

Proceedings From the 2025 Medical College of Wisconsin Innovations in Healthcare Education Research Annual Conference

The following award-winning abstracts were presented during the 12th Annual Medical College of Wisconsin (MCW) Innovations in Healthcare Education Research (IHER) Annual Conference on September 16-18, 2025. Health care educators and researchers from MCW and other national institutions meet annually at IHER to present their research and innovative ideas and to learn from one another about the new and creative approaches to educating students and residents. The 3-day conference includes nationally recognized keynote speakers, panel sessions, workshops, roundtables, oral presentations, and posters that can be viewed at <https://www.mcw.edu/IHER2025>. Four hundred and fifty-six participants hailed from 31 states and 6 countries. The winning oral presentations and posters in the research and innovations categories are published below.

INNOVATIONS – ORAL PRESENTATION

Bridging the Gap: Advancing Medical Student Research and Scholarship with Medical Education Research and Scholarship Program

Rhett Reichard, PhD

Problem: Academic scholarship and research skills are essential in medical education and clinical practice, yet preclinical and clinical students often struggle to develop them due to time constraints, competing demands, and limited formal training. Additionally, many medical students have limited prior exposure to research, minimal understanding of its role in clinical practice and general unawareness of scholarly opportunities available to them. The MERAS program is structured to bridge these gaps. Through exposure to diverse examples of scholarship, MERAS remediates students' deficits in critical research and scholarship skills while fostering innovation, critical thinking, and academic inquiry. Aligned with Western Atlantic University School of

Medicine's (WAUSM) core values, it prepares future physicians to advance medical education and integrate evidence-based practice.

Approach: At WAUSM, student scholarships include oral presentations on educational practices, reflections, and review articles. In collaboration with Student Affairs, medical educators and a librarian developed a 10-session live online program with longitudinal mentorship across all curricular years. These standalone, panel-style sessions promoted self-directed student learning in literature search, study design, curriculum development, and scholarly dissemination. Emphasizing innovation reports and reviews, the program linked health professions education to traditional and emerging publication formats. Sessions were recorded and archived on CANVAS enabling asynchronous access. Several students engaged in mentorship, resulting in the submission of 2 peer-reviewed scholarly works and demonstrating their developing competence in medical education research, critical thinking, and academic inquiry.

Lessons: The MERAS program exemplifies how aligning educational initiatives with institutional values can foster a dynamic culture of innovation, collaboration, and scholarship among medical students. By offering a flexible structure that allows participants to tailor their involvement based on individual interests, the program creates an engaging and multifaceted learning environment led by a diverse team of medical educators. Key lessons from MERAS include the efficiency of adapting proven frameworks, the transformative impact of faculty-student collaboration, and the importance of programs that inspire both academic output and innovative teaching practices. These experiences underscore the power of structured extracurricular programs to integrate research and teaching while fostering meaningful academic growth and creativity.

Significance: Scholarship and research skills are vital in medical education, yet students often face challenges acquiring them. The MERAS program fosters critical thinking, innovation, and academic excellence through a flexible, interest-driven approach that enhances student engagement in scholarly activities.

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RESEARCH – ORAL PRESENTATION

Generating Interactive Case Reports from Published Literature with a Large Language Model

Haelynn Gim, BA

Background: Published case reports represent a cornerstone of medical literature and are valuable educational resources,¹ but their static format limits engagement and interactivity. Artificial intelligence (AI) has the potential to generate and simulate interactive clinical scenarios with which learners can engage.^{2,3} This project explores the feasibility of using AI, namely large language models (LLMs), to convert existing published case reports into interactive cases to enhance their educational utility.

Methods: We prompted OpenAI's GPT-4o to convert 5 published case reports with neuroinfectious diagnoses into case descriptions following a provided standardized template. These case descriptions were then uploaded to a custom internet interface, and 3 learners (2 medical students and 1 resident) interrogated them via free-text questioning regarding history, examination, and studies to arrive at a diagnosis and management plan. The LLM was prompted to play the patient and adhere to the case description for each of the 5 cases. All user questions and LLM-generated answers were then reviewed by a neurologist to determine medical appropriateness.

Results: Of 803 total LLM-generated answers, only 1 (0.1%) contained information that was not in alignment with the original case report; this was in response to a question about the time course of an illness, which was deemed to be unclear in the published case report upon human review. In 689 instances (85.8%), the LLM provided medically appropriate responses that aligned with the content of the case reports. The LLM declined to answer in 113 instances (14.1%). An example of such a response may occur following a request for "liver function tests" when none were presented in the case; the response may be "These results are not available."

Conclusions: In this pilot study, a LLM successfully converted published case reports into

interactive cases that learners could engage with to arrive at diagnoses and plans. The LLM adhered closely to content within the case reports in its responses to learner inquiries. The risk of generating faulty information ("hallucinations"⁴) appears low, supporting the feasibility of employing AI to enhance the interactivity of case reports. Further research is needed to evaluate the effectiveness of this technology in supporting student learning and to facilitate its integration into everyday use within health care education.

Significance: LLMs offer a transformative approach to converting published case reports into interactive cases, creating a novel and engaging way for learners to explore and learn from medical literature.

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INNOVATIONS – POSTER PRESENTATION

A Novel Abbe-Vermilion Switch Flap for Near-Total Upper Lip Reconstruction

Laura Whitney, BS

Problem: Upper lip reconstruction presents unique challenges due to its intricate anatomy and critical functional and aesthetic roles. Traumatic injuries, such as those caused by dog bites, can result in substantial defects, leading to functional impairments and aesthetic deformities. Established techniques, such as the Abbe and vermilion switch flaps, offer effective solutions for specific lip subunit losses, but neither are ideal for complete upper lip reconstruction.

Approach: A 31-year-old female with a dog bite-induced near-total upper lip avulsion injury underwent staged reconstruction using a combination of the Abbe flap and a vermilion switch flap. Initially, the patient presented with severe soft tissue loss, including a complete absence of the upper lip's aesthetic subunits, such as the central tubercle, philtrum, and Cupid's bow. To address the extensive tissue loss, a novel combination Abbe-vermilion switch flap was designed. This combination flap consisted of a 1 cm-wide Abbe flap, designed to address the central philtral column, with incorporated bilateral vermilion switch flaps to simultaneously restore the vermilion and red lip tissues. The first stage of the reconstruction involved flap transposition, followed by a second-stage procedure after a 3-week delay for flap division and inset.

Lessons: At 2.5 months postoperation, the patient reported significant improvement in both upper lip function and appearance. The upper lip contour dramatically improved and oral competence was fully restored. Despite the presence of some hypertrophic scarring, the patient expressed high satisfaction with the results. Further interventions, such as intralesional steroid injections and nonsurgical resurfacing, were planned to address the residual scarring. Overall, this new technique was successful and demonstrated the potential of the combination Abbe-vermilion switch flap to revolutionize upper lip reconstruction.

Significance: This novel method of upper lip reconstruction successfully combines 2 well-established techniques and demonstrates the importance of personalized, innovative reconstructive strategies tailored to the unique needs of patients with complex facial trauma.

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INNOVATIONS – POSTER PRESENTATION

Bookending the Learner's Experience With the Donor Body: Pre- and Post-encounter Reflections

Robert V. Hill, PhD

Problem: Modern medical curricula face calls to incorporate humanistic practices early and

often in medical school training. We have incorporated a set of humanistic elements into our integrated structure lab curriculum, including a first-day exercise wherein learners link observations to hypotheses about the body donor's life. Students engage in dissections framed as patient care scenarios and participate in a narrative reflection on their first experience in the lab. In contrast with these meaningful early sessions (and despite an annual donor memorial service), students have lamented the absence of a ceremonial end to the year's laboratory sessions. Many found their final lab encounter to be anticlimactic—a missed opportunity for closure and to say goodbye to the body donor.

Approach: To address this gap, we adapted our final lab session to include a second reflection, effectively bookending the students' year-long experience with the body donor with reflections. For this new activity, dissection groups summarized both clinical and personal observations gathered through the year as documented in their donor's chart, akin to a medical record. Previously unknown details on the donors' causes of death and occupations in life were provided. Students discussed these materials in their dissection teams, reflecting on what they had learned over the year about their donor, their team, and themselves. They then shared their journey with the body donor in discussions with the larger group. The session provided a space for students to explore how their perspective has changed since starting medical school as a result of encounters with the body donor.

Lessons: In postsession surveys, a majority of learners agreed that the end-of-year reflection appropriately honored their body donor (94%) and their overall experience in the laboratory (91%). In addition, 90% believed that the session provided a satisfying conclusion to the year's work. Most respondents expressed appreciation for the opportunity to share impressions about their donor and to hear about other teams' donors. Timing of the session proved challenging, however: some students were scheduled to return to lab and present and disliked having to do so after the emotional reflection session. In general, students appreciated the opportunity to honor their donors and reflect on how far they had come since beginning medical school.

Significance: Recent research at the intersection of medicine and philosophy has criticized the “medical gaze,” an objectifying view of patients that focuses on their disease as separate from their personal identity. Our reflection activities represent an opportunity to cultivate humanism in medical education.

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RESEARCH – POSTER PRESENTATION

Assessing Online PRP Injection Information: Can ChatGPT Serve as a Reliable Evaluator?

Rushabh Shah, BS

Background: The internet has become a primary source of medical information for patients; however, much of the content available in sports medicine remains unverified, lacking standardized quality assessment.^{1,2} Given the increasing role of artificial intelligence (AI) in health care, we sought to evaluate whether ChatGPT could reliably evaluate online sports medicine content. Our study focused on platelet-rich plasma (PRP) injections, a growing nonsurgical treatment option for osteoarthritis and sports-related injuries.³

Methods: We analyzed 68 relevant YouTube videos using 2 validated health information scoring systems: the DISCERN scale and the JAMA benchmark criteria. Human raters and ChatGPT independently graded the videos. Intraclass correlation coefficient (ICC) and Cohen's kappa were used to assess inter-rater agreement. Spearman's rank correlation analysis was performed to evaluate potential systematic bias in ChatGPT's scoring.

Results: Human raters observed a mean DISCERN score of 57.7 (SD, 14.0) and mean JAMA score of 2.54 (SD, 0.92). ChatGPT observed a mean DISCERN

score of 56.6 (SD, 9.67) and mean JAMA score of 2.50 (SD, 0.93). Interrater reliability analysis revealed substantial agreement for the DISCERN scale (ICC, 0.76; 95% CI, 0.64-0.85) and strong agreement for the JAMA criteria (weighted kappa, 0.85; CI, 0.76-0.94). However, Spearman's analysis identified a negative correlation (ρ , -0.75, $P < .0001$) between human DISCERN scores and ChatGPT's rating discrepancies, indicating that ChatGPT systematically underrated higher-quality videos while overestimating lower-quality ones.

Conclusions: ChatGPT demonstrated strong agreement with human evaluators in assessing the quality and reliability of online sports medicine information. However, its tendency to moderate extreme DISCERN scores suggests a limitation in distinguishing between high- and low-quality content. Our results suggest that AI-driven tools may help patients identify more reliable online sports medicine educational content.

Significance: Patients frequently turn to unverified online sources for medical guidance. This study explores the potential of large language models as a tool for evaluating online health content.

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