

Artificial Intelligence: Basics, Impact, and How Nurses Can Contribute

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Applying artificial intelligence (AI) to cancer care has the potential to transform and enhance nursing practice and patient outcomes, from cancer prevention and screening through treatment, survivorship, and end-of-life care. As the largest healthcare workforce, nurses record a significant amount of patient data used to train healthcare AI tools and are a large percentage of AI end users. Educational opportunities are available to assist nurses in understanding the benefits, limitations, and ethical considerations of this technology and how AI results are directly affected by the quality of nursing documentation. Applying nursing clinical knowledge and critical thinking skills throughout the AI life cycle will enhance nursing workflows and increase positive patient outcomes.

AT A GLANCE

- Oncology nurses require basic knowledge about AI to keep pace with healthcare technology advancements.
- AI applied to health care has benefits, limitations, and ethical considerations.
- Oncology nurses' expertise and partnership with technology teams throughout the AI development life cycle can improve end products and results.

KEYWORDS

artificial intelligence; machine learning; deep learning; technology

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Artificial intelligence (AI) experts have deemed AI a “revolutionary technology” (Mills, 2020, para. 2) that is projected to radically change health care (Zhou et al., 2023). The health-care AI market is a \$14.6 billion enterprise and is expected to reach \$102.7 billion by 2028 (MarketsandMarkets, 2023).

AI has the potential to greatly affect oncology care, including cancer prevention and screening, treatment, survivorship, and end-of-life care (Tawfik et al., 2023). Nurses comprise the largest healthcare workforce, record a significant amount of patient data, and are a large percentage of AI end users. Professional organizations, such as the American Nursing Informatics Association, the American Nurses Association (ANA), and the Nursing and Artificial Intelligence Leadership Collaborative, acknowledge the ever-intertwining relationship between nursing and technology, highlighting AI and its importance. These organizations advocate for nurses to learn about AI, claim a seat at the development table, and establish a knowledge base about how these solutions can enhance their practice (ANA, 2022; American Nursing Informatics Association, n.d.; Ronquillo et al., 2021). Nurses are essential participants in healthcare technology development; however, in a study of U.S. nurses, 70% of nurses indicated that they had little to no knowledge of AI technologies or uses (Swan, 2021). To expertly implement AI solutions that support health care and optimize workflow and patient outcomes, nurses can build a foundation of AI knowledge (Ronquillo et al., 2021).

Although they are often invisible to clinicians, many AI tools have been integrated into health care, such as clinical decision-making support models, remote patient monitoring and virtual sitters, ambulatory scheduling optimization applications, predictive staffing models, inpatient operational flow platforms, and flags highlighting suspicious areas on radiology images (Ronquillo et al., 2021; Swan, 2021). Nursing actions and involvement can directly affect healthcare AI outcomes. When nurses are not involved in the AI design process, AI-supported technology can be frustrating to use, complicating workflows and interfering with the delivery of optimal patient care (Ronquillo et al., 2021). This article discusses foundational AI concepts, provides a brief overview of AI applications in cancer care, and identifies nurses as active participants in AI development.

The Basics of AI

As a broad term, AI is used “to classify machines that mimic human intelligence and human cognitive functions like problem-solving and learning”