University of Missouri Responsible AI in Health Research Workshop 2025 (MU RAHR 2025)

A Nurse-Led Multidisciplinary Responsible AI Workshop

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The past decade has seen tremendous advances in using artificial intelligence (AI) to address complex health issues. To maximize AI's benefits and reduce risks, various stakeholders must ensure that it is designed, developed, and deployed responsibly. Thus, it is crucial that those conducting health research involving AI, regardless of discipline, uphold responsible AI principles in their work.

To promote responsible AI in health research, we organized the University of Missouri Responsible AI in Health Research Workshop 2025 (MU RAHR 2025).[1] This was led by Dr John Robert Bautista, PhD, MPH, RN, of the Sinclair School of Nursing and Institute for Data Science and Informatics, University of Missouri-Columbia (MU), and Dr Pepita Barnard, PhD, MSc HSR, MSc, BSc(Hons), of the Horizon Research Institute and Responsible AI UK (RAi UK), University of Nottingham, United Kingdom (UoN), and former registered mental health nurse at Nottinghamshire Healthcare NHS Trust. The workshop was held on April 25, 2025, at MU's General Services Building. More than 40 participants attended MU RAHR 2025, representing MU faculty and students, including staff from the University Hospital (MU Health Care). They also came from diverse fields, such as nursing, medicine, informatics, data science, and engineering. Health professionals who attended the workshop could claim continuing education units through the MU Continuing Education for Health Professions. The workshop was funded by RAi UK and IBM.

Table 1 shows the MU RAHR 2025 agenda. The workshop started with a warm welcome message from Dr Lori Popejoy, PhD, RN, FGSA, FAAN, dean of the MU Sinclair School of Nursing. With the growing prominence of Team Science, Dean Popejoy noted that nurses play a crucial role in ensuring that AI technologies in healthcare are implemented responsibly and that they benefit patients. Dean Popejoy introduced Dr Matthew Martens, PhD, the provost of MU. Provost Martens shared that MU has supported numerous AI initiatives, including MU RAHR 2025. He also added that the workshop contributes to MU's mission of ensuring that technologies such as AI are developed, utilized, and disseminated in socially responsible ways and improve wellbeing.

The workshop's first session was facilitated by UoN's Dr Virginia Portillo, PhD, along with Drs Barnard and Bautista. All facilitators had extensive experience conducting responsible AI workshops in the United Kingdom and the United States. First, Drs Barnard and Portillo introduced participants to the Responsible Research and Innovation (RRI) framework,[2] which was initially developed in Europe and adopted by the United Kingdom to promote and develop responsible AI practices. RRI training raises awareness and understanding of interdisciplinary, collaborative, anticipatory, and participatory approaches to meaningfully engage with research and innovation-related decisions likely to have broader social and ethical impact.

After the short lecture, participants formed groups and were introduced to the Responsible Innovation (RI) Prompts and Practice Cards.[3] RRI training with RI Prompt and Practice Cards offers participants a hands-on opportunity to raise shared awareness and develop methods to embed responsible research and innovation into their practice. The RI Prompts and Practice Cards were made available physically and online to guide groups' development of RRI action plans. Participants were given time to explore the cards and develop their RRI action plans in consultation with the facilitators. This was followed by presentations in which groups presented their RRI action plans on responsibly using AI for diabetes management, dementia care, and bird flu surveillance, among others. The morning workshop session concluded with reflections on incorporating RRI action plans in research projects involving AI in health.

During lunch, participants were given time to network and view research posters on health AI projects from faculty and students of MU and the University of Texas at Austin. After lunch, Dr Arya Farahi, PhD (University of Texas at Austin), Dr Jiyoun Song, PhD, AGACNP-BC, APRN (University of Pennsylvania), and Dr Bautista gave presentations on how

Table 1. MU RAHR 2025 Agenda

Time (Central Time)	Activity
8:30—9:00 AM	Registration, breakfast, and networking
9:00–9:05 AM	Welcome message Lori Popejoy, PhD, RN, FGSA, FAAN Dean, MU Sinclair School of Nursing
9:05–9:10 AM	Opening Remarks Matthew Martens, PhD Provost, University of Missouri-Columbia
9:10–9:30 AM	Lecture: Overview of Responsible Research and Innovation (RRI) Pepita Barnard, PhD, MSc, HSR, BSc (Hons) Virginia Portillo, PhD University of Nottingham, United Kingdom
9:30–10:30 AM	Workshop exercise 1: Introducing the RRI cards Pepita Barnard, PhD, MSc, HSR, BSc (Hons) Virginia Portillo, PhD University of Nottingham, United Kingdom John Robert Bautista, PhD, MPH, RN University of Missouri-Columbia
10:30–10:45 AM	Health and coffee break; networking
10:45–11:45 PM	Workshop exercise 2: RRI Action Plan Pepita Barnard, PhD, MSc, HSR, BSc (Hons) Virginia Portillo, PhD University of Nottingham, United Kingdom John Robert Bautista, PhD, MPH, RN University of Missouri-Columbia
11:45 AM to 12:15 PM	Workshop exercise 3: RRI group presentations by workshop participants
12:15–1:15 PM	Lunch, networking, and poster presentations
1:15–2:15 PM	Research presentations: Responsible AI in Health Research *TAME Pain: Trustworthy AssessMEnt of Pain—Using Audio Signals to Characterize Pain for the Empowerment of Patients* Arya Farahi, PhD Department of Statistics and Data Sciences, University of Texas at Austin *Words Matter: Ethical Natural Language Process in Healthcare and Nursing to Identify At-Risk Patients and Reduce Bias in Care Delivery* Jiyoun Song, PhD, AGACNP-BC, APRN School of Nursing, University of Pennsylvania *MACAIF: Machine Learning Auditing for Clinical AI Fairness* John Robert Bautista, PhD, MPH, RN Sinclair School of Nursing and MU Institute for Data Science and Informatics, University of Missouri-Columbia
2:15–2:30 PM	Health and coffee break
2:30–3:10 PM	Panel: Challenges in Upholding Responsible AI in Health Research Panelists: Arya Farahi, PhD, University of Texas at Austin Jiyoun Song, PhD, AGACNP-BC, APRN, University of Pennsylvania Greg Hintermeister, BS, IBM Moderator: John Robert Bautista, PhD, MPH, RN, University of Missouri-Columbia
3:10–3:15 PM	Closing remark Chi-Ren Shyu, PhD, FACMI, FAMIA Director, MU Institute for Data Science and Informatics
3:15–4:00 PM	Light snacks, refreshments & networking

early-career researchers uphold responsible AI in their research projects (see presentation titles in Table 1). The presentations were followed by a panel session (moderated by Dr Bautista) to discuss challenges in upholding responsible AI in health research. Aside from Drs Farahi and Song who shared academic research perspectives on responsible

AI, the panel also included industry insights through the participation of Mr Greg Hintermeister, BS, an IBM distinguished engineer and IBM master inventor, who leads IBM's AI Enterprise Transformation.

The workshop concluded with a closing remark from Dr Chi-Ren Shyu, PhD, FACMI, FAMIA, director of MU Institute for Data Science and Informatics. In his speech, Dr Shyu appreciated the participants' engagement in the workshop sessions and highlighted the importance of collaboration across disciplines in conducting health AI research. He also encouraged participants to share lessons learned from the workshop so that more faculty and students will have greater appreciation of the importance of conducting responsible AI in health research.

The workshop was successful based on the postworkshop survey (n = 11; 1 as the highest score and 5 as the lowest score). First, participants' overall evaluation of MU RAHR 2025 was high ($M = 1.36$), and the content delivered was highly relevant to the workshop's purpose ($M = 1.36$). Regarding learning outcomes, the workshop increased participants' knowledge of RRI ($M = 1.93$) and challenges in upholding responsible AI in health research ($M = 1.93$). Moreover, it increased participants' intention to network and collaborate to advance responsible AI in health research ($M = 1.79$). Our six workshop speakers were highly rated based on engagement ($M = 1.35$) and stimulation of thinking and learning ($M = 1.30$). Table 2 provides a summary of participants' workshop feedback, which focuses on (1) practicing ethical and responsible AI, (2) interdisciplinary collaboration, and (3) future plans.

Overall, the MU RAHR 2025 was a successful nurse-led multidisciplinary workshop that provided participants with insights on RRI's role in upholding responsible AI in health research. Participants learned about various opportunities and challenges in ensuring responsible AI in academic- and industry-based health research. Finally, the workshop served as a venue to identify potential collaborators who can help

Table 2. Summary of Participants' Workshop Feedback

Practicing Ethical and Responsible AI
- There is a need to emphasize the ethical implications of AI in healthcare, especially in research and patient care.
- It is important to consider both the intended purpose and potential misuse or unintended consequences of AI technologies.
- Encouragement to apply a responsibility framework when developing or deploying new innovations.
- Participants left with actionable insights and a renewed focus on trust, privacy, and responsibility in consumer health technologies.

Interdisciplinary Collaboration
- There is value in engaging diverse stakeholders—including researchers, clinicians, and industry partners—to ensure a broad perspective on responsible AI use.
- Recognition of the benefits of networking and collaboration across disciplines, particularly within the University of Missouri (MU) and beyond.

Future Plans
- Continue learning about AI and its safe and effective integration into their work.
- Incorporate AI into research, teaching, and clinical simulations.
- Be more mindful of AI's risks and potential in their respective fields.
- Acknowledge the need for ongoing education and awareness of responsible AI developments in healthcare.

advance responsible AI. Please visit cvent.com/d/1wq9gk for more details about MU RAHR 2025 and future workshops. Please contact us if your institution is interested in conducting a similar workshop.

References

1. MU Continuing Education for Health Professions (2025). MU Responsible AI in Health Research Workshop. https://web.cvent.com/event/0b4c6c2c-662d-444a-b5df-cbbafc5c9c15/summary.
2. UKRI Trustworthy Autonomous Systems Hub (2020). RRI for ICT Researchers. https://tas.ac.uk/responsible-research-innovation/rri-for-ict-researchers/.
3. UKRI Trustworthy Autonomous Systems Hub (2020). RRI Prompts and Practice Cards. https://tas.ac.uk/responsible-research-innovation/rri-prompts-and-practice-cards/.