

The Role of Artificial Intelligence in Maintaining Cultural Competency, Equity, and Quality Healthcare Delivery

Contributor

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Summary

Growing evidence across the healthcare and informatics literature demonstrates that artificial intelligence (AI) has the potential to transform clinical practice, population health, and organizational decision-making. However, its impact on cultural competency, equity, and quality healthcare delivery depends heavily on how AI systems are designed, governed, and implemented. Recent peer-reviewed studies emphasize that AI can either reinforce existing inequities or serve as a catalyst for more inclusive, patient-centered care when guided by ethical oversight and interdisciplinary leadership.

AI and Cultural Competency

Culturally responsive AI design has emerged as a critical priority as healthcare organizations adopt machine-learning tools to support clinical decision-making. King-Okoye et al. (2025) argue that explainable and reproducible AI systems are essential for ensuring that minoritized populations are not further marginalized by opaque algorithms. Their work highlights the need for AI models that incorporate cultural context, patient experience, and human-centered reasoning elements that cannot be automated but must be intentionally embedded through interdisciplinary collaboration. Marko et al. (2025) demonstrate that AI systems frequently fail to account for the cultural and contextual realities of diverse populations, emphasizing that culturally responsive frameworks are essential to preventing the amplification of existing disparities. Their findings reinforce that cultural competency in the AI era depends not only on technical accuracy but also on transparent design processes and sustained human judgment to ensure equitable, patient-centered care.

AI and Health Equity

Equity remains one of the most pressing concerns in AI-enabled healthcare. Multiple studies demonstrate that algorithmic bias often reflects systemic inequities embedded in historical data. Wang et al. (2025) provide a comprehensive scoping review showing that equity, diversity, and

inclusion must be integrated throughout the entire AI lifecycle—from data collection and model development to deployment and evaluation. Without this intentionality, AI tools risk perpetuating disparities in diagnosis, treatment, and resource allocation. Marko et al. (2025) further illustrate how AI systems frequently underperform for diverse populations due to insufficient representation in training datasets. Their systematic review calls for stronger governance structures, bias-mitigation strategies, and continuous monitoring to ensure that AI supports equitable outcomes across demographic groups. Collectively, the literature positions nurses, clinicians, and interdisciplinary teams as essential stewards of equity-focused AI oversight.

AI and Quality Healthcare Delivery

Quality improvement remains a central promise of AI, yet its realization depends on human-AI partnership rather than automation alone. Nyariro et al. (2023) emphasize that integrating equity and inclusion into AI evaluation frameworks is necessary to ensure that quality gains are distributed fairly and safely. Transparent, explainable AI systems enable clinicians to interrogate outputs, identify errors, and contextualize recommendations within patient-centered care. King-Okoye et al. (2025) similarly highlight that reproducibility and clinician oversight are indispensable for maintaining trust and ensuring that AI-supported decisions enhance, rather than compromise, clinical quality. When implemented responsibly, AI can strengthen diagnostic accuracy, streamline workflows, and support evidence-based practice. However, the literature consistently warns that uncritical reliance on AI may erode quality by obscuring bias, diminishing clinical judgment, or amplifying inequities.

Implications for Healthcare Organizations

Across all five peer-reviewed sources, a clear consensus emerges: AI can only advance cultural competency, equity, and quality healthcare delivery when guided by human-centered design, transparent governance, and interdisciplinary leadership. Nurses, in particular, play a pivotal role as ethical interpreters of AI-generated insights. Their contextual awareness, cultural humility, and patient advocacy are essential for identifying bias, questioning algorithmic outputs, and ensuring that technology aligns with the lived realities of diverse patient populations.

For healthcare organizations, there are several essential priorities:

- Embedding equity and cultural competency within AI governance frameworks
- Prioritize and elevate explainability, transparency, and reproducibility as core requirements for AI tools
- Ensure diverse representation in both datasets and development teams
- Sustain strong clinician oversight and continuous performance monitoring

- Positioning nurses and other frontline clinicians as integral leaders in AI design and implementation

By advancing these commitments and adopting these principles, organizations can harness AI's potential while safeguarding the values of justice, inclusivity, equitable, and high-quality care.

GNAA Perspective

From the Global Nursing AI Alliance (GNAA) standpoint, the implications of this literature are both clear and urgent. As artificial intelligence becomes increasingly embedded in clinical decision-making, education, and population health, nursing leadership must remain at the forefront of shaping how these technologies are designed, governed, and evaluated. AI cannot advance cultural competency, equity, or quality healthcare delivery without the intentional integration of nursing expertise particularly the contextual reasoning, cultural humility, and patient advocacy that define the profession.

GNAA emphasizes that nurses are not passive recipients of AI tools; they are essential co-creators and ethical stewards. Their proximity to patients and communities uniquely positions them to identify algorithmic bias, challenge inequitable outputs, and ensure that AI systems reflect the lived experiences of diverse populations. This perspective reinforces the need for governance structures that elevate nursing voices, prioritize transparency, and embed equity considerations throughout the AI lifecycle.

For GNAA, advancing responsible AI is inseparable from advancing justice and high-quality care. The Alliance advocates for interdisciplinary collaboration, diverse representation in data and development teams, and rigorous oversight mechanisms that protect patient safety and dignity. By centering human-focused design and empowering nurses as leaders in AI innovation, healthcare organizations can ensure that technological progress strengthens and does not compromise culturally responsive, equitable, and high-quality care for all.

Questions:

One (1) distinct way that our Journal stands apart from other *Journals* is that each article includes discussion questions for training purposes. This allows for the completing of the “missing link” plaguing most modern-day *Journals*: *Journal* articles are written for other scholars, not the students that should be the primary sources served.

Dr. Ra'Sha Porter's (DHSc, MHA, ACRPM) literature review-The Role of Artificial Intelligence in Maintaining Cultural Competency, Equity, and Quality Healthcare Delivery-leaves us asking the following questions.

Discussion Questions:

1. What do you believe is the most significant potential benefit of AI in terms of improving healthcare?
2. What do you believe is the greatest challenge AI presents related to diverse populations?
3. In general, what do you think is the most important consideration for including human healthcare professionals in the design of AI in healthcare? Why?
4. In general, why and how should nurses be encouraged to be contributing co-creators in the introduction and implementation of AI-related advancements?

Related Scenario:

You are about to develop the most advanced, AI-driven dialysis machine in the world. You are confident that, with your technical prowess in the field, patients will no longer need to stay at dialysis clinics anymore for treatment. However, there will still be a need for nurses to help set up, introduce, periodically monitor, and evaluate the process at the patient's home. Before you go further:

1. How, if at all, will you involve the nurses as “co-creators” of the design of your product?
2. How would you select nurses for this task?
3. How might you ensure that the cultural needs of your patients are being met?
4. How would you incentivize nurse performance?

References

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