American Academy of Nursing Position Statement
Artificial Intelligence in Health Care

Position

The American Academy of Nursing (Academy) supports the responsible and ethical use of artificial intelligence (AI) as a transformative force in health care to support, rather than supplant human wisdom and nursing clinical judgment. As a discipline grounded in the delivery of ethical, compassionate, holistic, and effective care, nursing has a vital role in shaping how AI is designed, governed, implemented, and evaluated. The rapid and expansive growth in AI technology presents a remarkable opportunity for advancing innovations in person-centered care and health care delivery. As AI rapidly impacts health care delivery, health professions education, and research, it is essential to strengthen and continue developing strong policies that safeguard individuals, clinicians, families, communities, and institutions, govern privacy, and uphold data protection.

Policies should also enhance AI literacy, ensure transparency and explainability, advance equitable access to safe, high-quality care, and promote nursing practice autonomy and continuous improvement. Moreover, it is vital to ensure that the use of AI maximizes benefit to individual and societal outcomes and does not widen disparities or lead to potential adverse downstream effects on the individual, clinician, community, system, and environment. Given the rapid pace of AI advancement and implementation, policies must be consistently evaluated to verify they do not inadvertently stagnate innovation or deteriorate ethical standards.

Background

AI encompasses technologies that go beyond carrying out tasks as instructed by human users to emulate human intelligence.[1] AI has existed for over 70 years and has been applied to health care for over 50 years,[2] yet it has only recently risen to the forefront of the field as advancements including predictive/prescriptive, generative, and agentic AI have transformed the trajectory of health care delivery, education, and research. Most recently, in 2025, the National Institutes of Health (NIH) announced the development of the agency's first AI Strategic Plan.[3] Internationally, the World Health Organization's 2025 report on the state of nursing outlined digital tools and technologies including AI as an emerging policy priority area.[4]

Across the United States, varying approaches to AI policy are developing quickly. At the federal level, federal agencies introduced 59 AI-related regulations in 2024, which was more than double the number in 2023 and issued by twice as many agencies.[5] All 50 states and DC in the 2025 legislative session introduced legislation on AI, with 38 states adopting or enacting approximately 100 measures addressing a wide range of AI use cases.[6] Notably, Oregon in 2025 enacted a law prohibiting non-human entities (such as an AI-enabled agent) from using nursing titles,[6] illustrating a new area for state legislatures and state boards of nursing to protect nurse licensure and title usage. As AI becomes more efficient, affordable, and accessible,[5] there is an ongoing need for continued policy evolution.

The rapid and expansive growth in AI technology presents an unprecedented opportunity for advancement in health care, while also presenting many new ethical dilemmas and challenges.[7] AI can be a highly beneficial tool across numerous areas such as population health management, decision making, workflows, and documentation.[8] Impactful applications of AI already present and developing include ambient intelligence technologies, wearable devices, virtual reality (VR), augmented reality (AR), computer vision, predictive analytics, chatbot triage, remote diagnostics, and disease surveillance and tracking. AI-enabled tools are transforming routine nursing and clinical workflows, including clinical documentation automation, continuous patient monitoring and alerting,[9,10] predictive risk stratification, and AI-assisted triage.[11] Impact does not come from AI alone. Instead, the data that fuels AI training combined with human capability to skillfully use AI influences the outcomes of health care.

AI and other technologies may also exacerbate disparities in individualized care, impact individual safety, affect clinician well-being, and risk incentivizing efficiency over quality.[8] The lack of emotional involvement in AI decision-making reinforces the need for human oversight to provide context, alignment of values, quality control, and an understanding of decision-making and system connectedness. Responsible and ethical use of AI is critical to guide the future of nursing practice and health care broadly. Wide-ranging factors including interoperability, cybersecurity, liability, transparency, explainability, and bias must be addressed in alignment with ethical principles and guiding frameworks, such as the National Academy of Medicine's *An Artificial Intelligence Code of Conduct for Health and Medicine: Essential Guidance for Aligned Action*[12] and the American Nurses Association (ANA)'s *Code of Ethics for Nurses*.[13]

Privacy, Transparency, Explainability, and AI Literacy

As AI becomes more embedded in health care, the need for transparency in its operations has never been more critical. Trust in AI tools depends not only on their accuracy and effectiveness but also on the availability of clear, understandable explanations for AI supplemented clinical decisions. All AI tools used in individual care should provide clear, understandable explanations for their outputs. Moreover, individuals, families, and clinicians have the right to know when and how AI is being used in diagnosis, treatment, and care delivery.

The use of AI in health care and research brings new potential for security threats and data exposure. Data privacy could be at risk of breach, for example, if personal health records are inappropriately used as a source of data. In this environment, it is critical that foundational pillars underpinning data privacy and cybersecurity such as the Health Insurance Portability and Accountability Act (HIPAA)[14] be maintained and regularly evaluated for necessary updates. Many HIPAA standards predate modern AI and do not address the unique security and privacy challenges of adaptive algorithms, cloud-based model updates, or the extensive data sharing required for AI training and validation. While data sharing and interoperability are key aspects of health care delivery and research, it is vital that data sharing policies are strengthened to encompass the use of AI and the expansion of AI models.

Currently, health care organizations routinely sign business associate agreements (BAAs) that may permit extensive data sharing that creates ethical transparency gaps in data governance. Despite protective provisions under the HIPAA Privacy Rule and Security Rule, individuals and clinicians may lack

information and sufficient control over data sharing in a markedly different care environment shaped by AI. Transparent disclosure is needed for BAAs and data sharing arrangements that govern how individual information is used to train, validate, and improve AI systems.

The exponential growth in AI technology necessitates routine examination of current and emerging models, data management and sharing policies, and HIPAA compliance. Along with the HIPAA Privacy Rule, the HIPAA Security Rule is important in establishing national standards to protect individuals' electronic personal health information (ePHI) [15] and should be updated to reflect standards that guide security, privacy, and confidentiality of data in an environment that is changing rapidly due to AI's use.[16] The HIPAA Security Rule could be updated to incorporate contemporary cybersecurity frameworks such as standards from the National Institute of Standards & Technology (NIST) and International Organization for Standardization (ISO), for example, ensuring health care entities have clear, robust guidance for protecting data in AI-driven environments.

Two important concepts that guide this area are transparency (clear, accessible information about how an AI system functions, what data it uses, its purpose, and its limitations) and explainability (understanding and interpreting the reasoning behind a specific AI output or decision). Health care professionals, including nurses, who use AI tools may lack an understanding of underlying algorithms, data sources, potential biases, or security vulnerabilities. Unlike traditional software with transparent logic paths, many contemporary AI models such as deep learning (DL) systems lack intrinsic explainability and often cannot elucidate how they reach conclusions. AI algorithms (particularly using machine learning [ML] and DL) can lack transparency and explainability, creating a "black box" issue. This is because they are programmed to give solutions and not address ambiguity, and the internal workings of a program are often not shared or understood.[17] Therefore, incorrect outputs are not easily discoverable.17 Similarly, large language models (LLMs) have the potential to "hallucinate," or generate false information as an output,[18] and algorithms can drift and degrade over time as patterns change.[19] These gaps create significant risks for both individuals and clinicians. If errors occur, this also threatens misdiagnoses and poses ethical issues for individual autonomy and informed consent.[17]

Education is critical to ensure that the health care workforce attains the fundamental AI literacy necessary for safe and effective development, implementation, and evaluation of AI.[20] AI literacy is important as a longitudinal, lifetime professional competency rather than a discrete training requirement. Comprehensive AI fluency research, including competency frameworks, educational strategies, workforce readiness, and evaluation of learning outcomes, is needed to guide education of current and future health care professionals. Improved transparency in AI use is also important to ensure nurses and other health care professionals can facilitate consent for AI use with an understanding of the full scope of data exposure, security vulnerabilities, or potential long-term consequences.

The Role of Federal Regulation

Oversight of AI used in health care settings is a rapidly evolving and critically important area for federal regulations. By early 2025, the Food and Drug Administration (FDA), which oversees the approval of AI-driven medical products including Software as a Medical Device (SaMD), had authorized over 1,000 AI-

enabled medical devices and software functions.[21] The regulatory environment is deeply in flux as technologies continue to advance and developers seek approvals. A considerable challenge for traditional regulatory frameworks is the manner in which certain AI technologies, especially involving ML or DL, can adapt over time and update autonomously, sometimes through cloud-based mechanisms. Regulators must consider if a developer who obtains initial approval for an AI technology should seek reapproval as the AI use changes over time. The FDA has noted that the "traditional paradigm of medical device regulation was not designed for adaptive artificial intelligence and machine learning technologies."[22] For that reason, the FDA largely has approved static, "locked" algorithms, which do not change over time unless updated by the developer, rather than adaptive.[23]

However, the FDA has recognized the tradeoffs between maintaining established approval processes and promoting innovation in AI and has continued to update guidelines to adapt to AI innovation. For example, in January 2025, the FDA released draft guidance for AI-enabled medical devices to evaluate risk throughout the device total product life cycle (TPLC).[24] Yet guiding frameworks in the regulatory sphere are not strongly defined and continue to shift. The AI Action Plan released by the White House in July 2025 emphasizes reducing regulatory barriers perceived to impede innovation,[25] which may impact previous guidance that outlined future directions for regulation.

As regulatory policy continues to evolve, a focus on core pillars including safety, transparency, and quality should inform regulations. Regulatory frameworks must clearly address when and how AI-enabled technologies will be approved and the extent to which approval extends as a model or algorithm shifts, as well as address how information about the regulated product will be transparently communicated to the end user[23] such as the nurse or individual. It is critically important to monitor AI throughout the lifecycle with investment in research and post-market surveillance to examine the impact of deployed AI in health care through this lens. As part of this effort, regulatory expectations should also promote clear disclosure of model updates, training data revisions, drift monitoring processes, and algorithmic performance over time, ensuring clinicians and individuals are aware of how and when AI behavior changes. This approach requires sustained dialogue among federal regulators, clinicians, the public, and technology developers to establish shared expectations for risk management, transparency, and deployment. Such a framework promotes bounded innovation within a mutually accountable governance structure.

Addressing Bias and Promoting Equity in AI

Bias in AI algorithms and technologies is a well-documented problem that requires increased engagement to address.[18, 26, 27] Most AI systems are trained on data, and most on data in the English language, and their outputs therefore reflect their inputs. Datasets used to train AI technologies may reflect underlying historical biases, be too small or an inadequate fit for target use, or over- and under-represent some populations including those with racial, ethnic, sex and gender identity, or socioeconomic demographic factors.[26, 27] In the area of social sensitivity, AI may not represent health-related conditions and responses such as pain and individual/family relationships. Bias may also be present from poor design or end user misinterpretation.[18] It is therefore concerning that underlying biases can consequently enter and become embedded into an AI technology, producing biased outputs that may or may not be detectable.

Bias is a significant concern in AI-enabled technologies used in health care. For example, a study found that one widely used algorithm for risk prediction, in the present example used to target patients for high-risk care management programs, reflected racial bias such that Black patients were assigned the same level of risk as White patients despite being sicker and actually needing more care.[28] The algorithm used health costs, a traditionally used metric, as a proxy for health. However, the results reflected the underlying bias in input data that Black patients received less care and therefore lower costs were associated with Black patients despite having the need for health care.[28] Unless actively addressed, AI will automate and amplify existing inequities rather than reduce them. Researchers also must be cautious about relying upon AI as a cost-saving measure due to its potential proclivity to impact health and human wisdom, which relates to contextual judgment and moral reasoning. This extends to the practice setting when evaluating the evidence for implementation.

It is critical to promote the intentional design and implementation of technologies that would address and ameliorate health disparities. Importantly, Section 1557 of the Affordable Care Act (ACA)[29] prohibits discrimination on the basis of race, color, national origin, age, disability, or sex in health programs or activities that receive federal funding. In 2024, the *Nondiscrimination in Health Programs and Activities* rule included protections against discrimination from "patient care decision support tools," which include AI-enabled technologies.[30] Covered entities are required to make reasonable efforts to mitigate the risk of discrimination resulting from the tool's use in their health programs or activities.[31] However, enforcement mechanisms remain unclear, and many health care entities lack the tools and expertise to effectively audit their AI systems for bias. Ensuring that health care entities have the tools they need to successfully meet these requirements and protect individuals from bias while using AI-enabled technology is critically important. [32]

Strategies to combat bias in AI are wide-ranging and can include technical, operational, and system-level interventions.[32] Technical strategies would include data collection and processing techniques, while operational strategies would address governance related concerns, and system-level strategies would include education and training measures.[32] Implementing effective strategies to address bias and proactively promote health equity is core to the responsible use of AI in health care. Increased investment into discerning the effectiveness of varying strategies to combat bias is also critical as AI continues to evolve.

Expanding Areas of Research: Fluency, Models of Care, and Environmental Impact

The NIH has indicated that AI and data science are key areas for future research, most recently with the release of the NIH Strategic Plan for Data Science, 2025 – 2030[33] and development of the first NIH AI Strategic Plan.[3] The National Institute of Nursing Research (NINR), through its National Advisory Council for Nursing Research Workgroup on Data Science and AI, has called for expanding nurse-led research and training in data science and AI to address upstream factors that impact health to advance health for all.[34] Nurse scientists are rapidly contributing to the field of AI research. A recent study identified 370 unique NIH-funded projects focused on AI and nursing from 2013-2023, representing an increase of 1,160% over that time period.[35] This research aligned primarily around the topics of cognition, prediction, safety, outcomes, and sensors.[35] However, it is important to note that only 29.7% of the identified projects were nurse-led.[35] Nurses are deeply attuned to person-centered care and capturing data,

making nursing's expertise critical to continue to shape the future of AI-enabled technology in health care. Sustained and intentional investment into the growth of AI research, including nurse-led and cross-disciplinary research, is important to lead AI's impact in health care. Moreover, research across LLMs and individual/clinician AI supported decision making and boundaries is needed. This includes research on clinical decision support systems, multimodal AI approaches that integrate diverse data sources such as electronic health records, clinical notes, and sensor data, and the development of validation frameworks for AI tools deployed in nursing practice settings.

Furthermore, there is a need for funding for comprehensive AI fluency research to guide education of current and future health care professionals. AI has the potential to enhance traditional models of care with new layers of intelligence and flexibility as well as expand care beyond traditional settings to novel settings including home-based environments. Research must also consider how AI interacts with social determinants of health, including whether data variables used in AI tools appropriately capture factors such as housing stability, income, geography, nutrition, and access to care. Examining AI's impact in rural, medically underserved, and resource-limited communities is essential to ensuring equitable deployment and preventing widening disparities.

More broadly, research is also important to measure and address environmental, organizational, and societal impacts of growth in AI. The infrastructure that supports AI, including data centers, requires large amounts of energy and water.[36] This immense strain on energy and water supplies can lead to public health concerns ranging from higher CO2 emissions, electronic waste, global electricity use, and water stress.[37] The full extent of the environmental impacts of AI is not yet well established and presents an area to investigate to ensure environmental stewardship is promoted with the growth of AI. As AI scales across health care, standards and recommendations on "green AI" become critical, such as evaluating the carbon, energy, and water footprint of AI systems; integrating sustainability requirements into procurement decisions; and conducting lifecycle analyses to understand long-term environmental impacts. Advancements in AI also pose challenges to all sectors and traditional structures (including health-related, organizational, educational, and governmental), making it important to address access gaps between well-resourced and limited-resourced institutions.

Nursing Practice and AI

Nurses have a critical role to play in promoting AI literacy and fostering understanding for individuals and clinicians on the use of AI in health care. When surveyed, many people in the United States note some level of concern about use of AI in daily life, and awareness of common uses of AI can vary widely.[38] As patient educators and advocates, nurses can support patient populations by providing information and protecting their data. Moreover, nurses can play a critical role in supporting the availability of contextual, organizational, and group data in the use and impact of AI.

As AI grows in health care and nursing practice, nurses and other health care professionals may have concerns regarding AI replacing their roles as well as how AI technology could threaten the quality and safety of care for individuals and communities.[39] To guide AI development, implementation, and evaluation, it is critical to maintain an overarching focus on the specific function AI holds in care delivery.

While AI can create efficiencies that allow nurses to better focus on and enhance individual care, AI cannot replace the critical thinking and clinical judgment of nurses,[40] nor can it replace the human connection and care that are central to the nurse-patient relationship.[41] To this end, variation in approaches to licensure and regulation are appearing in regards to AI. For example, the licensure of AI, similar to how clinicians are licensed, has been proposed where "digital boards" would operate in many of the same ways as state licensing boards with respect to oversight, discipline, and liability.[42] In contrast, Utah adopted the AI Policy Act, which places oversight on "regulated occupations" that require a "license or certificate" to disclose the use of generative AI before communicating with a patient either orally or in writing."[43] Uniquely, Utah created a pilot program allowing Doctronic to be first AI that can legally prescribe routine medication refills within the state's regulatory sandbox. It is vital that attention is paid, transparency is upheld, and policy efforts are grounded in the protection of the unique licensure of registered nurses and advanced practice registered nurses.

Furthermore, the ANA's *Code of Ethics for Nurses* outlines that "balancing the risks and benefits of technologies requires that nurses stay informed about developments, acknowledge the potential benefits and harms, maintain the dignity of the recipient of care, complement the relational nature of nursing, and ensure the voice of nursing is present when decisions are made in healthcare systems."[13] Education related to prompt engineering and manipulating versus understanding, for example, are vital to sustaining critical thinking and clinical judgment. The ANA, in its Position Statement on *The Ethical Use of Artificial Intelligence in Nursing Practice*, established the ethical foundation for nursing's engagement with AI, affirming that technology must serve as an adjunct to, not a replacement for, nurse judgment, compassion, and human connection.[44]

It is critically important that human-in-the loop (HITL)[45] oversight standards are integrated into all AI governance and organizational policies. Furthermore, maintaining safe, productive, and sustainable patient care workflows is paramount. The overall delivery of care is influenced by many complex factors with which implementation of AI and other new technologies must be balanced to avoid unintentionally impeding achievable, effective, efficient, and fair workflows. As part of this balance, it is important to recognize that AI documentation tools, alerting systems, and workflow automation features may inadvertently increase cognitive load, shift invisible labor to nurses, or introduce subtle forms of productivity surveillance, all of which require careful evaluation and clear governance safeguards. Additionally, when AI-generated recommendations conflict with clinical judgment, nurses may experience moral distress, underscoring the need for transparent escalation pathways and shared decision-making protocols.

At the same time, many nurses recognize AI's current ability and future potential as a transformative force to alleviate workload stress points while innovating care. They express a desire for increased AI support in their work.[46] AI can transform nursing by enabling tools like virtual assistants and chatbots to handle routine tasks, freeing nurses to focus on complex care. Predictive analytics can help personalize interventions, allowing nurses to anticipate and address individual needs more effectively and efficiently.

AI systems must be evaluated not only for their technical capabilities but for their integration with nursing's embodied practices. Technologies such as AI-based ambient listening systems, which require verbalization of observations or structured documentation sequences, represent fundamental shifts in nurse-patient interactions that merit careful study. Recent evidence highlights the need for comprehensive validation frameworks as AI ambient documentation systems are rapidly deployed across health care settings.[47] Evaluation frameworks should consider how these technologies interact with the full spectrum of nursing assessment, including non-verbal communication, therapeutic touch, and observational skills that form essential components of nursing practice.

To ensure safe and effective integration, health systems should conduct structured workflow impact assessments before deploying AI solutions that alter nurse-patient interactions. Furthermore, it is essential that systems include nurse scientists and informaticists in pre-market development, governance committees, procurement decisions, post-market monitoring, and implementation as well as evaluation processes so operational realities are fully represented.

Policy Recommendations

The exponential growth in AI technology presents an unprecedented opportunity for advancement in health care and presents ethical dilemmas as well as system inequities during care delivery. Nurses are instrumental in balancing technological advancement with regulatory compliance, always prioritizing individual rights and safety. The Academy supports the responsible and ethical use of AI as a transformative force in health care and urges strong guidelines and guardrails to be continually framed around the use of AI while innovations advance.

1. Update the HIPAA Security Rule to incorporate contemporary cybersecurity frameworks (such as those from NIST and ISO) that reflect modern standards to guide security, privacy, and confidentiality of electronic personal health information and data in an environment increasingly shaped by AI. Standards should guide not only data sharing but data purposes and the reasons for use.
2. Increase standards under the HIPAA Privacy Rule to require transparent disclosure of business associate agreements (BAAs) and other data sharing arrangements to clinicians and individuals. Individuals should receive clear, accessible information about the potential uses of their data and retain the right to opt out of non-treatment related data uses.
3. Require transparent disclosure when AI is used in diagnosis, triage, treatment planning, documentation, or decision support. Disclosure should include plain language explanations of algorithm purpose, training data sources, updates, drift monitoring processes, performance changes over time, and any known bias or limitations.
4. Establish guidelines for the regular review and updating of federal privacy laws to address evolving data practices, AI interoperability requirements, and emerging risks informed by scientific evidence and clinical experience.
5. Strengthen and harmonize FDA regulatory policies for regulated AI-driven medical products across their lifecycle with a focus on core pillars including safety, transparency, and quality.

6. Clarify and expand guidance under Section 1557 of the ACA and the *Nondiscrimination in Health Programs and Activities* rule to explicitly address protection of all individuals against bias and discrimination when using AI-enabled patient care decision support tools.
7. Implement and sustain research-driven evaluation frameworks designed to identify, measure, and reduce bias in AI-enabled technologies used in health care. These efforts should be informed by scientific evidence and include fairness assessments that examine downstream clinical, social, and population-level effects across and within populations.
8. Establish and sustain funding for scalable education and workforce development to build AI literacy among nurses, the broader health care professional workforce, and individuals. These programs should support the fundamental AI literacy necessary for safe and responsible use of AI tools used in the process of delivering care.
9. Increase federal and private investment in nurse-led and interdisciplinary AI research focused on developing, testing, and evaluating AI-supported models of care.
10. Assess and mitigate the environmental and societal impacts of AI adoption by incorporating "green AI" principles to promote responsible research innovation, environmental stewardship, and equitable access across health care systems through procurement standards, federal funding, and reporting mechanisms.
11. Require HITL oversight standards within all AI governance and organizational policies to preserve clinical judgment, accountability, and the centrality of the nurse-patient relationship, positioning nurses as trusted stewards of AI-enabled care.
12. Implement comprehensive workflow impact and fairness assessments prior to deploying AI systems that could alter nurse-patient interactions. Assessments should prioritize preservation of therapeutic relationships, support for developing clinical judgment, and the full scope of nursing assessment and practice.
13. Include nurse scientists and nurse informaticists in pre-market development, governance committees, procurement decisions, post-market monitoring, and implementation as well as evaluation processes for AI.

This position statement was developed by the Academy's AI Taskforce and addresses the current impact of AI in health care, key considerations for the nursing profession, and policy recommendations at the time of its publication. The Academy recognizes the fluid and rapidly evolving space in which AI is transforming health care and health care delivery. This position statement was approved by the Board of Directors on February 25, 2026.

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