

No More Swimming in Circles

AI Literacy and Informatics Competencies in Nursing

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The HIMSS Nursing Innovation Advisory workgroup, formed in 2023, set out to address critical challenges in health care technology, including a lack of artificial intelligence literacy and accessible innovation resources for clinicians, aligning with national nursing and HIMSS strategic visions. This paper describes the development and evaluation of tools designed to improve AI readiness among nurses and informaticists, with a focus on identifying barriers in transitioning from informatics education to practice. An AI toolkit and innovation resources were developed by the workgroup and presented at an interactive Fishbowl session during HIMSS 2025. This is a descriptive report of an educational activity conducted at a professional conference where authors and presenters utilized discussion and poll questions to gauge perceived barriers in transitioning from informatics education to clinical practice and the usefulness of the tools. Out of 67 responses, 52% identified informatics competency as the primary gap in transitioning from education to practice. The session was well-received, with over 80% of attendees finding the content “very helpful” or “somewhat helpful,” highlighting the value of the resources. These findings emphasize the need to update informatics curricula to better prepare graduates with essential digital and data literacy skills. The positive reception of the AI toolkit highlights its potential to bridge the gap between academic preparation and practical application, fostering the ethical integration of AI in health care. Continued learning, early adoption of innovations, advocating for change, and ensuring ethical AI practices are crucial next steps for clinicians and health care leaders.

Keywords: nursing informatics, role transitions, nurses role, health care technology, Innovation Toolkit, AI literacy

In alignment with the National Academy of Medicine’s recommendations for the Future of Nursing 2020-2030¹ and HIMSS’s strategic vision to equip clinical nurses with the necessary resources and authority to drive technological innovation, the HIMSS Nursing Innovation Advisory workgroup was inaugurated in 2023. The workgroup has identified critical challenges, including a deficit in artificial intelligence (AI) literacy and a lack of readily available resources for clinicians and health care leaders, which this paper aims to address by exploring critical gaps in AI literacy and the availability of credible, user-friendly resources for health care professionals transitioning from informatics education to clinical practice. The Nursing Innovation Advisory Workgroup (NIAWG) is composed of thought leaders from clinical practice, academia, and industry, including representatives from HIMSS, the

Alliance for Nursing Informatics (ANI), and the Society of Nurse Scientists, Innovators, Entrepreneurs, and Leaders (SONSIEL). Together, they curated an AI toolkit and a set of resources to support innovation in health care technology.² These tools were showcased in an interactive session employing the Fishbowl technique to captivate the audience, steer our dialogue, and pinpoint future requirements. A fishbowl session is an interactive discussion format featuring a small group of panelists and a moderator, with one open seat reserved for audience members. At any time, an audience member can join the conversation by occupying the empty chair, contributing for 3 to 5 minutes depending on the queue and topic flow. Participants rotate frequently, driven by audience interest, creating a dynamic and evolving dialogue.

Attendees explored resources designed to facilitate AI-centric discussions, master the application of tools like the Innovation Scoring and Impact Guide for Healthcare Technologies (INSIGHT) and the Innovation Inventory Heatmap for strategic technology assessment, and secure access to online pedagogical content and ethical AI deployment guidelines. Through this, the session aimed to empower health care leaders with the knowledge and tools necessary to effectively navigate the landscape of innovative technology in health care and to adeptly guide AI integration and application within their respective institutions.

The HIMSS Nursing Innovation Advisory workgroup’s tools are designed to tackle several pressing challenges in

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the health care informatics sector, including (1) poor AI literacy to ensure nurses are equipped to leverage AI technologies effectively; (2) lack of credible user-friendly evidence-based or expert developed resources that are easy to access, understand, and utilize constraining clinicians' ability to stay informed and make data-driven decisions; (3) lack of centralized online platform for hosting and disseminating these tools that caters to the larger informatics community. The developed suite of resources that bolster AI literacy is now readily available through the HIMSS web-based platform, which the team was able to further disseminate in-person during the Fishbowl session with real-time feedback on tool application, potential improvements and clinicians' wishes to meet the specific needs of health care professionals, aiding them in the adoption and ethical implementation of AI technologies within their organizations.

METHODS

During the HIMSS 2025 global conference and Exhibition in March of 2025 in Las Vegas, four members of NIAWG held an interactive 1-hour-long Fishbowl session and utilized three short poll questions and comments to gain insights on perceived barriers in the transition from informatics education to clinical practice and the usefulness of the tools to help them in the transition journey. The discussion and the poll questions allowed for a more meaningful interaction between the presenters and ~100 participants. A QR code to the Poll Everywhere³ survey questions was displayed on four screens throughout the room. Presenters guided participants to scan the QR code and answer questions anonymously throughout a 1-hour session. Questions included (1) identifying primary gaps in transitioning from informatics education to practice, (2) helpfulness of the 5 Rights of AI for Healthcare tool, and (3) participants' title/position. There was also an option to enter comments suggesting resources participants would like to see in the future.

Each panelist took turns to describe one of the tools within the toolkit, with one or more audience members stepping up to share their own experience with the utility of the tool or its potential application in their respective organizations. The first presenter spoke about the Innovation Inventory Heatmap, which emerged from a synthesis of professional expertise gathered during focus group sessions in the fall of 2023. This tool was informed by the HIMSS24 Nursing Informatics Forum survey, with 148 responses representing a wide array of practice areas and global locations. The insights gleaned helped refine the Heatmap and shape the INSIGHT tool, poised to assist organizations in their technology adoption decisions. The second presenter spoke about the "5 Rights of AI in Healthcare,"⁴ which provides a structured approach for nurses and health care providers to assess and adopt AI technologies. This tool has undergone a rigorous peer-review process by the HIMSS Nursing Innovation Advisory workgroup and external experts, leading to its publication in Nursing Management and its availability on the HIMSS

website. The third speaker discussed "AI Essentials for Nurses," a teaching deck of open-source, evidence-based slides to address the prevalent challenge of AI literacy among nurse leaders.

RESULTS

Poll results complemented the discussion points that evolved around 3 main themes: (1) need for digital literacy, (2) gap in curricular preparedness, and (3) interest in practical resources. For example, to the question about gaps in transitioning from informatics education to practice, out of 67 survey responses, 35 (52%) of respondents indicated "Informatics Competency" as the primary gap (Fig. 1). This reflects a widespread concern that formal education does not sufficiently equip graduates with the core digital and data skills needed in real-world settings, while 16 (24%) selected "Other," indicating a variety of additional issues, perhaps including leadership, communication, or adaptability, which were not covered in the predefined options, and 11 (16%) cited Adapting to "Digital Technologies," pointing to difficulties keeping pace with innovation and implementing new tools effectively. Only 3 (4%) mentioned "Clinical Judgment," and another 3 (4%) referenced "Quality and Safety Education Standards," suggesting that a minority are concerned about how informatics may affect critical clinical competencies and safe care delivery.

Participants were asked to reflect on the helpfulness of the 5 Rights of AI for Healthcare for their practice on a 5-point Likert Scale ranging from very helpful to not helpful at all. The majority of responses fell under "Very helpful" 48 (71%) responses and "Somewhat helpful" 15 (22%) responses, indicating that over 80% of participants found value in the content shared. Only 5 (7%) participants chose "Neutral," and no clear negative responses were recorded (Fig. 2). To ascertain professional identifiers, respondents were able to enter free-text (eg, Clinical Informaticist, CNIO, VP Clinical Informatics). Based on 80 responses, the session attracted a diverse audience within the nursing informatics and digital health leadership space, with key roles represented as follows:

- Clinical Informaticists
- Chief Nursing Informatics Officers (CNIOs)
- Nurse Educators
- Epic Application Managers
- Postdoctoral trainees and students in nursing informatics

This range of participants reflects a healthy mix of early-career learners and advanced leaders, offering rich perspectives during interactive components such as the Fishbowl session.

Lastly, 30 respondents chose to provide feedback when asked to suggest desired resources to be offered in the future. Analysis of participant comments revealed a strong desire for practical resources to support AI integration in nursing, including toolkits for implementation, governance, and documentation accuracy. Respondents identified significant gaps in workforce readiness, emphasizing the need for foundational and graduate-level education, onboarding materials, and competency-based training. There was also a

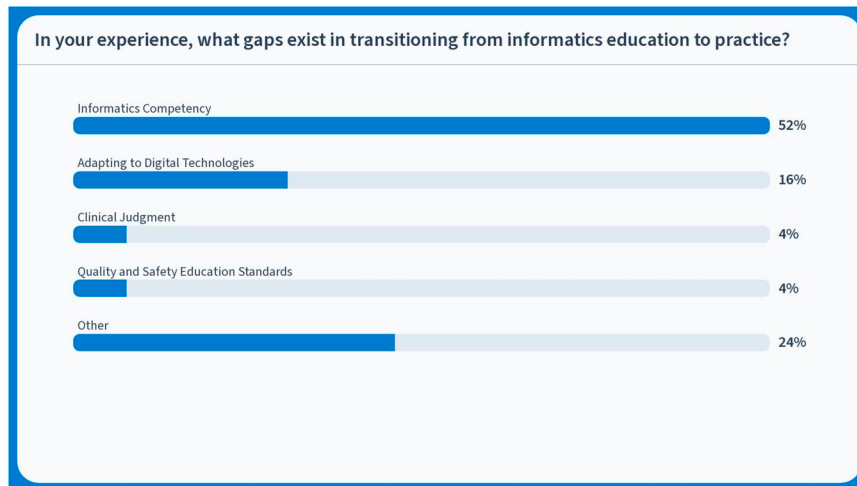


Figure 1. Gaps in transitioning from informatics education to practice (N=67).

clear interest in centralized knowledge-sharing platforms and real-world use cases to guide clinical application. Finally, participants advocated for nurse-led research and policy alignment to evaluate AI's impact and ensure ethical and effective deployment across care settings.

DISCUSSION

The HIMSS Nursing Innovation Advisory workgroup has been addressing the evolving technological needs of nurses and nurse informaticists across clinical, academic, research, and industry sectors. More specifically, focusing on a pressing need to enhance AI literacy, provide credible and easily accessible resources for nurses and health care leaders, and create a centralized platform for the distribution of these tools to the broader informatics community. Over the past 2 years, the concerted efforts of Nurse Informatics experts have culminated in the development of a suite of innovative tools poised to transform health care technology. These tools include the Innovation Inventory Heatmap, the INSIGHT tool, the “5 Rights of AI in Healthcare,” and “AI Essentials for Nurses.” The development, implementation and dissemination of these tools have helped numerous professionals based on the discussion and poll results of the Fishbowl session.

The session highlighted several important themes regarding the transition from informatics education to practice. Participants expressed concern that current educational programs may not fully prepare graduates with the digital and data literacy skills⁵ necessary for real-world health care environments. This suggests a need to reassess and potentially modernize informatics curricula to better align with the demands of clinical practice. In addition to technical competencies, attendees pointed to a range of other challenges that may hinder successful transitions into practice. These include leadership,⁶ communication, and adaptability skills that are essential for navigating the complexities of digital health systems but are often under-emphasized in formal training.⁶

The session also received strong positive feedback from participants, who found the content relevant and engaging. The interactive format, including components like the Fishbowl session, encouraged meaningful dialogue and knowledge exchange. The diversity of attendees, ranging from early-career learners to senior informatics leaders, enriched the discussion and highlighted the importance of creating inclusive learning environments that support professional development at all levels.

Overall, the session reinforced the value of collaborative, cross-disciplinary conversations in advancing the field of nursing informatics. It also emphasized the ongoing need for tools, resources, and educational strategies that bridge the gap between academic preparation and practical application in digital health settings.⁷ The ongoing development and iterative refinement of these tools highlight our commitment to enhancing AI literacy and its practical application within the health care sector. These tools collectively contribute to a more informed, efficient, and ethical adoption of health care technologies, ultimately improving patient care and outcomes.

Implications for education, practice, and research

The collective feedback and poll results from the HIMSS session reflect an urgent need to enhance AI literacy and

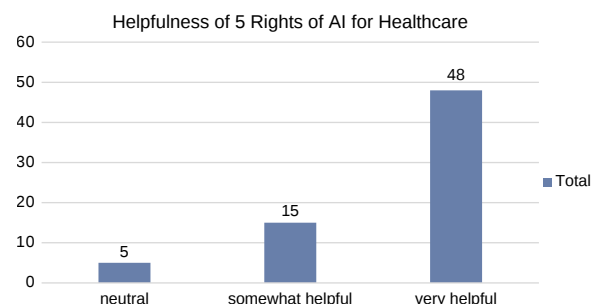


Figure 2. Helpfulness of 5 Rights of AI for Healthcare (N=68).

informatics competencies across the nursing profession, reflecting consensus on 3 fundamental themes: digital literacy, curricular preparedness, and the demand for applied resources.

The central finding is the broad educational readiness gap, with informatics competency as the primary graduation barrier for practice entry. This means that existing academic curricula are falling short on equipping future nurses with the digital literacy necessary to apply in practice. The simultaneous appeal of “Basic AI training,” a comprehensive “AI Training toolkit,” and redesigned curricula, in terms of fundamental courses to specialist graduate programs and new hire onboarding, highlights the imperative to synchronize nursing education with the rapidly advancing pace of technological integration. While the overwhelming focus is on skills acquisition, the minimal concern expressed regarding the impact of informatics on clinical judgment or quality and safety standards suggests that the immediate priority for educators must be on building fundamental digital skills.

There is a focus in nursing practice on successful integration, governance, as well as ethical deployment. Participants placed significant emphasis on the 5 Rights of AI for Healthcare, reflecting a high need among the profession for established ethical principles to guide the use of these emerging technologies. The comments calling for “AI implementation” and “tool selection” toolkits, a “resource library,” and guidance on “governance” and “policy” suggest that nurses and informatics leaders require tangible, actionable materials to manage the operational and regulatory complexities of AI. Secondly, the requests for specific use cases, ie, augmenting nursing workload and prioritization of patient needs, demonstrate a practical strategy for employing AI in addressing concrete clinical and efficiency challenges.⁸

Finally, nurse-initiated research and policy coordination emerged as one of the discussion points among the multidisciplinary audience, calling for nurse-focused, multisite research to critically test the worthiness and value of AI in patient and nursing care because ethical deployment of AI cannot rest solely on vendor-funded or nonclinical research. In the future, the nursing practice must lead the conversation on AI's influence, develop evidence-based best practices, and inform policy so that these technologies are implemented in a manner that best serves patients and supports the nursing workforce.

Next steps

The next step involves a call to action for the audience to actively pursue learning opportunities related to emerging technologies. NIAWG encourages participants to become early adopters of innovative technologies, act as agents of change within their organizations, and ensure the ethical use of these technologies. Utilizing the resources covered in this session, NIAWG urges nurses to:

1. Seek continuous learning by engaging in ongoing education to stay informed about the latest advancements in health care technology.
2. Adopt innovations early by leading the way by integrating new technologies into your practice areas to improve patient care and operational efficiency.

3. Be change agents by advocating for and driving the adoption of beneficial technologies within your teams and organizations.
4. Ensure ethical practices by upholding ethical standards in the use of emerging technologies, ensuring patient safety and privacy are prioritized.

By taking these steps, nurses can collectively advance the knowledge of clinicians and health care leaders, fostering a culture of innovation and ethical responsibility.

CONCLUSIONS

Educational materials discussed during the session, along with the poll questions, helped deepen understanding and champion the ethical integration of AI into health care practices. The ongoing development and iterative refinement of these tools highlight our unwavering commitment to fostering AI literacy and its practical application within the health care sector.

Reflecting on the journey of the HIMSS Nursing Innovation Advisory workgroup, authors have gleaned valuable lessons and outcomes from our endeavors to meet the needs of nurses and nurse informaticists amidst the surge of innovative and AI-driven technologies. The development and refinement of tools such as the Innovation Inventory Heatmap and the INSIGHT tool have emphasized the importance of collaborative expertise and the power of community feedback in creating resources that are both practical and relevant across various health care settings. The outcomes of these initiatives have demonstrated translation potential to other sites, offering clinical and organizational pearls that can be adapted to different contexts. By fostering an environment of shared knowledge and resources, nurse informaticists can collectively elevate the standard of health care informatics and drive meaningful innovation in the industry. The HIMSS25 session is a culmination of past efforts and a stepping stone toward future advancements and continued excellence in health care technology. This descriptive report of the HIMSS25 Fishbowl session is intended to offer our colleagues valuable insight into the collective sentiment surrounding AI literacy and informatics competencies within nursing. Our goal is to both raise awareness of existing resources that support the digital literacy journey and clearly define the current needs and gaps that must be addressed to ensure a future-ready workforce. The findings reflect the perceptions of a self-selected group of attendees and may not be generalizable to broader nursing or informatics communities. This session model and the developed tools can inform faculty development, continuing education programs, and institutional informatics training efforts.

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