ML salient to nursing work can be found in the electronic health record (EHR) supporting clinical decision-making and triage, risk-stratification, and enhanced monitoring (O'Connor et al., 2023). Other applications of AI that may or may not be immediately apparent to clinicians include organ procurement, telemetry monitoring, and the network of in- and out-patient health devices linked up through the internet of things (IoT) (Alshehri & Muhammad, 2021; Maslove et al., 2021; Peloso et al., 2022). Of course, by now, we have likely all experienced chatbots as we try to contact our insurance companies and navigate the healthcare system.

Defining Our Terms

The eruption of mainstream and social media coverage of tools like the OpenAI generative textbot *ChatGPT* has provided a frame of reference for thinking about AI. Competencies related to AI have even been integrated in the *Essentials* (American Association of Colleges of Nursing [AACN], 2021). But what exactly is AI and how does it get its knowledge? *Artificial intelligence* is simply a "a computer system that can learn and make decisions based on its own accumulated experience" (Koski & Murphy, 2021, p. 296). This is distinguished from other forms of decision-making that rely on expertise or other types of algorithms. *Machine learning* is how artificial intelligence is created. Machine learning is a subset of computer science that trains a machine to recognize, label, and predict patterns in data sets fed into its statistical models (Walker et al., 2023).

This process is repeated iteratively and informs future predictions. One critical way AI comes to bear on nursing work is through the internet of things (IoT) which links smart devices like pumps and telemetry directly into the electronic health record in the inpatient setting. It may also extend to include data generated by personal smart devices, linking home and acute care settings (Koski & Murphy, 2021). Artificial intelligence is a big umbrella term under which other terms are nested, including machine learning and deep learning, which refers to constellations of layered networks of machine learning linked to allow new conclusions to be reached (Starr et al., 2023).

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These technologies are embedded in the political economy of the healthcare-industrial complex. *Political economy* is a term that emerged in the 19th century that refers to the economic affairs of the nation-state (Mill, 1826). This represented a major shift in the notion of economy, which had previously applied to household management (Caporaso & Levine, 1992). Upsizing economies to the scale of state gestures at the entanglement of money and political power in a capitalist political economy (Thier, 2020). Drawing on the insights of feminist political economists, we understand the concentration of power and wealth as the product of culturally and historically-situated social processes where capital begets more capital, power, and influence (Rao & Akram-Lodhi, 2021).

The salience of this 'pay to play' arrangement is all too clear in the emergent tech-oligarchies of the Trump administration and comparable to state-controlled algorithms in Russia, China, and India. As a system that prioritizes production and minimizes care, capitalism is an important organizing force in the political economy of healthcare which has distinct ethical implications (Fraser, 2016). In the landscape of late capitalism, the *healthcare-industrial complex* is a term that refers to the commodification and commercialization of healthcare. First characterized by the Health PAC in 1969 as the "medical-industrial complex," we expand this term to include nursing and all other actors who make healthcare possible, from respiratory therapists to pharmaceutical companies ("Medical Industrial Complex," 1970). In this broad landscape of healthcare political economies, the question of AI/ML in healthcare connects with how resources might be extended, revenue generated, and costs minimized.

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As we think about the ethics of AI/ML in the context of nursing, we rely on two key conceptual interventions: speculative ethics and prefigurative politics. *Speculative ethics* is a divergence from the code-bound approaches to ethics often assumed in nursing that instead imagines alternate futures for nursing, healthcare, communities, the world – and oriented ethics to support these dreams (Smith et al., 2023). This approach to ethics, which is capacious and unbounded, is buttressed with *prefigurative politics*, an approach that invites us to act on our values in the present to create the futures of our dreams (Sharman, 2023). Combined, speculative ethics and prefigurative politics are a brilliant accompaniment for the work that nurses do, which is oriented toward shaping outcomes and building desirable present/futures for the persons in our care.

While we currently seem to face a horizon engulfed by AI/ML, technologies are not new to nursing nor are we suggesting that nurses avoid or condemn technologies. Combining tools, theories, and practices to achieve particular aims, nursing as a domain and discipline itself could be understood as a technology, a human social practice. Instead, what we aim for is a clear and critical approach to technology. Technology has served several critical functions in the project of professionalizing nursing, including technology as legitimacy, technology as mastery, and technology as distance. Key developments in nursing as a professional and academic discipline occurred in a period of scientific flourishing that followed World War II, including the orientation of nursing itself as a science (Tobbell, 2022).

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As nursing sought to carve out an autonomous body of knowledge and practice, the use of tools afforded scientific credibility and professional authority. This gives rise to technology as mastery, extending nursing control over clinical and administrative practices. Technology also puts distance between nurse and patient, making space to claim managerial and administrative authority while also hazarding the risks of alienating care providers from their patients (Bean et al., 1963; Birckhead, 1975; Peplau, 1962; Sandelowski, 2000). All of this takes place in the context of healthcare in a landscape shaped by economics and politics, to which we now turn our attention.

The Political Economy of AI in Healthcare

Political economy attends to the entanglement of market, state, and society (Thier, 2020). In this construction, how resources are invested is a powerful and normative indicator of where cultural, political, and institutional priorities lie. This includes nursing, healthcare systems, and society in a broader context. Applying the key questions of classical political economy allows us to consider the main narratives of AI in healthcare, attending to ownership, labor, compensation, and how resources are distributed (Rao & Akram-Lodhi, 2021). In the United States, the United Kingdom, and in much of the world, the dominant political economy that shapes our collective realities is capitalism.

Political economy attends to the entanglement of market, state, and society

Under capitalist logics, the motor that drives the economy is profit (Jenkins et al., 2024). This is true for healthcare; this is the case, even in not-for-profit and socialized care settings as these settings have adopted business models similar to those of for-profit entities, the key difference being that not-for-profit agencies do not pay taxes (Jenkins et al., 2024). As we interrogate the use and utility of AI – and its ethics – in and for nursing, these political economic factors provide important insight into how and why innovation occurs. Four key considerations related to the political economy of AI/ML in healthcare include economic drivers, technosolutionism, downstream focus, and stakeholder power dynamics.

However useful, classical political economy often overlooks the background work necessary to make things go. Feminist political economists refer to this as "life-making" or "social reproduction." It is fundamental to the "mainstream" economy and without it, no economic production is possible (Rao & Akram-Lodhi, 2021). In the stereotypical nuclear family structure, this could be conceived as the domestic labor required to make households run (Federici, 2020). Typically unpaid and frequently assigned to women, this "hidden" labor is as imperative to the public political economy as any other form of labor. Applying the principles of feminist political economy to healthcare enables us to explain the devaluation of carework such as nursing (see, for instance, Jenkins et al., 2024). In thinking about AI/ML, a feminist approach encourages us to think about the work behind the work, revealing the complex structures that make all work possible, including carework in professionalized settings. From here, we might consider the ways that datasets on which AI/ML is trained are created, which often relies on un- and underwaged labor (Dinika, 2024; Williams, 2022). We might also ask ourselves what happens when an AI technology does not work in a healthcare setting – and who will be responsible for nursing those problems?

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Economic Drivers

By the logics of a capitalist political economy in healthcare, the promise of AI/ML-driven cost-savings is deeply appealing. One United States-based source suggested in early 2023 that widespread adoption of AI/ML in healthcare settings could result in $360 billion dollars per year in savings across the industry (Pifer, 2023). Opportunities for adoption of AI include dictating provider notes, automating billing, identifying fraud, supporting robot-assisted surgical intervention, enhancing radiology readings, mapping genetics, expanding physiologic monitoring, reducing waste in ordering, expediting central supply chain, streamlining workflows, addressing workforce shortages, supporting clinical decision-making, connecting biomarkers to disease prognosis, and more (See, for example, Bohr & Memarzadeh, 2020). If it is possible for AI to do all this in a manner that is both cheaper and more accurate than its human competitors, as some suggest (Bohr & Memarzadeh, 2020), it is hard to see a downside when it comes to the economics of it all.

Technosolutionism

Coined by historian of science Evgeny Morozov (2013), the term *technosolutionism* refers to our collective faith in the notion that more technology will save us from crises we face. Technosolutionism relies on the reduction of "complex social situations either as neatly defined problems with definite, computable solutions or as transparent and self-evident processes that can easily be optimized" (Morozov, 2013, p. 5), assuming it is possible to land on the right science. This orientation forces a narrow focus on the downstream, obscuring problems that are likely to emerge in the development and application of tidy and appealing "solutions." It also settles into the identification of problems without fully unpacking them, giving way to half-baked solutions (Morozov, 2013). Technosolutionism abounds in nursing and healthcare, with AI serving as a prime example.

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When we apply critiques that arise from technosolutionism to the implementation of AI in healthcare, several questions bubble up. Why, for instance, are particular problems chosen? How are these problems defined and by whom? Who benefits from problems defined in that way with the solutions it gives rise to? For example, if we consider AI-powered nurse staffing assignments, we first must ask what is the exact problem here that an AI algorithm is solving? Is it a workforce shortage problem or an optimizing the workforce budget problem? These are related problems, fused in a political economy of healthcare that rolls carework into the debit column. But these problems make different assumptions and give rise to different appropriate solutions. What happens, for instance, when we take staffing and staffing shortages not just as a just-in-time problem to be solved, as AI-supported staffing modeling might, but rather as a symptom of a broader problem rooted in the structures of healthcare beholden to profitability for shareholders?

Downstream Focus

Following the insights of public health nurses Betty Bekemeier and Patricia Butterfield (2005; Butterfield, 1990), care in our current environment focuses on the downstream, individualized healthcare intervention that drives technosolutions. Training our collective gaze on the sharp edges of healthcare, this assigns responsibility for health and for nursing care to individuals. Downstream focus is exemplified in innovations in healthcare that focus on so-called "precision" genome-based health interventions. This kind of microscopic frame crops out the larger social, cultural, economic, political, and institutional factors that intersect to shape people's health realities. It also obscures considerations of who is able to access precision healthcare and who is left out.

We can think about AI in similar ways. When we think about the downstream benefit of AI-assisted language translation, for instance, in healthcare settings, we can immediately see benefits to clinicians and people receiving care. What we do not see is how algorithms for translation were trained, who did that training, and critically, how healthcare encounter audio data will be used and protected. In a climate of political uncertainty around things such as immigration and gender care, these questions represent more than mere passing interest. We now turn to ethics and AI for nursing.

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Some Ethical Considerations of AI in Nursing

AI presents a complex array of ethical challenges and opportunities in nursing, spanning systemic, organisational, and patient-level impacts. However, in many ways this is no more complex than earlier incarnations of care. By examining these challenges that AI poses, we can understand the multifaceted implications and explore the potential in care. We do so by considering ethical issues at the macro-, meso-, and micro-levels.

Macro-Level Ethical Issues

At the macro level, ethical concerns focus on the systemic and global implications of AI in healthcare. One significant issue is the environmental impact of AI technologies. The computational power required to train and run AI models demands significant energy, contributing to carbon emissions and electronic waste. Alfarizi and Noer (2025) emphasize that integrating sustainability into healthcare AI is critical, recommending the use of energy-efficient technologies and waste management practices to mitigate ecological harm. Similarly, Lakhouit (2025) highlights the role of AI in supporting sustainable operations, such as recycling and waste minimization, which can align healthcare with broader environmental goals.

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Another macro-level concern involves labor exploitation in the development and maintenance of AI systems. These technologies often rely on underpaid and under-recognized labor, such as data annotation work. Rouhana and Van Caillie (2025) discuss how healthcare organizations must address these inequities by implementing ethical procurement practices and fair trade standards. Mosavi (2025) further underscores the hidden human costs of AI development, proposing ethical frameworks to ensure that labor practices align with industry-wide sustainability and ethical goals.

A further meta-level challenge is algorithmic bias, where AI systems inherit biases from the datasets on which they are trained, potentially perpetuating healthcare inequities. These biases can disproportionately affect marginalized populations. Chuan and Tan (2024) highlight the need for regular audits of AI models to detect and correct biases that may result in unequal resource allocation. Khan and Usman (2025) illustrate how inequities in AI tools can emerge in environmental and public health applications, advocating for ongoing efforts to improve the diversity of datasets and ensure equitable healthcare delivery.

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Meso-level Ethical Issues

The integration of AI into nursing practice introduces ethical dilemmas that operate at the meso level—affecting organisational structures, clinical workflows, and professional roles (Morley et al., 2020). These challenges do not exist in isolation but intersect with broader structural forces shaping healthcare delivery (Celi et al., 2022). We identify three key meso ethical concerns: the redirection of nursing work towards managing AI rather than patient care; privacy and consent challenges associated with patient data; and the exclusion of marginalised populations from equitable access to AI-facilitated benefits (Travelingnurse, 2023).

Redirection of Nursing Work. One of the most pressing meso-level ethical concerns is the shift in nursing work from direct patient care towards managing AI-driven technologies (Fiske et al., 2020). AI applications, such as clinical decision support systems (CDSS) and automated patient monitoring, are often framed as mechanisms to enhance efficiency and reduce cognitive burden (Reddy et al., 2022). However, in practice, these technologies frequently introduce new layers of administrative and technical oversight that demand significant nursing attention (Topaz & Pruinelli, 2017). For example, research by Topaz and Pruinelli (2017) found that AI-based nursing informatics tools require continuous validation by nurses, forcing them to spend more time checking algorithmic outputs rather than engaging in direct patient care. While AI is designed to assist clinical decision-making, nurses often find themselves responsible for troubleshooting software issues, re-entering patient data, and mitigating AI-generated errors—tasks that add to their cognitive load rather than reducing it.

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Similarly, Shaw et al. (2021) observed that in neonatal intensive care units (NICUs), AI-driven monitoring systems generate frequent alerts, some of which are false positives, requiring nurses to assess and override incorrect recommendations. This constant need for manual verification increases cognitive fatigue and shifts nurses' focus away from bedside care to

managing AI systems. Instead of reducing workload, these tools risk making nurses AI supervisors rather than patient caregivers. Additionally, the emotional labor of nursing is often undervalued in AI-driven decision-making. Shaw et al. (2021) highlighted how algorithmic recommendations frequently fail to account for the nuanced, context-specific decisions nurses make. For instance, an AI system may flag a patient as low risk based on predefined parameters, but a nurse's experience may indicate otherwise. This tension between algorithmic logic and clinical intuition can lead to professional disempowerment, where nurses feel pressured to comply with AI recommendations even when they conflict with their judgment.

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To address these concerns, AI implementation must be accompanied by robust participatory design strategies that integrate nurses' voices from the outset (Liu et al., 2024). AI should function as an extension of nursing care rather than a redirection of labour towards managing digital infrastructures. Without this recalibration, there is a risk that AI will exacerbate existing systemic issues, increasing work complexity rather than meaningfully supporting the nursing workforce (Goethals et al., 2022).

Privacy and Consent Concerns. The ethical use of patient data in AI-driven healthcare systems presents significant privacy and consent challenges (Leslie et al., 2021). AI relies on vast datasets to function effectively, often drawing from electronic health records (EHRs), wearable devices, and other digital sources (Gerke et al., 2020). While these datasets enable predictive analytics and personalised care, they also introduce risks related to data security, patient autonomy, and informed consent (Mittelstadt, 2019).

A key issue is the opacity surrounding how patient data are collected, processed, and utilised in AI training models (Davenport & Kalakota, 2019). Topaz and Pruinelli (2017) discussed how AI in nursing often depends on automated data extraction from EHRs, but nurses are rarely informed about how these data are stored, shared, or reused for AI model training. In many cases, patients themselves do not fully understand that their data are being used beyond their immediate care context, contributing to a lack of meaningful consent. Shaw et al. (2021) add that existing consent mechanisms in AI-driven healthcare often fail to capture the complex ethical considerations of data use. Most patients interact with oversimplified opt-in or opt-out forms that do not adequately explain how their health information might be used in AI training. Nurses, as frontline caregivers, are placed in a difficult position, where they must uphold patient autonomy while working within systems that do not prioritize transparency.

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A care-centred approach to AI requires rethinking consent not as a one-time procedural step but as an ongoing, relational process that ensures patients retain agency over how their data are used (Char et al., 2018). This necessitates not only clear regulatory frameworks but also the active involvement of nurses in shaping ethical data governance practices (Jobin et al., 2019).

Equity and AI. AI in healthcare has the potential to reinforce and even exacerbate existing disparities if issues of equity are not explicitly addressed in its design and deployment (Obermeyer et al., 2019). Historically- and currently-oppressed populations—such as racial and ethnic minorities, lower-income groups, people with disabilities, queer folks, people with disabilities, and those living in rural communities—are frequently underrepresented in the datasets used to train AI models (Chen et al., 2021). This lack of representation results in biased algorithms that fail to provide equitable care recommendations, misdiagnose conditions, or exclude vulnerable patients from benefiting from AI-driven interventions (Norori et al., 2021). For example, Shaw et al. (2021) found that AI-driven clinical tools often fail to recognize disparities in healthcare access. Their research highlighted how nurses in rural and lower-income settings struggle with AI implementation due to lack of technological infrastructure, limited internet connectivity, and poorly designed AI interfaces that assume familiarity with digital systems.

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Even when AI tools are introduced that purportedly address inequities in healthcare, they do not necessarily reach the populations who need them most. Additionally, Topaz and Pruinelli (2017) discussed how algorithmic bias in AI systems mirrors historical inequalities in healthcare. They emphasized the case of pulse oximeters, which have been shown to underestimate oxygen levels in patients with darker skin tones due to biases in the underlying calibration data. This is particularly concerning as many AI-based clinical decision tools rely on similar physiological data inputs, meaning that pre-existing biases in medical technology can become embedded in AI recommendations. To mitigate these risks, AI development must adopt an explicitly equity-driven approach, ensuring that data collection, model training, and implementation strategies actively correct for systemic biases (Rajkomar et al., 2018). This includes diversifying datasets, incorporating social determinants of health into AI models, and ensuring that AI-driven decision-making does not reproduce exclusions already present in healthcare systems (Chen et al., 2021).

Even when AI tools are introduced that purportedly address inequities in healthcare, they do not

Meso ethical issues surrounding AI in nursing highlight the structural tensions that emerge when new technologies intersect with existing healthcare infrastructures (Morley et al., 2020). Without careful consideration, the use of AI risks shifting nursing work away from care, eroding

necessarily reach the populations who need them most.

patient privacy, and deepening inequities in healthcare delivery (Leslie et al., 2021). Addressing these challenges requires a commitment to participatory design, robust data governance, and equity-centred AI development (Rajkomar et al., 2018). By centering care ethics in AI integration, nurses can play a critical role in ensuring that technology serves as a tool for enhancing, rather than undermining, the values of relationality, trust, and justice that define nursing practice (Fiske et al., 2020).

Micro-Level Ethical Issues

At the micro level, the ethical implications of AI in nursing manifest in immediate, patient-facing interactions, shaping how care is delivered and experienced in everyday practice. While AI systems promise efficiency and enhanced decision-making, their integration into nursing care presents ethical dilemmas that directly impact patient safety, autonomy, and well-being. Central to these discussions is the reconsideration of which ethical frameworks are best suited to guide AI integration in nursing (Adomat, 2024; Nashwan et al., 2025).

How AI Interfaces Directly Affect Patient Care Experiences. AI-driven technologies, such as CDSS, automated monitoring tools, and chatbot-assisted triage, increasingly mediate patient interactions in healthcare (Smith et al., 2023). These systems can offer benefits (e.g., reducing wait times, enhancing diagnostic precision, and supporting early intervention) but they also introduce new ethical concerns related to patient experience, relational care, and trust in nursing practice (Badawy et al., 2024).

AI systems tend to prioritise data-driven efficiency, which may not always align with the nuanced, relational aspects of nursing

A primary concern is the depersonalisation of care when AI-driven recommendations or automated workflows replace interpersonal nurse-patient interactions, a concern Peplau raised as early as 1963. AI systems tend to prioritise data-driven efficiency, which may not always align with the nuanced, relational aspects of nursing (Coşkun et al., 2024). For example, automated triage systems may categorise patients based on algorithmic predictions rather than the holistic assessments that nurses conduct, potentially overlooking subtle but clinically significant cues (Simms, 2025). These subtle clues are frequently honed through extended bedside experiences and resist ready reduction to predictive algorithms.

Patients may also experience increased distress and uncertainty when AI-generated recommendations are not clearly explained or when nurses are unable to contextualise them within a broader care framework (Berridge, 2024). Studies have suggested that patients often struggle to trust AI-based decisions when they feel detached from human judgment, particularly in high-stakes or emotionally sensitive situations (Fildes & Hill, 2025). Nurses play a key role in bridging this gap, yet they are often positioned as end-users rather than active decision-makers in AI implementation, limiting their ability to mitigate negative patient experiences (Moskovich & Rozani, 2025).

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Reconsidering the ethics in AI-nurse interactions is necessary to mitigate these risks. Traditional biomedical ethics that focus on autonomy, beneficence, nonmaleficence, and justice, provides an important foundation, yet does not fully account for the relational and contextual nature of nursing practice. A care ethics approach, which emphasises attentiveness, responsibility, competence, and responsiveness, offers a more robust framework to evaluate the role of AI in patient interactions (Nashwan et al., 2025). From a care ethics perspective, AI should be designed and deployed in ways that support, rather than replace, the relational dimensions of care, ensuring that AI-driven decisions are not only explainable but also embedded within nursing workflows that prioritise patient dignity, trust, and relational engagement (Badawy & Shaban, 2025).

Nursing Advocacy in AI-Driven Care Environments. Nursing advocacy is a cornerstone of ethical practice, ensuring that patients receive personalised, context-sensitive care. However, AI-driven decision-making introduces new tensions that may Fchallenge nurses' ability to advocate effectively (Elgin & Elgin, 2024).One key issue is algorithmic opacity; many AI models function as "black boxes," providing recommendations without clear explanations of the underlying decision-making processes. This lack of transparency can make it difficult for nurses to challenge or override AI-generated suggestions, particularly in hierarchical healthcare settings where algorithmic authority may be privileged over clinical judgment (Alsaeed et al., 2024). For instance, predictive risk models used in patient deterioration monitoring may flag certain individuals as "low risk" based on population-level data, even when nurses' real-time observations suggest otherwise (Tan et al., 2025). In such cases, nurses may struggle to push back against AI-generated risk assessments, especially if institutional protocols encourage adherence to algorithmic recommendations (Simms, 2025). This creates ethical dilemmas where nurses must navigate between trusting their clinical expertise and complying with AI-driven directives.

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AI systems may inadvertently reinforce existing biases that disadvantage certain patient groups. If AI models are trained on datasets that underrepresent specific populations (e.g., ethnic minorities, non-binary individuals, or people with disabilities) nurses may need to actively challenge algorithmic outputs that fail to account for these differences (Badawy et al., 2024). This

care.

requires both technical literacy and institutional support to ensure that nurses can advocate effectively when AI-driven decisions do not align with patient needs (Berridge, 2024). A reconsideration of justice-oriented ethics is crucial. Distributive justice in AI use requires that the benefits and burdens of AI be fairly distributed across patient populations. However, a relational justice perspective, which considers not only distributive fairness but also the structures of power and voice in decision-making, requires that nurses are empowered to critically engage with AI recommendations (Elgin & Elgin, 2024).

Advocacy in AI-driven care is not just about ensuring equitable outcomes but also about securing nurses' ability to question, reinterpret, and intervene when AI tools fail to serve patient needs. To safeguard patient advocacy in AI-driven care, nurses must develop mechanisms to question, override, or contextualise AI recommendations. This includes fostering workplace cultures that recognise and prioritise human expertise alongside AI-driven insights, ensuring that advocacy remains a fundamental pillar of ethical nursing practice (Berridge, 2024).

To safeguard patient advocacy in AI-driven care, nurses must develop mechanisms to question, override, or contextualise AI recommendations.

Practical Constraints or Enablers for Ethical AI. The ethical implementation of AI in nursing depends on a range of practical factors that either constrain or facilitate its responsible use in daily care. These include workflow integration, technological literacy, institutional policies, and resource allocation (Park et al., 2024). One significant constraint is the lack of adequate AI training for nurses and other healthcare staff. Many nursing education programs and professional development initiatives have yet to fully integrate AI competencies into their curricula. As a result, nurses may be expected to interact with AI-driven tools without sufficient understanding of their limitations, biases, or potential ethical pitfalls (Simms, 2025). This places undue burden on nursing staff, who are often required to learn new technologies on the job, increasing cognitive load and the risk of errors (Coffey & Kingston, 2025).

One significant constraint is the lack of adequate AI training for nurses and other healthcare staff.

Workplace structures and staffing levels also play a crucial role in shaping the ethical use of AI. If AI technologies are introduced primarily as cost-cutting measures rather than as genuine tools for care enhancement, nurses may find themselves pressured to accept algorithmic decisions uncritically due to time constraints or institutional mandates (Berridge, 2024). High patient-to-nurse ratios further reduce the ability to scrutinise AI recommendations, making it more likely that errors or biases will go unchecked (Tan et al., 2025).

In spite of these challenges, there are several key enablers that can facilitate ethical AI integration in nursing practice:

- **Participatory AI Design**: Involving nurses in the development and testing phases of AI tools ensures that these technologies are built with real-world nursing workflows in mind (Badawy & Shaban, 2025).
- **AI Literacy and Critical Training**: Providing structured training programs can equip nurses with skills to engage critically with AI, enabling them to assess its strengths and limitations in clinical settings (Nashwan et al., 2025).
- **Transparent Decision-Making Frameworks**: Instituting policies that allow for human overrides and appeal mechanisms ensures that AI does not undermine nurses' ability to exercise clinical judgment (Elgin & Elgin, 2024).
- **Time and Resources for Ethical Reflection**: Embedding structured opportunities for nurses to discuss and reflect on AI-related ethical dilemmas can prevent the normalisation of biased or flawed AI recommendations (Alsaeed et al., 2024).

From an ethics of practice perspective, ethical AI use requires ongoing reflection and situated ethics, meaning that nurses must be able to adapt AI use to specific patient contexts rather than applying algorithmic recommendations uncritically (Milton, 2025). An ethic of care remains central to this process, ensuring that AI is evaluated not only in terms of outcomes but also in terms of its impact on relationships, trust, and professional nursing values (Park et al., 2024).

Ensuring that AI enhances rather than undermines care requires a commitment to transparency, advocacy, and critical engagement with technology

At the micro level, AI integration in nursing presents immediate ethical challenges that impact patient experiences, professional advocacy, and daily clinical practice. Ensuring that AI enhances rather than undermines care requires a commitment to transparency, advocacy, and critical engagement with technology (Moskovich & Rozani, 2025). Nurses must be supported in their ability to challenge and contextualise AI-generated insights, ensuring that patient well-being remains central to decision-making (Berridge, 2024). Through intentional design, institutional support, and participatory governance, AI can be implemented in ways that align with nursing profession's fundamental ethos of care, rather than reinforcing efficiency-driven models that marginalise human expertise (Badawy et al., 2024).

Reorienting AI Towards Care: Ethical Opportunities and Prefigurative Politics

The prevailing narratives around AI in healthcare often position it as either a technological savior that will enhance efficiency or a threat that will replace human labor. These binary framings fail to account for the relational, ethical, and political dimensions of AI in nursing (Ronquillo et al., 2021). AI does not inherently improve or diminish care; it is how AI is designed, implemented, and governed that determines its impact (Thai et al., 2023). This section explores how AI can be reoriented towards care by treating it as a relational tool rather than a replacement for human care; embedding participatory design approaches; ensuring equity through non-proprietary, transparent AI systems; and embracing prefigurative politics, acting now to shape the equitable AI future that we want to see (Trainum et al., 2024).

These binary framings fail to account for the relational, ethical, and political dimensions of AI in nursing

AI as a Relational Tool

The dominant logics driving AI development in healthcare—efficiency, automation, and cost-cutting—often position it as a substitute for human labor. However, AI should not replace nurses but instead function as a relational tool that supports the ethical, situated, and affective dimensions of care (Ienca et al., 2018; Peplau, 1962). Nursing is fundamentally relational work, where attunement, presence, and advocacy matter as much as technical interventions (Mulaudzi & Gundo, 2024). AI that disregards these aspects risks eroding trust, depersonalizing care, and deskilling nurses by forcing them into roles of mere algorithmic compliance. Instead, AI must be designed to enhance nurses' ability to engage in relational care rather than reducing their role to that of system managers (Schlicht & Räker, 2024).

...AI must be designed to enhance nurses' ability to engage in relational care rather than reducing their role to that of system managers

AI-driven monitoring systems in intensive care units (ICUs) can enhance patient safety without reducing direct nurse-patient interactions if designed to support, rather than replace, clinical judgment (Trainum et al., 2024). Instead of an AI system that issues rigid alerts that override nurses' expertise, a relational AI approach would ensure that nurses are empowered to interpret, contextualize, and adjust AI-generated recommendations based on their professional knowledge and the patient's lived experience (Ronquillo et al., 2021). Ensuring that AI remains a relational tool requires shifting from algorithmic authority to algorithmic assistance, where AI does not dictate care but provides insightful, explainable, and flexible support that integrates seamlessly into nursing workflows (Zidaru et al., 2021).

Participatory Approaches To AI Development In Healthcare

Ensuring that AI remains a relational tool requires shifting from algorithmic authority to algorithmic assistance...

A fundamental ethical opportunity in AI-driven nursing lies in participatory design, or ensuring that nurses, patients, and communities actively shape how AI is developed, implemented, and governed (Hendriks et al., 2018). Current AI development in healthcare is predominantly top-down, led by technologists, corporate interests, and institutional decision-makers with little input from the nurses and patients who will be most affected (Kravchenko, 2023). The result is AI that often fails to align with the realities of frontline care.

Participatory AI design ensures that AI tools are developed with and for those who will use them. This means involving nurses at all stages of AI design, testing, and refinement; ensuring that patients' voices and lived experiences are integrated into AI development; and embedding participatory governance models in hospitals and healthcare organizations to ensure AI remains accountable to those it serves (Breuer et al., 2023). For instance, participatory AI initiatives in EHR automation have shown that when nurses and clinicians co-design AI features, they are more intuitive, effective, and aligned with actual care practices (Zidaru et al., 2021). By contrast, when AI is imposed without participatory input, it often creates workflow disruptions, excessive administrative burdens, and decision-making barriers (Ronquillo et al., 2021). Moreover, co-designed AI models tend to be more transparent and explainable, ensuring that nurses are not forced to automatically accept algorithmic decisions but can critically engage with AI outputs in ways that enhance, rather than constrain, care (Schlicht & Räker, 2024).

Participatory AI design ensures that AI tools are developed with and for those who will use them.

Enabling Equity: Non-Proprietary, Transparent AI Systems

One of the biggest ethical challenges in AI today is its opacity and proprietary nature (Ienca et al., 2018). Black box AI models often feature inaccessible decision-making logic which is owned and controlled by private corporations that prioritize profit over patient care (Thai et al., 2023). Contributing to this opacity is the reality that it is not always apparent to clinicians or patients that AI is even in play. For AI to truly serve the needs of nurses and patients, it must be developed as a non-proprietary system that is open-source, publicly governed, and clearly-marked, ensuring that decision-making logics are perceptible to those impacted (Ronquillo et al., 2021). AI should be transparent and explainable, making its reasoning visible so that nurses can understand why certain recommendations are made and providing mechanisms to challenge flawed outputs (Mulaudzi & Gundo, 2024). Additionally, AI must be ethically auditable, meaning that institutions must ensure that AI tools are constantly monitored for bias, inequity, and unintended consequences (Hendriks et al., 2018).

When AI operates as a corporate-controlled, proprietary product, it reinforces power imbalances in healthcare. Decision-making shifts away from nurses and patients toward private entities with little to no accountability, shoring up the political economy of health technologies in ways that reinforce inequity (Kravchenko, 2023). In contrast, non-proprietary AI ensures

that technology remains a public good rather than a commercial product designed for efficiency over equity (Breuer et al., 2023).

Contributing to this opacity is the reality that it is not always apparent to clinicians or patients that AI is even in play.

A care-centered approach to AI governance must prioritize public ownership or regulatory oversight of AI-driven healthcare tools; open-source AI models that allow for scrutiny and democratic governance; and institutional commitments to ensuring that AI is subject to ethical review and modification based on frontline feedback (Schlicht & Räker, 2024). By making AI transparent and accountable, nurses can critically engage with technology as co-constructors of care, rather than passive users of proprietary systems (Zidaru et al., 2021).

Prefigurative Politics in Practice: Acting Now for the AI Future We Want

If AI is to be aligned with care ethics, justice, and relationality, we must not wait for institutions or corporations to act. We must create the conditions for ethical AI now (Trainum et al., 2024). Prefigurative politics is a concept from social movements that means acting as if the desired future already exists (Kravchenko, 2023). Rather than waiting for top-down AI reforms, nurses must actively shape how AI is developed, implemented, tracked, and regulated in practice (Breuer et al., 2023). This is all the more urgent as national leaders dismantle already-spartan efforts to regulate AI in the name of market and military dominance (Trump administration, 2025). This means nurses advocating for AI policies that center care ethics rather than efficiency and cost-cutting, creating local-level, nurse-led AI ethics committees within hospitals and healthcare organizations, and refusing to accept AI-driven decisions that undermine patient advocacy, equity, or relational care (Ronquillo et al., 2021).

We must create the conditions for ethical AI now

The Ethical Future of AI in Nursing

AI in nursing is not inherently ethical or unethical; it is what we make of it. While AI poses significant ethical risks, it also presents opportunities to reimagine care in ways that are participatory, equitable, and empowering (Thai et al., 2023). By embedding nurses and patients in AI design, ensuring that AI remains non-proprietary and transparent, and embracing prefigurative politics, we can create AI systems that enhance rather than undermine the relational and ethical dimensions of nursing (Trainum et al., 2024). AI must not replace nurses but augment their ability to deliver high-quality, compassionate, and equitable care. Through ethical AI development, nursing can ensure that technology serves people— and not the other way around (Zidaru et al., 2021).

Implications for Nursing Practice and Policy Making

Nurses have always integrated emerging technologies into their care practices. It is possible to imagine a present/future in which AI/ML supports nursing work, facilitating relationships, improving care outcomes, and expanding health equity. This requires, as Peplau (1962) implored more than 60 years ago, that we do the imaginative work of thinking about how AI might work *for* nursing in safe, consensual, and clear ways. With this in mind, we offer up some considerations for nursing as it concerns AI for education, practice, and policy. Nursing education is a critical venue to prepare nurses for the future of healthcare, including technology. Accrediting bodies like AACN (2021) include AI-related competencies in their most recent guidelines. Taking this charge seriously means preparing future nurses to not only understand *how to use* AI-powered technologies but also *how they work*. This requires us to dig into the foundational principles and ethics of AI/ML and how these technologies are produced. It also means preparing future nurses with the knowledge and skills to do the advocacy work to build ethical AI systems in healthcare through policymaking.

Nurses have always integrated emerging technologies into their care practices.

When it comes to nursing practice, we must work toward increasing understanding and aptitude regarding AI/ML through continuing education for practicing nurses. We can look to projects like the *Consentful Tech Project* (Lee & Tolliver, 2017) and the *Algorithmic Justice League* (2024) and others for a model. As we build capacity for nurses to understand, analyze, and engage with AI tools in healthcare, these nurses can then take action to ensure that the needs of the people remain at the center of nursing, integrating AI without displacing care or dislocating nurses. Education and practice recommendations support thinking about policy and advocacy at the unit, community, state, national, and international levels. Nurses must develop policy recommendations that build transparent, inclusive, consensual, and changeable structures for AI governance. This includes insisting on disciplinary oversight of AI/ML to identify, prevent, address, and eliminate algorithmic inequities in healthcare and taking a seat at regulatory tables to ensure that AI/ML supports nursing and patient care.

Conclusion

Within this article, we endeavored to think around binary narratives of AI that encourage either total abstention or wholesale uncritical adoption. AI is not an either/or proposition but rather something that can facilitate relational care, *if* we engage it in ways that attend to the micro, meso, and macro ethical concerns that AI presents. This kind of engagement is not optional: AI

is already part of our healthcare realities. But it can change and evolve in ways that support equity, expand capacity, and protect privacy. This is a role nurses can play in the evolution of AI for healthcare, should we choose it.

AI is not an either/or proposition but rather something that can facilitate relational care...

We have a collective responsibility in nursing to reimagine - and then build - AI for equitable and relational care. We have tools to draw from when it comes to envisioning alternatives. We can follow the lead of organizations like the *Algorithmic Justice League* (2024), *Feminist Data Manifest-No* (2019), and the *Consentful Tech Project* (n.d.). These projects offer care-full approaches to AI–and its refusal. But it is up to us as nurses, as members of communities, as careworkers, to find points of entry to build ethical realities. This is where speculative ethics meets prefigurative practice. AI can be a tool for care, creating equity, sustainability, and innovation in nursing and healthcare, if we choose it. It requires a critical analysis of the dangers and benefits of AI in healthcare and critically interrogating not only the end user experience, but also the material and algorithmic realities upon which AI is built.

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