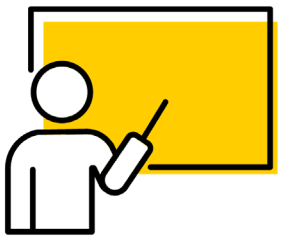
2025 Graduate Medical Education Leadership Symposium

May 30, 2025

Educational Initiatives Poster Guide

Each year The Graduate Medical Education Office receives very creative educational poster proposals addressing a wide array of challenges and solutions. All posters have a focus of enhancing GME including:

- Transitions from UME to GME
- Deliberate practice to grow feedback culture
- Well-being and connectedness of those in GME
- Interventions to address healthcare disparities
- Redesigning health care delivery models that improve patient care and clinical education
- Teaming and interprofessional dynamics in the clinical learning environment



Posters will be judged, and prize amounts will be transferred to the department which can be used to fund further educational initiatives.

1st Place ($500) 2nd Place ($300) 3rd Place ($200)

Posters with a (*) received GME Innovation Funding for 2024-205

→ gme.medicine.uiowa.edu/gme-collaboratives/innovation-collaborative

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2025 Graduate Medical Education Leadership Symposium

Educational Initiatives Poster Guide

1. Humanism in Medicine as a Path to Resident Wellness*

   Grace Alexander, James Burton, Jennifer Strouse, Manish Suneja – Internal Medicine

2. Implementation of a Surgery Mentorship Training Program in Iowa*

   Darren Gordon, Mohamed (Femi) Suraju, Shriya Kane, Lillian Erdahl, Vincent Reid – General Surgery

3. Fundamentals of Microsurgery for the 21st Century Plastic Surgery Trainee*

   Catherine "Katy" Coyne, Kelly Ledbetter, Allison Lorenzen – Plastic and Reconstructive Surgery

4. Ophthalmic Trauma Informed Care (OTIC)

   Olivia DiGioia, C.Y. Lewis, Eva Schoen, Mitchell Dotson, Chau Pham, Rupin, Parikh, Keith Carter, Erin Shriver – Ophthalmology

5. The Chief Resident General Surgery Clinic: A Single Institution Pilot Program

   James DeAndrade, Garett Steers, Shriya Kane – General Sugery

6. Addressing Financial Literacy in Residency: A Resident-Led Financial Education Curriculum

   Nicholas Lind, Brooks Obr, Thomas Striegel, Jon Van Heukelom – Emergency Medicine

7. Bridging the Gap from Student to Resident in the ICU: Piloting the Critical Care Crash Course*

   Justin Holmes, Desmond Barber, Ashten Sherman, Charles Rappaport – Internal Medicine/Pulmonary-Critical Care

8. Development of a Distinction in Point-of-Care Ultrasound Track for Internal Medicine Residents*

   Sydney Bowmaster, Justin Smock, Charles Rappaport, Manish Suneja, Abbey Gilpin – Internal Medicine

9. Improving On-Call Education through Passive Feedback

   Ryan Staudte – Diagnostic Radiology

10. Reflective Personal Journals: Fostering Self-Awareness and Communication in Vascular Surgery Training*

    Mean Aboul Hosn, Rachael Nicholson, Adeola Odugbesi, Crystal Rodriguez, Natalie Weger, Megan Parrott, Shriya Kane – Vascular Surgery

11. Assessing the Value of EHR-based, Self-Service Analytics Training in Resident-Led Quality Improvement Projects

    William Welsh and Michael Strong – Psychiatry

12. Digital Indirect Ophthalmoscopy*

    Taariq Mohammed, Jonathan Russell, Elaine Binkley - Ophthalmology

2025 Graduate Medical Education Leadership Symposium

Educational Initiatives Poster Guide

13. Cognitive and Neuroimaging Characteristics of Patients with Sarcoidosis

    Nabeel Hamzeh, Tara Lanning, Jacob Simmering, Carinda Linkenmeyer, Jake Hampton, Taylor Titterington, Brenda Werner, Vincent Magnotta, Elizabeth Wittrock, Karini Hoth – Pulmonary, Critical Care, and Sleep Medicine

14. Bridging Gaps: Incorporating Social Determinants of Health into Internal Medicine Residency Curriculum

    Paige Carlson and Manish Suneja – Internal Medicine

15. Evaluating a Novel AI Chatbot for Patient Medical Queries: Comparative Analysis with Current AI Solutions*

    Stefano Byer and Aaron Brake – Internal Medicine

16. Development of an Ostomy Marking Curriculum for Surgery Residents*

    Kristina Guyton, Jeremy Chang, Julia Langin, Carine Dornbush – General Surgery

17. Point-of-Care Ultrasound Education and Resource in Fort Portal, Uganda: A Needs-Based Assessment

    Adam Blaine, Alice Xu, Robert Blount – Internal Medicine

18. Integrating a Lifestyle Medicine curriculum into residency and fellowship training programs: a pilot study assessing feasibility and provider wellness*

    Aygun Asgarli and Andrea Swenson – Neurology

19. Resident Response to Didactics on Disclosing Medical Errors*

    Victoria Tann, Brigit Ray, Korey Kennelty, Jane Miller – Family Medicine

20. Transitioning to Comfort Care: Utilizing a Simulated-Electronic Medical Record to Teach Complex Medical Decision Making to Fourth Year Medical Students

    Carlie Sorensen, Daniel Miller, Jennifer Strouse, Matthew Soltys – Internal Medicine

21. Using a Narrative Medicine Approach to Tackle Complex Topics in Medical Ethics*

    Shriya Kane, Nicole Nitschke, Erica Carlisle, Carol Scott-Conner, Laura Shinkunas, Maxwell Lieberman – General Surgery

22. So You Want Your Residents To Do QI? Creating a Senior Resident for Quality Improvement in Psychiatry

    Magdalena Maginot, Michael Strong – Psychiatry

23. Cognitive Dysfunction and Disease Characteristics in Patients with Sarcoidosis

    Elizabeth Wittrock, Nabeel Hamzeh, Karin Hoth, Jacob Simmering, Tara Lanning - Pulmonary, Critical Care, and Sleep Medicine

2025 Graduate Medical Education Leadership Symposium

Educational Initiatives Poster Guide

24. Distinction in Health Equities Track for Internal Medicine Residents*

    Krista Johnson, Desmond Barber, Manish Suneja, Jeydith Gutierrez – Internal Medicine

25. Enhancing Radiology Resident Wellness, Education, and Transitioning to Graduate Medical Education through Technology – The Programmable Mouse*

    Jay Yu – Diagnostic Radiology

26. Improving Intern Medical Education in Fort Portal Regional Referral Hospital

    Alice Xu, Adam Blaine, Robert Blount – Internal Medicine

27. Refining Resident Teaching Skills: The Role of Deliberate Practice and OSTE-Based Feedback

    Jennifer Strouse, Jane Rowat, Krista Johnson, Katie White, M. Lee Sanders, Lisa Antes, Manish Suneja – Internal Medicine

28. Improving Resident Attendance at Didactic Sessions While Rotating on Pediatric Wards

    Michael Colburn, Ashley Radig, Madison Teich – Pediatrics

29. Introduction and Implementation of the Iowa Ophthalmology Laser Curriculum

    Bilal Ahmed, Jaclyn Haugsal, Pavlina Kemp – Ophthalmology

30. Physician Advocacy in Internal Medicine Residency

    Laurel Smeins and Kimiya Nourian – Internal Medicine

1. Humanism in Medicine as a Path to Resident Wellness

Team Members: Grace Alexander, James Burton, Jennifer Strouse, Manish Suneja

Department: Internal Medicine

Abstract: Medicine is both a science and an art. We as physicians are tasked with learning the physiology, as well as the humanistic side to patient care. Storytelling has been shown to lead to a sense of connection and community, re-connection with meaning and purpose in work, and potentially lead to an impact on burnout.

In February of 2025, our wellness committee invited residents to participate in a creative writing competition and the results were fascinating. There were 8 submissions in total from all internal medicine residents. Several stand out pieces included a poem about grief after losing a patient, a haiku about being awoken by a page in the middle of the night, and a satirical narrative about what healthcare may look like in 100 years.

Another area of focus was mindfulness. Self-reflection and mindfulness over the past few decades have been examined as strategies to promote coping with stress and resilience in medical professionals. Art therapy can be used as an effective tool for mindfulness and reframing one's experiences. Studies have shown that healthcare professionals who engage in a creative arts therapy program have improved anxiety, depression, and burnout scores.

In October 2024, a hands-on art making and mindfulness session was held with a local board-certified art psychotherapist. Fourteen internal medicine residents were in attendance. In a post-session survey completed by 9 of the participants, all 9 said they felt like the activity provided them with tools that will help in their daily life as a physician. Eight (88.9%) said they would be likely to attend a similar session in the future. A survey comment included that the session "got me out of my comfort zone which I feel like is a healthy way to deal with stress outside of work.

Conclusions/Lessons Learned: Our internal medicine residency prioritizes resident wellness. The creative writing competition and the mindfulness-based art session are two examples of initiatives that support resident well-being by fostering connectedness and helping to prevent burnout. Both experiences reinforced the value of humanism in medicine.

The diversity of narrative submissions—from poetry to satire to firsthand reflections—suggests that writing is a versatile tool for processing the emotional complexities of medical training. Likewise, the overwhelmingly positive response to the mindfulness and art therapy session highlights the need for structured opportunities for self-reflection and stress relief. Strong participation and follow-up survey results indicate that residents not only benefited from these experiences but are also open to incorporating these tools into their daily routines as physicians. Future directions include expansion of our resident book club with the goal of promoting empathy and vulnerability among the resident community.

2. Implementation of a Surgery Mentorship Training Program in Iowa

Team Members: Darren Gordon, Mohamed (Femi) Suraju, Shriya Kane, Lillian Erdahl, Vincent Reid

Department: General Surgery

Abstract: Limited early exposure contributes to the underrepresentation of marginalized groups in surgery and perpetuates healthcare disparities in the United States. To our knowledge, no surgical pipeline programs currently exist in Iowa for undergraduate students from socioeconomically disadvantaged backgrounds who aspire to address disparities in surgical care. We hypothesized that a longitudinal pipeline program targeting this population would be feasible in Iowa.

The Iowa Strong longitudinal surgery pipeline program was piloted from 09/2024-05/2025. Ten first- and second-year students from the University of Iowa were recruited. Students were paired with resident and faculty mentors and engaged in a hands-on experiential curriculum designed to reinforce their interest in surgical careers. Surveys were conducted to assess the program's impact and its effect on shaping students' career goals.

The median age of the cohort was 19; 60% were female, 80% were sophomores, and 90% had no physicians in their family. All participants were Iowa residents and 70% indicated a strong interest in practicing in Iowa. The majority (90%) of students indicated a strong interest in attending medical school, with 60% specifically interested in a surgical career. However, only 40% felt confident in securing research opportunities, 30% in gaining clinical exposure, and just 20% reported confidence in leveraging career building resources. Through Iowa Strong, students gained operative exposure, hands-on practice with surgical techniques, structured mentorship, and individualized guidance for furthering their academic goals.

A surgical longitudinal pipeline for students from socioeconomically disadvantaged backgrounds is feasible in Iowa and can provide the early exposure and support essential for success in surgery. Students have expressed positive impacts and experiences while a part of the program. Ongoing evaluation of student academic progression will continue at 6-month intervals for two years.

Conclusions/Lessons Learned: There is a opportunity to tap into spaces within Iowa that can be utilized to enhance the future of healthcare within Iowa. Students who come to the University of Iowa may lack in certain social opportunities to succeed in medicine and specifically surgical fields and therefore is important to provide additional exposure and opportunities for students to succeed. While often getting into institutions as such is not an easy feat, students from backgrounds with little to no social support find themselves struggling in ways a traditional system may not foresee. The importance of this work is truly longitudinal and is important to follow students over years and possible decades to affect change. It is my hope that the Department of Surgery and the University of Iowa Health Care sees the value in programming as such and continues to foster its growth. These efforts are important in possibly alleviating the physician and specifically the surgeon shortages in the non-urban communities of Iowa.

3. Fundamentals of Microsurgery for the 21st Century Plastic Surgery Trainee

Team Members: Catherine "Katy" Coyne, Kelly Ledbetter, Allison Lorenzen

Department: Plastic and Reconstructive Surgery

Abstract: Plastics surgeons require expertise in a vast array of clinical medicine. Surgery of the hand, craniofacial, reconstruction, cancer reconstruction, contour procedures along with aesthetics and cosmetics. Within the industry and practice of plastic surgery, microsurgery has become an expectation for graduating trainees. Both the private and academic sectors are looking for trainees with microsurgical skills to serve the needs of our growing population and pushing the limits of reconstruction. A solid foundational curriculum is what is needed to ensure when our trainees graduate, they are ready to take on these challenges. With our grant money, we have built a 6-year, program to teach fundamentals of microsurgery. We have set milestone expectations for trainees that allow faculty to gauge trainees skills, and how to best help a trainee that might require more time to learn skills. The purchase of individual microsurgical instruments for each trainee, this has maximized trainee ability to utilize the Clinical Skills Laboratory and Microscope suits to train independently on microsurgical skills. We have also purchased models such as chicken thighs for anastomosis practice, sponges and implants to simulate real life scenarios of sewing deep within a body cavity. After completion of our 6-month pilot trial, we pooled trainee feedback. We anticipate that our trainees will feel more comfortable and feel more prepared for the transition to microsurgery clinically in the operating room with the purchase of instruments and milestone, microsurgical curriculum.

Conclusions/Lessons Learned: Overall, we have learned that we need to tailor the curriculum more to each individual trainee and level to maximize learning opportunities. This was noted in feedback directly from trainees stating they wanted more "targeted" and "trainee level appropriate tasks" during labs to build up and maximize their skills. Utilizing a Likert scale, our trainees unanimously either agreed or strongly agreed that the grant money, which allowed purchase of instruments and tools for training, has directly impacted their skills, and graduate training. Quoting a trainee "without these tools, we were forced to try to all do microsurgery with a set of 3 instruments, most of which were broken and overused." This grant has pushed our program and trainees to become better physicians, prepared to take on the needs of our communities with sound microsurgical training upon graduation. As this curriculum grows, we will continue to evolve and change the curriculum to best suite our trainees. Our vision and mission will remain that Plastic Surgery Graduates from Iowa Healthcare will enter their communities as thoughtful, and skillful microsurgical, plastic surgeons.

4. Ophthalmic Trauma Informed Care (OTIC)

Team Members: Olivia DiGioia, C.Y. Lewis, Eva Schoen, Mitchell Dotson, Chau Pham, Rupin Parikh, Keith Carter, Erin Shriver

Department: Ophthalmology and Visual Sciences

Abstract Trauma informed care (TIC) is a well-defined concept that recognizes a patient's past trauma and incorporates this knowledge into their care to facilitate a healing environment. By doing this, the risk of potential re-traumatization is minimized while receiving their medical care. Trauma can come in multiple forms including intimate partner violence; previous exposure to violence; or physical, emotional, or sexual abuse. While there have been studies about the benefits of TIC in other fields including psychiatry, it has not been evaluated in ophthalmology.

The use of monitored anesthesia care (MAC) in many ophthalmic and periocular surgeries compounded by the sensitive nature of the orbital region likely makes ophthalmic surgery more challenging for traumatized patients.

A toolkit was developed to educate ophthalmology residents, faculty, and staff on TIC and best practices to account for and manage a patient's trauma and reduce the risk of re-traumatization. The toolkit was based on the principles of a trauma-informed approach established by the Substance Abuse and Mental Health Services Administration. The toolkit was modeled after Pittsburgh VA Medical Center's "Project Golden Eagle", which is an established program to mitigate risk of emergence delirium in veterans with posttraumatic stress disorder.

The toolkit includes suggestions and interventions for the preoperative phase and the intraoperative/postoperative phase for both MAC and general anesthesia. Interventions include evaluating the patient and creating an individualized care plan, multidisciplinary preparation for management of the patient, specialized medication strategies, and increased communication among the care team. The toolkit also includes specific safety measures including techniques for periocular injections to improve safety with potential patient movement and anesthetics to minimize patient sedation-associated disinhibition. Beyond the surgical setting, the toolkit also includes strategies for working with a patient who has experienced trauma, such as sensory calming tools and breathing techniques.

Conclusions/Lessons Learned The principles in the OTIC Toolkit are being incorporated into the care of oculofacial surgical patients at the University of Iowa and Iowa City VA. This focus on individualized care that takes into account the patient's lived experiences has anecdotally been found to be beneficial for patient and surgeon satisfaction and safety.

Future directions include evaluation of surgical patient satisfaction and outcomes with utilization of the OTIC toolkit. The toolkit may also be applied for TIC guidance in other ophthalmic subspecialties and surgical specialties. Further collaboration is planned with the departments of anesthesia at the University of Iowa and Iowa VA.

5. The Chief Resident General Surgery Clinic: A Single Institution Pilot Program

Team Members: James DeAndrade, Garett Steers, Shriya Kane

Department: General Surgery

Abstract Introduction – Resident operative autonomy has decreased in recent years despite several studies demonstrating that resident autonomy does not negatively impact patient outcomes. We piloted a resident-run general surgery clinic at the University of Iowa aimed at providing quality, timely surgical care for patients while highlighting resident autonomy.

Methods – The chief resident clinic was designed with residents functioning as junior attending surgeons. Residents were provided dedicated clinic space, allied support staff, and block time in the University ambulatory surgery center. Ambulatory patients (ASA 1-3) with routine general surgery diagnoses were offered clinic appointments. Attending surgeon supervision was maintained. Clinic and operative logs from Sept 2023 to March 2025 were evaluated. Outcomes of this feasibility study were resident perception of added educational value, autonomy, patient satisfaction, and patient clinical outcomes.

Results – 66 patients were seen between Sept 2023 and March 2025. 55 patients underwent an operation including soft tissue mass excision (n=34, 62%), laparoscopic cholecystectomy (n=15, 27%), and umbilical hernia repair (n=4, 7%). 100% of residents (n=7) felt the clinic added educational value and provided non-inferior, safe patient care. 100% of patients who underwent an operation rated their experience positively and felt comfortable with treatment led by a chief resident. Wait times for new patient evaluations in the resident clinic were significantly reduced compared to similar attending-staffed clinics. 2 patients (3%) sought care from a non-resident surgeon through another clinic. There were four (7%) 30-day events including 1 recurrent umbilical hernia which underwent elective repair, 2 brief readmissions/observations that did not require additional treatments or procedures, and 1 outpatient visit for nausea and constipation.

Conclusions – This pilot chief resident clinic provides a unique educational experience to its residents that enhances resident autonomy and confidence. Patients receive safe, appropriate surgical care with a 30-day complication rate that is consistent with national trends.

Conclusions/Lessons Learned This pilot chief resident clinic provides a unique educational experience to its residents that enhances resident autonomy and confidence. Patients receive safe, appropriate surgical care with a 30-day complication rate that is consistent with national trends. Future directions for the clinic include increasing the clinic volume and variety of conditions evaluated as well as increasing the number and variety of overseeing staff physicians. We will also aim to add educational experiences such as endoscopy and teaching opportunities as well as improve upon current educational experiences such as developing a more robust billing and coding curriculum.

6. Addressing Financial Literacy in Residency: A Resident-Led Financial Education Curriculum

Team Members: Nicholas Lind, Brooks Obr, Thomas Striegel, Jon Van Heukelom

Department: Emergency Medicine

Abstract: Background: Despite growing awareness of the financial challenges faced by medical trainees, formal education in personal finance remains limited in most residency programs. Literature suggests that between 42% and 79% of residents rate their financial knowledge as below average, with a strong desire for structured training on topics such as debt management, budgeting, and retirement planning (1). 31% of physicians suffering from depression cite finances as a significant contributor (2). Financial stress has been linked to burnout and decreased well-being among physicians (3).

Objective: To address this knowledge gap, we developed and implemented a financial education curriculum leveraging a resident's prior professional background in financial services. The series aimed to improve financial literacy and reduce stress related to personal finance among emergency medicine residents.

Methods: The curriculum was delivered over a series of lectures during weekly didactic sessions. Topics included student loan management, insurance, budgeting, retirement accounts, and investing. A pre- and post-intervention survey was administered, incorporating questions adapted from the Financial Industry Regulatory Authority (FINRA) Foundation National Financial Capability Study (NFCS) as well as qualitative prompts regarding residents' financial stress and perceived preparedness.

Results: Residents generally performed above average on the NFCS questions. There were no significant differences in the pre- and post-intervention scores on these questions, possibly due to a small sample size. Qualitative responses did demonstrate the need for such a curriculum. All respondents (100%) reported experiencing financial stress. 73% felt more prepared to manage their personal finances following the series. Every respondent (100%) agreed the sessions were a good use of conference time, and 93% believed financial literacy should be a formal part of residency training.

Conclusions/Lessons Learned Conclusions: This resident-led financial education initiative effectively addressed a critical gap in residency training. The overwhelmingly positive feedback underscores the urgent need to incorporate structured financial literacy into graduate medical education. Empowering residents with foundational financial knowledge may not only reduce stress but also foster long-term well-being and informed decision-making as they transition to attendings.

7. Bridging the Gap from Student to Resident in the ICU: Piloting the Critical Care Crash Course

Team Members: Justin Holmes, Desmond Barber, Ashten Sherman, Charles Rappaport

Department: Internal Medicine/ Pulmonary-Critical Care Fellowship

Abstract: Background: Prior studies have established that fourth-year medical students and interns are inadequately prepared for critical care rotations and may report anxiety or fear relating to working in critical care settings. The Critical Care Crash Course combines asynchronous and facilitator-based learning strategies to teach core concepts in respiratory failure and shock.

Methods: Medical ICU advanced clerkship students completed the Critical Care Crash Course pilot curriculum, including a Digital Discovery Course on the Articulate 360 web platform, a Case-Based learning session, and a high-fidelity simulation session. The sessions were facilitated by near-peers in Graduate Medical Education. All learners completed a pre-test and post-test, and learners were invited to participate in a voluntary post-curriculum survey. The test instrument was a 10-question selected response exam administered electronically, which had been previously piloted with a sample of learners.

Results: All seven students completed the pre-test and post-test. The mean performance on the critical care examination increased from 54.3% (SD 12.7%) to 80.0% (SD 20.8%), which was statistically significant by Wilcoxon Signed-Rank Test ($p \approx 0.031$). The survey demonstrated statistically significant increases in knowledge about Acute Respiratory Distress Syndrome and shock. Similar increases were observed for comfort with managing heated high flow nasal cannula, non-invasive ventilation, mechanical ventilation, and vasoactive medications. All curricular components were rated highly on a 5-point Likert scale (Digital Discovery Course, 4.7; Case-Based Learning, 5.0; Simulation 4.8). Learner perception of their readiness for critical care rotations in residency increased from 1.5 to 4.0 on a 5-point Likert scale. Overall, all learners "strongly agreed" they would recommend the Critical Care Crash Course for all 4th-year medical students.

Summary: The Critical Care Crash course pilot curriculum produced significant gains in critical care knowledge and comfort with critical care management. Both asynchronous online activities and in-person sessions led by GME trainees were highly rated by participants.

Conclusions/Lessons Learned: The Critical Care Crash Course pilot curriculum was effective in promoting readiness for critical care rotations during residency. The curriculum sought to achieve this by focusing on core topics in critical care medicine (respiratory failure and shock) and common critical care interventions (heated high flow nasal cannula, non-invasive ventilation, mechanical ventilation, vasopressors, and inotropes). This content selection was based on a prior needs assessment and successfully achieved the primary goal of promoting intern readiness for critical care rotations.

Multiple reasons underpinned the rationale for a hybridized curriculum consisting of an online case-based interactive Digital Discovery course and in-person sessions facilitated by GME trainees. First, GME learners often have complex scheduling needs; an effective asynchronous resource mitigates scheduling conflicts and reduces the burdens of facilitator recruitment, thereby promoting curricular sustainability. The web-based Articulate 360 platform was selected for the curriculum due to its interactive features, which enable case-based content and promote active learning. The survey results demonstrated that the online curriculum was very well-received, similarly to the case-based learning and simulation sessions. This supports the value of the online learning tool, which we intend to broaden to additional GME learner groups in the next phase of our project.

Secondly, the case-based learning and simulation sessions offered valuable opportunities for GME trainees to lead learning activities. The overall efficacy of the intervention and high satisfaction scores with these sessions support the empowerment of GME trainee volunteers to lead educational activities in a supportive and mentored environment. Planned focus groups may offer greater elaboration on the effectiveness of GME trainees as facilitators and the experiential benefits for the GME trainee-educators.

9. Improving On-Call Education through Passive Feedback

Team Members: Ryan Staudte

Department: Diagnostic Radiology

Abstract Introduction: After-hours imaging is primarily reported by two on-call residents. Attending physicians finalize studies independently, typically the next morning. Previously, report feedback was only accessible via a cumbersome application with limited study context which was temporally prohibitive, resulting in missed educational opportunities. Our aim was to facilitate resident access to passive feedback to improve the educational aspect of call.

Methods: Initially, we reorganized EMR-based Recent Studies Report to display final report text in the sidebar. While this granted residents efficient access, report changes were essentially occult. Recognition of changes being reliant upon residents' memory of previous wording fostered confirmation bias. A separate Resident Feedback Report was created compiling flagged critical findings and optional free-text comments from reviewers. Widespread adoption didn't occur due to demands on staff time, concern that feedback might be negatively perceived, and report's 5-minute load time. Adding highlighted track changes recorded by EMR was discussed with the development team in a department informatics meeting. After final refinement in January 2025, Recent Studies Report could be accessed remotely with direct link to images, relevant contextual data, and a sidebar highlighting staff changes in red. A 3.5-month post-intervention survey evaluated perceptions of residents taking call on a Likert scale. Average call volume was calculated from samples in spring and fall. Review times were calculated based on time trial averages to find final report changes from a sample of 10 studies with initial and final report settings

Results: Required time to navigate to final report changes decreased to <1 one second after the final change. Review workflow was 18-fold more efficient; projected night float study review time decreased from 176 min to 9 min. Survey data showed residents preferred the change, felt review was more efficient, were more likely to review studies, and more aware of corrections to their report.

Conclusions/Lessons Learned Conclusions: Degree of improvement is limited by inherent variability in resident review practices. Report changes were made after EMR conversion to HTML script and can reasonably be maintained throughout future updates. Review time barriers were reduced from hours to minutes, enabling residents to review studies and passive feedback without further time demands from staff.

Lessons Learned: Sometimes the most difficult part of change within a complex system is finding the individual with the required expertise and capabilities. We received several responses from different people that this idea was not possible, but after over a year, the final implementation took less than 2 days.

10. Reflective Personal Journals: Fostering Self-Awareness and Communication in Vascular Training

Team Members: Mean Aboul Hosn, Rachael Nicholson, Adeola Odugbesi, Crystal Rodriguez, Natalie Weger, Megan Parrott, Shriya Kane

Department: Vascular Surgery Residency and Fellowship

Abstract: In an effort to enhance self-awareness, emotional intelligence, and communication among vascular surgery trainees, we launched the Reflective Personal Journals initiative within our residency program with support from the GME office. This initiative encourages trainees to document their personal and professional experiences in electronic journals, which serve as the foundation for monthly reflective sessions. Each session is facilitated by a communications expert in an open, nonjudgmental environment, allowing trainees to explore and discuss recurring themes that emerge from their reflections.

Over the course of a year, these sessions have addressed a wide range of emotional and professional themes including challenges, despair, perspective, hope, and uncertainty. As the initiative progressed, recurring motifs such as regrets, correcting course, and introspection reflected adaptive coping mechanisms and a growing maturity among trainees. Notably, themes of forward thinking, positive attitudes toward growth, and work-life balance became increasingly prominent, indicating a cultural shift toward resilience and wellness within the program.

To assess the impact of the initiative, we administered anonymous surveys before the start and eight months into the program. Results showed a significant increase in trainees' comfort levels in approaching staff and sharing their feelings and concerns—an important indicator of improved communication and psychological safety within the team.

Given its positive impact, we aim to institutionalize these monthly reflective sessions as a permanent component of our training program. Furthermore, we hope to expand this initiative to other services interested in promoting professional growth and emotional well-being among their trainees.

Conclusions/Lessons Learned: The Reflective Personal Journals initiative has demonstrated that structured reflection, guided discussion, and emotional openness can meaningfully enhance the emotional and professional development of surgical trainees and foster a more resilient, communicative, and self-aware surgical workforce. By providing a safe, nonjudgmental space for discussion, trainees were able to explore complex emotions and professional challenges, fostering greater self-awareness and resilience.

Several key lessons emerged from the implementation of this initiative:

1. Structured Reflection Promotes Growth

2. Communication Skills Improve in Supportive Environments

3. Positive Cultural Shifts Are Possible

4. Longitudinal Engagement is Key

5. Such low-cost high-yield initiatives are scalable

By institutionalizing this initiative, we aim to foster a culture of introspection, emotional intelligence, and open communication—critical components of a healthy and effective training environment.

11. Assessing the Value of EHR-based, Self-Service Analytics Training in Resident-Quality Improvement Projects

Team Members: William Welsh and Michael Strong

Department: Psychiatry

Abstract: Background: Proficiency in quality improvement (QI) is a core requirement for all ACGME-accredited residency programs. However, access to clinical data can be a significant barrier to resident-led QI projects. With the availability of self-service analytics tools such as Epic's Slicer Dicer, there is an opportunity to empower residents with the skills needed to independently access and analyze clinical data across health systems. It is suspected that resident awareness and ability to use these tools is currently low.

Objective: This study aims to evaluate psychiatry residents' perceptions of the EHR as a QI and analytics tool, resident confidence to engage in QI-related efforts, and proficiency in QI-related principles.

Methods: Third-year residents in the University of Iowa Psychiatry Residency Program were administered two surveys adapted from existing resident QI education literature (1,2): 1) Quality Improvement Knowledge and Application Tool and 2) Quality Assessment and Improvement Survey. The first survey assessed resident proficiency in basic QI principles. The second survey assessed perceptions of the EHR as an analytics tool and overall confidence to engage in QI efforts.

A revised QI curriculum was implemented for the 2023-2024 academic year. This hybrid curriculum included didactic sessions on QI principles, hands-on training in EMR analytics, and project-based learning. Residents formed groups to develop and execute QI projects, supported by faculty mentorship.

Conclusions/Lessons Learned Results indicate that psychiatry residents have modest confidence in their ability to engage in QI-related efforts. In addition, proficiency in basic QI principles is present throughout the cohort. While the EHR is seen as a tool that has value beyond documentation and order entry, resident ability to leverage EHR-based analytics tools to facilitate QI efforts is low.

These results suggest that there is substantial opportunity to enhance residency QI curriculums with the addition of EHR-based analytics training. This initiative represents a novel integration of clinical informatics training into residency education. By equipping residents with practical data skills, greater autonomy and engagement in QI efforts can likely be achieved. Findings from this study can inform future iterations of the curriculum and may serve as a model for broader GME applications.

12. Digital Indirect Ophthalmoscopy

Team Members: Taariq Mohammed, Jonathan Russell, Elaine Binkley

Department: Ophthalmology

Abstract: Background: Examination of the peripheral retina with the binocular indirect ophthalmoscope is essential in the diagnosis and treatment of blinding conditions like retinal detachment. This exam technique is difficult to teach because it requires coordinating a head mounted light with a condensing lens in one hand and a scleral depressor in the other hand. Several years of practice are necessary before medical trainees can confidently and independently diagnose peripheral retinal pathology.

There are no existing methods of capturing stereo videos of the peripheral retinal exam, but such videos have the potential to improve teaching of medical students and ophthalmology residents in both examination techniques and recognition of important retinal findings.

Methods: A custom binocular indirect ophthalmoscope camera with stereo videography capability was built using a Raspberry Pi 4 microcomputer. An assembly was developed incorporating 3-D printed housing with commercially available lights, head mounts, and filters. The open source StereoPi Livestream Playground v2 software was used for image capture. After capturing instructive stereo videos of depressed scleral examination techniques, a 3-D video was reconstructed and displayed in a virtual reality headset.

The teaching video was displayed to a cohort of ophthalmology residents at the University of Iowa and their response to this novel teaching method was assessed via survey.

Results: The new binocular indirect camera was successfully able to document a scleral depressed exam with stereo videography. All ophthalmology residents were contacted, and 17/23 residents completed the survey. 88% of residents reported that the stereo videography was helpful in demonstrating peripheral retinal examination technique, and 94% felt it was helpful in demonstrating scleral depression. 82% of residents felt stereo videography corresponded more accurately to clinical exam than existing fundus photography, and 100% residents agreed it would be helpful to see more examples peripheral retinal stereo videos including different retinal pathologies.

Conclusions/Lessons Learned: Conclusions: A low-cost binocular indirect camera with stereo video components can be constructed with commercially available parts for under $250. The videos obtained have unique value in teaching medical trainees and can improve the ability to perform an independent complete ophthalmologic examination.

Stereo videography captures unique information beyond the capability of any existing ophthalmic photography technique. Every single ophthalmology resident surveyed reported that they felt stereo videography of retinal pathology would be helpful in their education. The vast majority of residents felt that it was helpful in demonstrating standard examination technique including scleral depression, and that it corresponded well to an actual clinical exam.

The development of this camera was instructive in many ways. It highlighted the need for improved teaching methods for the peripheral retinal examination. The construction of the camera also yielded insights into the role of low-cost microcomputers in creating accessible methods of ophthalmic photography. The development of a viewing system for reconstructed 3-D videos also showed the utility of virtual reality headsets in demonstrating ophthalmologic findings with binocularity more akin to actual clinical exam.

Future directions include creating a live stereo display, ergonomic improvements, and ultimately the implementation of this camera to capture a wide range of vitreoretinal pathology and develop a 3-D library of teaching videos.

13. Cognitive and Neuroimaging Characteristics of Patients with Sarcoidosis

Team Members: Nabeel Hamzeh, Tara Lanning, Jacob Simmering, Carinda Linkenmeyer, Jake Hampton, Taylor Titterington, Brenda Werner, Vincent Magnotta, Elizabeth Wittrock, Karin Hoth,

Department: Internal Medicine/Pulmonary, Critical Care, and Sleep Medicine

Abstract Patients with sarcoidosis frequently report difficulties with cognition which can exacerbate disability and result in reduced quality of life. However, little is known about the neurobiological mechanisms of cognitive impairment in sarcoidosis. We hypothesize that a higher disease burden in sarcoidosis patients is correlated with altered cerebral metabolism, reduced white matter structural integrity, and ultimately reduced cognitive function.

We recruited 33 patients diagnosed with sarcoidosis, as well as 12 age, sex, and education matched healthy controls. All participants were administered cognitive testing using the NIH Toolbox Cognition Battery and underwent Magnetic Resonance Imaging (MRI). Twelve patients and 12 healthy controls underwent MRI protocol which included T1-T2 structural imaging and diffusion weighted imaging (DWI) to assess their white matter structural integrity. A subset of 5 patients and 7 controls also underwent t1rho neuroimaging and magnetic resonance spectroscopy (MRS) to assess changes in neurobiology. Three measures were used to define higher sarcoidosis disease burden: >/= 5 years, >/= 2 organ systems involved, and any history of immunosuppressives. The disease burden measures were coded by reviewing medical records.

Patients with sarcoidosis consistently displayed reduced cognitive function compared to healthy controls -- especially those with higher disease burden. This was most notable in the processing speed cognitive domain (S / HC, T=2.8, p=.003) and language domain (S / HC, T=2.3, p=.02). Participants with sarcoidosis demonstrated lower fractional anisotropy (FA) on DWI, which indicates disorganization of white matter that was present across all brain regions examined with large effect sizes (Cohen's d all >1.4). In our subset of participants who underwent neurometabolic imaging, we identified group differences for Glutamate-Glutamine peak ratio to creatine + phosphocreatine in white matter (forceps minor) with a large effect size (T=3.1, p=.006; Cohen's d=1.8). The T1rho signal was consistently higher in patients than controls across regions of the cerebrum and was most pronounced in the thalamus (T=-2.7, p=.01) and the amygdala (T=-2.94, p=.007). Additionally, concentrations of cerebral metabolites and T1rho were strongly correlated with objective cognitive performance in processing speed and executive function domains (betas >0.5).

Conclusions/Lessons Learned The objective cognitive assessment of patients with sarcoidosis implies that impairment is significant in the cognitive domains of processing speed and language. Neurometabolic changes assessed by MRS and t1rho neuroimaging were associated with higher sarcoidosis disease burden and cognitive performance.

We investigated the underlying neurobiology of cognitive impairment and its association with severity of disease burden in patients with sarcoidosis. Our findings indicate that higher sarcoidosis disease burden is correlated with altered cerebral metabolism, reduced white matter structural integrity, and subsequently cognitive function.

14. Bridging Gaps: Incorporating Social Determinants of Health into Internal Medicine Residency Curriculum

Team Members: Paige Carlson and Manish Suneja

Department: Internal Medicine

Abstract: "Background: Social determinants of health (SDoH) are critical drivers of patient outcomes, yet their inclusion in graduate medical education curriculum is often inconsistent. To assess how these topics are currently integrated into the University of Iowa's Internal Medicine residency curriculum, we conducted a longitudinal review of noon conference lectures to evaluate the presence and frequency of SDoH-related content.

Methods: We reviewed noon conference lecture materials from the Internal Medicine residency program for the 2023–2024 and 2024–2025 academic years. Starting July 1, 2024, a standardized prompt encouraging inclusion of SDoH content was added to lecture invitations for all presenters (faculty, chief residents, and residents). Lectures were first categorized as related or unrelated to patient care, and then by presenter type (faculty or resident). Only lectures with available materials, learning objectives, and take-home points were analyzed for SDoH content. Relevant lectures were further categorized into SDoH domains: education access, health care access, built environment, social and community context, and economic stability using AI-assisted content classification.

Results: In 2023–2024, 119 of 262 lectures (45%) focused on patient care; of these, 68 (57%) were faculty-led and 51 (43%) were resident-led. In 2024–2025, 121 of 259 lectures (47%) addressed patient care, with 62 (51%) by faculty and 59 (49%) by residents. Across both years, residents were more likely than faculty to include SDoH content. In 2023–2024, 11 resident-led lectures (22%) incorporated SDoH, compared to 6 (8%) of faculty-led sessions. In 2024–2025, residents again led with 8 lectures (14%) versus 2 (3%) by faculty. All five SDoH domains were represented each year, with "education access and quality" and "health care access and quality" most frequently addressed, while "economic stability" and "neighborhood and built environment" were least commonly included.

Conclusions/Lessons Learned Despite growing awareness of the importance of SDoH in clinical care, their integration into residency didactics remains limited. Residents were consistently more likely than faculty to incorporate SDoH content, potentially due to the flexibility of creating new material and greater responsiveness to evolving societal conversations around equity and health. In contrast, faculty may rely on annually repeated presentations and may be more hesitant to address politically sensitive topics.

Several limitations should be noted. The 2024–2025 academic year is ongoing, and the effectiveness of the standardized SDoH prompt remains unclear. It is also unknown whether all presenters read or acted on the invitation. Furthermore, our analysis was limited to documented objectives and take-home points; relevant verbal content not recorded in these materials may have been missed.

To better prepare residents to address health inequities in their practices, residency programs should implement more structured approaches to integrating SDoH into didactics. This may include targeted faculty development, routine review of lecture content for alignment with educational priorities, and ultimately the establishment of a standardized SDoH curriculum.

15. Evaluating a Novel AI Chatbot for Patient Medical Queries: Comparative Analysis with Current AI Solutions

Team Members: Stefano Byer and Aaron Brake

Department: Internal Medicine

Abstract: The AI-Patient Education Experience (APEX) is a novel, physician-developed chatbot designed to improve patient understanding and engagement by delivering accurate and accessible medical information at an 8th-grade reading level. Designed for underserved and diverse populations, APEX integrates natural language processing with a physician-curated database of clinical content to improve health literacy, enhance autonomy, and reduce disparities. This innovation aligns with the GME Innovation Fund's objectives by addressing healthcare disparities and redesigning education-centered models of care delivery.

In this study, we compared APEX with widely-used AI models—GPT-4, GPT-3.5, Gemini, Co-Pilot—using standard readability indices (Flesch-Kincaid, Gunning Fog, SMOG, Coleman-Liau) and qualitative assessments of tone, empathy, and comprehensibility. APEX achieved a Flesch Reading Ease of 48.7 and a Flesch-Kincaid Grade Level of 9.1, demonstrating markedly improved readability over GPT-4 (Grade 13.2), GPT-3.5 (Grade 14.1), and comparable performance to Co-Pilot (Grade 8.9). Additionally, APEX consistently outperformed its peers in generating patient-centered, linguistically inclusive, and emotionally attuned responses.

Unlike general-purpose chatbots, APEX is purpose-built for clinical environments, accessible in multiple languages, and will (one day hopefully be) embedded within care pathways through integration with the electronic medical record (EMR) and after-visit summaries. These features position APEX as a unique tool for augmenting patient education, empowering patients to make informed decisions, and improving satisfaction and outcomes.

As APEX expands to include Spanish-language functionality and undergoes real-world pilot testing, our ongoing evaluations will focus on comprehension and satisfaction metrics, with accuracy assessments from faculty supervision. This early comparative data demonstrates APEX's distinct advantages in clarity, empathy, and accessibility, underscoring its potential to serve as a transformative tool for health systems seeking to advance equity, engagement, and innovation in patient education.

Conclusions/Lessons Learned: We highlight that general-purpose AI models, while powerful, are not optimized for patient education in safety-net healthcare settings. APEX distinguishes itself by prioritizing readability, emotional tone, and cultural relevance, which are essential for empowering patients with limited health literacy. We learned that simplicity and personalization are not byproducts of technical sophistication—they must be deliberate design goals. Integrating curated, physician-authored content with patient-friendly language significantly enhances clarity and trust. Moreover, embedding APEX within the clinical workflow via EMR and after-visit summaries will enhance accessibility and encourages meaningful patient-provider dialogue. Early user feedback also emphasized the importance of empathy and tone in fostering engagement. As we prepare for multilingual expansion and real-world implementation, we recognize the need for continuous feedback from diverse patient populations to refine APEX's responsiveness and inclusivity. Ultimately, we found that specialized tools like APEX hold tremendous promise in addressing structural barriers to healthcare access and understanding.

16. Development of an Ostomy Marking Curriculum for Surgery Residents

Team Members: Kristina Guyton, Jeremy Chang, Julia Langin, Carine Dornbush

Department: General Surgery

Abstract Introduction: It is well described that appropriate and accurate preoperative counseling including preoperative ostomy site marking has a significant beneficial effect on decreasing postoperative ostomy related complications. Many emergent ostomy creating procedures exist after-hours and it is imperative that surgical residents learn and execute appropriate ostomy siting techniques in the absence of a trained ostomy nurse. Recently, studies have suggested ostomy siting training in residency is highly variable, affecting optimal ostomy placement. We proposed the development of a multidisciplinary curriculum as a collaborative effort of the general surgery department, Obstetrics/gynecology and urology department, ostomy nursing and simulation training staff to provide PGY1 and PGY2 residents with knowledge to counsel and mark patients for ostomy creation and manage postoperative complications.

Objective: We will utilize crossover study design with internal comparisons for controls. Course will consist of didactic lecture and interactive participant driven standardized patient (SP) learning opportunities. A mixed methods approach will be utilized to assess effectiveness of the curriculum. Pre and Post course surveys as well as graded simulated (SP) encounters will be utilized to assess participant comfort and provide an avenue for skills acquisition.

Results: The curriculum is in planning phase and set to be offered to 36 PGY1 and PGY2 residents in May 2025 with results to follow.

Conclusion: Junior surgery resident training for bedside ostomy marking and patient counseling is highly variable. We highlight the development of a course to teach critical knowledge and skills assessed by a mixed methods approach.

Conclusions/Lessons Learned The course is set to be offered to general surgery, urology and ob/gyn PGY1 and PGY2 residents on May 22 and May 23. Results will follow shortly after. This GME innovation funded course will provide a framework for implementation of this course for future years as well as into incoming PGY1 curriculum.

17. Point-of-Care Ultrasound Education and Resource in Fort Portal, Uganda: A Needs-Based Assessment

Team Members: Adam Blaine, Alice Xu, Robert Blount

Department: Internal Medicine

Abstract Background: Point-of-care ultrasound (POCUS) is increasingly recognized as a transformative tool in healthcare, particularly in global health and resource-poor settings. However, the knowledge and experience of physicians in utilizing POCUS in these environments are not well understood. This study aims to evaluate awareness, training, and barriers to POCUS implementation among healthcare providers in Fort Portal, Uganda.

Methods: A 15-question survey was distributed to physicians across various disciplines (Internal Medicine, Emergency Medicine, Surgery, OB/GYN and Pediatrics) at Fort Portal Regional Referral Hospital (FPRRH), Uganda. The survey assessed prior training in POCUS, frequency of use, confidence levels, and perceived barriers to effective application. Descriptive statistics were used to analyze responses and identify trends in knowledge and experience.

Conclusions/Lessons Learned Findings: A total of 15 responses were collected, indicating that while 93% of physicians acknowledged the potential benefits of POCUS, only 53% had received any training. Confidence in using POCUS was low, with all physicians requesting more training and 47% feeling inadequately skilled for clinical application. Significant barriers included insufficient training opportunities (53%), lack of access to ultrasound equipment (93%), and inadequate mentorship and support from healthcare systems (73%).

Interpretation: Despite prior evidence that POCUS improves healthcare delivery in a global setting, this study reveals critical gaps in POCUS training and resources at FPRRH. Developing training initiatives and improving access to ultrasound technology could enhance healthcare delivery and patient outcomes at FPRRH as well as in other resource-poor settings. Future research should focus on creating sustainable educational models and addressing ultrasound resource allocation in a global context.

18. Integrating a Lifestyle Medicine curriculum into residency and fellowship training programs: a pilot study assessing feasibility and provider wellness

Team Members: Aygun Asgarli and Andrea Swenson

Department: Neurology

Abstract: Lifestyle medicine (LM) is a medical specialty that uses therapeutic lifestyle interventions as a primary modality to treat chronic conditions by applying evidence-based, holistic and prescriptive lifestyle changes. The six pillars of LM include a whole-food and plant-predominant eating pattern, physical activity, restorative sleep, stress management, avoidance of risky substances, and positive social connections. Over the past several decades, a critical body of evidence has shown the significant impact LM and the six pillars have had on health. The specialty of LM, devoted to prevention and reversal of chronic disease, additionally has the goals of addressing health disparities and achieving health equity through cost effective measures. Moreover, practicing LM has been shown to decrease burnout among providers and to improve professional satisfaction.

Research shows a knowledge and training gap among residents, fellows, and faculty in the area of LM where physicians reported lack of confidence in addressing the pillars of LM despite believing that this is their responsibility. The Lifestyle Medicine Residency Curriculum (LMRC) is a flexible curriculum designed for integrated implementation into medical residency and fellowship programs. There are educational and practicum components completed over a 12-, 18-, or 24-month period that is self-paced. Modules include nutrition, sleep, emotional and mental health and physical activity science. Application activities will consist of nutrition, sleep, physical activity, emotional and mental well-being, tobacco and illicit substance use, and patient referral and treatment. Upon completing these portions of the curriculum, trainees will be qualified to complete the American Board of Lifestyle Medicine certification exam. The benefits of becoming board certified in LM include recognition, education mastery, facilitation of networking, and career advantages/satisfaction.

Conclusions/Lessons Learned: An initial email was sent through GME to all UIHC residents and fellows in 2023 to gage interest in LM. Initially 19 trainees (16 residents and 3 fellows) expressed interest in LM training. Formal IRB review was determined to not be necessary per IRB chair. Following completion of required paperwork and signing the contract with Loma Linda University, access to the curriculum modules was obtained and enrollment began in January 2025. The cost for implementing the curriculum from January 2025 through July 2027 for <25 enrollees was $4000, financed using GME Innovation Fund. Subsequently, an announcement was sent to all interested UIHC residents and fellows. 7 out of 19 interested trainees chose to participate and were enrolled in LMRC training course. This includes trainees in family medicine, neurology and medicine-psychiatry residency programs.

We are planning to do 2-year implementation to allow trainees adequate time to complete the modules up to a 2-year timeline. We will have a research team to keep track of timely completion of the modules, having quarterly virtual or in-person meetings with trainees to assess progress and address concerns. Additionally, participants in the LMRC and their respective residency/fellowship program directors will be asked to complete mid-year and end-year surveys on their experiences. Survey topics include feasibility of incorporating the curriculum into their current training, effects on their clinical practice and personal well-being, and whether LRMC should be continuously offered at UIHC. The number of LRMC participants who go on to get board certification will be recorded.

19. Resident Response to Didactics on Disclosing Medical Errors

Team Members: Victoria Tann, Brigit Ray, Korey Kennelty, Jane Miller

Department: Family Medicine

Abstract: It is a Family Medicine Residency ACGME Milestone to be able to disclose medical errors to patients (Systems Based Practice 1: Patient Safety and Quality Improvement). Skills in disclosing medical errors are challenging to evaluate, as errors occur during real time in practice. Residents may be hesitant to admit their involvement in medical errors, thus limiting learning opportunities.

Kim et. al, demonstrated the utility of using Standardized Patients (SPs) to practice disclosing medical errors in an Emergency Medicine residency. We, therefore, developed a workshop in which residents could practice disclosing medical error to SPs, with faculty support and supervision. The workshop consisted of 1 hour of lecture, followed by 2 hours of practice with SPs and a closing discussion. Residents received real time feedback from SPs as well as faculty, and, when available, members of the hospital's risk management team. The workshop was delivered twice, 3 months apart.

Residents completed pre and post workshop self-assessments to gauge their previous experience with and beliefs regarding disclosing medical errors. Most residents (65%) reported no formal education on disclosing medical errors in residency. 17 and 13 responses were received for the pre and post self-assessment of the first workshop, respectively. 11 responses were received for the pre and post assessment of the second workshop. Not all responses contained answers to every question on the assessment. Residents reported reduced concern regarding legal action from patients as a result of apologizing for medical errors and improved perception of their ability to disclose errors. Applicable components of the MIRS (Master Interview Rating Scale) to aid in assessment and feedback of their discussion with the standardized patient. Residents who completed the workshop twice demonstrated significant improvement in their MIRS scores over time as assessed by SPs (p=0.02).

Conclusions/Lessons Learned: We realized (and confirmed) that this is a needed, important topic of education for our residents. Resident surveys confirmed that residents agree this is an important topic for their training.

- Improvements were seen in objective scores from SPs for the residents who completed the workshop twice. This may hint towards the need for repeated educational opportunities on this topic to continue to hone skills.

- Improvements were also seen in pre/post test assessments on residents' reports of their own abilities to report medical errors while holding compassion for themselves (if the committed the error).

_ Improvements were seen in in pre/post test assessments on the reported degree of concern related to legal implications of apologizing to patients.

- Residents who reported doing the workshop twice reported they wished they had new scenarios or had not been asked to repeat the exact same workshop

- The FM residency program intends to continue this activity in order to continue providing education on this topic to our residents

20. Transitioning to Comfort Care: Utilizing a Simulated-Electronic Medical Record to Teach Complex Medical Decision Making to Fourth Year Medical Students

Team Members: Carlie Sorensen, Daniel Miller, Jennifer Strouse, Matthew Soltys

Department: Internal Medicine

Abstract: Challenges in the transition from student to practitioner range from simple, such as entering orders into the electronic medical record, to very complex, such as caring for the actively dying patient. This project offers an interactive curriculum aimed at practicing these two tasks.

Twenty-three fourth-year medical students participated in the Transition to Internal Medicine Residency course. The course covers pertinent topics frequently encountered by internal medicine residents through a mix of didactic, small group, and simulation sessions. In response to feedback from former years, a novel session was created with a simulated patient encounter using Epic Playground where students navigated a realistic patient chart. Students were able to complete tasks such as selecting new medications, doses, schedules, and routes as well as discontinuing and modifying orders that were no longer beneficial. Session facilitators, including an internal medicine resident and palliative care pharmacist, guided students through a case scenario involving a patient with metastatic cancer initially admitted for aggressive medical management with life-prolonging intent but later wishes to transition to a comfort-focused only care plan. The scenario was embedded with education on comfort care including pharmacologic management of end-of-life symptoms (e.g pain, nausea, dyspnea, delirium) as well as the importance of non-pharmacologic interventions and deprescribing or discontinuing orders not in line with comfort care (e.g. venipuncture, frequent vital sign checks). Throughout the session, students were able to modify, place, or discontinue orders to reflect the new care plan.

Prior to the course, 50% of students felt “unconfident” entering orders and no students felt “extremely confident.” By the end of the course, 42% of students felt more prepared to enter orders. A multiple-choice question regarding comfort-focused care was also utilized to assess recall from the session, demonstrating an 23% improvement in choosing the correct pain medication for the given patient scenario.

Conclusions/Lessons Learned: Practicing placing orders in the electronic health record had been highly requested by prior Transition to Residency participants and was frequently mentioned as a goal among students prior to starting this year’s course. This session combined the highly applicable skills of navigating the electronic health record with an introduction to the complex topic of caring for the dying patient. Managing symptoms at the end of life is a task many new interns do not feel confident taking on as they begin their new roles as physicians.

The complexity of this topic did produce several challenges, including creating a curriculum that covered the broad scope of “comfort-focused care” in an efficient but thorough manner at an appropriate level for the learners. Time constraints also played a role as the session was only 20 minutes. To overcome these challenges, the teaching topics were created with input from palliative care and internal medicine staff to ensure the highest yield and most common topics were addressed. In the future, a longer session length or a brief introduction to the teaching topics in the overview didactic session may reduce some of the time constraint pressure.

This session was highly rated among participants because of its practical, hands-on learning, and was listed among sessions recommended to be continued next year. The use of simulated patients in Epic Playground can be applied to a variety of medical scenarios creating countless opportunities to not only teach students about clinical scenarios, care plans and medication dosages, but allow them a hands-on opportunity to work independently placing orders in the electronic medical record. Future directions for this project will expand to scenarios, including placing admission orders, reconciling home medications, and developing an initial care plan for common illnesses treated by internal medicine physicians.

21. Using a Narrative Medicine Approach to Tackle Complex Topics in Medical Ethics

Team Members: Shriya Kane, Nicole Nitschke, Erica Carlisle, Carol Scott-Connor, Laura Shinkunas, Maxwell Lieberman

Department: General Surgery

Abstract Surgical trainees frequently encounter complex ethical challenges that can significantly impact patient care and outcomes. To address this, we developed and implemented a resident-led narrative medicine curriculum aimed at fostering empathy, enhancing collaborative communication, and promoting reflective discourse among general surgery residents at the University of Iowa. The curriculum explored key topics in medical ethics, including informed consent, medical futility, and unconscious bias, through six interactive sessions incorporating live polling, real-time word cloud generation, and structured reflective writing.

Twenty-five participants, including junior and senior residents as well as medical students, engaged in the sessions. Reflections were analyzed using both deductive and inductive thematic analysis to identify recurring ethical themes. An iterative process is planned to refine and adapt the curriculum based on participant feedback and thematic trends.

This curriculum will be disseminated longitudinally, with post-session surveys and thematic analysis of reflections conducted throughout residency training. The overarching objective is to examine the evolving ethical perspectives of surgical trainees and equip them with practical tools to navigate complex ethical dilemmas encountered in clinical practice.

Conclusions/Lessons Learned The following conclusions can be drawn from this pilot project:

-Narrative medicine is an effective tool for engaging surgical trainees in ethical reflection. Structured reflection promotes professional identity formation and facilitates identification of developmental arcs throughout training that could guide curriculum changes.

-Interactive components enhance participation and insight.

-Ethical concerns are diverse and evolve over time based on level of training and exposure to formal ethics curricula.

-There are distinct differences in the themes/ perspectives of junior and senior surgical residents.

22. So, You Want Your Residents To Do QI? Creating a Senior Resident for Quality Improvement in Psychiatry

Team Members: Magdalena Maginot and Michael Strong

Department: Psychiatry

Abstract: Psychiatry residency programs often face structural barriers that limit trainee engagement in quality improvement (QI), including gaps in knowledge, insufficient dedicated time, and unclear trainee roles. To address this, the Psychiatry Residency Program at the University of Iowa established the Senior Resident for Quality Improvement (SRQI) role, designed to advance educational and clinical initiatives within the department. The role was carefully defined by department leadership, informed by previous efforts at other institutions, and structured to align with department-wide goals. Key responsibilities included fostering leadership in QI, facilitating educational opportunities, improving clinical standards, and creating a safe space for colleagues to discuss concerns. To support the SRQI's success, department leaders ensured access to interdisciplinary collaboration, dedicated time for QI work, and robust mentorship. The UI Health Care Quality Leadership Academy (QLA) provided additional training, with residents receiving protected time to participate. Monthly mentorship meetings with the Physician Value Officer reinforced leadership development while integrating department-wide QI goals, and dedicated administrative time allowed the SRQI to focus on initiatives beyond clinical responsibilities. The Department of Psychiatry's QI efforts have gained traction, with increased resident engagement and broader participation in structured QI training programs. Looking ahead, the SRQI role will ensure continuity in departmental QI efforts to drive meaningful and sustained change in healthcare quality and patient safety.

Conclusions/Lessons Learned The implementation of the SRQI role has demonstrated that strategic integration of QI leadership within residency training can significantly improve engagement and departmental initiatives. Psychiatry residency programs benefit from structured roles that provide residents with the opportunity to lead in QI while receiving institutional support. Key lessons from the program's development included the necessity of clearly defined responsibilities, ensuring access to interdisciplinary collaboration, and providing protected time for engagement in QI efforts. The success of the SRQI was strongly supported by department leadership, mentorship, and participation in structured training programs such as the Quality Leadership Academy. These elements were instrumental in helping the senior resident develop leadership skills and integrate QI goals into broader departmental initiatives. Moving forward, continued refinement of the SRQI role will ensure sustained resident engagement in quality and safety efforts. By embedding QI leadership into residency training, the Department of Psychiatry can foster a culture of continuous improvement that benefits both trainees and patient care outcomes. The success of this initiative highlights the importance of proactive support structures, dedicated time, and interdisciplinary collaboration in advancing quality improvement within residency programs.

23. Cognitive Dysfunction and Disease Characteristics in Patients with Sarcoidosis

Team Members: Elizabeth Wittrock, Nabeel Hamzeh, Karin Hoth, Jacob Simmering, Tera Lanning

Department: Internal Medicine/Pulmonary, Critical Care, and Sleep Medicine

Abstract "Cognitive dysfunction is reported in 25–40% of patients with sarcoidosis and significantly impacts quality of life by impairing activities of daily living, potentially contributing to disability. In this study, we examined clinical disease characteristics that potentially correlate with increased risk of cognitive dysfunction as measured by the Montreal Cognitive Assessment (MoCA). Specifically, we examined disease duration and greater disease burden, which was estimated by the number of immunosuppressive medications as a proxy.

We performed a review of our established sarcoidosis database and registry of data including MoCA scores; date of disease diagnosis; demographics; number, class, and duration of immunosuppressive medications; number of organs involved based on the GRADS study; fatigue assessment severity (FAS) scores; and short form-36 (SF-36) scores from all consenting subjects seen in our sarcoidosis clinic. Of 214 subjects in the database, 171 completed MoCA testing and had complete clinical data for analysis. Treatment intensity was defined by the number of immunosuppressive medication classes and the duration of treatment from time of diagnosis. Exclusion criteria included absence of MoCA testing and a diagnosis of neurosarcoidosis, among others. A mixed-effects model was employed for statistical analysis.

The cohort was 59.1% female with a median age of 52 years (+/- 12.7 years). Racial distribution was 83% White, 12.3% Black, and 4.1% other/unknown. Cognitive dysfunction, defined as a MoCA score <25, was observed in 39.2% of patients. MoCA scores were not correlated with FAS or SF-36. MoCA scores decreased with increasing treatment intensity, showing a 0.6-point decline per additional medication class ($p<0.01$), primarily driven by steroid use. Specifically, steroid use was associated with a 1.17-point reduction in MoCA score ($p<0.01$). In the mixed-effects model, steroid use for >3 months was significantly associated with a 1.14-point lower MoCA score ($p=0.002$), whereas steroid use for <3 months was not statistically significant ($p=0.698$). A generalized linear model revealed a significant association between MoCA scores and disease duration ($p=0.03$), but a non-significant trend toward association between MoCA and number of organs involved ($p=0.19$).

Conclusions/Lessons Learned In this review of our established sarcoidosis database and registry that included 171 patients in the final analysis, 39% demonstrated evidence of cognitive impairment, defined as a MoCA score <25. MoCA scores consistently declined with increasing treatment intensity, which was largely driven by systemic corticosteroid use. Furthermore, patients on long-term steroids (≥3 months) had lower MoCA scores compared to those on shorter-duration steroids (<3 months). It is currently unclear if these findings suggest patients with more severe disease are more likely to require low-dose systemic corticosteroids and have lower MoCA scores because of their disease severity or if the lower MoCA scores are a medication effect and related to the neuropsychiatric effects of corticosteroids.

Notably, more patients were on steroids at their initial evaluation than at follow-up, indicating potential treatment optimization over time, possibly due to referral from community practices to a dedicated sarcoidosis clinic at a Center of Excellence.

Although longer disease duration (defined as time from diagnosis to MoCA testing) and greater number of organ systems involved were both associated with lower MoCA scores, these trends did not reach statistical significance. Furthermore, as there was no association between SF-36 and MoCA or FAS and MoCA, the cognitive dysfunction observed seems to be unrelated to fatigue or other measures of quality of life. Based on our findings, cognitive dysfunction in patients with sarcoidosis appears to be associated with disease severity, duration, and extent of organ involvement, and is likely not solely attributable to fatigue.

We propose the duration of immunosuppressive medication usage and number of immunosuppressive medication classes as well as number of organ involvement are adequate surrogates of disease burden given the association we demonstrated above and in association with the GRADS data. Limitations of the study include a modest sample size, lack of objective measures for depression and anxiety, and its cross-sectional design.

24. Distinction in Health Equities Track for Internal Medicine Residents

Team Members: Krista Johnson, Desmond Barber, Manish Suneja, Jeydith Gutierrez

Department: Internal Medicine

Abstract: Research has demonstrated that social determinants of health (SDH) can have just as much of an effect on a patient's health as lifestyle and access to healthcare. While an increasing number of medical schools are incorporating a health equity into their curriculum, there continues to be a paucity of data regarding education at the graduate level. A local needs assessment performed at the University of Iowa in the Department of Internal Medicine demonstrated that residents felt unprepared to address many topics related to social determinants of health. Thus, the Distinction in Health Equities (DIHE) track was created for residents interested in improving their education in SDH, health disparities, healthcare advocacy and for those residents to disseminate that education to their colleagues.

The DIHE track is a longitudinal curriculum with the following components: 1. Curricular assignments and resources 2. Community engagement 3. Clinical care for vulnerable populations 4. Health equity capstone projects 5. Advocacy efforts 6. Teaching 7. Scholarship 8. Mentorship. DIHE meetings occur monthly. Clinical care occurs during residents regularly scheduled ambulatory weeks.

Eight residents participated in the DIHE track in 2023-2024. Four residents provided longitudinal care for patients at the Iowa City Free Medical Clinic. Four DIHE residents attended Physicians Day on the Hill in 2024. All eight residents taught their peers about health equity issues. Residents learned about food insecurity and resources at the Iowa City Food Pantry and participated in a food drive for the Iowa City Food Pantry.

Conclusions/Lessons Learned The pilot year successfully engaged residents in learning and teaching about health equity, caring for vulnerable populations locally and internationally. Although the DIHE curriculum currently involves a small group of self-selected residents, these participants play a crucial role in disseminating knowledge and promoting health equity education within the internal medicine residency program. Challenges include the need for more mentors. As the track grows, additional opportunities for faculty development in health equity education will be needed.

Six new residents joined the DIHE track this year for a total of fourteen resident participants during the 2024-2025 academic year. We are expanding longitudinal care opportunities to include the Medication-Assisted Treatment clinic. Future efforts will focus on implementing and sustaining the DIHE track, completing capstone projects, expanding care opportunities, and assessing satisfaction, confidence in health equity knowledge, preparedness for caring for underserved populations, and capstone outcomes.

25. Enhancing Radiology Resident Wellness, Education, and Transitioning to Graduate Medical Education through Technology - The Programmable Mouse

Team Members: Jay Yu

Department: Diagnostic Radiology

Abstract: Radiology residents spend long hours using imaging software, placing them at risk for musculoskeletal strain and workflow inefficiencies. To address these issues, we implemented a programmable mouse initiative for junior radiology residents (PGY-2 and PGY-3). This quality improvement project aimed to enhance wellness, streamline educational workflows, and support the transition into graduate medical education.

In September 2024, sixteen junior residents received Razer Naga V2 Pro programmable mice. Residents were surveyed mid-year on ergonomics, efficiency, learning outcomes, and well-being. Results from April 2025 (n=16) showed that 94% used the mouse daily. 88% agreed or strongly agreed that the mouse improved workflow efficiency, learning, and ergonomics. 100% of PGY-3 residents reported improved call efficiency, and 88% of PGY-2 residents said it helped with their transition to radiology training. Residents highlighted customizable buttons for quick tools, scrolling speed, and ergonomic comfort as the most valued features. Reported drawbacks included an initial learning curve and occasional software glitches.

This innovative initiative offers strong value by promoting resident well-being and productivity. Introducing ergonomic, programmable tools into radiology training is a low-cost, high-impact strategy to enhance resident satisfaction and educational outcomes. As digital workflows become central to radiology, technology that reduces strain and improves efficiency may also support better patient care. Ongoing assessment through June 2025 will guide future improvements and inform broader implementation.

Conclusions/Lessons Learned: This innovative initiative offers strong value by promoting resident well-being and productivity. Introducing ergonomic, programmable tools into radiology training is a low-cost, high-impact strategy to enhance resident satisfaction and educational outcomes. As digital workflows become central to radiology, technology that reduces strain and improves efficiency may also support better patient care. Ongoing assessment through June 2025 will guide future improvements and inform broader implementation.

26. Improving Intern Medical Education in Fort Portal Regional Referral Hospital

Team Members: Alice Xu, Adam Blaine, Robert Blount

Department: Internal Medicine

Abstract: In Sub-Saharan Africa, limited research has been done to assess post-graduate education for interns during their internal medicine training prior to independent practice. However, observational studies in Uganda have shown that in resource-restricted settings, there is insufficient resources and infrastructure to develop a successful learning environment. There is a lack of educators, finances, and teaching resources in addition to poor trainee engagement due to clinical responsibilities and lack of time.

In the past, education in Uganda has prioritized infectious diseases. However, there is an increasing burden of non-communicable diseases such as cardiovascular disease, diabetes mellitus, cirrhosis, rheumatologic diseases, and malignancy.

At Fort Portal Regional Referral Hospital (FPRRH) in Fort Portal, Uganda, dedicated weekly meetings are scheduled for continued medical education to ensure a productive learning environment for students, interns, masters candidates, and supervising physicians. A cased-based, peer-led approach is implemented with the opportunity for physician trainees to develop teaching and presentation skills.

A needs-based assessment was conducted with a survey to assess preference for teaching methods and interest in specific topics in internal medicine. Based on results, case-based lectures were designed with specialist input from the University of Iowa Hospitals and Clinic Department of Internal Medicine in collaboration. Lecture format focused on pathophysiology, common presentation, diagnostic workup, and treatment strategies.

Following lectures on common non-communicable diseases seen in the wards in Fort Portal, Uganda, local trainees endorsed use of learning points on the wards with application in patient care in addition to improved understanding of underlying pathophysiology.

Conclusions/Lessons Learned Needs-based assessments are crucial in maintaining respectful and beneficial global health partnerships. Resources provided must be tailored to the specific clinical setting based on availability of diagnostic testing and interventions.

27. Refining Resident Teaching Skills: The Role of Deliberate Practice and OSTE-Based Feedback

Team Members: Jennifer Strouse, Jane Rowat, Krista Johnson, Katie White, M. Lee Sanders, Lisa Antes, Manish Suneja

Department: Internal Medicine

Abstract Recognizing that residents spend a significant portion of their time teaching, yet often lack formal training, we performed a needs assessment showing 89% of residents expressed a strong interest in teaching, and 77% intended to incorporate teaching into their future careers. However, only 25% had participated in any formal teaching instruction. The Internal Medicine Residency created a Longitudinal Teaching Skills Curriculum which was created to bridge that gap. Launched in 2015, the program provides a structured approach to teaching, with interactive, experiential sessions scheduled every 10 weeks. Residents practice key teaching techniques, receive real-time feedback, and engage in deliberate practice with personalized action plans to enhance their skills.

The curriculum adapts to resident needs, incorporating new topics such as teaching via Zoom during the pandemic and a session on mini-chalk talk creation. A unique feature of the curriculum is the annual Objective Structured Teaching Exercise (OSTE), introduced in 2018, which allows residents to demonstrate teaching abilities in a simulated environment, followed by individualized peer feedback. This simulation has been instrumental in helping residents refine their skills and increase confidence.

Pre- and post-curriculum surveys indicate significant improvements in teaching confidence and abilities. In 2023-2024, evaluations showed that residents rated the usefulness of the curriculum's content at an average of 4.56/5 (SD 0.73) and rated the effectiveness of facilitators at 4.72/5 (SD 0.56), reflecting high satisfaction with both the content and delivery of the curriculum. Notably, the AAMC 2024 Graduation Questionnaire revealed that 100% of students at the Carver College of Medicine agreed or strongly agreed that residents provided effective teaching, a considerable improvement from 90.5% in 2016.

Conclusions/Lessons Learned The dedicated teaching skills curriculum has become a cornerstone of our residency program, providing a structured framework that promotes continuous skill development, feedback, and practical application. One of the key components, the Objective Structured Teaching Exercise (OSTE), has been particularly impactful in reinforcing teaching skills by allowing residents to demonstrate their abilities in a simulated setting. The OSTE not only helps in skill acquisition but also promotes reflection and personalized feedback, which are essential for growth. By combining the OSTE with a longitudinal curriculum based on deliberate practice, residents are encouraged to regularly refine their teaching strategies over time, resulting in a significant boost in confidence and teaching effectiveness.

While the curriculum has been highly effective, its success has relied heavily on faculty commitment. The consistent delivery of high-quality content, coupled with real-time feedback, has required a considerable time investment from faculty members, underscoring the importance of strong faculty engagement. Faculty involvement is essential for ensuring that all residents experience the curriculum's full benefits and for maintaining the standard of teaching across different cohorts.

As we look to the future, the curriculum will continue to evolve by incorporating more workplace-based teaching practice and assessments. This shift will enable residents to apply their teaching skills in authentic clinical environments, further solidifying their expertise. Additionally, increasing opportunities for formative assessment and feedback in clinical settings will support the long-term retention of teaching strategies, ensuring residents are well-prepared for their roles as educators in medicine.

28. Improving Resident Attendance at Didactic Sessions While Rotating on Pediatric Wards

Team Members: Michael Colburn, Ashley Radig, Madison Teich

Department: Pediatrics

Abstract Purpose: Pediatric residents at the University of Iowa have decreased attendance at didactic sessions while on pediatric ward rotations compared to outpatient rotations. Barriers to attending include an increasing hospital census leading to longer rounding times, time-sensitive tasks to complete after rounds, and a 5–10-minute walk to the didactics location. We aimed to increase resident attendance by 10% at didactic learning over the course of this academic year by changing the time and location of didactics.

Methods: A group was formed including pediatric residents and the program director to address the aforementioned barriers to attending didactic sessions. Baseline data was collected for attendance at didactic sessions from the previous academic year (2024-2025). Didactic sessions were moved from the Pediatric Conference Center in John Colloton Pavillion to the 10th floor of Stead Family Children's Hospital. Additionally, the timing of didactics was adjusted from starting at noon to starting at 2:00 PM. These new didactic sessions were called Protected Resident Learning (PRL) and involved lectures from seven divisions within the department. Our primary outcome measurement was percent attendance at didactic sessions which was calculated by supplying worksheets for collecting the number of residents who attended PRL. The percentage of residents who attended PRL per residents on ward rotations was calculated to compare to the baseline data. Quantitative data was also collected by offering an anonymous feedback system to residents attending PRL. Data was collected and plotted on a run chart.

Results: Intern resident attendance at didactic sessions was 53% during the 23-24 academic year and 80% during the 24-25 year for an overall change of 27%. PDSA cycles were determined based on resident feedback. They included booking the same room for location consistency, learners forwarding messages to seniors, and changing the time from 2:00 PM to 3:00 PM.

Conclusions/Lessons Learned Overall, there was increased attendance rates of intern residents at PRL as compared to the previous required didactic sessions model. It can be concluded that location and timing were large barriers to resident education. However, residents continue to struggle staying engaged in learning. Barriers that they identified through the anonymous survey included getting a high volume of Epic messages and high patient census.

Getting Epic messages distracts from learning. In order to better protect learning, residents were encouraged to forward messages to their senior so that they would not get notifications during didactics. A future PDSA cycle could focus on nursing education about protected learning time. Having a nurse on the QI group would be helpful to represent more stakeholders.

High patient census contributes to difficulty attending didactic sessions. Residents often feel bogged down with necessary daily tasks such as consults, orders and notes. PRL will move from 2:00 PM to 3:00 PM for more time to complete these tasks to encourage higher attendance and better engagement in PRL.

Limitations to this QI project include resident reported attendance. In the future, there could be a QR code that residents scan to ensure consistent attendance taking. In addition, there is currently no objective measure for resident engagement and effectiveness of lectures. Attendance is not an accurate substitutive measure for resident learning. Future measures could include ITE scores to assess if there was a significant increase in board-relevant knowledge.

Overall, PRL had a positive outcome on intern residents on inpatient rotations attending didactics. More work can be done to ensure better resident engagement and learning while attending PRL.

29. Introduction and Implementation of the Iowa Ophthalmology Laser Curriculum

Team Members: Bilal Ahmed, Jaclyn Haugsdal, Pavlina Kemp

Department: Ophthalmology

Abstract: Purpose: To introduce and evaluate a structured, simulation-based curriculum designed to improve safety and efficacy in teaching ophthalmic laser procedures—specifically YAG capsulotomy and selective laser trabeculoplasty (SLT)—to beginning residents.

Background: Laser procedures are integral to ophthalmic care, yet traditional "see one, do one" training models may expose patients to unnecessary risk. While simulation is widely adopted in ophthalmic surgery, its role in laser procedure training is limited.

Methods: Ophthalmology residents participated in didactic and hands-on simulation sessions using SimulEye model eyes, SimulEye slit lamp stands, and departmental laser equipment under faculty supervision. A structured curriculum included lectures, procedural demonstration, and guided practice. Outcomes were measured using pre- and post-course knowledge assessments and self-reported confidence surveys.

Results: Residents showed statistically significant improvements in both procedural knowledge and confidence. Pre-course knowledge scores averaged 48% for YAG and 58% for SLT, increasing to 88% and 91% respectively post-course ($p < 0.05$). Confidence improved significantly in identifying indications, setting energy parameters, performing procedures, and managing post-treatment care. The increase in confidence was particularly notable for SLT, which is less commonly encountered in early training.

Conclusions/Lessons Learned: Conclusions: The Iowa Ophthalmology Laser Curriculum demonstrates that simulation-based training is an effective and safe method to teach laser procedures. Residents gained essential skills and confidence without patient risk. This novel approach addresses a previously underemphasized aspect of ophthalmology training and supports expanding simulation-based education to include laser techniques.

30. Physician Advocacy in Internal Medicine Residency

Team Members: Laurel Smeins and Kimiya Nourian

Department: Internal Medicine

Abstract: Advocacy is an important part of being a physician in today's world. In the ever-evolving realm of healthcare, medicine and politics have become more intertwined. Policies, laws, and lobbying efforts can have a large effect on patient outcomes, social determinants of health, and the practice of medicine as a whole. Given this, it has become increasingly important for physicians to engage in the political sphere – to advocate for their patients, themselves, and for medical science. Historically, residency training has not included much, if any, education regarding physician advocacy or avenues for involvement in advocacy.

In order to gauge resident knowledge and views on the topic, we surveyed the internal medicine residents (PGY1 – 3) at University of Iowa during the 2024-2025 academic year. Of 32 respondents, 87.6% somewhat agreed or strongly agreed that advocacy is an important part of being a physician, however only 15.6% felt that residency has prepared them to incorporate advocacy into their future practice. 56.3% of respondents did not know where to find resources regarding healthcare advocacy and 68.8% could not name their district's current federal or state representatives. "Lack of knowledge about how to engage in advocacy" was cited as one of the most common barriers to participating in healthcare advocacy activities.

To address this knowledge gap, we aimed to develop formal resources and curriculum regarding physician advocacy as a part of our program's Distinction in Health Equity Track. We created a "Residency Advocacy Guide" which provides information about the Iowa Legislature and practical instructions on how to participate in a variety of advocacy activities, from meeting with legislators to writing policy statements. Additionally, we developed a presentation for the internal medicine noon conference that provided an overview of this information along with current bills related to healthcare that had been introduced in the Iowa Legislature.

Conclusions/Lessons Learned: Despite most Internal Medicine residents believing that advocacy and political involvement plays an important role in being a healthcare provider, residency training provides little education or guidance regarding this topic. Our hope is that creating structured curriculum and resources will help address this educational gap and promote physician participation in advocacy in residency and beyond. In addition, we hope that sharing our findings spurs further interest among other GME programs and creates avenues for expanding the physician advocacy curriculum across GME.