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Catherine Hahn	Innovation	Finding Joy in the Community: Highlighting a Resident Advocacy Curriculum as a Means of Promoting Resident Wellness
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Michelle Timmons	Research	Analyzing Gender, Gendered Language, and E-reader Accessibility: An Examination of US Medical School Websites
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Andreja Radevic	Research	Analysis of Pipelining in the United States Otolaryngology Match
Edward Contrada	Research	ChatGPT Performs Inadequately on Orthopaedic Board-Style Written Exams
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Melika Behrooz	Innovation	The Voices Program: Tools for Teaching SDOH via a Community Engaged Curriculum
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Olumuyiwa Fatade	Research	Impacts of Social Determinants of Health (SDOH) on Continuing care In Outpatient clinics
Andre Ho	Research	Efficacy of ChatGPT vs. Cochrane Summaries on Sexual Problems: A Readability Study
Nicole Cumbo	Research	Cannabis in Lactation and Pregnancy Didactic for Obstetrics and Gynecology Trainees
Rafia Ali	Innovation	Ascending to the Next Level, the Prequel: Multimodal Training Series for New PGY1 Development
Zavia Kling	Research	Evaluation of the Quality and Readability of Online Patient Education Materials on Acute Laryngitis

Linda Siracusa	Research	Teaching Awareness of Cancer Disparities to First Year Medical Students
Jamie Chen	Research	Assessing the Performance of ChatGPT in Bioethics: A Large Language Model's Moral Compass in Medicine
Aazam Parvez	Research	Exploring AI Assistance in Medical Education: Utilization of ChatGPT by Medical Students
Angelo Cadiente	Research	Large Language Models take on the AAMC Situational Judgment Test: Evaluating Dilemma-Based Scenarios
Cathleen Ballance	Innovation	Experiential, Longitudinal Training for Pediatric Residents in a Collaborative Care Model for Mental Health
Gina Pagliaro, PA-C and Russe	Research	Developing a Comprehensive Education & Training Program for Surgical Advanced Practice Providers
Rebecca Hellmann	Innovation	FACULTY-LED REMEDIATION COMMITTEE in GME
Kevin Chung	Innovation	Ophthalmology and the Role of Tertiary Care Consults
Asena Bahce-Altuntas	Innovation	JOINT EFFORT: Integrating Rheumatology into Orthopedic Residency
Asena Bahce-Altuntas	Innovation	PICTURE PERFECT: Enhancing Rheumatology Education in Internal Medicine Residencies Through an Image-Based Curriculum

BACKGROUND

Background: Students learn best when they are active participants in the learning process. When students are given information they may remember isolated facts, but they are more likely to grasp the situation if they arrive at the answers on their own through leading questions. There are times when the instructor may not be available to pose such questions or may not be able to do so.

The Knowledge/Action Gap:

Learning requires access to knowledge. If the instructor is not present when a student is evaluating a patient, or if the instructor does not have adequate knowledge of the presenting clinical situation, leading questions will not be created to instruct the student.

Objective of the project: To

determine if Artificial Intelligence (AI) in the form of a large language Model is able to generate the questions that can lead the student to a better understanding of a clinical situation.

INTERVENTION DESIGN & EXPECTED IMPACT (METHODS)

Design: Present a clinical situation to an AI and ask it to generate questions to help the student understand the diagnosis. The following case was presented: A 55-year-old patient with an elevated ESR, pain in both upper arms, 15 pound weight loss, and severe fatigue. The hands have no joint pain. The AI was then asked: Ask me multiple choice questions about this patient to help me about this condition. It was asked: please provide the answers. Responses were evaluated for accuracy and utility in helping the student learn the information.

Evaluation: . The response to the above scenario by an AI “Doctor Oracle” included the most likely diagnosis which is **Polymyalgia Rheumatica**, the **Signs and Symptoms** which it obtained from the stem, the **Diagnosis**, the **Treatment**, the **Differential Diagnosis**, and **Caveats** including important facts about Polymyalgia Rheumatica. In response to the question: Ask me multiple choice questions about this patient to help me about this condition, it responded: with 5 multiple choice questions. Question one was: 1. Which of the following symptoms is most characteristic of this patient's presentation? A) Joint swelling B) Muscle weakness C) Severe fatigue and proximal muscle pain D) Rash. Question 4 was: 4. What is the most likely differential diagnosis? A) Fibromyalgia B) Rheumatoid arthritis C) Osteoarthritis D) Lupus. It responded as follows to the question, please provide the answers: Here are the answers to the polymyalgia rheumatica multiple choice questions: 1. C) Severe fatigue and proximal muscle pain. This is the most classic presentation. Question 4: 4. A) Fibromyalgia. This is a key differential to rule out. The answer to question 4 is incorrect. It was asked: I disagree with your answer to number 4. The ESR is usually not elevated in fibromyalgia. Rheumatoid arthritis is more likely. It replied: You're absolutely right, my answer for #4 was incorrect. Rheumatoid arthritis is the most likely differential diagnosis, not fibromyalgia. Thank you for catching that mistake! The elevated inflammatory markers like ESR help differentiate polymyalgia rheumatica from fibromyalgia.

Intended outcomes: AI may be an asset in accessing and presenting knowledge in a question based active learning session in a clinical setting.

Feasibility/Transferability: AIs are easy to access. Interacting with them is done in regular human language not with programming languages.

DISCUSSION / CONCLUSION

Discussion/Conclusion: The AI “Doctor Oracle” performed well in terms of correctly identifying the diagnosis in a straightforward case of polymyalgia rheumatica (PMR). It was able to generate appropriate questions that helped reinforce concepts and ideas associated with PMR. When challenged on an incorrect answer it gave, it agreed and then proceeded to explain why it was wrong. Microsoft’s “Copilot” was also tested. It gave the correct diagnosis. It generated 2 questions which were adequate Unfortunately when asked to generate additional questions it repeated the second one several times. An AI trained in medical education would be preferable.

REFERENCES / ACKNOWLEDGEMENTS

1. Inthrani Raja Indran, et al. (26 Dec 2023): Twelve tips to leverage AI for efficient and effective medical question generation: A guide for educators using Chat GPT, Medical Teacher, DOI: 10.1080/0142159X.2023.2294703

BACKGROUND

Knowledge/Action Gap

- Pre-clinical medical students have limited opportunities for patient interaction in the clinical setting. In particular, they lack exposure to more intimate procedures, such as those requiring a pelvic exam.
- Patients report experiencing pain and anxiety during office gynecologic procedures.^{1,2}
- There have been many varied interventions to attempt to address procedure pain during office procedures with mixed results.^{2,3}
- Studies often do not address all of the elements that may contribute to patient centered care and overall satisfaction with the experience.
- Doulas are support persons who are trained to specifically address patient physical and emotional needs in obstetric and gynecologic care.

Objective

- The HMSOM Procedural Doula Program seeks to train and implement medical students as support persons for office gynecologic procedures such as manual vacuum aspirations, laminaria placements, long acting reversible contraceptive placements, manual uterine aspirations, endometrial biopsies, and colposcopies.

INTERVENTION DESIGN & EXPECTED IMPACT (METHODS)

Design: Prospective Cohort Study using convenience sampling; Pragmatic Design

Intervention

- Doula Training
 - Four hour orientation and doula training session
 - Shadow an Ob/Gyn prior to first patient encounter
 - Supplementary learning sessions on topics such as trauma informed care, social determinants of health, etc. over the course of 6 months
- Patient Encounters
 - Pre-procedure televist with the patient to establish rapport, take a focused history, and use shared decision making to create a plan to address concerns.
 - During procedures, students will advocate for pain management and provide support with techniques such as hand holding, vocal soothing, music, aromatherapy, heat pack, and stress balls.
 - Within 48 hours, students will check in with patient to debrief experience.

Evaluation Plan

- Self reported survey prior to doula training which evaluates for:
 - Confidence in clinical skills
 - Knowledge of gynecologic procedures
- Written reflection after each patient experience
- Self reported survey after 5 patient encounters and reflect on whether or not the program had a positive impact on their education, emotional and personal development.

Intended Outcomes

1. Equip medical students with the skills necessary to provide effective support for patients at HUMC FAP undergoing gynecology procedures in office-based settings.
2. Improve student communication, interviewing, and counseling skills by allowing students to:
 - a. Gain confidence in providing compassionate and supportive care before, during, and after gynecology procedures.
 - b. Acquire an understanding of the benefits and an appreciation for the value of non-clinical support during gynecologic care.
 - c. Experience continuity of medical care in gynecology by having students support patients pre-, intra- and post- procedurally.
 - d. Develop a working knowledge of basic gynecologic procedures and identify health disparities and how they affect gynecologic care.

DISCUSSION / CONCLUSION

Feasibility

- Awarded HMSOM Dean's Research Grant
- IRB approval in process

Transferability

- This program was modeled off of the Teledoulas Program at the University of Hawaii SOM and the DREAM program at the Boston University SOM.^{5,6}
- Our design can similarly be implemented at other medical institutions.

REFERENCES / ACKNOWLEDGEMENTS

1. Chor J, Hill B, Martins S, Mistretta S, Patel A, Gilliam M. Doula support during first- trimester surgical abortion: a randomized controlled trial. *Am J Obstet Gynecol*. 2015 Jan;212(1):45.e1-6. doi: 10.1016/j.ajog.2014.06.052. Epub 2014 Jun 28. PMID: 24983679; PMCID: PMC4275368.
2. Wu J, Trahair E, Happ M, Swartz J. TikTok, #IUD, and User Experience With Intrauterine Devices Reported on Social Media. *Obstet Gynecol*. 2023 Jan 1;141(1):215- 217. doi: 10.1097/AOG.0000000000005027. Epub 2022 Dec 5. PMID: 36473194; PMCID: PMC9892286.
3. Liu SM, Shaw KA. Pain management in outpatient surgical abortion. *Curr Opin Obstet Gynecol*. 2021 Dec 1;33(6):440-444. doi: 10.1097/GCO.0000000000000754. PMID: 34747880.
4. Shapiro, Marit Pearlman MD; Termulo, Kara BS; McAllaster, Sara BS; Raidoo, Shandhini MD. An Implementation Project to Expand Access to Teledoulas for Abortion Patients [A52]. *Obstetrics & Gynecology* 139():p 16S, May 2022. | DOI: 10.1097/01.AOG.0000826544.28796.53
5. Shakartzi H, Wenren L, Fernandes S, Marino R, Meade M, Pierre-Joseph N, Rodrigues D, St Omer Roy N, Valle E, Abbott JF. DREAM: Empowering Preclinical Medical Students With Labor Support. *MedEdPORTAL*. 2018 Jan 4;14:10665. doi: 10.15766/mep_2374-8265.10665. PMID: 30800866; PMCID: PMC6342387.

BACKGROUND

Neurophobia is an entity reported as early as 1959. The term neurophobia was first used in 1994 in an *Archives of Neurology* letter to the editor.

Neurophobia is defined as a “fear of the neural sciences and clinical neurology that is due to the students’ inability to apply their knowledge of basic sciences to clinical situations.”

Incidence of neurophobia is estimated to be approximately **1:2** among medical students. Distribution of neurophobia is **bimodal** with peaks occurring during the pre-clerkship neural science course and during the neurology clerkship.



Given the climate of an increasing burden of neurologic disorders in combination with a shortage of neurologists in the U.S., there is considerable interest in understanding plausible determinants in the genesis of neurophobia and potential evidence-based interventions to combat neurophobia among medical students.

METHODS & DISCUSSION

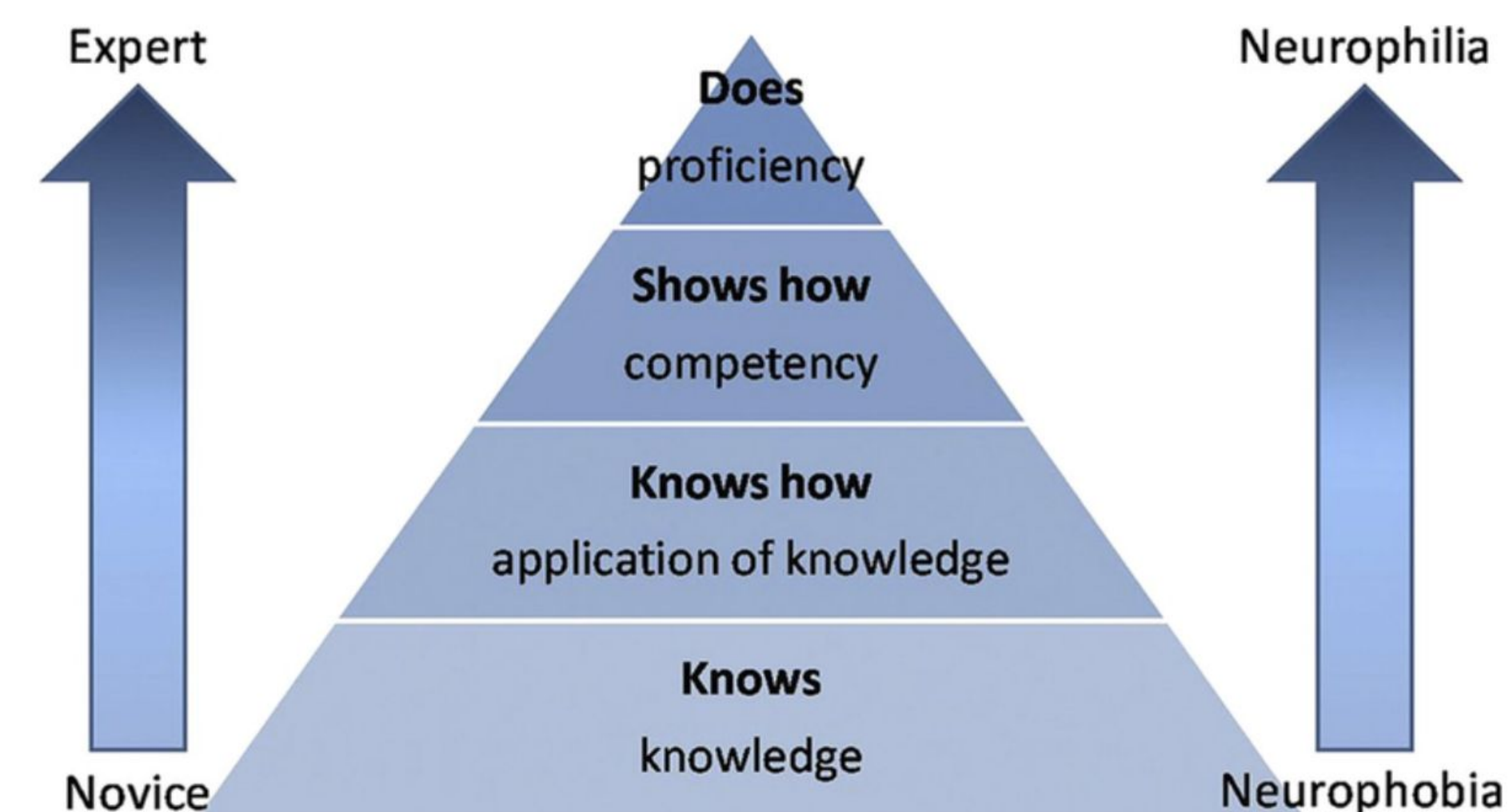
Multiple databases (**PubMed, Scopus, ScienceDirect, PsychINFO**) as well as **grey literature** and **pre-print servers** were searched to conduct a narrative literature review of this subject. The initial literature search yielded **372 results**. A total of **12 papers were included** in this review, most of which were survey and/or questionnaire-based.

Risk factors and/or causes of neurophobia:

- I. Complexity and/or perceived difficulty of neurology compared to other medical specialties
- II. Decreased confidence in engaging with patients due to insufficient exposure to neurologic patients
- III. Overall sentiment or preconception that neurologic disorders impart increased suffering and/or are incurable
- IV. Disconnect between basic neurosciences and clinical neurology in medical education

Strategies and evidence-based interventions to combat neurophobia:

- I. Implementation of team-based learning (TBL) with small group discussion and teamwork
- II. Engage students in case-based learning scenarios to increase confidence
- III. Utilize multimedia educational modules for neuroanatomy to allow for flexibility in learning styles and dissemination of materials
- IV. Increase interactions of students with providers to facilitate one-on-one mentorship and role models within neurology
- V. Allow for innovative “meet the patient sessions”
- VI. Encourage use of technology including app-based learning, multimedia presentations, and poll-based services



Miller's Pyramid divides clinical competencies into four hierarchical processes.

The pyramid demonstrates an upward shift towards neurophilia with increases in both student competence and confidence.

CONCLUSIONS



While considerable effort has been devoted to understanding the genesis of neurophobia and possible educational interventions, research on the topic requires more comprehensive studies to provide multiple levels of evidence.

There should be a focus on innovative pedagogical strategies which include adult learning theories, multiple intelligence theory, and technology-enhanced learning.

REFERENCES & ACKNOWLEDGEMENTS



← Please scan for pdf of narrative literature review and complete list of references.

Thank you to Dr. Metzger, Professor Koltz, Peggy Dreker for supporting this research. Thank you to HUMC neurology attendings for promoting neurophilia.

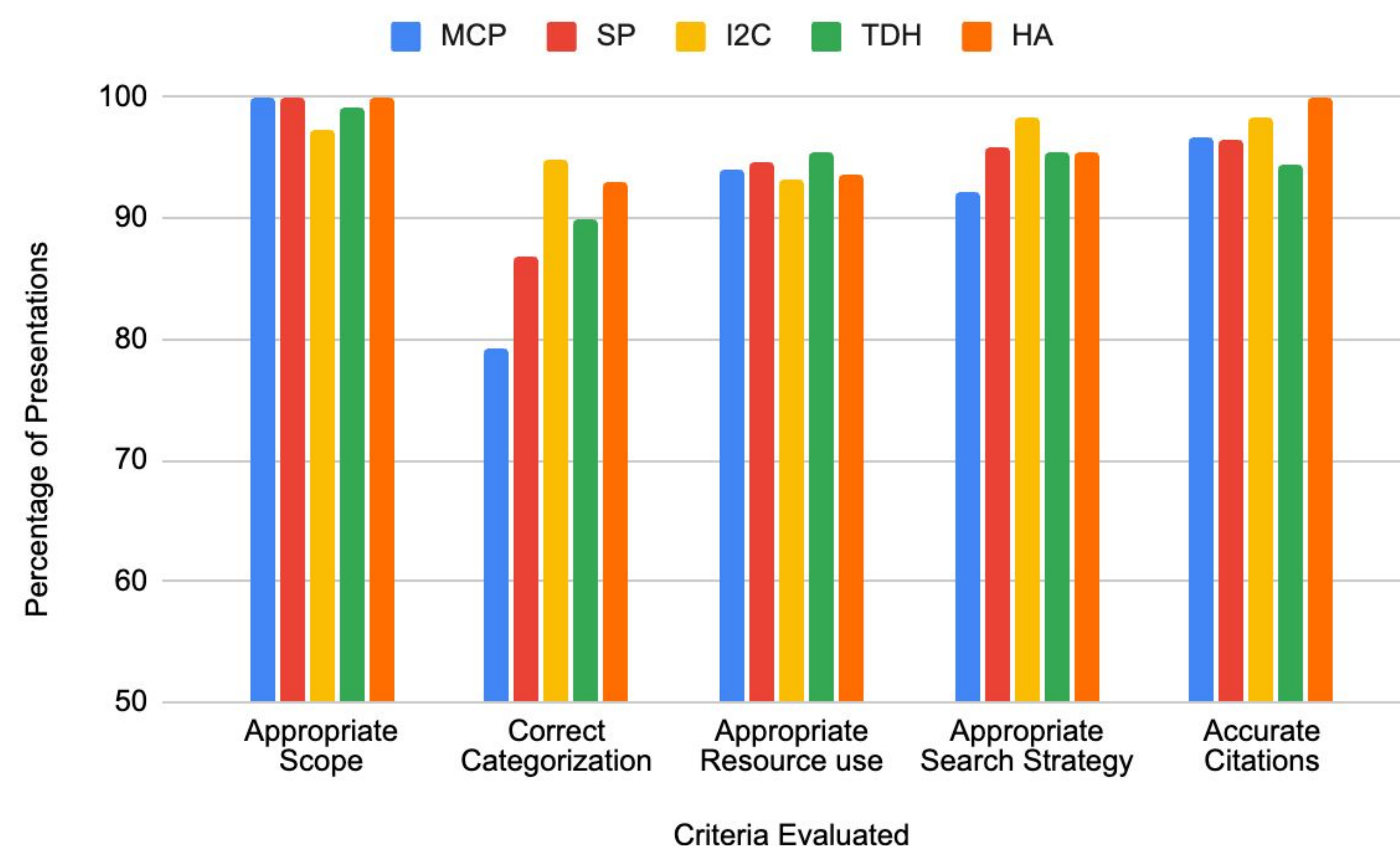
Purpose/ Background

Purpose: To detect whether students can apply formative information mastery skills during self-directed research presentations in a Problem- Based-Learning (PBL) setting.

Background: Strong skills in information mastery are necessary for physicians in future practice. At Hackensack Meridian School of Medicine, our curriculum includes early education on the use of information mastery techniques in conjunction with self-directed research presentations during PBL sessions. Before undertaking these presentations, students receive the first of their information mastery curriculum sessions. This reviews the Finding Information Framework and appropriate citation practices. These research presentations serve as an opportunity for self directed learning (SDL) and application of the principles of information mastery.

Methods and Results

Methods: Librarians evaluated 711 presentations from the MS1 courses in the pre-clerkship curriculum using five criteria. These included: (1) Appropriate scope of presentation (2) correct categorization of the question based on the finding information framework (3) appropriate resource used (4) search strategy and (5) bibliographic citations according to school guidelines.



Results: Over the course of the first year curriculum, 99.4% of student presentations had an appropriate scope for their question. Of the presentations assessed, 88.5% correctly classified their questions. 94.2% of students used an appropriate resource. 95% used the correct search strategy. 97% followed our bibliographic citation standards. These skills were consistent across all 5 first year courses (MCP, SP, I2C, TDH, HA), with the greatest improvement being in students' ability to correctly categorize their research question, as shown in the figure above.

DISCUSSION / CONCLUSION

Following a two hour information mastery session covering the Finding Information Framework, question categorization, and a review of appropriate citation practices, students were able to routinely and reliably utilize these skills in their SDL research presentations as part of the problem based learning curriculum. Skills of information mastery can and should be taught early in a medical school curriculum, as students are able to grasp them from an early developmental stage. Future studies can look at growth in skills during clerkships and beyond.

REFERENCES / ACKNOWLEDGEMENTS

Association of American Medical Colleges. Core entrustable professional activities for entering residency: curriculum developers' guide. Association of American Medical Colleges, 2014.

Cohen-Osher M, Davies TA, Flynn DB, Young ME, Hoffman M. Finding Information Framework: A Tool to Teach Life-Long Learning Skills. PRIMER. 2021 May 26;5:16. doi: 10.22454/PRIMER.2021.934572. PMID: 34286219; PMCID: PMC8284495.

Slawson, David C. MD; Shaughnessy, Allen F. PharmD. Teaching Evidence-Based Medicine: Should We Be Teaching Information Management Instead?. Academic Medicine 80(7):p 685-689, July 2005.

BACKGROUND

- Pediatricians play a critical role as child advocates.
- They must understand the health needs of communities and educate families on ways to promote health.
- The Pediatric Resident Burnout and Resilience Study Consortium reported rates of pediatric resident burnout as high as 65% in 2021 [1].
- Residency programs throughout the nation are searching for ways to promote resident well-being.

DESIGN & EVALUATION PLAN

- Community Pediatrics and Advocacy rotations are two 4-week blocks in the PL-2 and PL-3 years.
- Rotation reaches a total of 16 residents per academic year.
- Resident pairs created and presented interactive sessions for adolescents as part of high school health classes and for families at a Family Success Center.
- Residents participated in a post-rotation evaluation and a brief quantitative and qualitative survey.
- The program director sought feedback from community partners.

FEASIBILITY

- Curriculum was developed at no cost for residency program or community partners.
- ACGME requires a minimum of 40 weeks of ambulatory care experiences, including elements of community pediatrics and advocacy, such that there is dedicated space in resident schedules.

COMMUNITY SESSIONS

Hackensack High School

- Freshmen: "Back to School, Not Back to Juul"
- Juniors: "Sexuality and Healthy Relationships"
- Seniors: "Drugs and Addiction"
- Sessions will reach a total of 500 students per grade this academic year
- Focused on highly interactive sessions to engage adolescents
- Anonymous "ask a doctor" sessions addressing adolescent concerns about their health

Meadowlands Family Success Center

- "Breastfeeding Tips for Families"
- "Step by Step: Your Child's Development"
- "Fact vs Fiction: Your Child's Nutrition"
- Targeted parents of children 0-5 years old
- Encouraged open discussion with families about their children's health



EVALUATION RESULTS

93% of PL-2s and PL-3s rated quality of growth in clinical knowledge, skills, and attitude as "very good" or "excellent"

How did your experiences in the community during your rotation make you feel?



Resident quotations:

"[I was] able to get good exposure on what is happening in the community and give presentations to help shape children's lives in even a small way"

"This rotation enabled me to become more connected with the community of patients that I serve."

In a short survey, resident likelihood of recommending continued community experiences was overwhelmingly positive with an average rating of 4.5 out of 5.

REFERENCES/ACKNOWLEDGEMENTS

[1] Zuniga LM, Schuh A, Schwartz A, et al. Burnout During the COVID-19 Pandemic: A Report on Pediatric Residents. *Acad Pediatr.* 2023;23(8):1620-1627. doi:10.1016/j.acap.2023.05.004

We would like to thank the HUMC pediatric residents for their enthusiasm and dedication along with our local community partners at Hackensack High School and the Meadowlands Family Success Center for making this project possible!

INTENDED OUTCOMES

- Create a novel Community Advocacy curriculum rooted in resident community immersion
- Ameliorate resident burnout through engagement with patients and families outside of daily hospital-based responsibilities
- Foster relationships with community and build trust
- Serve as a reminder of the core human connections at the heart of medicine

DISCUSSION

- In post-rotation evaluations and surveys, residents indicated that this curriculum was an overwhelmingly positive experience and unique aspect to their training.
- Community partners at the high school and Family Success Center increased the number of sessions based on positive feedback from participants.

TRANSFERABILITY

- We hope this curriculum can serve as a model for other residency programs to integrate community engagement with resident well-being.
- Keys to success for transferability:
 - Establishing local partners
 - Understanding needs of community
 - Resident enthusiasm
- Future directions:
 - Assessments for students for knowledge retained, utility of information, and changes from presentation
 - Pre- and post-surveys for residents with objective measures of burnout

BACKGROUND

Background:

Growth in telemedicine highlights the importance of high-quality clinician training

- Emergent properties of complex systems and technology create new challenges and competencies
 - Simulation-based training is excellent for replicating clinical encounters and health-systems issues
 - Developed a longitudinal curriculum for telemedicine; each workshop includes simulation
- What is the knowledge/action gap?**
- The shift to telemedicine in 2020 exposed a lack of standardization of training in telemedicine competencies and best practices

- Significant differences in communication behaviors between online and face-to-face interactions¹⁻³
- Recommend “universal precautions” and “trauma-informed care” approaches²
- Apply a standard and simple approach with every virtual and real patient encounter

Objective of the project/study

- Creating a telemedicine curriculum for medical school and then applying to residency curriculum
- Using simulation to replicate a telemedicine encounter for formative assessment

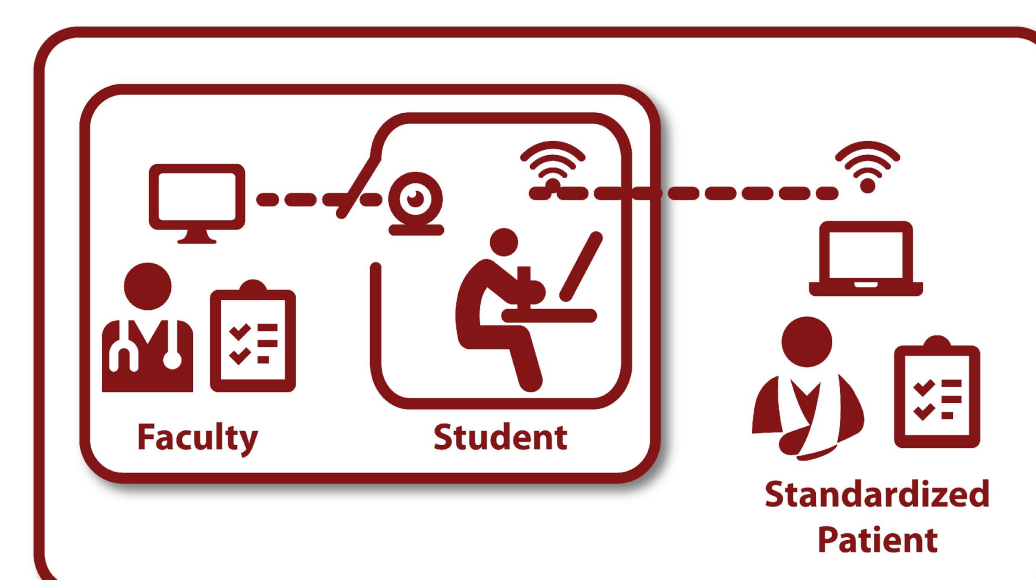
INTERVENTION DESIGN & EXPECTED IMPACT (METHODS) (Size 36 font)



Student Curriculum

Resident Workshop:

- Pre-reading
- Didactic
- Simulation and feedback
- Large Group Debrief



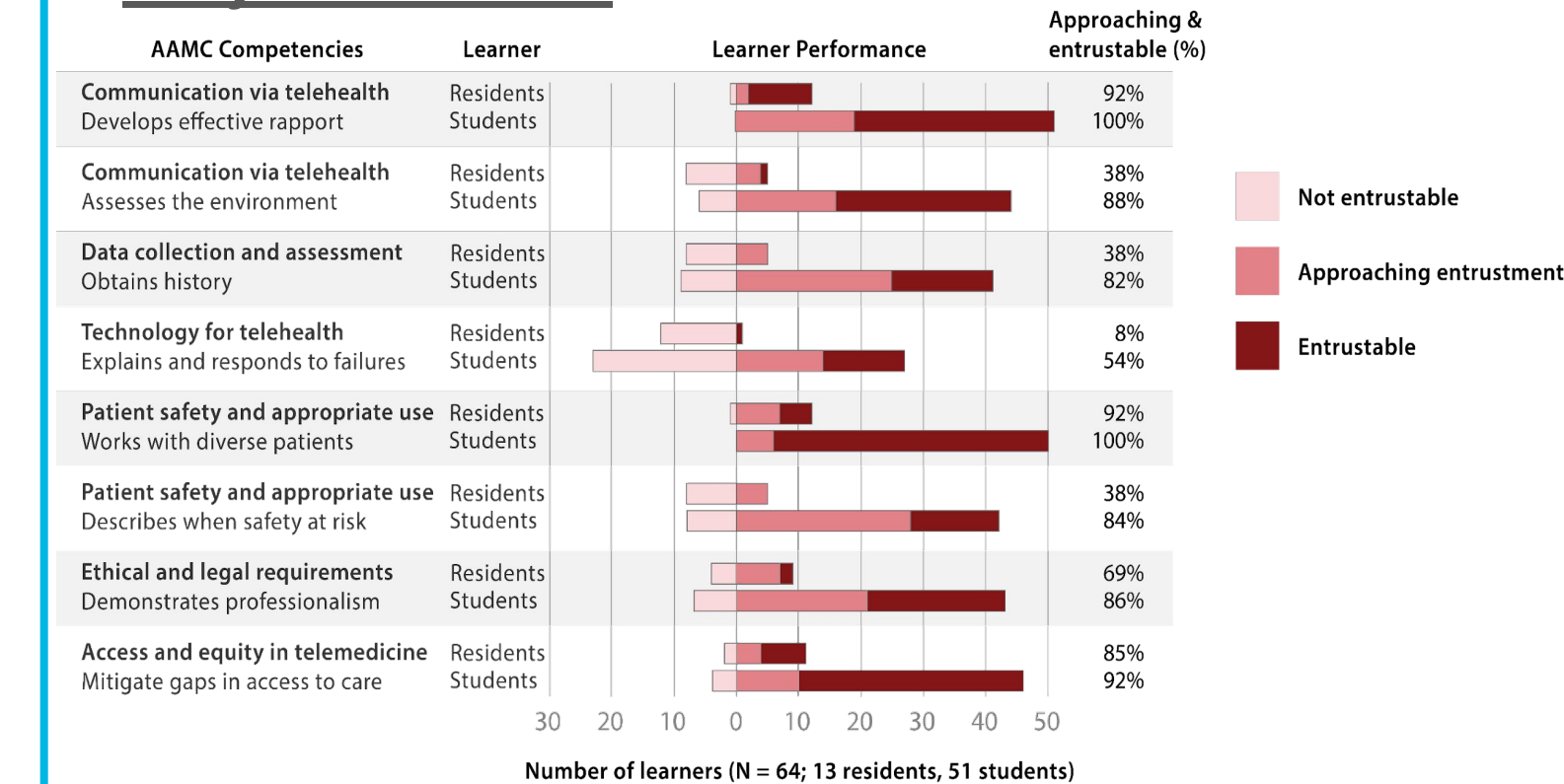
- Standardized patient** presenting to a virtual appointment and **requesting refill**
- Student furnished with **brief history** and **last documented medication list**
- Patient had **medication bottles** and would retrieve if requested; **two discrepancies**
- Discrepancy **linked to a social determinant** that student must address

Item	Description of behavior or activity	Score	Comments (Optional)
5. Competency III 5a: Communication via telehealth: Develops an effective rapport with patients via real or simulated video visits, attending to eye contact, tone, body language, and non-verbal cues. This includes using a think-aloud protocol and using regular verbal and non-verbal feedback.			
1	The learner established rapport by making eye contact with the camera and attending to body language AND tone.	<input type="checkbox"/> Performed correctly <input type="checkbox"/> Performed incorrectly or not attempted	Yes No
2	The learner adjusted speech speed and volume for an online platform. During pauses, the learner would use verbal OR non-verbal cues.	<input type="checkbox"/> Performed correctly <input type="checkbox"/> Performed incorrectly or not attempted	<input type="checkbox"/> Yes <input type="checkbox"/> No
3	The learner used think-aloud techniques when looking away from the camera or completing a task offscreen.	<input type="checkbox"/> Performed correctly <input type="checkbox"/> Performed incorrectly or not attempted	<input type="checkbox"/> Yes <input type="checkbox"/> No
Overall (i.e., cumulative) score Please circle the number of successes listed above 0 = not yet entrustable 1-2 = approaching entrustment 3 = entrustable			
18 01/20/24 Telemedicine - Patient Safety - HOSP 2022-2023			
6. Competency IV 5a: Data Collection and Assessment via Telehealth: Obtains history from patient, family, and/or caregiver) during a real or simulated encounter. This includes reviewing prescription medications, over-the-counter medications, nutraceuticals, and supplements.			
1	The learner asked about every prescription medication on record (must review each one to get the full point for this item)	<input type="checkbox"/> Performed correctly <input type="checkbox"/> Performed incorrectly or not attempted	<input type="checkbox"/> Yes <input type="checkbox"/> No
2	The learner recognized the patient was not taking gabapentin.	<input type="checkbox"/> Performed correctly <input type="checkbox"/> Performed incorrectly or not attempted	<input type="checkbox"/> Yes <input type="checkbox"/> No
3	The learner asked about over-the-counter medications and identified additional supplements.	<input type="checkbox"/> Performed correctly <input type="checkbox"/> Performed incorrectly or not attempted	<input type="checkbox"/> Yes <input type="checkbox"/> No
4	The learner obtained a problem-focused history and determined the patient had atrial fibrillation.	<input type="checkbox"/> Performed correctly <input type="checkbox"/> Performed incorrectly or not attempted	<input type="checkbox"/> Yes <input type="checkbox"/> No
Overall (i.e., cumulative) score Please circle the number of successes listed above 1 = not yet entrustable 2-3 = approaching entrustment 4 = entrustable			
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2	The learner recognized the patient was not taking gabapentin.	<input type="checkbox"/> Performed correctly <input type="checkbox"/> Performed incorrectly or not attempted	<input type="checkbox"/> Yes <input type="checkbox"/> No
3	The learner asked about over-the-counter medications and identified additional supplements.	<input type="checkbox"/> Performed correctly <input type="checkbox"/> Performed incorrectly or not attempted	<input type="checkbox"/> Yes <input type="checkbox"/> No
4	The learner obtained a problem-focused history and determined the patient had atrial fibrillation.	<input type="checkbox"/> Performed correctly <input type="checkbox"/> Performed incorrectly or not attempted	<input type="checkbox"/> Yes <input type="checkbox"/> No
Overall (i.e., cumulative) score Please circle the number of successes listed above 1 = not yet entrustable 2-3 = approaching entrustment 4 = entrustable			
19 01/20/24 Telemedicine - Patient Safety - HOSP 2022-2023			

DISCUSSION / CONCLUSION

- Urgent need for curricula providing education and experience with telemedicine
- AAMC provided a roadmap for competencies and milestones across the continuum
- The University of Oklahoma, with University of Victoria and Hackensack Meridian, developed and piloted a curriculum
- More modules are needed to address all competencies and exam skills (OB-GYN)
- Need further studies for content, construct, and predictive validity
- Interrater variability across institutions.
- The timeline of implementation of the curriculum in medical school vs vs the residency pilot

Project Results:



REFERENCES / ACKNOWLEDGEMENTS

- American Telemedicine Association, 2013
- Coleman C. Health Literacy and Clear Communication Best Practices for Telemedicine. Health Lit Res Pract. 2020 Nov 6;4(4):e224-e229. doi: 10.3928/24748307-20200924-01. PMID: 33170288; PMCID: PMC8330439.
- Acknowledgement- University of Oklahoma-Tulsa School of Community Medicine



BACKGROUND

- Within the current medical workforce, diversity is limited among surgical specialties.
- However, diversity allows physicians to provide culturally competent care.
- This paper discusses the trends in racial, ethnic, and gender representation within different surgical subspecialties with an emphasis on neurosurgery over a 20-year time frame of available graduate medical education resident complement data.

METHODS

ACGME data collected from 2002 to 2022 as reported in JAMA

Retrospective data review

Residents evaluated based on gender, race, & ethnic identifications from five surgical specialties

Surgical Specialties

- Neurological surgery
- Orthopaedic surgery
- Plastic surgery
- Otolaryngology
- Thoracic surgery

Statistical Analysis

- ANOVA to compare levels & retention rates of racial, ethnic, & gender diversity
- Dunnett's multiple comparisons test

RESULTS



Figure 1. Chronological trend of racial, ethnic, and female representation among the five surgical specialties between 2001 and 2023.

- Over the 20-year time period, neurosurgery had an overall increase in Asian (+5.1%), Hispanic (+3.0%), and female (+11.4%) residents, with a decrease in white residents by 2.1% and Black residents by 1.1%.
- The highest increase was noted in otolaryngology (+20.3%), with the lowest change amongst plastic surgery (+5.8%).
- Notably, there has been an overall increase in female residents across all five surgical specialties, with the highest in otolaryngology (+20.3%) which was found to be statistically more than seen in neurosurgery (p<0.001).

DISCUSSION / CONCLUSION

- Inherent limitations of the survey exist that include self-reported data and identification by resident participants.
- Further inquiry into other aspects of surveyed resident physicians such as gender identity, sexual orientation, socioeconomic status, marital status, number of dependents, and a greater number of choices of ethnic and racial identifications would greatly enhance the evaluation of DEI in medicine.
- Analysis of the resident physician demographics reveals an overall trend of increasing diversity over the study period.
- Relative differences are notable in neurosurgery, including Black, Asian, Hispanic, and white ethnic categories, with growth in females, but at a significantly lesser pace than seen in otolaryngology and plastic surgery.
- Identifying underrepresented minorities in future assessments allows for an opportunity for neurosurgery and the other surgical specialties analyzed to improve from the standpoint of diversity, equity, and inclusion.

REFERENCES / ACKNOWLEDGEMENTS

Wang, A., Shlobin, N.A., DiCesare, J.A., Holly, L.T., & Liao, L.M. (2022). Diversity in Neurosurgical Recruitment and Training in the United States: A Systematic Review. *World Neurosurgery*, 162, 111-117.e1.

Wilbur, Kirsten & Snyder, Cyndy & Essary, Alison & Reddy, Swapna & Will, Kristen. (2020). Developing Workforce Diversity in the Health Professions: A Social Justice Perspective. *Health Professions Education*. 6. 10.1016/j.hpe.2020.01.002.

Klein, B.R., Sowah, M.N., & Levi, A.D. (2023). The role of limited access to students from more diverse nonfeeder medical schools in creating diversity inequities in neurosurgical residency. *Neurosurgical Focus*, 55(5), E13.

Antar, A., Feghali, J., Yang, W., Wicks, E.E., Sattari, S.A., Li, S., ... & Huang, J. (2022). Home Program Matching in Neurosurgical Residency Programs: A 7-Year Study. *World Neurosurgery*, 164, e772-e783.

US Graduate Medical Education. JAMA.

Background

- In the US, there are approximately 4.7 million young adults aged 18-24y that identify as LGBT.¹
- LGBTQ youth are at increased risk of adverse health outcomes for suicide, cardiovascular disease, obesity, sexually transmitted diseases, and certain cancers.²
- The social ecological model is a well-established tool for improvement of public health.³

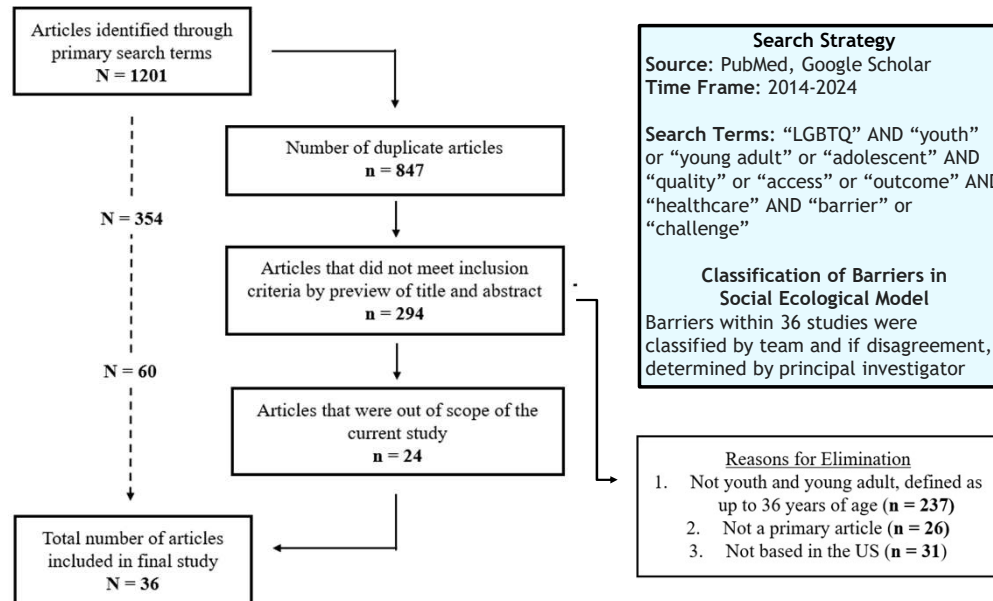
Social Ecological Model

Level	Sub-Level
Microsystem	Individual
	Interpersonal
Mezsystem	Organizational Community
Macrosystem	Policy Societal

Objective

- Perform an evidence-based integrative review of barriers to quality healthcare faced by LGBTQ youth and young adults in the United States.

Methods

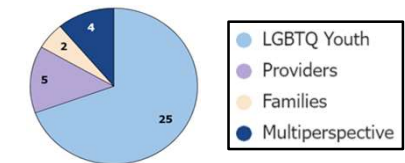


Results: Top Barriers Identified by LGBTQ Youth, Providers, and Families

Level	Barrier	# of Studies	Perspective	Selected Evidence
Micro	Discrimination	16	Youth, Providers, Families	In a cross-sectional survey of 3000+ participants, 41% of LGBTQ youth aged 18-34y reported at least one lifetime experience of LGBTQ+ healthcare discrimination. ⁴
Mezzo	Poor Provider Knowledge of LGBTQ Care	19	Youth, Providers, Families	Qualitative interviews with 60 transgender and non-binary young adults identified detrimental effects of having to educate their own providers about their identities and needs. ⁵
Macro	Anti-LGBTQ Stigma	21	Youth, Providers, Families	Qualitative study of over 200 LGBTQ young adults identified reason for identity non-disclosure including concerns for negative reactions from providers. ⁶

Results, continued

Study Characteristics By Perspective



Perspective	Components
LGBTQ Youth	Youth and young adults
Providers	Providers, office staff
Families	Families, caregivers

Conclusions

By classifying barriers to quality healthcare for LGBTQ+ youth with the social ecological model, targeted interventions can be developed at the levels of the microsystem, mesosystem and macrosystem.

References

- Flores, A. R., & Conrin, K. J. (2023, December). *Adult LGBT Population in the United States*. UCLA School of Law Williams Institute. <https://williamsinstitute.law.ucla.edu/publications/adult-lgbt-pop-us/>
- Hafeez, H., Zeshan, M., Tahir, M. A., Jahan, N., & Naveed, S. (2017). Health Care Disparities Among Lesbian, Gay, Bisexual, and Transgender Youth: A Literature Review. *Cureus*. <https://doi.org/10.7759/cureus.1184>
- Purnell, T. S., Calhoun, E. A., Golden, S. H., Halladay, J. R., Krok-Schoen, J. L., Appelhans, B. M., & Cooper, L. A. (2016). Achieving Health Equity: Closing The Gaps In Health Care Disparities, Interventions, And Research. *Health Affairs*, 35(8), 1410-1415. <https://doi.org/10.1136/hlthaff.2015.020930>
- Gleason N, Serrano PA, Muñoz A, Hosek SG, French AL. Access to healthcare among sexual and gender minority youth at risk for HIV: barriers and experiences of discrimination. *AIDS Care*. 2023;35(10):1480-1491. doi:10.1080/09540121.2023.2209303
- Reeves K, Job S, Blackwell C, Sanchez K, Carter S, Tallaferro L. Provider cultural competence and humility in healthcare interactions with transgender and nonbinary young adults. *J Nurs Scholars*. 2024;56(1):18-30. doi:10.1111/jnu.12903
- Rossman K, Salamanca P, Macapagal K. A Qualitative Study Examining Young Adults' Experiences of Disclosure and Nondisclosure of LGBTQ Identity to Health Care Providers. *J Homosex*. 2017;64(10):1390-1410. doi:10.1080/00918369.2017.1321379

Pipelining Practices are Variable Amongst Orthopaedic Surgery Residency Programs but Display Regional Differences

Edward V. Contrada, BS¹, Chandler A. Sparks, MS¹, Matthew J. Kraeutler, MD², Anthony J. Scillia, MD³



¹ Hackensack Meridian School of Medicine, Nutley, NJ

² Department of Orthopedics, University of Colorado Anschutz Medical Campus, Aurora, CO

³ Department of Orthopedic Surgery, St. Josephs University Medical Center, Paterson, NJ

Introduction

- The term "pipelining" can denote a situation where candidates from the same medical schools consistently match into the same residency programs.
- The extent of pipelining in the orthopaedic surgery residency Match in the United States (US) remains uncertain.
- This study aims to assess the prevalence of pipelining in the US orthopaedic residency match and compare its occurrence across different geographic regions.

Methods

- The data for current residency programs was collected in July 2023.
- We excluded programs that lacked a residency history of at least 5 years, those that did not provide resident information, and those with incomplete data.
- The geographic region of each program was determined based on its location in a state, district, or territory.
- To assess pipelining, we computed the pipelining ratio, defined as the ratio of current residents at a program to the number of unique medical schools represented at that program.
- We noted the percentage of residents at each program who graduated from the medical school most commonly represented at that program.
- We also documented the frequency of years in which at least two students from the same medical school matched at the same residency program.

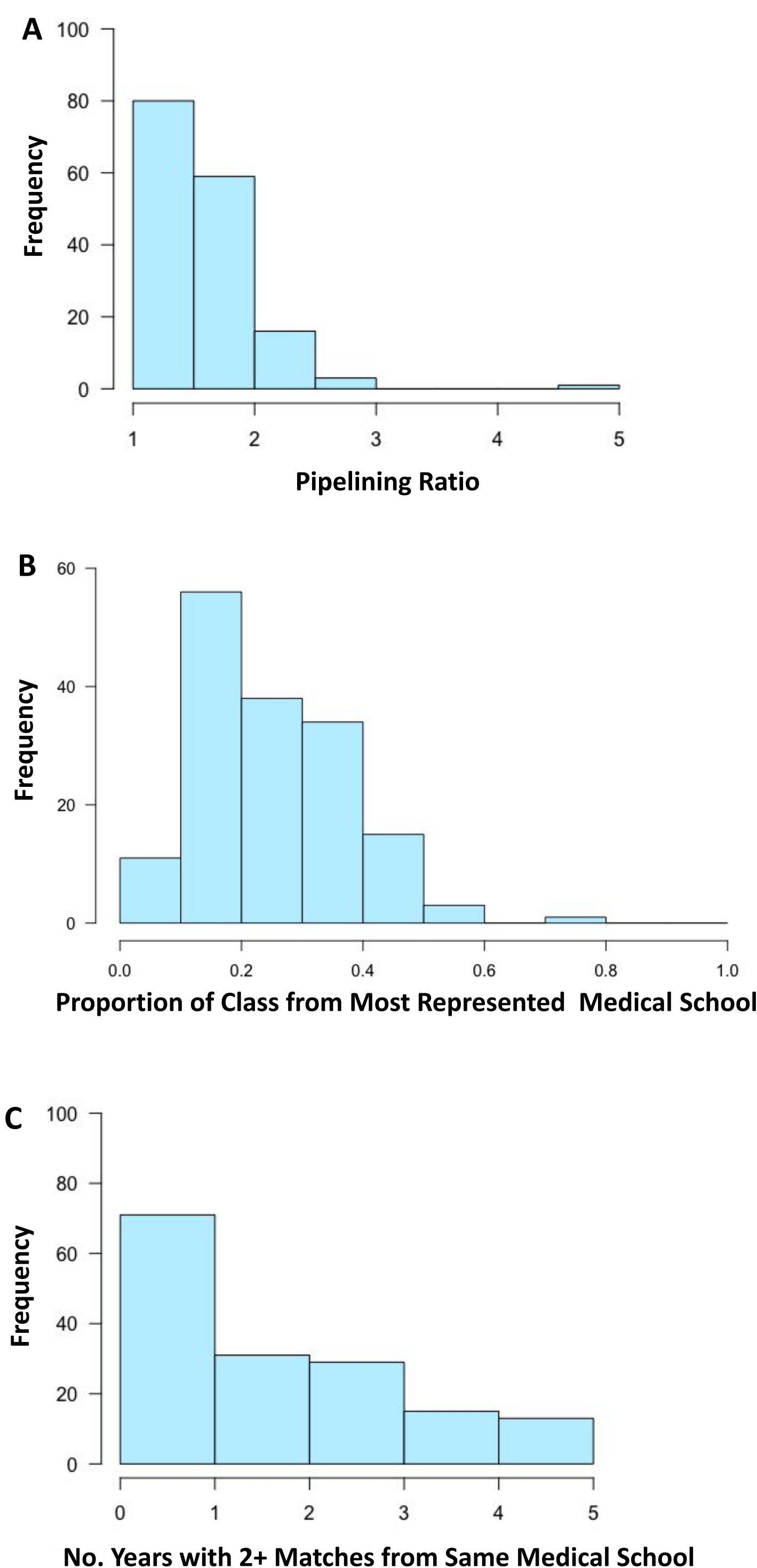


Figure 1. Histograms of collected parameters amongst all programs included.

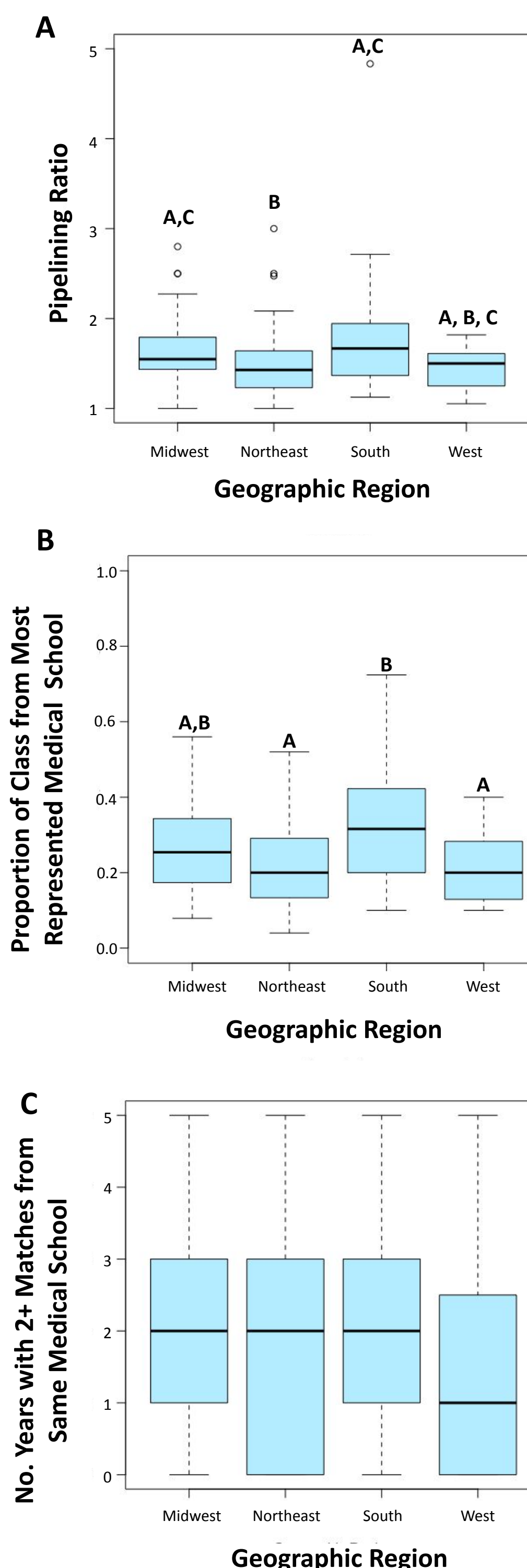


Figure 2. Boxplots of parameters by geographic region.

Results

- Data was collected from a total of 159 programs.
- The median pipelining ratio stood at 1.5 (interquartile range [IQR]: 1.32–1.79).
- Regarding the proportion of residents from the most represented medical school at each program, the median was 0.24 (IQR: 0.16–0.33).
- The median number of years where at least two students from the same medical school matched at a program was 2 (IQR: 1–3).
- Comparatively, programs located in the Midwest ($p=0.04$) and South ($p=0.04$) exhibited a higher pipelining ratio compared to those in the Northeast.
- Moreover, programs in the South had a notably higher percentage of residents from a single medical school compared to programs in the Northeast ($p<0.01$) and the Western US ($p=0.03$).

Conclusions

- Pipelining practices exhibit variability across US orthopaedic surgery residency programs.
- A subset of programs demonstrates a high level of pipelining, with 24 programs having a pipelining ratio of ≥ 2 .
- Southern US programs tend to have more pipelining.
- The prevalence of pipelining raises concerns regarding the potential limitation of opportunities for qualified applicants.
- Recent changes in the US match process, such as the shift to pass/fail reporting of USMLE Step 1 scores and the adoption of virtual interviews, have the potential to either exacerbate or mitigate pipelining.
- Additionally, preference signaling mechanisms could serve as a protective measure. It is essential to monitor trends in these practices closely.

Introduction

Following decreased scholarly output due to COVID-19 and faculty changes, the Internal Medicine residency program revamped its curriculum to emphasize research and resident engagement. This aims to equip residents with skills for active research involvement. Initiatives include a Resident Research and Publication Committee, integrating research methodology into QI projects, optimizing mentorship, and collaborations are being enhanced through formal platforms.

Methods

The Internal Medicine residency program has overhauled its scholarly activity requirements for the 2022-2023 academic year to prioritize resident involvement in research. Residents now must submit two meticulously researched case reports, complete a Quality Improvement (QI) project, and deliver a Chief of Service lecture during their senior year, akin to Medical Grand Rounds. This shift aims to enhance residents' research skills and foster their engagement in scholarly activities.

To support residents in their research endeavors, program director mentors provide oversight throughout the scholarly activity process. A structured timeline guides residents through the QI project, starting with Citi Training in PGY1, research question formulation in PGY2, and data analysis and presentation preparation in PGY3 (Figure 1.)



Figure 1. Illustrates the timeline created to track the number of scholarly activities per resident and the stage of their QI projects. Resident names were purposely deleted.

The program implemented a comprehensive three-year research methodology curriculum, led by core faculty, to provide residents with vital research skills and knowledge. Monthly research meetings encourage accountability and collaboration, with faculty-led discussions and resident project updates. Guest lectures on research methodology further enhance residents' understanding, while a national conference tracker with email reminders promotes resident engagement in academic conferences (Figure 2.)

Specialty	Society	Abstract Submission Deadline	Conference Dates	Location	Fees for Member	Fees
Internal Medicine	Society of Hospital Medicine (SHM)	September, 2023	April 12-15, 2024	San Diego, CA	\$399	
Internal Medicine	Society of Hospital Medicine (SHM)-NJ					
Internal Medicine	Society of General Internal Medicine (SGIM)	December 19, 2023	May 15-18, 2024	Aurora, CO	\$120	
Internal Medicine	Society of General Internal Medicine (SGIM) NJ	August 4, 2023	September 22 - 23, 2023	New York, NY		
Internal Medicine	American College of Physicians (ACP)		April 27 - 29, 2023	San Diego, CA	\$260	
Internal Medicine	American College of Physicians (ACP) NJ					
Internal Medicine	Alliance of Academic of Internal Medicine (AIMM)	September 29, 2023	April 14-17	Columbus, Ohio		
Hematology	Society of Hematology and Oncology	June 1, 2023	September 6-9, 2023	Houston, TX		
Hematology	American Society of Hematology (ASH)	August 1, 2023	December 10-13, 2022	New Orleans, LA	\$125	
Cardiology	American College of Cardiology (ACC)	Thursday, Oct. 12, 2023	April 6 - 8, 2024	Atlanta, GA	\$35	
Cardiology	American Heart Association (AHA)	August 22, 2023	November 11-13, 2023	Philadelphia, PA	\$49	
Oncology	American Society of Clinical Oncology (ASCO)		May 31-June 4th, 2024	IL, Chicago		
Pulm and CC	American College of Chest Physicians	March 31, 2023	October 6-9, 2024	Boston, MA	\$399	
Pulm and CC	American Thoracic Society (ATS)		May 17-22, 2024	San Diego, CA	\$32	
Critical Care	Society of Critical Care Medicine (SCCM)	October 11, 2023	January 21 - 24, 2024	Phoenix, Arizona	\$40	
Allergy and Immunology	American Academy of Allergy, Asthma & Immunology (AAAAI)	August 24, 2024 Abstract Case Report	September 21	Washington, DC		
Infectious Disease	Infectious Diseases Society of America (IDSA)	August 16, 2023	Oct. 11-15, 2023	Boston, MA	\$0	
Nephrology	American Society of Nephrology (ASN)	May 24, 2023	October 23 - 27, 2024	San Diego, CA	\$70	
Nephrology	National Kidney Foundation (NKF)	November 30, 2023	May 14-18, 2024	Long Beach, CA	\$05	
Endocrinology	American Association of Clinical Endocrinology (AACE)	August 14, 2023	May 9-11, 2024	New Orleans, LO	\$0	
Endocrinology	The Endocrine Society	Past Due Date	June 15-18, 2023	Chicago, IL	\$150	
Gastroenterology	American College of Gastroenterology (ACG)	June 5, 2023	10/21-26, 2023	Vancouver, Canada	\$60	
Gastroenterology	American Gastroenterology Association	Nov. 30, 2023	May 18-21, 2024	Washington, DC and online	\$95	
Rheumatology	American College of Rheumatology and Association of Rheumatology	June 9, 2023				

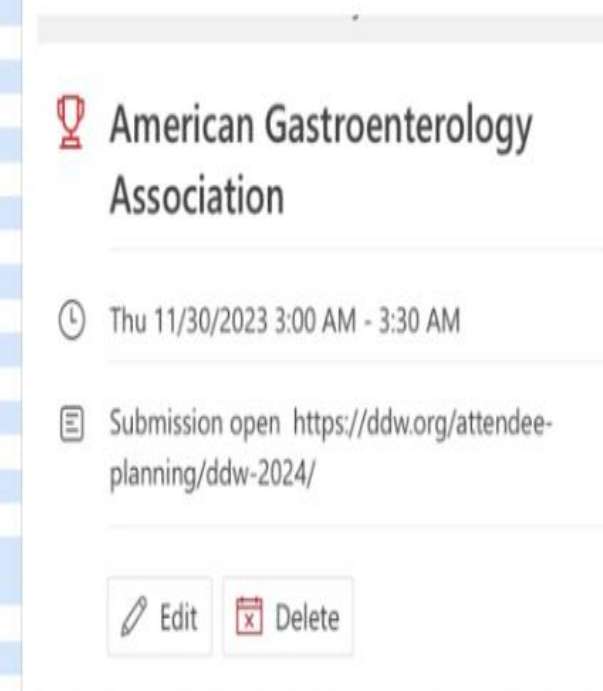


Figure 2. Depicts the national and local conference tracker created include submission and deadline dates, along with an email reminder example.

Despite its small community hospital setting, the program capitalizes on its diverse patient population to offer abundant opportunities for case report submissions, supported by standardized templates and subspecialty mentorship (Figure 3.). Residents have multiple avenues to disseminate their research, including presentations at conferences and events like the local Annual Scholar's Day and HMH Medical Education week. These efforts foster a research-centric atmosphere, empowering residents to make meaningful contributions to medical knowledge and patient care.

Case Reports Template

Title:

MD¹, *** MD¹. (Most senior authors are placed last)

¹Department of Medicine, Hackensack Meridian Health Mountainside Medical Center, Montclair, New Jersey, 07028, USA.

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Disclosures: The authors declare there are no disclosures or conflict of interest regarding this paper's publication.

Corresponding Author: 1st Author

@mountainsidehosp.com

In writing a report, it is important to determine what is novel or the teaching point.

- If your case has a couple, what is the most serious teaching point/ objectives- list them out prior to starting.

- Literature review about similar case to gain to see their writing style.

Once you have your main point, it then should be the title. The title MUST contain the key words so that search engines can find it.

Is there an imaging if so include them, speak to the radiologist?
Was there a biopsy if use include the images from pathology?
How was the subspecialty? Have them review the paper after you have a final draft reviewed by the RRPC.

Overall Limit: 1500 words, with 2 figures, and 10-15 references.

Figure 3. Shows the case report template that was created to guide residents in their submission.



Results

For the **2021-2022** academic year, we reported **15 items** of faculty scholarly activity (as recorded in WEBADS). Following our interventions, for the **2022-2023** academic year, there were **45** items of faculty scholarly activity (*comprising 35 case reports and 10 articles*). Additionally, faculty mentored the Class of 2023 in **8 QI projects**. One of the barriers encountered was the lack of an IRB agreement with our sponsoring institution, which led to the redesigning of some QI projects to IRB exempt protocols, thereby limiting the ability to publish the results.

Residents showed increased participation in academic conferences and a significant rise in the number of case reports, from **6 cases in 2021 to 51 cases from 2022-2024**. These interventions reflect the residents' newfound passion for research and clinical innovation, as well as their eagerness to engage in scholarly activity.

Conclusion

The revamped research curriculum in our Internal Medicine residency program has significantly boosted resident and faculty scholarly output. Initiatives include a Resident Research and Publication Committee, a structured research methodology curriculum, monthly research meetings, conference calendars, and research collaboratives. These efforts cultivate a vibrant research community, supporting medical knowledge advancement and patient care enhancement.



BACKGROUND

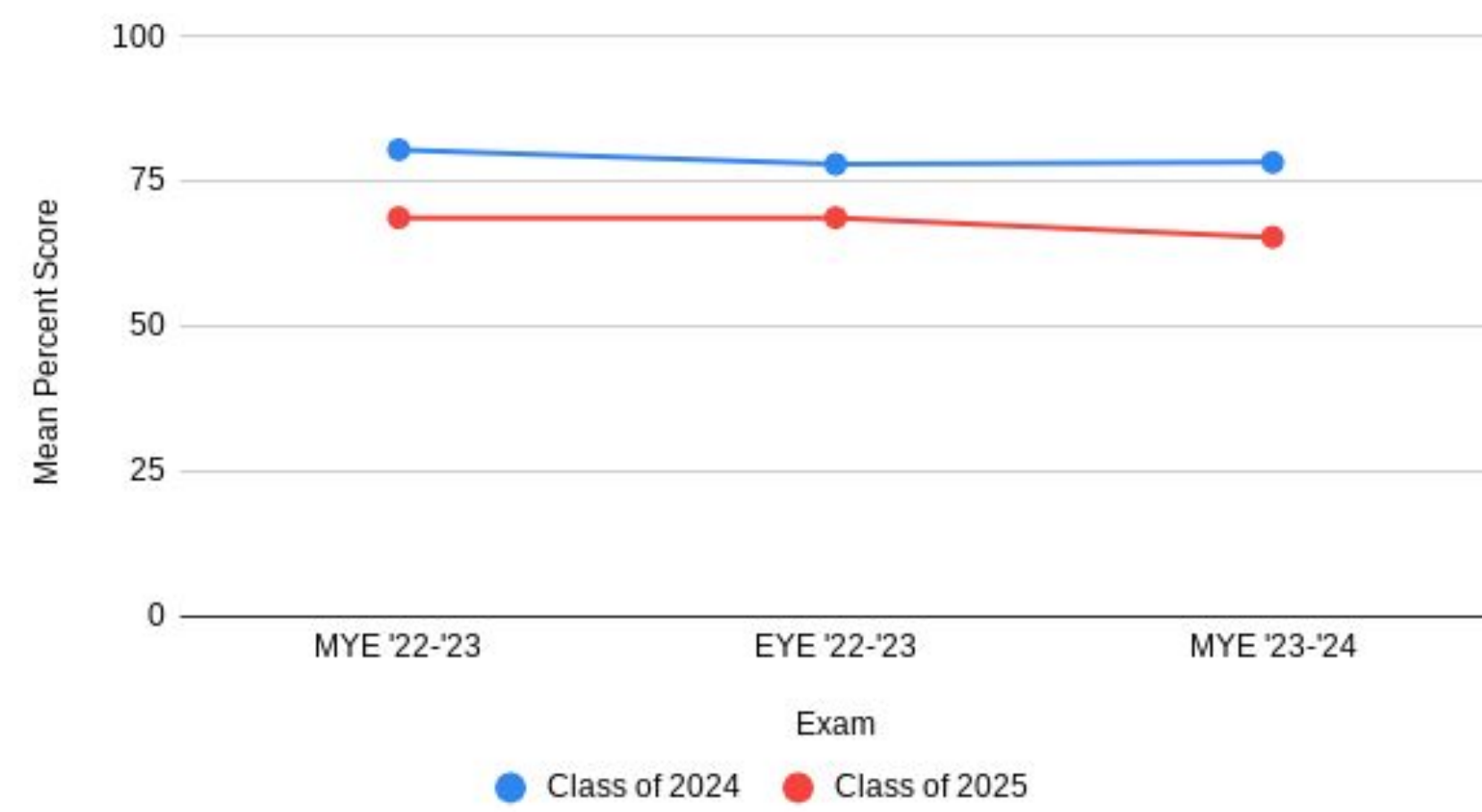
This paper aims to assess the effects of integrating an Audience Response System (ARS) on actual and perceived retention of information by pediatric residents. The AAP PREP question banks have been used as a complement to the lectures delivered during the academic half day (AHD), and the AAP Pediatrics in Review (PIR) articles are reviewed weekly. Given prior work on resident satisfaction as it relates to performance (3), it was expected that the implementation of resident-proposed changes (such as integration of an ARS) would improve subjective perception of learning and ultimately objective retention of material.

METHODS

Each didactic lecture is followed by a review of related PREP questions. The ARS, *Slido*, was integrated at the beginning of the 23-24 academic year. A mid-year exam (MYE) and end-of-year exam (EYE), composed of 50 questions sampled from the PREP and PIR questions reviewed during the prior 6 months, were administered during a one hour session. A survey was distributed via Google Forms to assess resident perceptions of the use of an ARS on their learning. To assess for true retention of information, results from MYE 23-24 were compared to MYE and EYE 22-23.

RESULTS

Mean Scores for Comprehensive Exams by Resident Class



Resident Feedback

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Slido helps me retain information	0%	8.3%	33.3%	33.3%	25%
Actively answering every AAP PREP question helps with my retention of the information	0%	16.7%	0%	25%	58.3%
I feel more engaged in the review using Slido	0%	8.3%	16.7%	33.3%	41.7%
I want to continue using Slido	0%	0%	16.7%	25%	58.3%
I feel having senior residents lead AAP PREP review sessions enhances my learning and retention	8.3%	8.3%	16.7%	33.3%	33.3%
I feel leading the AAP PREP review sessions enhances my learning and retention	8.3%	0%	25%	25%	41.7%
I feel the PIR sessions help with my learning and retention	16.7%	8.3%	41.7%	16.7%	16.7%

Overall Means per Exam

	Mean % Correct
Mid-Year Exam 2022-2023	74.17
End of Year Exam 2022-2023	72.43
Mid-Year Exam 2023-2024	69.43

Mid-Year Exam Academic Year 2022-2023

	Mean % Correct (+/-1SD)	Range
Class of 2024	80.5 (70.5 - 90.5)	64-94
Class of 2025	68.75 (51.75 - 85.75)	30-82

End of Year Exam Academic Year 2022-2023

	Mean % Correct (+/- 1SD)	Range
Class of 2024	78 (63.3 - 92.7)	56-96
Class of 2025	68.75 (54.35 - 83.15)	42-84

Mid-Year Exam Academic Year 2023-2024

	Mean % Correct (+/-1SD)	Range
Class of 2024	78.3 (68 - 88.6)	64-88
Class of 2025	65.4 (49.8 - 81)	48-90

RESULTS

The overall average score was 74 for the MYE 22-23, 72 for EYE 22-23, and 69 for MYE 23-24. When looking only at the data from the classes present for all exams, for the class of 2024 the average score was 80.5 for MYE 22-23, 78 for EYE 22-23 and 78.4 for MYE 23-24. For the class of 2025, the average score was 68.75 for the MYE 22-23 and EYE 22-23, and 65.4 for MYE 23-24. The survey had a 50% completion rate, with 83% indicating that actively answering with Slido helps their retention.

CONCLUSIONS

Overall, there is a decrease in average scores over time. Despite the mostly positive perception of the ARS on resident learning, we were unable to demonstrate an increase on the MYE and actually saw a small decrease for the Class of 2025. This highlights the need for balance between making desired changes and maintaining learning structures that have been proven to be effective. As was demonstrated here, although there was a positive perception of the ARS, there was no significant improvement in objective retention of educational material.

REFERENCES

- Chung, H., Kallay, T., Anas, N., Bruno, D., Decamps, J., Evans, D., Vilasagar, N., & Mink, R. B. (2018). Using an audience response system smartphone app to improve resident education in the Pediatric Intensive Care Unit. *Journal of Medical Education and Curricular Development*, 5, 238212051877087. <https://doi.org/10.1177/2382120518770874>
- Kaletka, R., & Joosten, T. (2007). Student Response Systems: A University of Wisconsin System Study of Clickers. *Library Hi Tech News*, 2007(10). <https://web2integration.pbworks.com/Student+Response+Systems.pdf>
- Lee, N., Appelbaum, N., Amendola, M., Dodson, K., & Kaplan, B. (2017). Improving resident well-being and clinical learning environment through academic initiatives. *Journal of Surgical Research*, 215, 6-11. <https://doi.org/10.1016/j.jss.2017.02.054>
- Rubio, E. I., Bassignani, M. J., & Brant, W. E. (2016). Association of University Radiologists Annual Scientific Meeting. Austin. Retrieved January 2024, from <https://www.meridiaars.com/wp-content/uploads/2016/02/Audience-Response-Research-Findings-UVA.pdf>
- Tregonning, A. M., Doherty, D. A., Hornbuckle, J., & Dickinson, J. E. (2012). The audience response system and knowledge gain: A prospective study. *Medical Teacher*, 34(4). <https://doi.org/10.3109/0142159x.2012.660218>

INTRODUCTION

- Medical images historically over-represent lighter skin tones, and under-represent darker skin tones.^{1,2}
- Diversity-related messaging predicts higher proportion of residents from backgrounds traditionally underrepresented in medicine (URM)³
- AOA 2023 accreditation guidelines require DO schools to include a diversity statement in their catalogs but make no mention of website content. LCME guidelines do not have an equivalent guideline for MD schools.^{4,5}

METHODS

1041 images from all unique US-based MD (N=152) and DO (N=42) websites were evaluated (N=192) were rated for;

- o Skin tone representation on a 10-point scale.⁶

Scale of Skin Color Darkness



- o Perceived race, gender, and age representation.⁷

Diversity-related language use⁸, presence or absence of program-level diversity pages, and proportion of matriculating students from URM demographics was assessed.

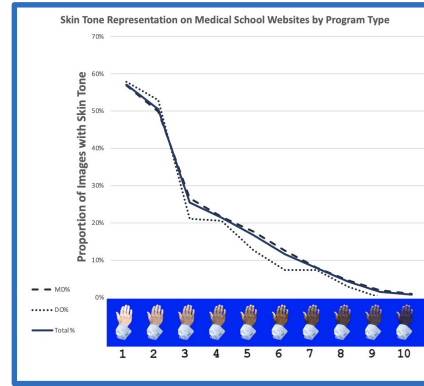
Descriptive and predictive statistics were analyzed using Microsoft Excel and RStudio.

RESULTS

MD and DO programs did not significantly differ in

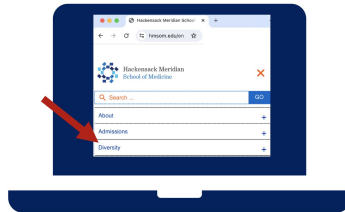
SKIN TONE

- MD and DO programs did not significantly differ in their total number of images analyzed.
- Both MD and DO programs over-represented lighter skin tones ($r^2=0.88$).
- MD programs were more likely to depict darker skin tones ($p=0.004$) and show a higher number of skin tones on average ($p=0.02$).



DIVERSITY-RELATED MESSAGING

- MD and DO programs did not differ in their overall usage of DEI-related language or gendered language.
- DO programs were less likely to have a program-specific diversity page ($p=0.02$).
- MD programs were more likely to report their proportion of URM students ($p=0.005$), but proportion of URM students did not differ between programs.



DISCUSSION

- MD and DO program website images both over-represent lighter skin tones, with DO programs to a higher degree.
- The proportion of URM students reported by MD and DO programs did not differ.
- This suggests that online overrepresentation of lighter skin tones does not reflect a true difference in racial/ethnic diversity in matriculating students.

SIGNIFICANCE

- Promoting diversity, equity and inclusion is a common goal shared by the vast majority of educational institutions.
- Both MD and DO programs can consider the underrepresentation of darker skin tones when selecting images to include on their websites.

REFERENCES

- Louie P, Wilkes R. Representations of race and skin tone in medical textbook imagery
- Moss WD, King BW, Memmott S, et al. An Evaluation of Racial Disparities in Online Marketing of Academic Plastic Surgery Practices.
- Hayden J, Harley RJ, Deshpande N, et al. Analyzing Diversity Elements on Otolaryngology Residency Program Websites. *J Surg Educ.* 2023;80(2):247-255. doi:10.1016/j.jsurg.2022.09.012
- AOA 2023 COCA 5) LCME Functions and Structure of a Medical School.
- Massey DS, Martin, J.A. The NIS Skin Color Scale. Published online 2003.
- Smith L. Upstate Bias Checklist. 8) CDC. CDC's Key Principles for Inclusive Communication. Centers for Disease Control and Prevention.

INTRODUCTION

- Medical images historically **over-represent lighter skin tones**, and **under-represent darker skin tones**.^{1,2}
- Medical schools in the United Kingdom were found to appropriately represent population demographics.³
- No study to date has examined skin tone representation in images and its potential relationship to applicant behavior in **medical schools in the United States**.

METHODS

1041 images from all unique US-based medical school websites were evaluated (N=192) were rated for;

- Skin tone representation on a 10-point scale.⁴

Scale of Skin Color Darkness



- Perceived race, gender, and age representation.⁵

Inter-rater reliability was assessed by calculating Cohen's kappa.⁶

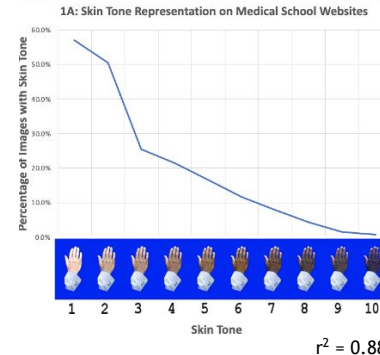
Descriptive and predictive statistics were analyzed using Microsoft Excel and RStudio.

RESULTS

Darker skin tone correlated with representation in a lower percentage of images.

PRIMARY ANALYSIS: SKIN TONE

- 84.5% of images depicted the two lightest skin tones. Only 14.5% of images depicted the 4 darkest skin tones **combined**.
- Images depicting any POC depicted a significantly higher number of skin tones ($p < 0.0001$).
- Cohen's kappa for the presence/absence of POC in any individual image was 1.0, indicating **perfect agreement between raters**.



PRIMARY ANALYSIS: POPULATION DEMOGRAPHICS

Perceived Race	N	%	Census %
White	158	52.0%	58.9%
Black/African American	63	20.7%	13.6%
Asian/Pacific Islander	49	16.1%	6.3%
Hispanic/Latino	26	8.6%	19.1%
Native American	1	0.3%	0.3%
Unknown	7	2.3%	-
Total	304		

$$\chi^2 = 12, p = 0.22$$

- Race representation in medical school websites **poorly matched United States 2020 Census data**.
- Cohen's kappa for perceived race ranged from 0.33-1.0 depending on the race indicating **moderate to almost perfect agreement between raters**.

DISCUSSION

- US MD and DO programs under-represent darker skin-tones in images on their websites.
- POC are disproportionately likely to be represented in a group of multiple skin tones.
- Most images of one person represented a university aged woman of a lighter skin tone, likely selected by programs as representative of a 'typical' medical student.⁷

SIGNIFICANCE

- American medical schools can increase representation of darker skin toned individuals on their websites, particularly in **individual images or 'headshots'**.
- Future projects can examine the impact of website representation of medical school matriculant composition.

REFERENCES

- Louie P, Wilkes R. Representations of race and skin tone in medical textbook imagery 2) Moss WD, King BW, Memmott S, et al. An Evaluation of Racial Disparities in Online Marketing of Academic Plastic Surgery Practices. 3) Macarthur J, Eaton M, Mattick K. Every picture tells a story: Content analysis of medical school website and prospectus images in the United Kingdom. 4) Massey DS, Martin, J.A. The NIS Skin Color Scale. Published online 2003. 5) Smith L. Upstate Bias Checklist. 6) McHugh ML. Interrater reliability: the kappa statistic 7) 2023 FACTS: Applicants and Matriculants Data. AAMC.

INTRODUCTION

- With virtual interviews and increasingly accessible internet resources, medical school applicants **rely on school websites** for application decisions.^{1,2}
- Medical school websites serve as a **signal of institutional values** and **promote trust** in the medical profession among the general public.
- Website diversity content impacts employment **application behavior** and this may similarly apply to medical school applications.³

METHODS

All US-based medical schools with program-specific websites were evaluated (N=192) for;

- Use of **gendered language** (N=576 unique webpages, or 3 per school)
 - Inclusive:** Any reference to multiple, non-binary genders (e.g. “students of all genders”)
 - Neutral:** No references to gender (e.g. “students”)
 - Non-inclusive:** Any explicit reference to binary genders (e.g. “male and female students”)
- Image content (N=1042 unique images)
 - Perceived gender:** Man, Woman, Unable to Say
 - Presence** of alternative text
 - Meaningfulness** of alternative text

Descriptive statistics were analyzed using Microsoft Excel and RStudio.

RESULTS

GENDERED LANGUAGE: Most websites (86%) did not use gendered language (e.g. “male and female students”) or make explicit references to gender inclusivity (e.g. “students of all genders”).

IMAGE CONTENT: PERCEIVED GENDER

Most (53%) images on medical school websites depict both men and women.

80% of images showed at least one woman. 69% of images showed at least one man.

The most commonly depicted individual was a Caucasian woman aged 18-24, corresponding with the most common medical school applicant.⁴

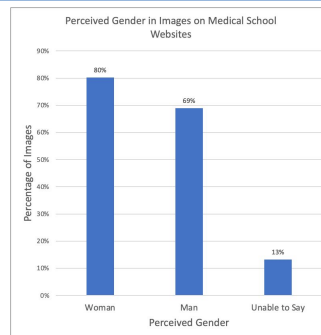


IMAGE ANALYSIS: ALTERNATIVE TEXT

While 49% of images had *any* alternative text, only 12% of images had *meaningful* alternative text.

✓ **Meaningful:** “*Students walking on campus*”

✗ **Not Meaningful:** “*students2.jpg*” “*headerimage*”

DISCUSSION

- As stewards of public health, it is important for medical schools to promote a culture of inclusivity through **thoughtful website design**.
- The overwhelming majority of websites lacked gender-inclusive language. Inclusive websites could **signal institutional values**, attracting applicants with these same values.
- Most images lacked meaningful alternative text for the visually impaired, an emerging construct of importance within the framework of **digital accessibility**.

FUTURE DIRECTIONS

- Assess & understand** the impact of website design on medical school applicant behavior and ultimate composition of matriculating classes.

REFERENCES

- Tran MM, Hong J, Huang L, et al. Specialties with Few Underrepresented Applicants Lack Diversity Information on Residency Websites.
- Wei C, Bernstein SA, Gu A, et al. Evaluating Diversity and Inclusion Content on Graduate Medical Education Websites. *J Gen Intern Med.* 2023;38(3):582-585.
- Walker HJ, Feild HS, Bernerth JB, Becton JB. Diversity cues on recruitment websites: investigating the effects on job seekers’ information processing. *J Appl Psychol.* 2012;97(1):214-224.
- 2023 FACTS: Applicants and Matriculants Data. AAMC.



BACKGROUND



~82,825 residents in Bergen County lack health insurance¹

- Bergen Volunteer Medical Initiative (BVMI) provides free primary and specialty medical care on weekdays to uninsured patients living in Bergen County.²
- Student-Run Clinics (SRCs) are collaborations between students and preceptor physicians who partner to provide free healthcare to patients in need.
- Research suggests that students involved in SRCs show increased retention of empathy than their peers, and patients served by SRCs have comparable or better medical outcomes as compared to standard care.^{3,4}
- Our aim was to create a SRC in partnership with BVMI, the BVMI PLUS clinic, in order to positively impact medical student education while expanding access to care for BVMI patients.



Figure 1. Students and Faculty on Clinic Day.

INTERVENTION DESIGN, EVALUATION PLAN, & FEASIBILITY

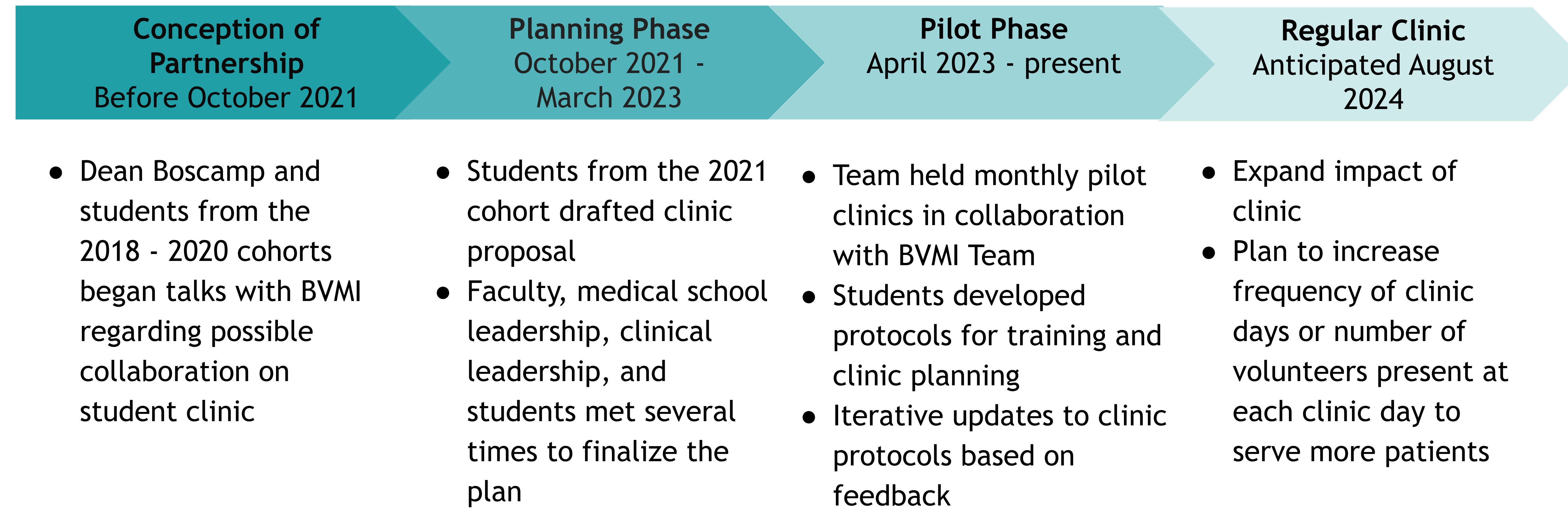


Figure 2. Clinic Development Timeline. Describing the evolution of the clinic from the initial conception of a collaboration between BVMI and HMSOM, to its planning and pilot phases, and to the anticipated start date of the regular clinic.

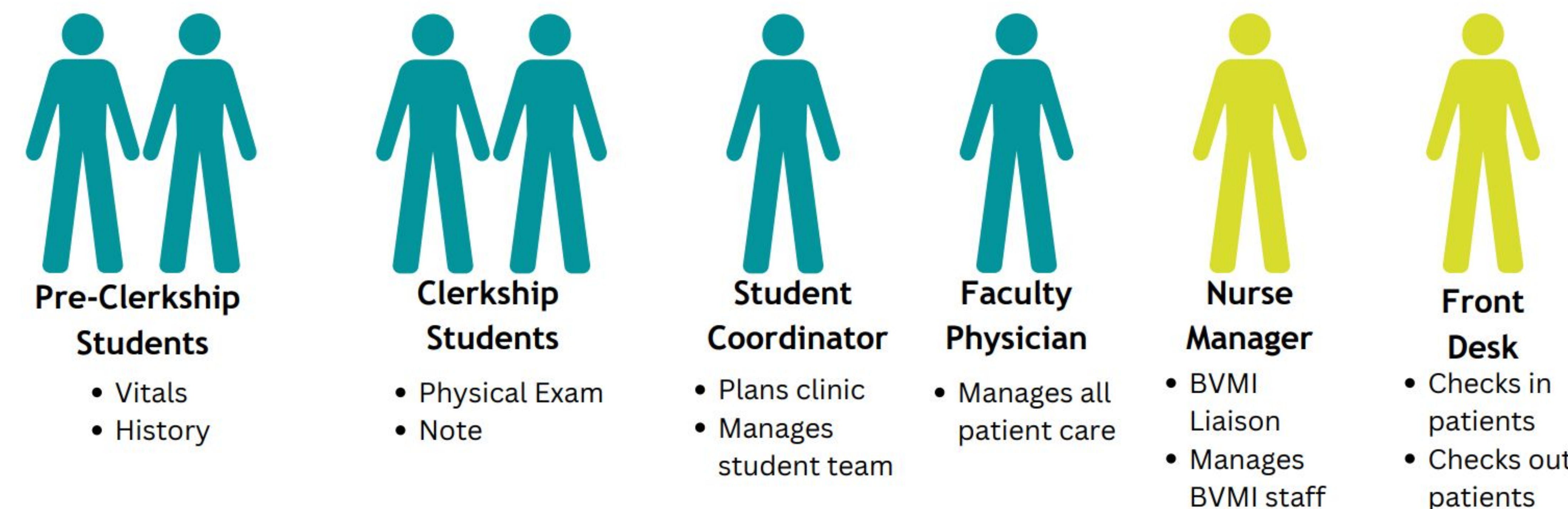


Figure 3. Team Members & Roles. 5 students, 1 faculty member, and 2 BVMI staff members comprise a typical team on clinic day.

Design

- Design plan completed around March 2023 (Figure 2)
- Students, faculty, and BVMI staff comprise the team on clinic days (Figure 3)
- Patient encounters reflect a regular teaching model. Students see and present patient to the physician. Then, the physician and students return together to determine the final management plan

Evaluation Plan

- Feedback is collected following each clinic day
- Iterative changes to clinic structure and function reflect feedback received (i.e. time management issues → implementation of minute-by-minute schedule)

Feasibility

- 11 pilot clinics have been conducted (Figure 5)

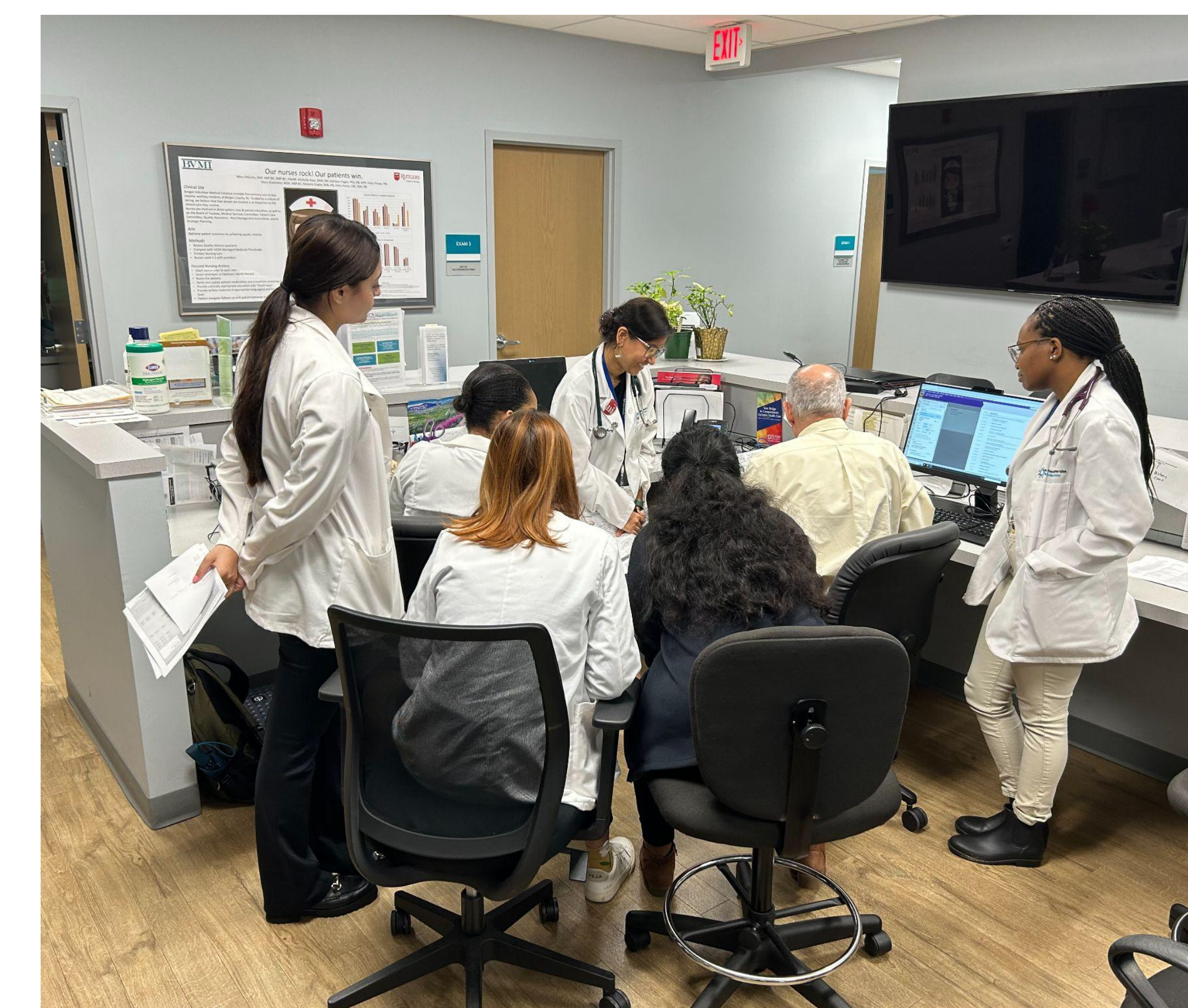


Figure 4. Team on Clinic Day. Students and faculty discuss patient management.

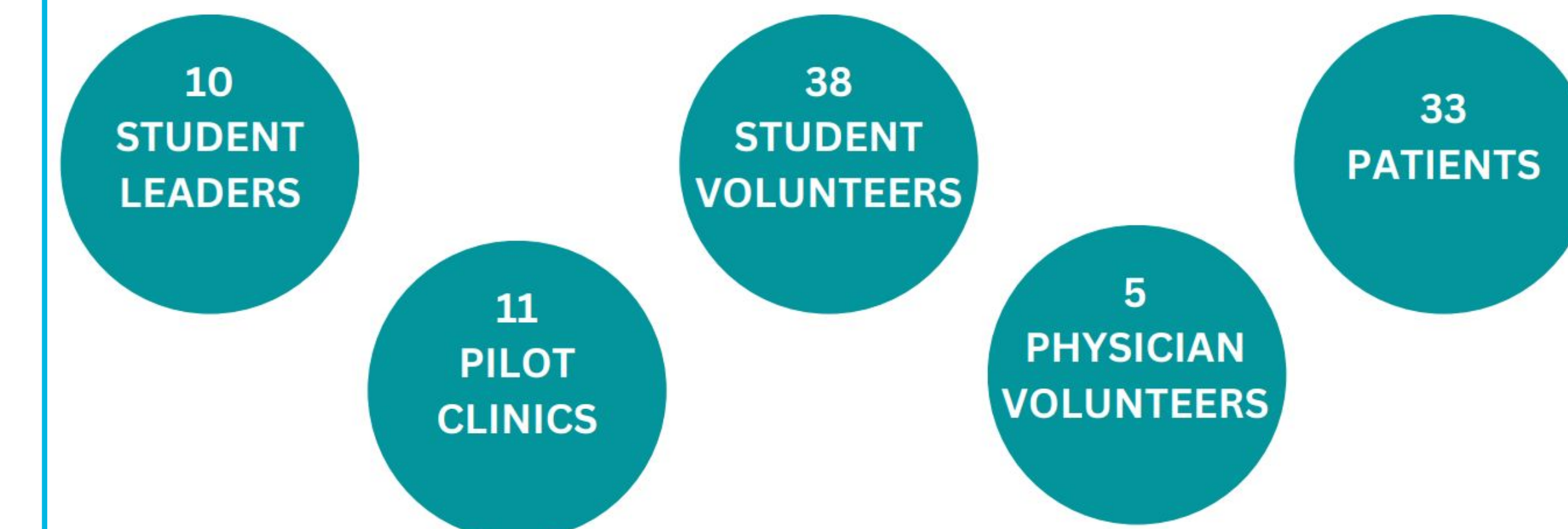


Figure 5. Outcomes. Describing volunteers, staff and patients impacted thus far by the clinic.

INTENDED OUTCOMES

- Students will gain hands-on clinical skills while practicing management and leadership with guidance from faculty mentors.
- Students will learn how to incorporate social determinants of health in patient care so that they can carry these practices forward into their careers, irrespective of future subspecialty.
- Increase access to care with expanded weekend hours.

TRANSFERABILITY

- Created template from which the SRC can grow and improve by increasing the frequency of clinics and expanding to more locations.
- Transferable to other medical schools with a nearby community partner clinic.

REFERENCES / ACKNOWLEDGEMENTS

- Bergen County. Open data network. Accessed Jan 25, 2024. https://www.opendatanetwork.com/entity/0500000US34003/Bergen_County_NJ/health_insurance.nui?year=2014&age=18+to+64&race=All+races&sex=Both+sexes&income=All+income+levels.
- Our organization. Bergen Volunteer Medical Initiative. Oct 24, 2023. Accessed Jan 25, 2024. <https://www.bvmi.org/our-organization/>.
- Broman P, Tokolahi E, Wilson OWA, Haggie M, Andersen P, Brownie S. 2022. Patient Outcomes from Student-Run Health Services: An Integrative Review. J Multidiscip Healthc.;15:641-665. doi:10.2147/JMDH.S348411
- Thomson, K.B., Mirpuri, P. & Chen, M. 2022. The impact of volunteering with a student-run free clinic on medical student specialty selection. BMC Med Educ 22, 714. <https://doi.org/10.1186/s12909-022-03788-8>

Thank you to our partners at BVMI including Amanda Missey, Michelle Kaye, and Dale DeAngelis Mottola, and to our advisors at HMSOM including Dean Boscamp, Dr. Anjali Gupta, Dr. David Isralowitz, and Dr. Ofelia Martinez, for their continued support.

BACKGROUND

- The ACGME requires that residents receive an evaluation at the completion of each rotation “in a timely manner”. [1] However, there is limited literature on completion rates or timeliness of end-of-rotation evaluations for residents. One study looked at 418 evaluations, finding that 82% were completed, 63% within one month, 22% between 1-2 months, and 1% after 2 months. [2]
- Aside from the lagged completion time, there is also an issue of administrative burden on the residency leadership team. The team must remind each rotation supervisor of the need to evaluate and must keep track of which evaluations are still in need of completion.

EVALUATION PLAN

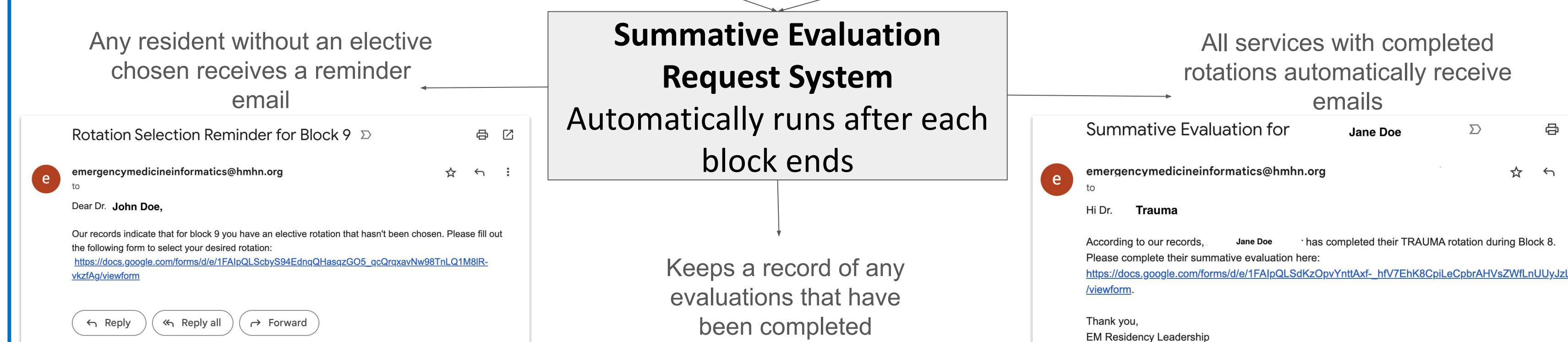
- To alleviate this burden and create a more streamlined process for end-of-rotation evaluations, we created a “Summative Evaluation Request System”
- To identify whether the system has expedited our summative evaluation completion times, we compared summative evaluation completion times from before the intervention (AY2223) and after the intervention (beginning in 8/23).

DESIGN

Residency Leadership in Charge of Keeping This Data up to Date

Resident	Block	Rotation	Rotation	Contact	Email
John Doe	1	Ultrasound	John Doe	Dr. US	us@email
Jane Doe	1	Trauma	Jane Doe	Dr. Tox	tox@email
John Doe	9	?	Doe John	Dr. Trauma	trau@email

Figure 1.
Architecture of the Summative Evaluation Request System.



INTENDED OUTCOMES

- Comparing summative evaluation completion times prior to our intervention (AY2223) to after the intervention (beginning in 8/23), we found a statistically significant difference in the number of days it took for an evaluation to be completed. In AY2223, there was a median of 34 days until evaluation completion. After the automated system was implemented, the completion time decreased to 2.5 days (Figure 2)

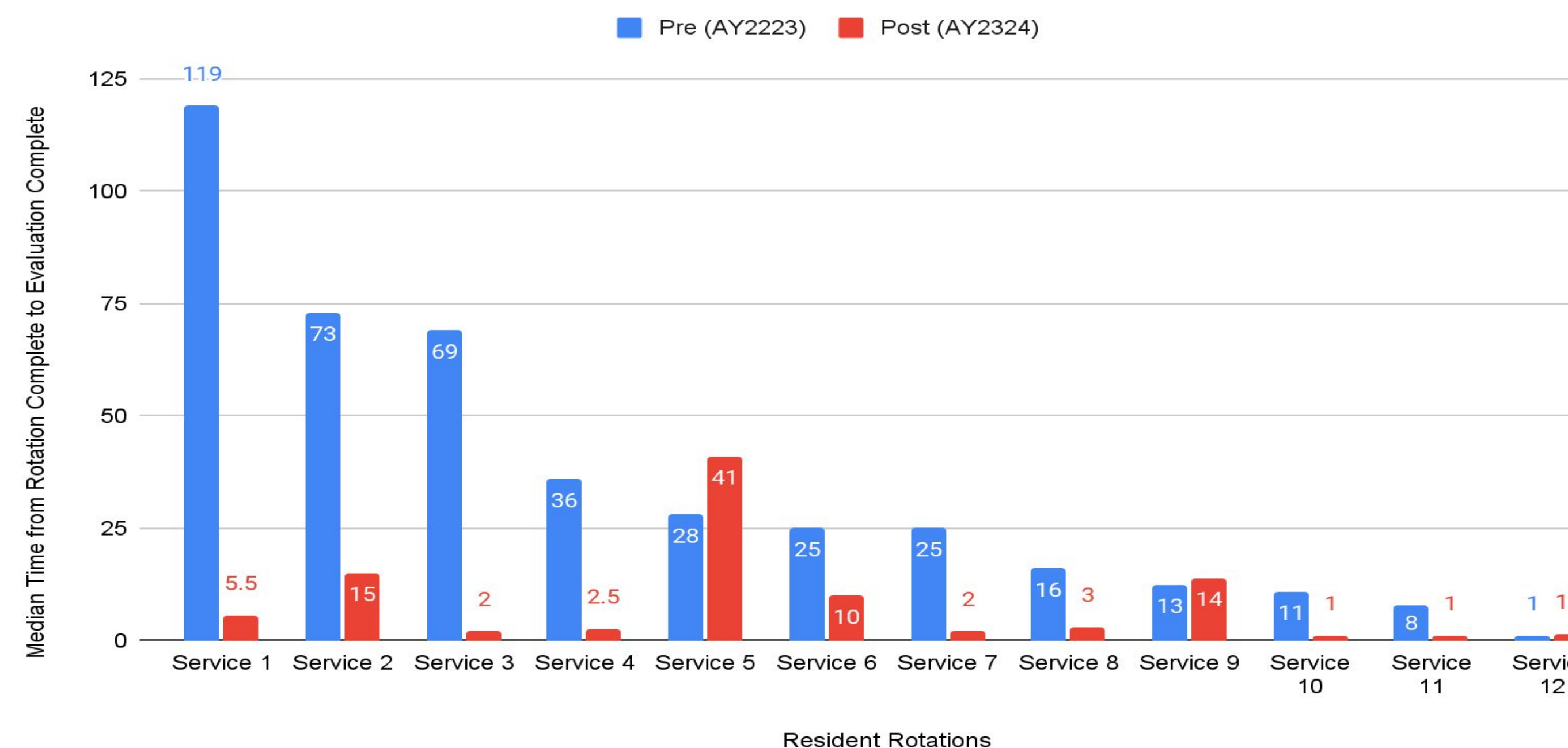


Figure 2. Time to evaluation completion by each rotation type. The greatest reduction was in one rotation where the time went from 119 days to 5.5 days

FEASIBILITY

- Rotation supervisors are inundated with administrative tasks and automated emails immediately after each rotation can help remind the supervisor while they still have a good memory of the resident and their time spent in the rotation.
- The residency leadership team is highly incentivized to keep the data up to date, so that they can enable automation and reduce their administrative burden.
- The technical aspects are feasible given the Google infrastructure at HMHN.

TRANSFERABILITY

- Only necessary items to augment the system for other students would be a list of student names, their block rotations, a list of supervisors and forms for each outside rotation.
- The Google tools used are all available through the HMHN enterprise-wide secured instance of Google Workspace. The system is fully reproducible within other HMHN departments and in institutions with similar infrastructure.

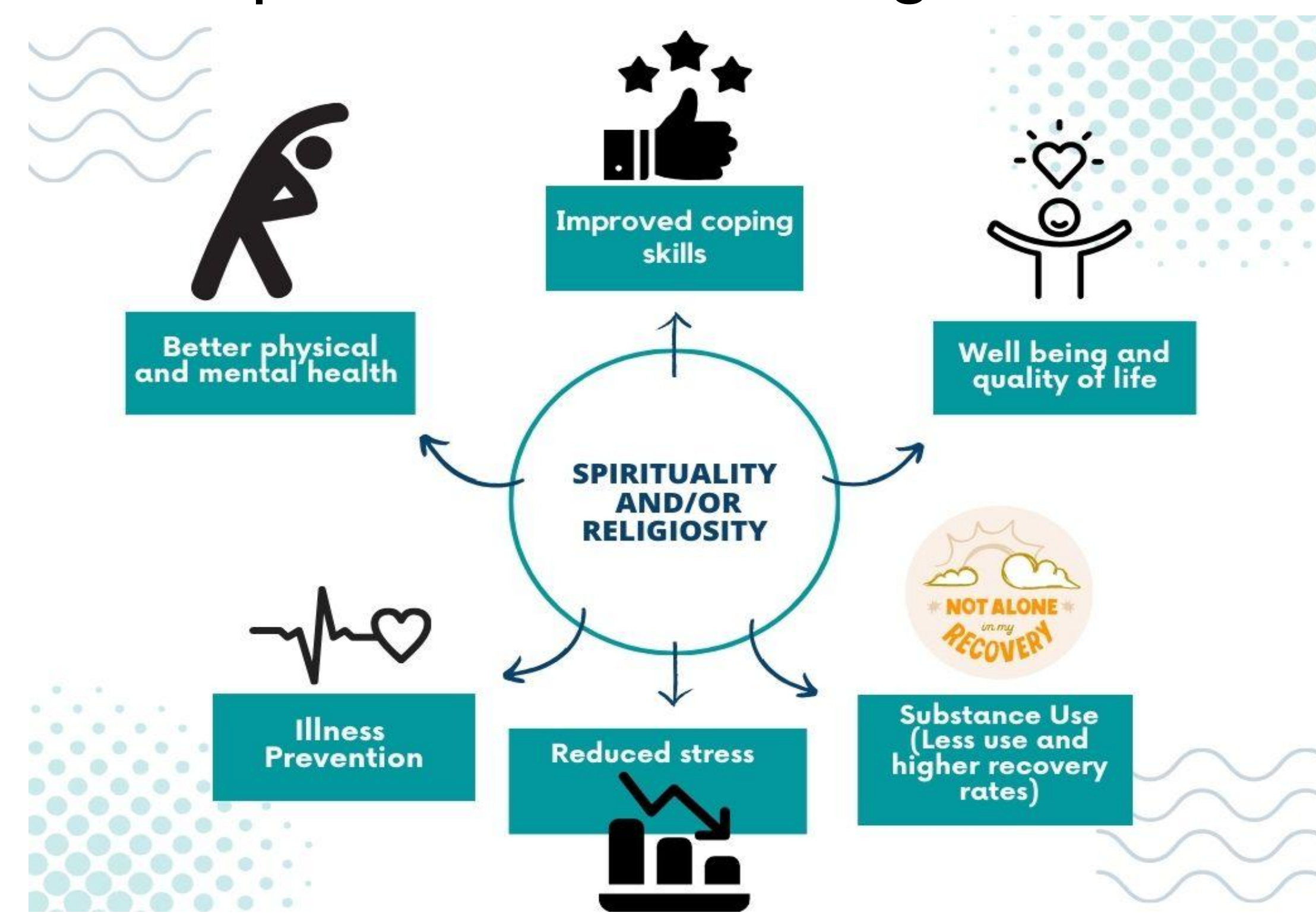
REFERENCES

- Accreditation Council for Graduate Medical Education. Common Program Requirements. 2023. Available at: https://www.acgme.org/globalassets/pfassets/program_requirements/cprresidency_2023.pdf
- Chemtob CM et al. Analysis of Milestone-based End-of-rotation Evaluations for Ten Residents Completing a Three-year Anesthesiology Residency. Cureus. 2018 Aug 24;10(8):e3200



BACKGROUND

- **Spirituality is part of the Human Dimension Whole Health Model;** however, we lacked a dedicated Spirituality session
- More than **70% of medical schools in the United States address issues of spirituality** in their curricula
- Based on the literature it has been shown that spirituality can deeply impact
 - Provider-patient relationship
 - Patient understanding of illness
 - Health care decisions
 - Coping mechanisms
 - How patients view suffering



PURPOSE

- Creation of a new curricular session within the Human Dimension (HD) course to begin conversations on Spirituality
- Goals and objectives:
 - Define spirituality and impact on health behaviors and outcomes
 - Examine barriers to discussing spirituality in the clinical setting.
 - Allow students to reflect on spirituality as part of their own whole health.

INTERVENTION DESIGN & EXPECTED IMPACT

Our session included a large group active learning session (LGAL), small group, and follow-up assignment

LGAL

- Didactic**
- Define religion vs spirituality
 - Literature supporting importance in clinical setting
 - Review of FICA tool for exploring spirituality
- Panel**
- HMH Hospital Chaplain & Psychiatrist
 - Discussion on exploring Spirituality with patients
 - Student & Faculty questions

Small Groups

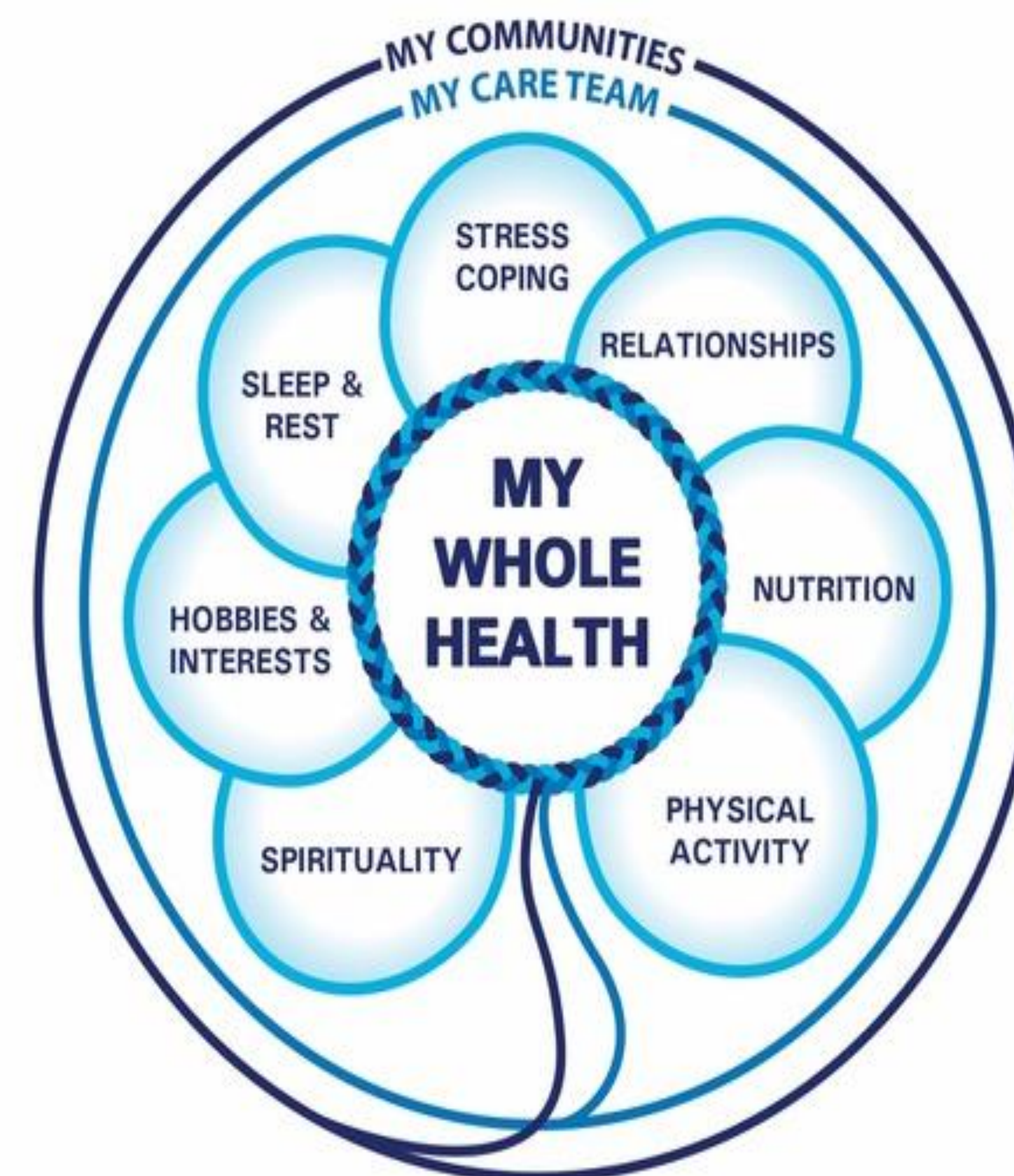
- Facilitator-led small groups**
- Personal reflection: *Name one moment of awe or wonder experienced this week*
 - Large group debrief
 - Practice of the FICA in dyads
- After the session**
- Optional journaling prompt and personal Spirituality SMART goal creation.

VP Assignment

- Voices Participant (VP)**
- Students' longitudinal community engaged work supporting a person (VP) in their health goals
 - Students used FICA tool to explore their VP's spirituality and relation to health
 - Supplemented with other open-ended questions as needed
 - SMART goal creation with VP if relevant

Faculty Development

- Review of session materials
- Breakout groups:
 - Reflect on personal spirituality
 - How do faculty address Spirituality with patients?
- Discussion of anticipated challenges in facilitating this session with students
 - Coaching to overcome barriers or discomfort



Evaluation

- Faculty feedback:**
- Roundtable discussion
 - Appreciated opportunity to discuss Spirituality
- Student feedback:**
- Anonymous survey
 - 91% of students felt there was mutual respect among students, teachers, staff and peers during the discussions
 - Request for more spiritually and/or religiously diverse panel

EXPECTED IMPACT

Students will become more comfortable discussing spirituality with their patients, as well as other sensitive topics, and see that deliberate practice of clinical tools improves their skill in the clinical setting. We also hope that reflection on spirituality in their own whole health model promotes wellness and resiliency.

DISCUSSION / CONCLUSION

- While spirituality is an important part of whole health, this is the first dedicated session centered on exploring spirituality with patients
- The session was overall well-received by faculty as well as students
- Students gave feedback appreciating coverage of the topic, having a Chaplain as a speaker and learning about their role, and the panel format.

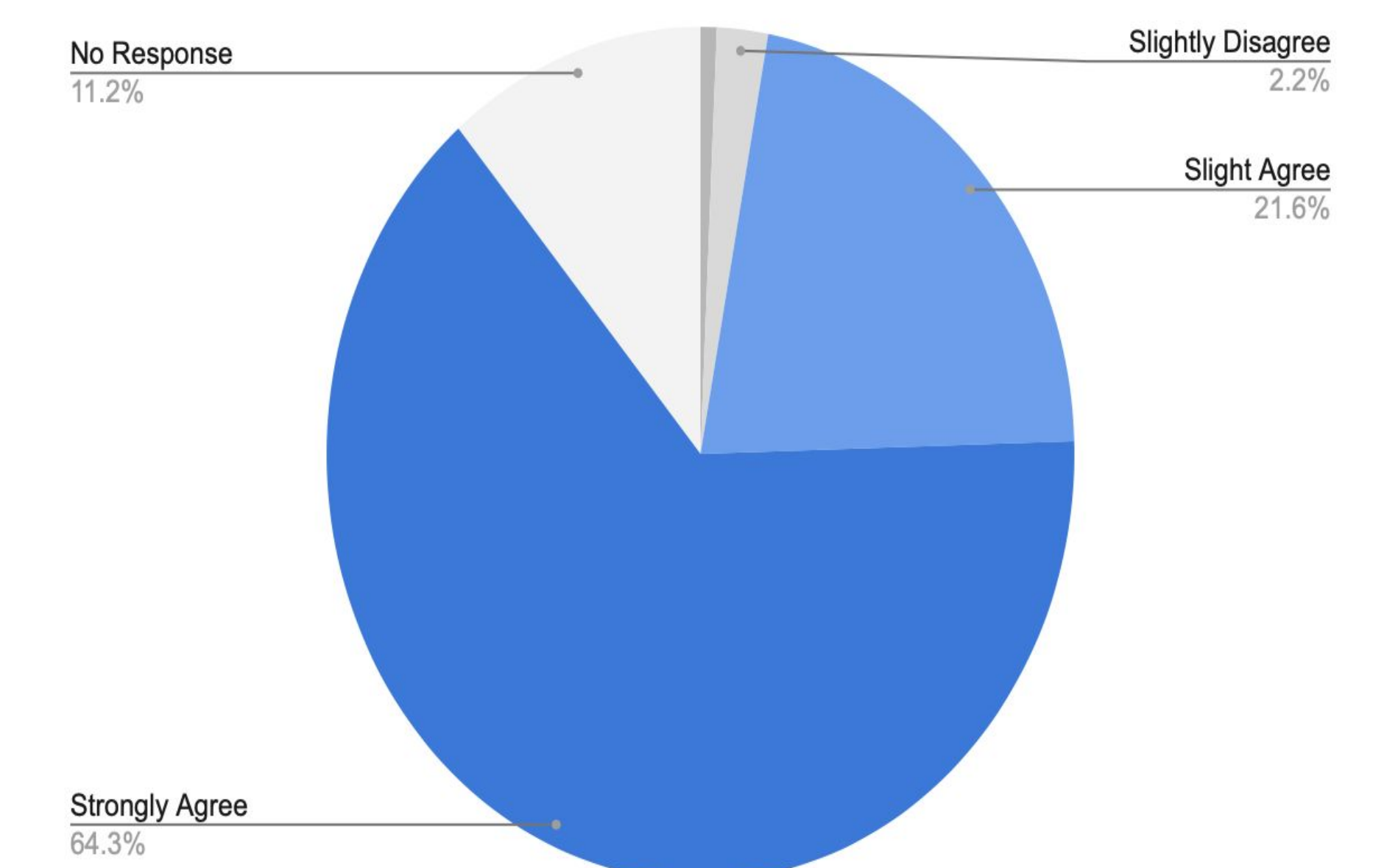


Figure: Student responses to the survey question "The active learning strategy enhanced the learning of the session objectives."

Future Directions

- Deeper exploration of topics within Spirituality or Religion
- Cultivating more diversity in panelists – faith, profession, patient representation

REFERENCES / ACKNOWLEDGEMENTS

Thank you to Dr. Larry Rosen and the entire Human Dimension Team for their support in bringing this topic to the HD Curriculum. A special thanks to Dr. Michael Giuliano, Assistant Dean of Faculty, Resident, & Student Development, for his counsel.

"Spiritual Assessment in Clinical Practice Module" *GWish, GW Institute for Spirituality and Health* <<https://apps.smhs.gwu.edu/gwish/spiritualassessment/story.html>>
 "Taking a Spiritual History: Belief Systems" *GWish, GW Institute for Spirituality and Health* <https://apps.smhs.gwu.edu/gwish/spiritualassessment/story_content/external_files/Belief%20Systems.pdf>
 Elman, John (2007) "Religious Diversity: Practical Points for Health Care Providers" *Pastoral Care and Education* <https://www.uphs.upenn.edu/pastoral/resed/diversity_points.html>

BACKGROUND

- Otolaryngology-Head and Neck Surgery (OHNS) is consistently one of the most competitive specialties to match into in the United States.¹
- Pipelining is the phenomenon where applicants from the same medical schools repeatedly match at the same residency programs.²
- Aim:** Quantify and compare the prevalence of pipelining in the OHNS match across geographic regions in the United States.

METHODS

- Collected medical school enrollment for all current residents at a given program
- Programs categorized geographically (Northeast, South, West, Midwest)
- Pipeline ratio = total number of current residents/total number of medical schools represented**
- Additional calculations: Proportion of residents from the most represented medical school. Count of years with 2+ applicants from one medical school matching in the last five years

RESULTS

- 106 programs included
- Median pipelining ratio = 1.29. No difference by geographic region (p=0.65) (**Fig. 1**)
- Median proportion of each program's residents composed of the single most represented medical school = 0.220. No difference by geographic region (p=0.30)
- Median no. years where 2+ applicants from the same medical school matched = 1.00. No difference by geographic region (p=0.65)

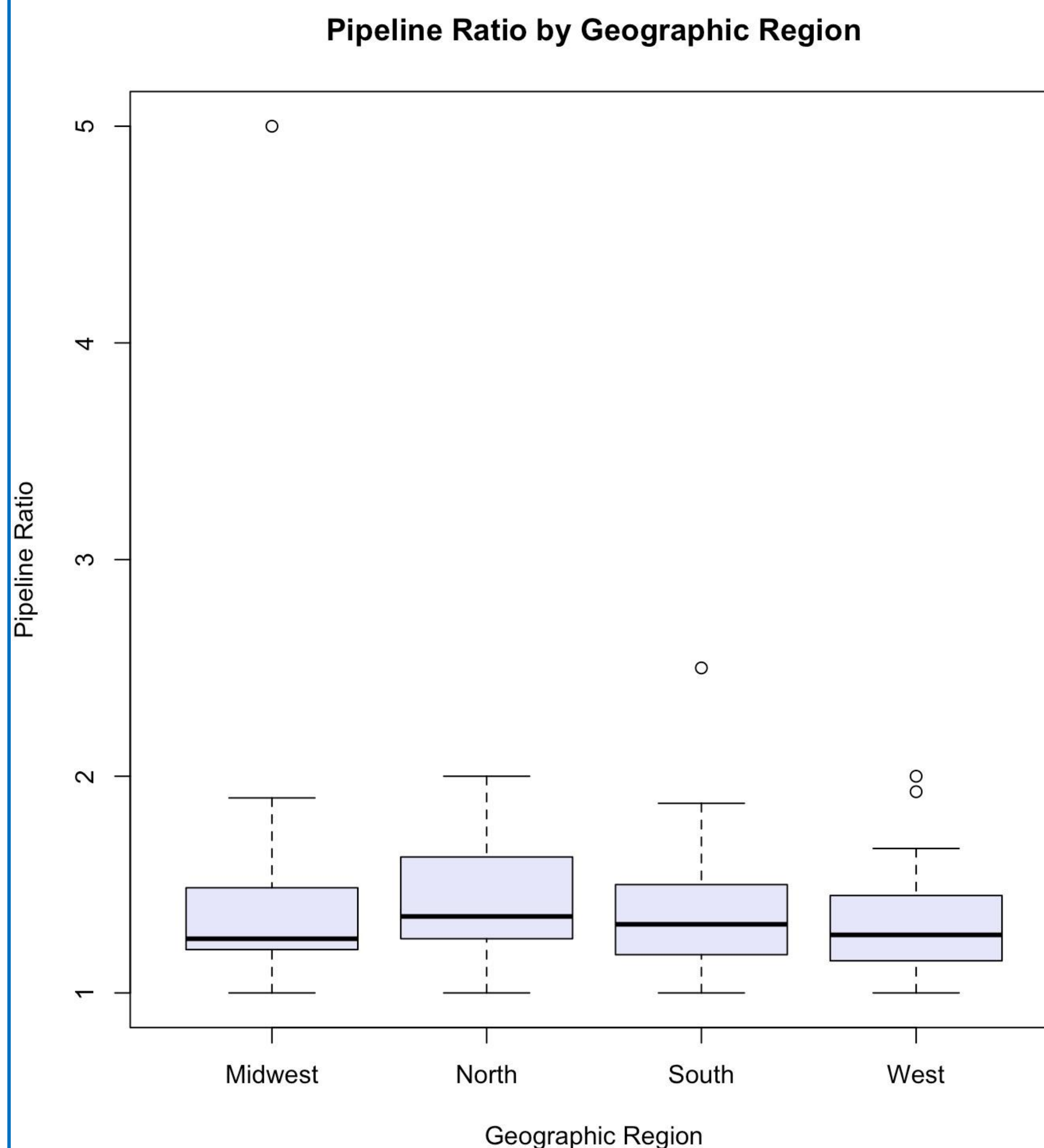


Figure 1. Box and Whisker plot of pipeline ratio (pipelining ratio = total number of residents/total number of medical schools represented) by geographic region.

No significant differences found.

DISCUSSION / CONCLUSION

- Due to virtual interviewing and the USMLE Step 1 exam transition to pass/fail, programs often prioritize applicant familiarity during selection.^{3,4}
- Pipelining practices differ among programs and may lead to favoring of candidates based on medical school status or personal connections, creating inequitable outcomes.
- Solutions include blinding an applicant's medical school or incentivizing programs to select qualified applicants from varying medical schools
- Addressing the issues in this project within the wider OHNS community could lead to a more equitable match process and diverse membership.
- More research is needed to assess biases in the residency selection process

REFERENCES

- Murphy B. Residency Match: The 7 most competitive medical specialties. American Medical Association. Published November 18, 2018. Accessed December 10, 2023. <https://www.ama-assn.org/medical-students/specialty-profiles/residency-match-7-most-competitive-medical-specialties>
- Tanguilig G, Kraeutler MJ, Mulcahey MK. The Top 10 Orthopaedic Sports Medicine Fellowship Programs in the United States Frequently Select Fellowship Applicants From the Same Residency Programs. *Arthrosc Sports Med Rehabil.* 2023;5(2):e411-e414. doi:10.1016/j.asmr.2023.01.008
- Raborn LN, Janis JE. Current Views on the New United States Medical Licensing Examination Step 1 Pass/Fail Format: A Review of the Literature. *Journal of Surgical Research.* 2022;274:31-45. doi:10.1016/j.jss.2022.01.002
- Steele TN, Prabhu SS, Layton RG, Runyan CM, David LR. The Virtual Interview Experience: Advantages, Disadvantages, and Trends in Applicant Behavior. *Plast Reconstr Surg Glob Open.* 2022;10(11):e4677. doi:10.1097/GOX.0000000000004677

ChatGPT Performs Inadequately on Orthopaedic Board-Style Written Exams

Chandler A. Sparks, MS¹, Matthew J. Kraeutler, MD², Edward V. Contrada, BS¹, Grace A. Chester, BS¹, Eric Zhu, BS¹, Sydney M. Fasulo, MD³, Anthony J. Scillia, MD³



Hackensack Meridian
School of Medicine

¹ Hackensack Meridian School of Medicine, Nutley, NJ

² Department of Orthopedics, University of Colorado Anschutz Medical Campus, Aurora, CO

³ Department of Orthopedic Surgery, St. Joseph's University Medical Center, Paterson, NJ

Introduction

- ChatGPT is an AI chatbot capable of human-like responses across various inquiries, including healthcare-related tasks.
- For effective healthcare-related applications or to act as a study-aid, the technology should have up-to-date knowledge and the ability to reason through medical information.
- The study aims to assess ChatGPT's orthopaedic knowledge and reasoning ability by querying it with orthopaedic board-style questions.

Methods

- ChatGPT (version 3.5) was queried with 472 questions from various sources, including the Orthobullets free question dataset (n = 239), the 2022 Orthopaedic In-Training Examination (OITE) (n = 124), and the 2021 OITE (n = 109).
- Questions from the Orthobullets dataset were categorized based on importance, difficulty, and category.
- Responses were evaluated for answer choice correctness, alignment with dataset explanations, and reasons for incorrect answers.

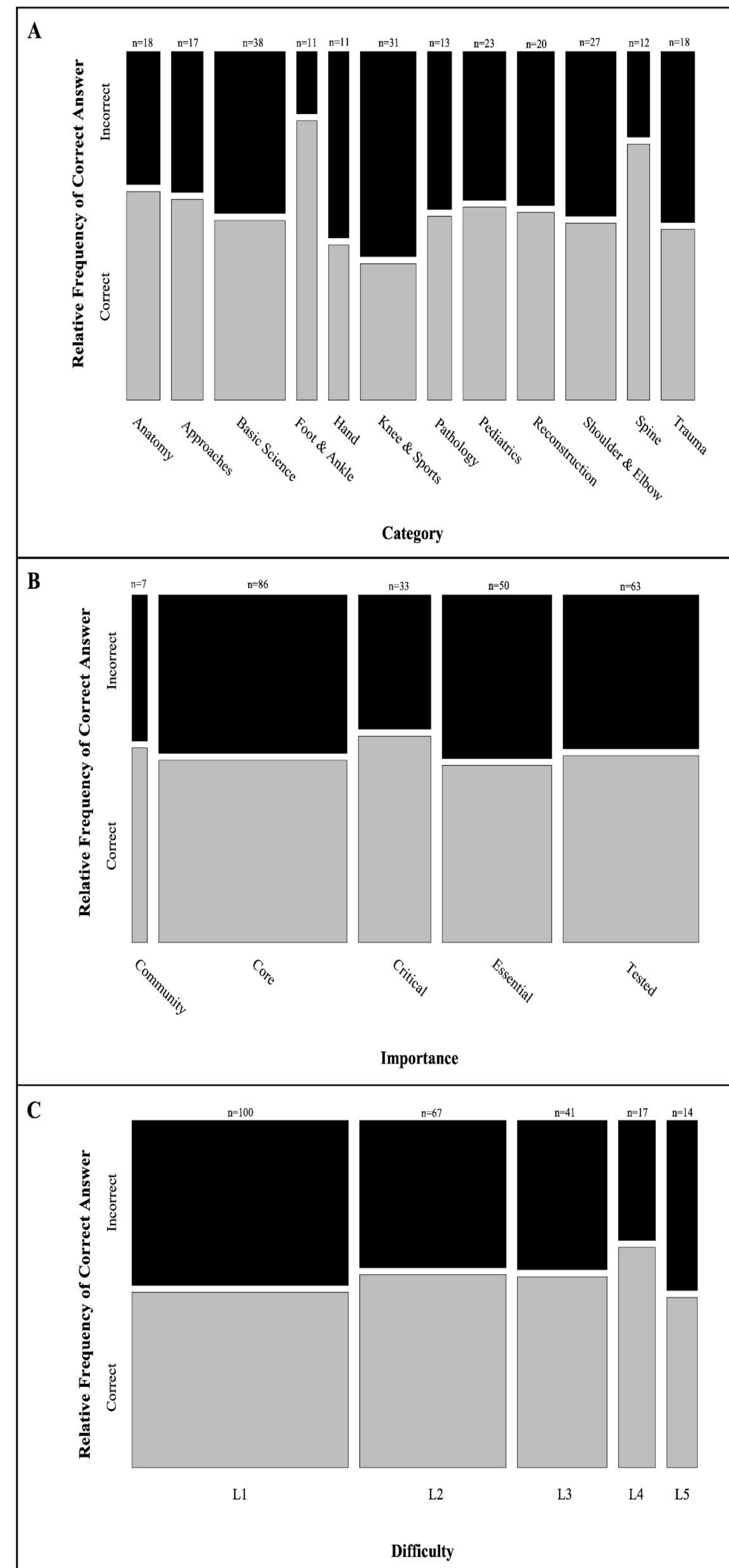


Table 1. ChatGPT performance by dataset (Orthobullets vs. 2022 Orthopaedic In-Training Exam (OITE) vs. 2021 OITE).

Source	Orthobullets (n = 239)	2022 OITE (n = 124)	2021 OITE (n = 109)	Total (n = 472)
Correct	131 (54.8%)	74 (59.7%)	59 (54.1%)	264 (55.9%)
Incorrect	108 (45.2%)	50 (40.3%)	50 (45.9%)	208 (44.1%)

Table 2. Frequency of logical information, internal information, and external information use by ChatGPT by dataset (Orthobullets vs. 2022 Orthopaedic In-Training Exam (OITE) vs. 2021 OITE).

Source	Orthobullets (n = 239)	2022 OITE (n = 124)	2021 OITE (n = 109)	Total (n = 472)
Logical Justification	225 (94.1%)	122 (98.4%)	108 (99.1%)	455 (96.4%)
Internal Information	239 (100%)	124 (100%)	109 (100%)	472 (100%)
External Information	233 (97.5%)	122 (98.4%)	109 (100%)	464 (98.3%)

Table 3. Reason for incorrect ChatGPT response by dataset (Orthobullets vs. 2022 Orthopaedic In-Training Exam (OITE) vs. 2021 OITE).

Source	Orthobullets (n = 108)	2022 OITE (n = 50)	2021 OITE (n = 50)	Total (n = 208)
Information Error	79 (73.2%)	44 (88.0%)	47 (94.0%)	170 (81.7%)
Logical Error	15 (13.9%)	4 (8.0%)	1 (2.0%)	20 (9.6%)
Statistical Error	1 (0.9%)	2 (4.0%)	0 (0%)	3 (1.4%)
Combination of Errors	13 (12.0%)	0 (0%)	2 (4.0%)	15 (7.2%)

Results

- ChatGPT correctly answered 55.9% (264/472) of questions, with explanations matching dataset information in 92.8% (245/264) of correct responses.
- In all responses, ChatGPT used internal question information, and in almost all responses, it utilized external information (98.3%) and logical reasoning (96.4%).
- There was no significant difference in question correctness between datasets (p = 0.62) or within the Orthobullets dataset based on category (p = 0.67), importance (p = 0.95), or difficulty (p = 0.87).

Conclusions

- ChatGPT (version 3.5) falls below the threshold likely to pass the American Board of Orthopaedic Surgery Part I written exam.
- Its performance on the 2022 and 2021 OITEs is comparable to that of an intern to second-year resident, limiting its suitability for tasks requiring advanced orthopaedic knowledge and reasoning.
- While encouraging, this may limit ChatGPT's applications for orthopaedic education or tasks that require advanced orthopaedic knowledge and reasoning.

References:

1. OpenAI. ChatGPT: Optimizing Language Models for Dialogue. 2022.
2. Shahriar S, Hayawi K. Let's have a chat! A Conversation with ChatGPT: Technology, Applications, and Limitations. Artificial Intelligence and Applications. 2023. doi:https://doi.org/10.47852/bonview/AIA3202939
3. Lum ZC. Can Artificial Intelligence Pass the American Board of Orthopaedic Surgery Examination? Orthopaedic Residents Versus ChatGPT. Clinical Orthopaedics & Related Research. 2023;481(8):1623-1630. doi:10.1097/CORR.0000000000002704
4. Gilson A, Safranek C, Huang T, Socrates V, Chi L, Taylor RA, Chartash D. How Does ChatGPT Perform on the Medical Licensing Exams? The Implications of Large Language Models for Medical Education and Knowledge Assessment. JMIR Medical Education. 2023;9.

Contact Information:
edward.contrada@hmn.org



Walk With A Doc: Empowering Communities Towards Wellness, One Step At A Time

Huma Quadir MD, Huzaifa Salim MD, Isaac Soliman MD FACP

BACKGROUND

- Many individuals have sedentary lifestyles requiring urgent need of intervention to prevent health risks in our society. Some of the common reasons are remote jobs, lack of motivation due to work schedule, limited awareness on health benefits, cultural norms and more. Most physicians advise patients to adopt 'healthy lifestyles' including diet and 150 minutes of exercise per week without factoring in how arduous a task that may be. However, due to the above-mentioned reasons and individuality, patients often struggle to initiate and/or maintain such changes. As physicians, we must often take (and initiate) the extra step to help our patients, especially if we make ourselves available to answer their questions and lead by example.



DESIGN AND EVALUATION PLAN

- A team comprised of volunteer medical students, residents, attendings, physical therapists, nutritionists and nurses will meet at a local park with members from our communities who sign up to participate in a walk and talk. Utilizing pamphlets and posters distributed in hospitals, clinics, churches and communities to recruit interested participants, a monthly meet up at a local park will be set up. 45 minutes will be allotted to light walking, with the volunteers who would be available to discuss topics and answer questions for the community as they walk. During break sessions, there will be stretching exercises, socially engaging group activities, and nutritional and health discussions. Participant will be able to join social media group to motivate each other and share their journey.
- Evaluations will be obtained via participant surveys that will include their walk time, days, weight, progress and a subjective opinion on their overall health and motivation from these sessions.



INTENDED OUTCOMES

- The goal of this innovation will be to facilitate and initiate sustainable long-term adoption of healthy lifestyle including regular walking routines, community engagement of health professionals, health benefit awareness, community cohesions and support.

FEASIBILITY

- Walks are intended to be scheduled during weekends in consideration for participants who work on weekdays. It will be in an easily accessible community park with free water and other educational health flyers or diet magazines that will be distributed on during the day.



TRANSFERABILITY

Participants will be motivated to discuss their progress with us over subsequent sessions with addition of more educational content.

PURPOSE

- To initiate a trend of physical activity and changes in lifestyle for individuals with chronic medical conditions by establishing an all-inclusive 150 minute, educational and socially engaging outdoor walking sessions led by doctors, nutritionists, physical therapists, medical professionals and athletic individuals for our communities, while providing free generalized nutritional and nonmedical health guidance. Provide a platform to medical students and individuals entering medical profession to practice leadership, health advocacy and community engagement.



REFERENCES



The Development and Analysis of a High School STEM Collaboration with Mentorship by Family Medicine Residents

Jillian Weinfeld, MD, Martha Smith, DO, Chandani Patel, MD, Tarun Kakumanu, DO, James Ding, MD, Kirstey Yee, MD, Rubab Farooq, MD, Michelle Zhang, DO, Kenneth Kronhaus, MD, Kelly Ussery-Kronhaus, MD

INTRODUCTION

- A collaboration has been established between the OUMC Family Medicine Residents and the Brick HS ninth grade STEM students.
- Residents have been paired with 8-10 groups of students to develop a research question and design a tangible research study pertaining to their high school environment.

OBJECTIVES

- To assess the attitudes of ninth grade STEM students towards pursuing a career in the healthcare profession.
- To assess the readiness of family medicine residents to mentor high school students to develop a research project.

LIMITATIONS

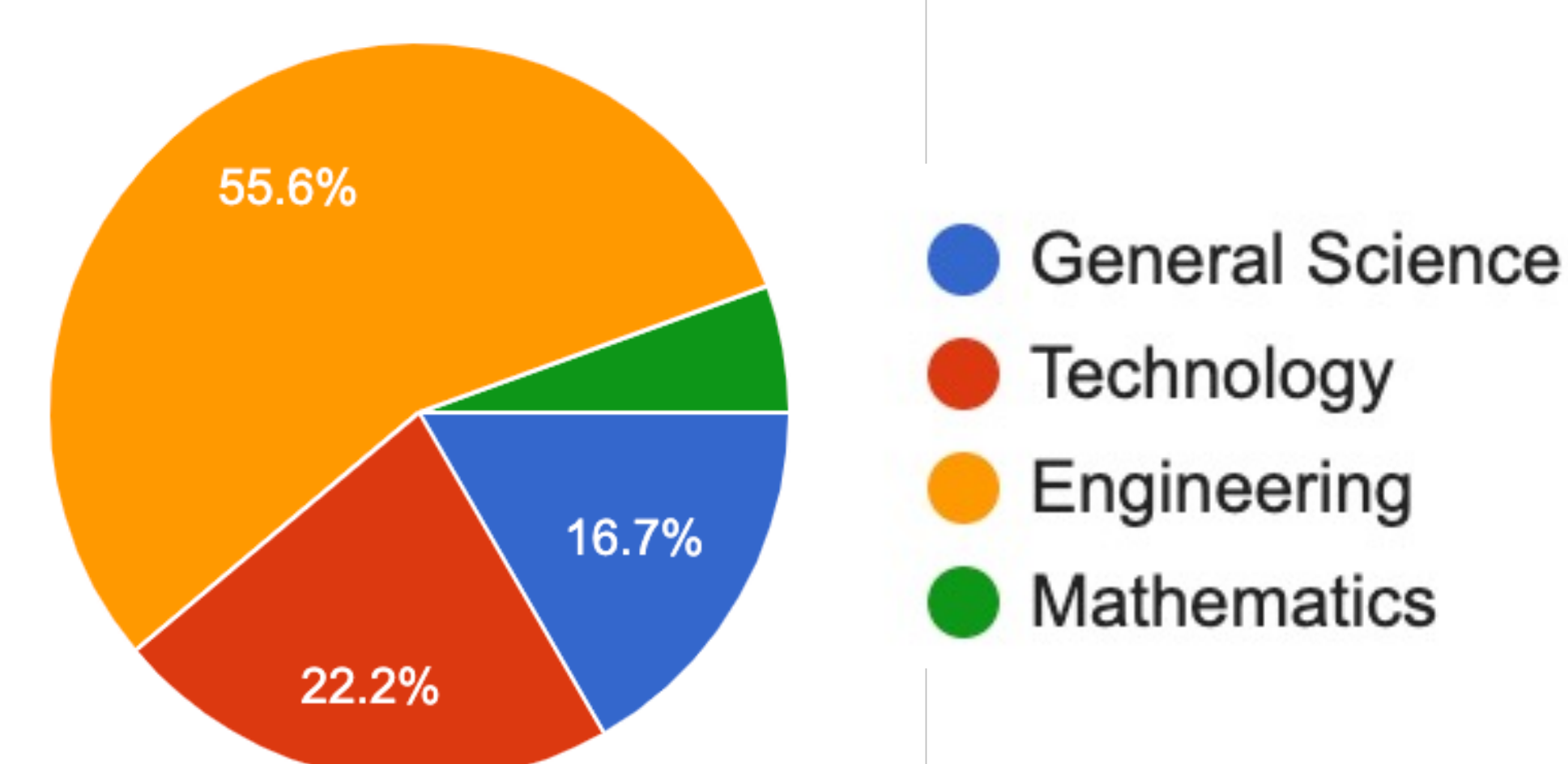
- This sample only included ninth grade STEM students
- 16/26 STEM students enrolled are male which is not indicative of the general gender proportion in our population.
- 8/26 of STEM students did not complete the surveys.

METHODOLOGY

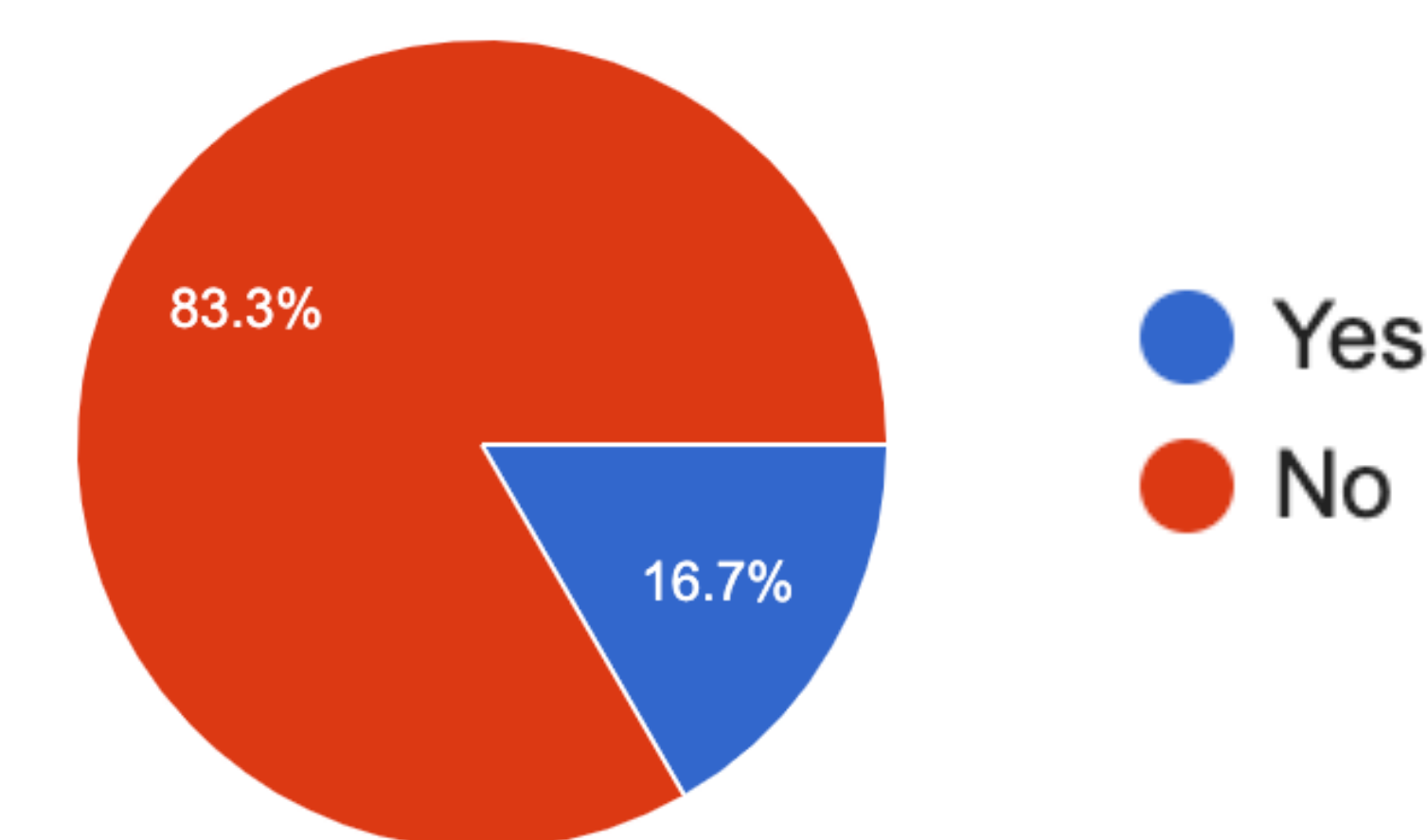
- **Design:** Quality Improvement Project with the Just Do It method; Zoom and in person learning sessions; surveys via Google Forms
- **Analysis:** Attitudes were assessed on 5 Point Likert scale and percent response rate by item
- **Main outcome measure:** Percentage of STEM students interested in pursuing a healthcare profession; *Secondary Outcome:* Resident interest in medical education

RESULTS

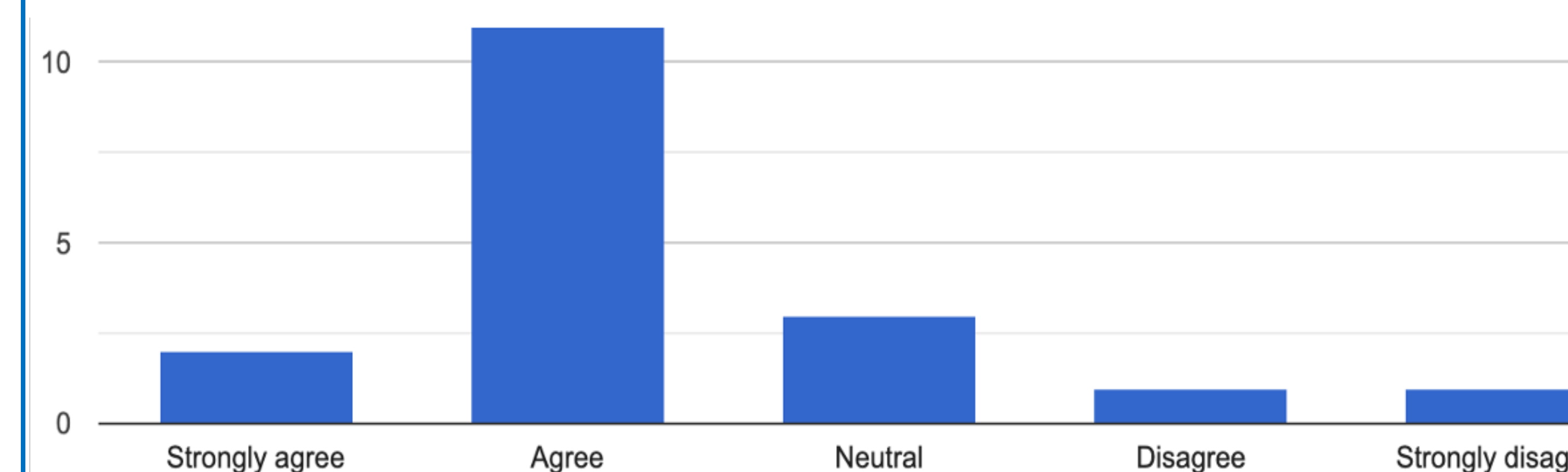
Student Initial Interest Within STEM Curriculum



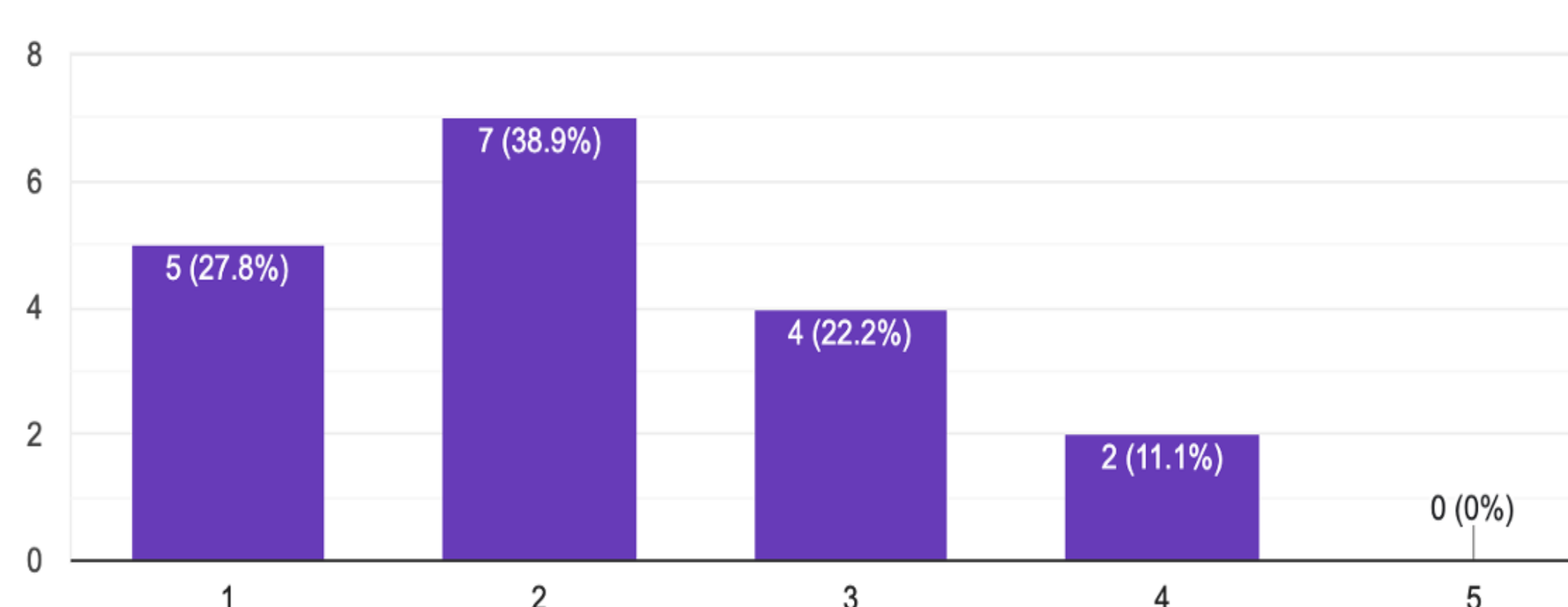
Student Interest in a Career in Healthcare Beginning of Collaboration



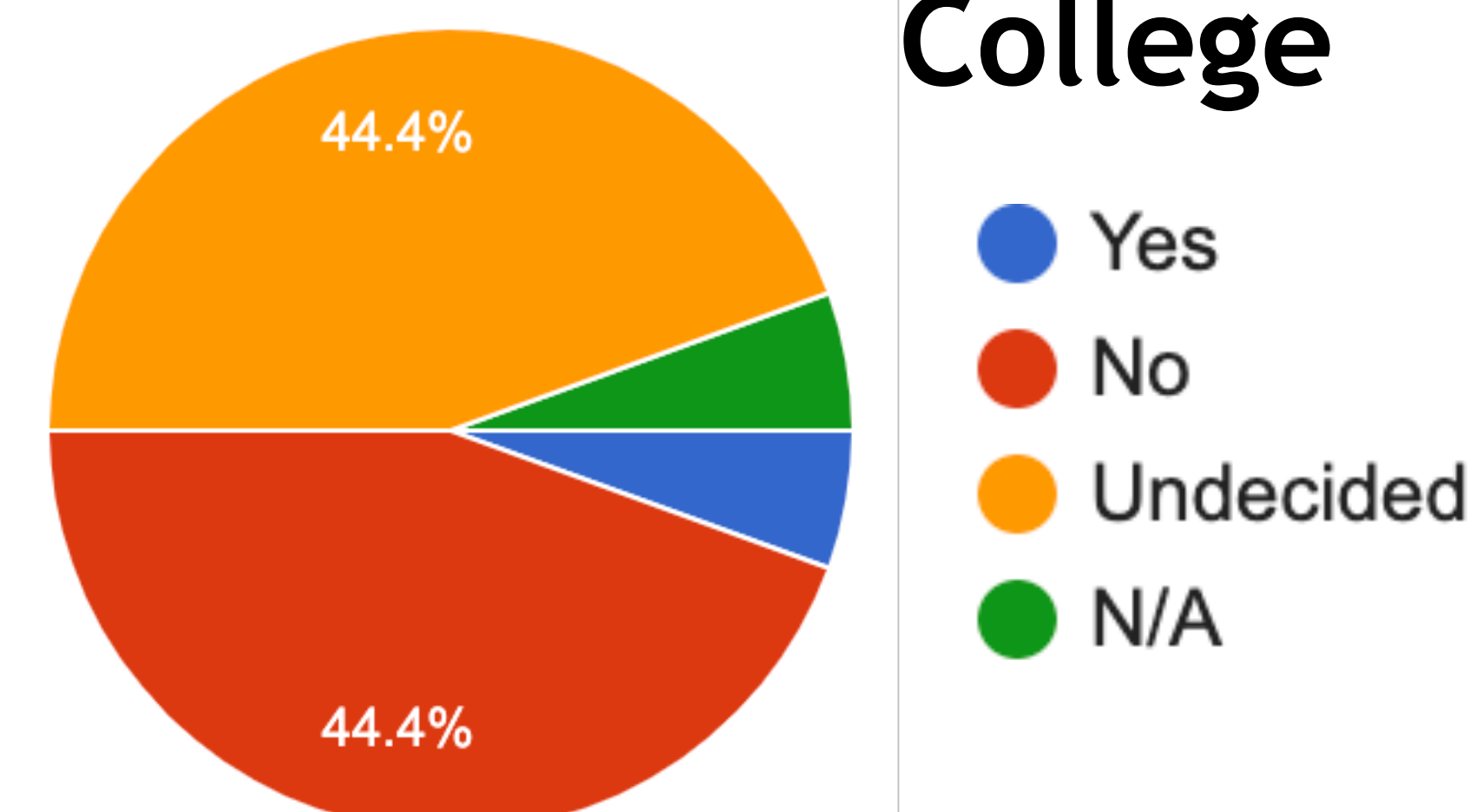
Level of Agreement With the Statement: "The resident mentors have helped me understand the process of developing a research question"



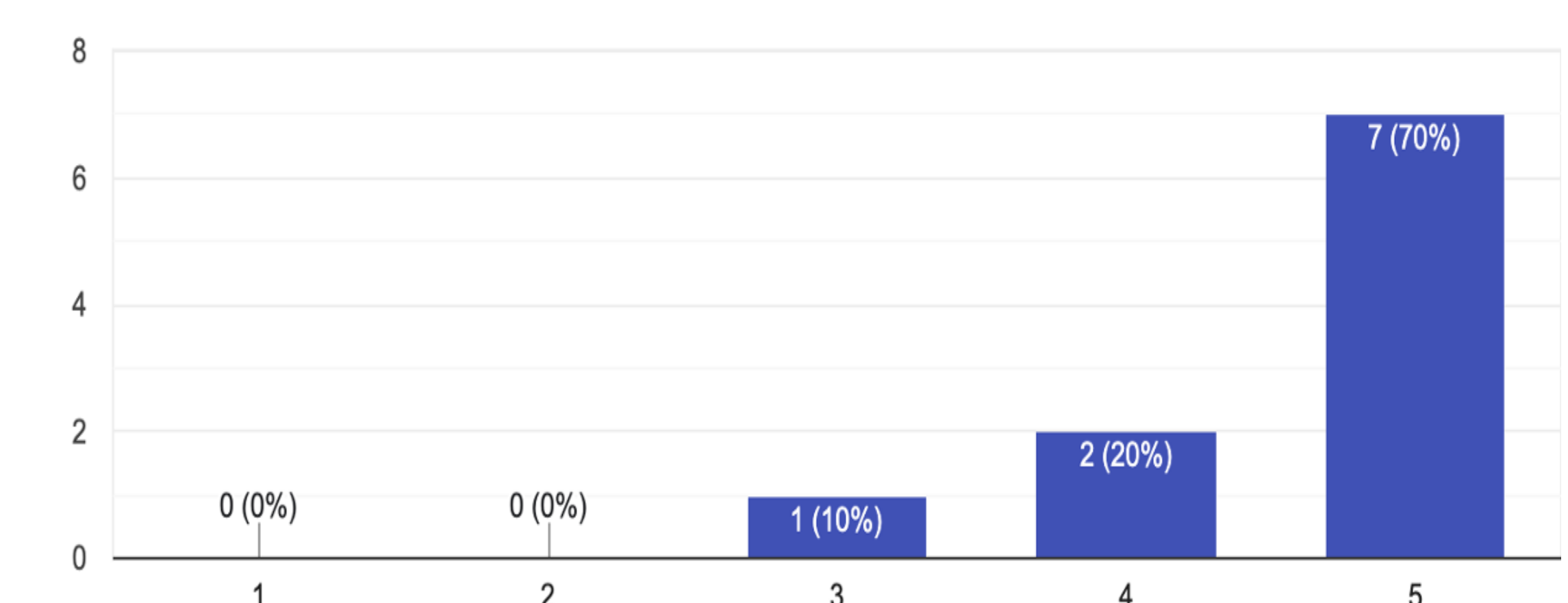
9 Month Follow-Up After working with the resident mentors, how likely are you to pursue a career in a healthcare field?



Percentage of STEM Students With Intent to Enroll in Pre-Medical Courses in College



Resident Level of Interest In Mentorship After Collaboration



CONCLUSIONS

- 44.4% of STEM students were undecided regarding enrollment in a pre-medical track in college, therefore, a collaboration with residents has the ability to inspire young scientists to pursue a career in medicine
- At 9 month follow-up, student interest in a healthcare field doubled (16.7% at baseline; 33.3% rated a 3 or 4 on a Likert scale at 9 month follow-up)
- Family Medicine Residents are interested in obtaining further training in medical education- an area that can be built into training programs to improve such collaborations.

NEXT STEPS

- Continue to expand our partnership and mentor the students as they progress through high school
- To create a curriculum for resident mentorship that can be replicated across family medicine residency programs
- To educate high school students about careers in medicine which in return can create more physicians and address gaps in medical care

Transforming Medical Practice Into Book Chapters: Writing Evidence Based Literature for International and Non-Medical Professionals

Ilona Fishkin, Andrew Shaw Benotakeia, Jayasudha Gude, Gary Small, Ulrick Vieux

BACKGROUND

- As physicians, we are international experts and thus often educators in our respective fields
- US-based psychiatrists and psychiatry residents were tasked with writing for an international audience of trainees in clinical psychology and social work
- Writing for readers from across the globe requires a skill set that is not often taught in medical education
- Academic journals and/or physician associations provide authors with general tips on writing for an international audience
- There appears to be a dearth of literature and guidance for physicians on how to write for an international audience

INTERVENTION DESIGN & EXPECTED IMPACT

IMPACT

The ability to share evidence-based practices with a global audience should be seen as a necessary skill in medical education

DESIGN

We had to determine how to use our expertise in psychiatry to write educational materials using language and terminology that would be appropriate for graduate-level learners across the globe

A globally-minded approach to academic writing:

- Stakeholder analysis
- Operational definitions
- Emphasis on plain language
- Limitation of use of metaphor, idioms etc
- Recognizable practice and patient scenarios
- Extensive background review on international health systems and mental health services

Specific Task:

Chapter on Evidence Based Practices in Pediatric Specialty Settings

Intended audience:

Learners from various behavioral health fields, with varying scope of practice, who are based in international health settings.

The training scope of the audience was broad and so our approach had to account for a range of educational needs

DISCUSSION / CONCLUSION

- Short term markers of success include: publication of the manuscript and final determination of whether our work met stakeholder expectations and needs
- We envision a more globally-minded approach to academic medicine and a medical education system that teaches physicians how to think beyond the US healthcare system when writing for an international audience.
- Our strategic approach is transferable across medical specialties.

REFERENCES / ACKNOWLEDGEMENTS

- Walshe C, Beernart K, Chong PH, Lowe S, Martins Pereira S, Yardley S. Writing for the world: Enhancing engagement and connection with an international audience. Palliative Medicine. 2024;38(1):4-6. doi:10.1177/02692163231215980



Understanding Medical Students' Perceived Readiness to Serve as Culturally Competent Practitioners

Michel'le J. Bryant, PhD, Genevieve Pinto Zipp, PT, EdD, FNAP - Chair, Michelle Lee D'Abundo, PhD, MSH, CHES, CPC, ELI-MP, & Kristine Lewis Grant, PhD

BACKGROUND

The US population is more culturally diverse than ever^{1,2}. Although advancements have been made in improving the nation's overall health, health disparities continue among different racial and ethnic groups³. To promote person-centered care practices, medical students must be ready to serve diverse patient populations and provide equitable care. Despite their training, some medical students report feeling unprepared to treat diverse patient populations, potentially impacting their clinical practice and patient care outcomes⁴⁻⁷.

Purpose

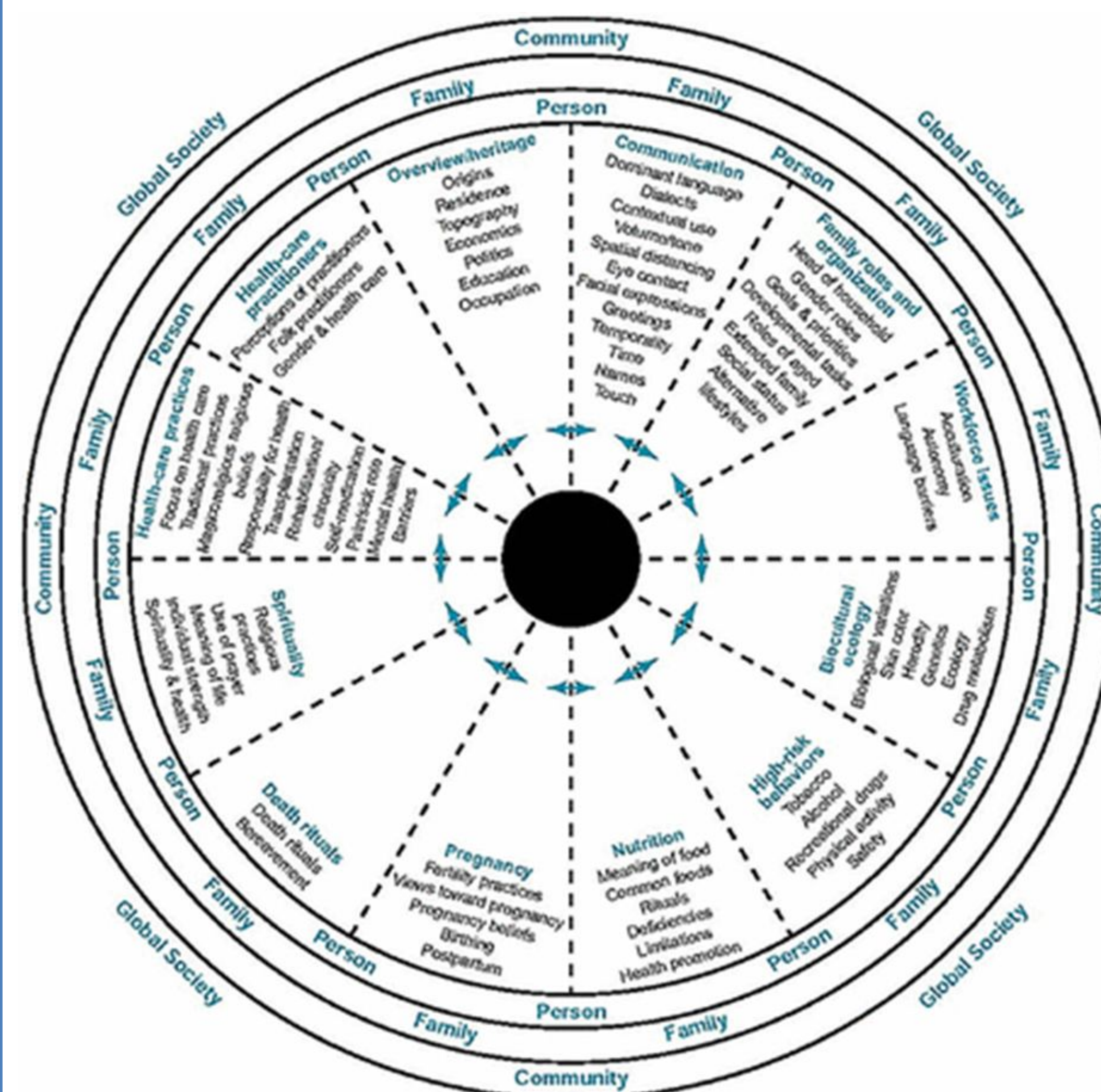
This study's purpose was to explore the perceived readiness of final-year medical students in the US to provide culturally competent care utilizing the Readiness Theory and The Purnell Model for Cultural Competence⁸⁻¹⁰. As noted in the literature, readiness is a state of preparedness¹¹. Readiness Theory infers that one's readiness encompasses their situational knowledge, attitude, and confidence⁹.



METHODS

Design: Mixed methods, cross-sectional, non-experimental, exploratory study using one on one semi-structured interviews that explored the constructs of readiness via open ended questions and included the completion of a quantitative validated instrument Global Worldview Cultural Competence Survey (GWCCS)¹² measuring cultural competence via the lens of The Purnell Model for Cultural Competence

Purnell Model for Cultural Competence



Variant cultural characteristics: Age, generation, nationality, race, color, gender, religion, educational status, socioeconomic status, occupation, military status, political beliefs, urban versus rural residence, enclave identity, marital status, parental status, physical characteristics, sexual orientation, gender issues, health literacy, and reason for migration (sojourner, immigrant, asylee, undocumented status).

Unconsciously incompetent: Not being aware that one is lacking knowledge about another culture. Consciously incompetent: Being aware that one is lacking knowledge about another culture. Consciously competent: Learning about the client's culture, verifying generalizations about the client's culture, and providing culturally specific interventions. Unconsciously competent: Automatically providing culturally congruent care to clients of diverse cultures.

(Purnell, 2019)

Participants: 16 final year US allopathic medical students from various private and public institutions and regions

Data Collection:

- Semi-structured interviews & a Qualtrics survey
 - 14 key questions were asked to each participant & flexibility was provided to expand on information that emerged
 - Global Worldview Cultural Competence Survey (GWCCS)
- All interviews were completed via Microsoft Teams (45 mins)
- Video and audio recorded & transcribed verbatim

Data Analysis:

Qualitative Data (RQ2-4)

Analyzed 1st

- Inductive approach
- Descriptive and In vivo coding
- Raw data → organized data → read & coded data → categorization → thematic analysis statements formed
- Validation – interview accuracy

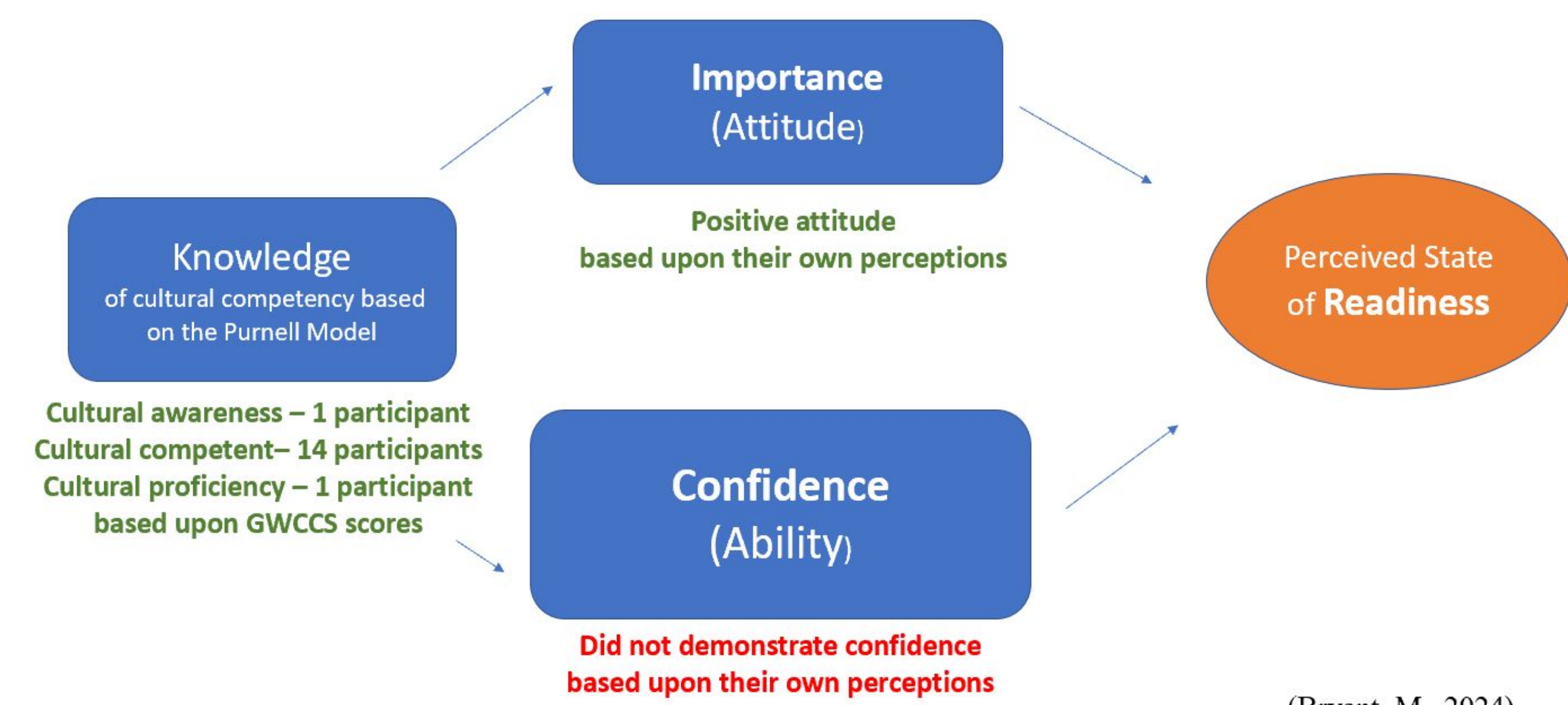
Quantitative Data (RQ1)

Analyzed 2nd

- Answers scored on Qualtrics to garner a total score
- Descriptive statistics were also calculated

Results

Fourth Year Medical Students' Readiness



(Bryant, M., 2024)

DISCUSSION / CONCLUSION

When asked specifically, "Do you feel ready to provide culturally competent care to diverse patient populations?", majority perceived themselves to be ready to serve as culturally competent practitioners generally or to familiar cultures.

However, when looking at it through the lens of the readiness model,

- US 4th year medical students in this study demonstrated knowledge of CC as measured by their GWCCS scores which ranged from culturally aware to culturally proficient.
- Additionally, majority of participants expressed positive attitudes regarding the importance of providing CC care, however participants' responses were mixed when asked about their confidence in their ability to provide CC care.
- The findings of this study support the need for a more uniform and robust CC curriculum in medical schools that promotes CC knowledge and perceived importance and confidence in students as we seek to impact health disparities.

REFERENCES





BACKGROUND

What is the knowledge/action gap?: Sources inside and outside of medicine have noted the lack of training in mental skills in surgery that other disciplines have adopted and that such lack of training can be considered to limit surgical performance (see references). A program has been developed in the Obstetrics and Gynecology Residency Program at Jersey Shore University Medical Center teaching the theory, research, and practice in the use of performance psychology as applied in a range of professional disciplines including sports, the performing arts, the military, business, and law.

Objective of the project/study:

1. Teach attendees how to use performance psychology techniques to enhance preparation for procedures, minimize drift during a procedure, and evaluate mental preparation for future procedures through the use of a mental skills checklist.
2. Teach attendees how incorporation of a performance psychology perspective is likely to contribute to physician wellness through skills such as by learning to separate themselves from their role as a surgical performer from themselves as a person.
3. Teach attendees how performance psychology can enhance teamwork to improve patient care by applying these principles during deliveries and procedures.

INTERVENTION DESIGN & EXPECTED IMPACT (METHODS) (Size 56 font)

Based on a mental performance program for ob/gyn residents at Jersey Shore University Medical Center, with guidance from a sport psychologist of a Major League Baseball club, residents received mental skills training and applied those skills to:

- (a) prepare mentally and emotionally for surgery;
- (b) maintain focus and composure during surgery; and
- (c) review surgical performance.

With attention to three things we can control: our thoughts, emotions, and actions; and attention to avoiding equating self worth with our performance, wellness can be addressed. Evaluation of this process could be performed using a questionnaire before and after a mental skills program, to assess the benefit the attendees perceive in such a program in terms of their overall reaction, learning, and application of what they have learned. Benefits of this training include improved decision making and wellness, as well as, ideally, decreasing medical mistakes and enhancing patient safety. With this training also comes an appreciation for the roles of the entire surgical or obstetrical team, promoting teamwork.

The Mental Skills Professional Development Series for the JSUMC Ob/Gyn Residency Program consists of monthly meetings to discuss mental skills including topics such as:

Adaptation of a Mental Skills Checklist developed for Major League Baseball to Surgical Performance; Mental Skills and Mental Wellness; Relaxation Training; Mental Skills and Test Taking; Goal Setting; Learning from Failure; Using Feedback for Continuous Development (Coping with Daily Demands as a Resident); Dealing with Distractions in the Operating Room

DISCUSSION / CONCLUSION

There is a lack of medical literature on the application of performance psychology to medicine, although a few studies are reviewed where mental skills training has been investigated. Residents are taught about their role as a performer, and with that role, to be attentive to mental skills that can be used to improve performance in the three stages of a procedure: before, during, and after.

Participant comments from surveys about the program request further assistance with arousal management: managing anxiety and maintaining focus during procedures.

REFERENCES / ACKNOWLEDGEMENTS



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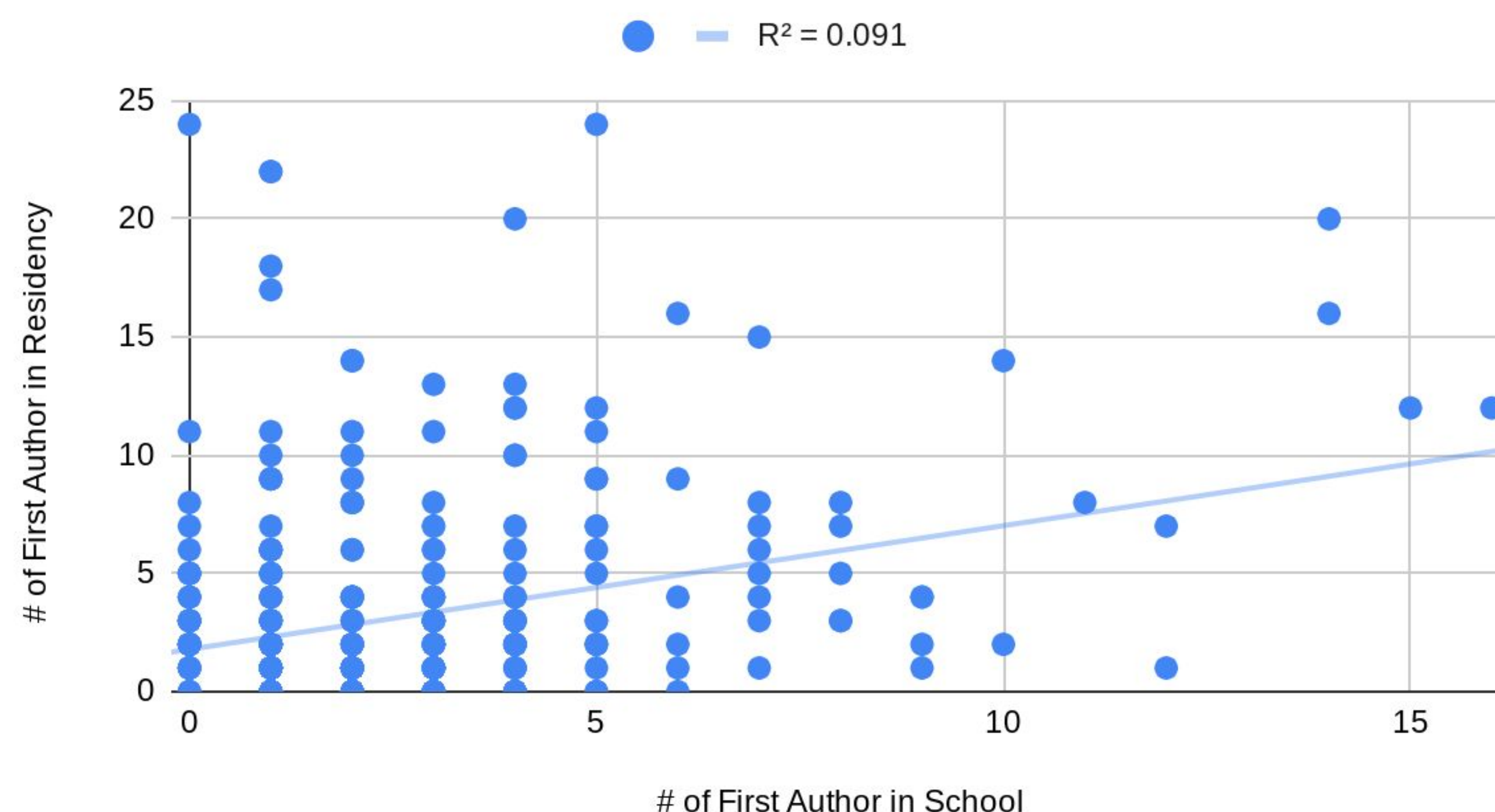
BACKGROUND

- Research productivity during medical school continues to be a highly influential factor in applications to otolaryngology residency programs.
- In our prior study (Chen et al. 2024), we found that factors with statistically significant impact on research productivity in medical school ($p < .05$) include: number of department faculty ($R = .43$) and number of total faculty publications ($R = .63$)
- Larger departments likely offer more mentorship and research opportunities that allow medical students to engage in more projects that lead to first-author publications.
- In this study, we further investigate the significance of medical student research productivity by evaluating the correlation between research productivity in medical school and that in residency.

METHODS & RESULTS

- Study design:** systematic article search on PubMed, descriptive data search on Doximity or LinkedIn
- Inclusion criteria:** medical students identified in the prior study, who published at least one first author article with a senior author affiliated with an otolaryngology residency program between 1/1/2016 and 2/28/2021
- Exclusion criteria:** Does not graduate residency by 2024
- Primary outcomes:** number of first author publications in medical school and number of first author publications in residency.
- Secondary outcomes:** medical school, matched specialty, matched program
- Results:** Preliminary analysis included 357 individuals. The mean number of first-author publications in medical school was 2.60 (SD 2.49) and the mean number of first-author publications in residency was 3.15 (SD 4.32). There was no significant correlation between medical student and resident first-author publications ($R = 0.091$).

of First Author in School vs. # of First Author in Residency



DISCUSSION

- Program directors cite research as major factor of consideration when reviewing residency applications.
- Reports published by NRMP for the 2024 Main Residency Match shows that matched otolaryngology candidates have an average of 17 abstracts, presentations, or publications.
- We find that research productivity in medical school does not predict contribution to research literature in residency.
- These findings allow institutions to reflect on the significance and impact of medical student engagement and provide data to students for career planning.

REFERENCES



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Ethics of Disclosure and Consent in both Research and the Clinical Setting: A Pre-Clerkship Large Group Active Learning Session

Grace Malley, Joshua Josephs MD PhD, Elli Gournas Paleoudis MS, PhD, Bryan Pilkington PhD

BACKGROUND

The large group active learning session titled "Patient and Participant as Person: Ethics of Consent in Research and in Clinical Practice" was presented to first year students at HMSOM as part of the Health Systems Science course. The session was dedicated to informed consent in research and in the clinic focusing on the concept that the individual (whether as research participant or patient) is a person and should be treated with respect. Concepts discussed were applied to different settings, including research involving human subjects and clinical shared decision making conversations. Respect for persons is a concept which describes that patients are to be understood as individual persons. That patients present to the healthcare system with unique cultural beliefs and values, medical preferences, religion, faith, and other perspectives that may shape how they engage with the medical system.

There is evidence that both of these topics are already being included in medical school curricula, with 84.5% of medical schools including formal education on informed consent, yet just 39.7% including research ethics (1). Medical education literature currently does not have a similar session guide; we hope that providing this session guide will encourage medical schools to include research ethics in their curriculum.

SESSION DESIGN & RESULTS

Session Design/Outline

- The session was led by 3 facilitators; each of whom provided a distinct perspective.
- Pre-reading was assigned to the students prior to the session, in hopes that students arrive prepared to engage in discussion and small group activities.
- The session itself included discussion regarding examples of ethical issues commonly encountered when conducting research with human participants, informed consent in research, clinical consent, and shared decision making.
- Components of informed consent forms (ICF) were also discussed, with the goal of providing students an understanding of how patients may interpret these forms. Students worked in small groups to analyze an intentionally erroneous mock ICF.

Intended Outcomes are well described by the session learning objectives:

- Knows elements of informed consent (capacity, disclosure, voluntariness) and its role in shared decision-making
- Knows standards of disclosure
- Understands related features; including patient refusal, truth telling
- Knows relevant landmark cases, paradigmatic situations
- Understands basic principles and considerations of ethical research: including, values, validity, fair subject selection, balance of risks and benefits, independent review, informed consent, respect for participants
- Understands applications of principles; including: Role of IRB, federal regulations, participant remuneration

Evaluation Plan: The evaluation approach consisted of both students evaluating the session, and an exam that evaluated students' understanding of topics taught during the session.

Results: A post-session survey was conducted in which a Likert scale was used to evaluate the students perception of the session; in which 70 students responded and mostly indicated that the session was well organized and adequately covered the learning objectives. Multiple choice and short answer questions were utilized to test student's understanding of the content delivered in the session.

Question Topic	Percent Correct (%)
Therapeutic misconception	97
Elements of capacity	87.9
Elements of informed consent process	80.25

Table 1. 2023 Cohort Multiple Choice Exam Items

DISCUSSION

Transferability: This session guide is largely transferable and could be modeled after in an in-person or virtual format. One challenge in teaching ethics at medical schools is recruiting appropriate facilitators. In the setting of not being able to find three similar lecturers, it would still be possible to hold a valuable and effective session.

Discussion: Students post session evaluations and exam data indicated that students positively received the session and learned the content effectively. Difficulties faced when arranging the session include finding appropriate facilitators, an appropriate venue that allows for interactive discussion, and encouraging students to complete pre-reading. Ultimately this poster functions as an outline for how to hold a large group active learning session on the topic of ethics of research and consent. There is a need for more research to be done on how to effectively teach ethics topics at medical schools.

REFERENCES

1. DuBois JM, Burkemper J. Ethics education in U.S. medical schools: a study of syllabi. *Acad Med.* 2002;77(5):432-437. doi:10.1097/00001888-200205000-00019
2. Parker M, Hope T. Medical ethics and the undergraduate curriculum. *Clin Med (Lond).* 2009;9(6):512-513. doi:10.7861/clinmedicine.9-6-512



Social Justice in Medical Training and Advancements in Medical Residency through Siblingship Programs

Andrew Shaw Benotakeia, Jayasudha Gude, Ilona Fishkin, Demetrius Durham, Ulrick Vieux, Adreinne Adams, Paul Lee

BACKGROUND

JEDI Committee:

- The HMH Psychiatry JEDI Committee was developed to promote education about diversity and inclusion to clinicians.
- The vision of the committee is to create a healthcare setting that encourages the highest level of care to various populations, and to allow for a diverse team of healthcare workers to disseminate any barriers within their own careers.

The Siblingship Program:

- Through Sister Cities International, a residency networking program was established in 2023.
- The Sibling Program focuses on residency education by pairing residencies across the country that best complement each other.
- Partnering locations with different patient populations, sharing training experiences and clinician knowledge will help in broadening not only residency training experience but also social determinants.
- The Siblingship Program can model the JEDI vision for diversity and inclusion initiatives in residency training nationwide.

INTERVENTION DESIGN & EXPECTED IMPACT



American Association of Directors of Psychiatric Residency Training

Sibling Program

The Sibling Program is sponsored by the J.E.D.I. and Mentorship Committees on the premise of joining programs who normally would not intersect to provide opportunities for diversity, mentorship, collegiality... the possibilities are limitless. The pilot program has blossomed with 12 matched sibships consisting of 24 programs.

Program Design:

- IRB submitted.
- Applications open to residency programs across the country. Residency program directors fill out questionnaires on the demographic aspects of their program
- Questionnaire results are used to connect programs that best complement each others needs.
- Complementing programs are matched into a siblingship.

Progress so far:

- 12 siblingship programs are currently active. Each siblingship is overseen and coordinated by a facilitator who helps link programs.
- The activities between the two programs are created based on the needs of each program and coordinated between each other.
- A resident leader from each program is chosen to help facilitate experiences between sibling programs.

Our Direct Siblingship Experience:

- The Psychiatry Program at Hackensack Meridian Health, NJ was matched with the Psychiatry Program at Garnet Health, NY.
- Hackensack-Garnet siblingship residents share scholarly activities and attend joint educational events such as a lecture/dinner on LGBTQ+ Mental Health by the president of the American Psychiatric Association.

DISCUSSION / CONCLUSION

- Feedback from each individual residency program will be collected.
- Activities which were positive in each siblingship will be collected and shared to further improve the sibship program network as a whole.

References\

ACKNOWLEDGEMENTS

- AADPRT. "Mentorship." Accessed April 30, 2024. <https://www.aadprt.org/training-directors/mentorship-program>.
- AADPRT JEDI Committee
- Hackensack Meridian Health JEDI Committee
- Garnet Health Network and Psychiatry Residency Program

Focus Posters™ Health: Custom Visual Supports as Patient-Centered Care for Pediatric & Neurodiverse Patients

Annalyce P. D'Agostino

BACKGROUND

Medical experiences and life-altering diagnoses can be overwhelming and anxiety-provoking for patients, especially children and their families. Providing patient-centered care throughout every stage of their health journey is crucial, yet often overlooked. Every diagnosis begs the same question: “what’s next?”

Visual supports are effective in reducing anxiety for procedures and providing improved outcomes in health maintenance, especially in pediatric and neurodiverse populations.¹⁻² Comparative solutions include MyRoutine iPad app developed by the Monroe Carell Jr. Children’s Hospital at Vanderbilt University and “My Hospital Story” at Boston Children’s Hospital, among others.

This project aims to improve patient-centered care by reducing anxiety and enhancing understanding of medical procedures, routines, and health management for children and neurodiverse populations through customized visual supports.

INTERVENTION DESIGN & EXPECTED IMPACT (METHODS)

Focus Posters™ Health will innovate beyond its predecessors as a web app (accessible from any device), with custom, illustrated visuals users design that engage the child in an approachable, calming way. Focus Posters™ is an existing web app for parents and childcare professionals to create custom visual supports for children with characters that look like them. Users create a character, select a template, add illustrations from the library, design with a vibrant background, and download instantly.

The Focus Posters Team collaborated with the Child Life Team at NYU Langone’s Hassenfeld Children’s Hospital to create visual supports for a nine-year-old female patient admitted for a month-long stay to monitor severe asthma attacks. The patient enthusiastically designed her character, while the Child Life Specialist populated specific routines for each day of the week, as well as the patient’s medication schedule and a home schedule for navigating her new routine. The Child Life Specialist expressed its value both during hospitalization, and adjusting to life at home and school after the patient’s diagnosis.

EVALUATION PLAN

Success will be measured through qualitative data collected through focus groups and interviews with participating families. We will assess for: reduced anxiety during medical procedures and adherence/understanding of routine health management.

FEASIBILITY

Focus Posters™ Health will be a web app specifically designed for healthcare use; defined by increased accessibility and medical accessory options for characters, medically accurate illustrations, and streamlined design. Determined by the level of customization requested by the healthcare organization, the set-up cost will range from ten thousand to twenty thousand dollars, with a development timeframe between ninety and one hundred and twenty days. Risks include student/faculty/provider willingness to adopt this concept, preferring to use generic medical visuals, and potential technological issues.

INTENDED OUTCOMES

For medical students, Focus Posters™ Health will act as a clinical skills resource to enhance age-appropriate and developmentally appropriate communication with pediatric and neurodiverse patients, while exploring the efficacy of visual supports with these populations.³

TRANSFERABILITY

Focus Posters™, the parent brand of Focus Posters™ Health, is an inherently versatile website, allowing users to upload photos and type their own text for increased specificity. Focus Posters™ Health can be accessible to all healthcare settings and all members of a patient-facing care team, scalable to include procedures, in-patient routines, hospital to home transitions, and health maintenance as a part of daily routine.



DISCUSSION / CONCLUSION

Focus Posters™ Health, with its emphasis on personalized visual supports, aims to bridge the gap in pediatric and neurodiverse patient care by providing custom visual aids that help demystify medical procedures and ease transitions between different stages of treatment. While visual supports have been recognized as essential tools for patient understanding and improved health outcomes, they have yet to significantly evolve to meet current generational standards.

By redefining visual supports through a platform that revolutionizes representation for children to see themselves, their procedures, and health routines reflected throughout their healing journey, Focus Posters™ Health stands to make significant strides in reducing anxiety and improving health outcomes for pediatric and neurodiverse patients.

Engaging children directly in their healthcare journey and offering a platform for customization, Focus Posters™ Health will also equip medical students and professionals with an innovative tool for patient engagement and patient-centered care.



REFERENCES / ACKNOWLEDGEMENTS

1. Western Australia Department of Health. Social Stories [Internet]. 2023 [accessed 2024 March 04]. Available from: <https://pch.health.wa.gov.au/For-patients-and-visitors/Social-stories>
2. Yasmin, B. M., Cohen, S. J., Khan, A. B., & Hussain, N. A. (2023). Impact of a social stories intervention on preoperative anxiety in children with autism spectrum disorder. *International Journal of Nursing Studies*, 130, 103950. doi: 10.1016/j.ijnurstu.2022.103950
3. Centers for Disease Control and Prevention. Visual Communication Resources [Internet]. 2022 [cited 2023 Feb 10]. Available from: <https://www.cdc.gov/healthliteracy/developmaterials/visual-communication.html>



The Human Dimension of Narratives: Telling Stories to Create Connection and Resilience

Bridget Tracy MD, Caryn Katz-Loffman LSW, Lawrence Rosen MD, Carmela Rocchetti MD

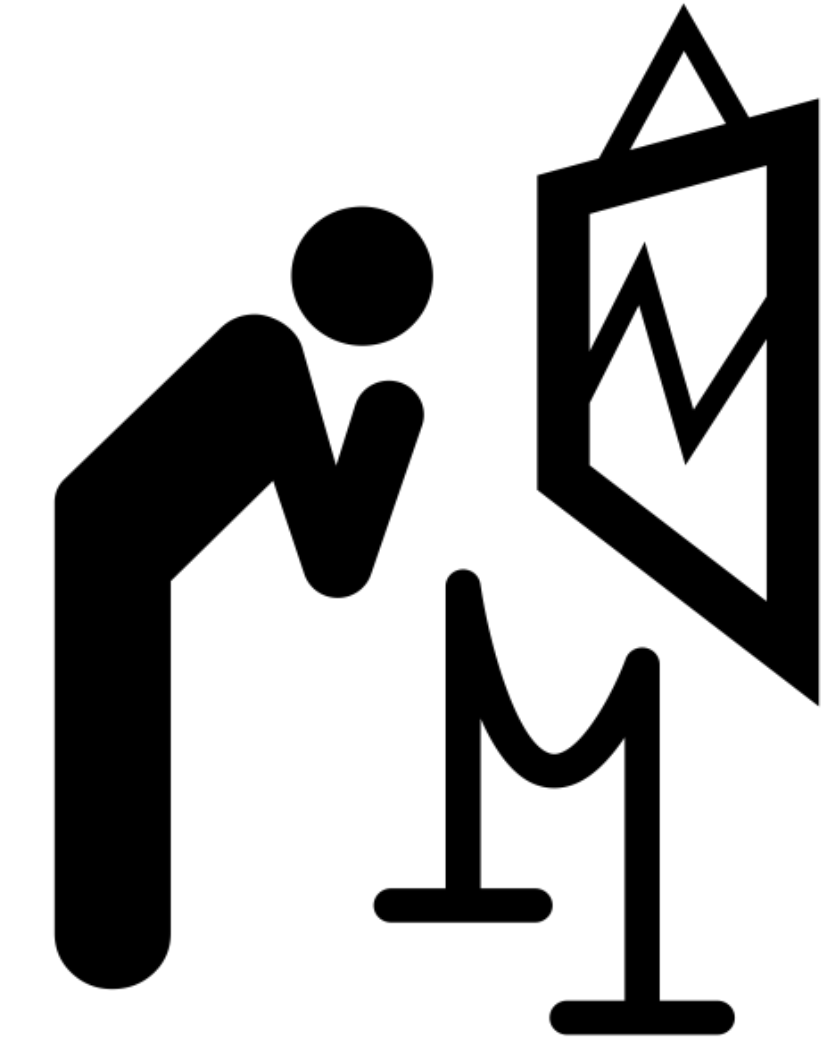
BACKGROUND

“The integration of the arts and humanities into medicine and medical education may be essential to educating a physician workforce that can effectively contribute to optimal health care outcomes for patients and communities.” -AAMC 2020



- The Human Dimension (HD) is a required experiential course taken by students at Hackensack Meridian School of Medicine (HMSOM) throughout their first three years.
 - The curriculum emphasizes the development of humanism and cultural humility.
 - A key component of HD is the Voices Program. **The Voices Program pairs student dyads with individuals (Voices Participants or VP) from the community to develop a longitudinal relationship over a series of home visits.**
- Prior to the students' first visit with their VPs, we launched “**The Human Dimension of Narratives**” as a new curricular session in HD. Part introduction to Narrative Medicine, part Storytelling event, the session shows students a way of “learning the story” of their VPs and how creative pursuits develop skills in observation, critical thinking, empathy, effective communication, and resilience.

SESSION DESIGN



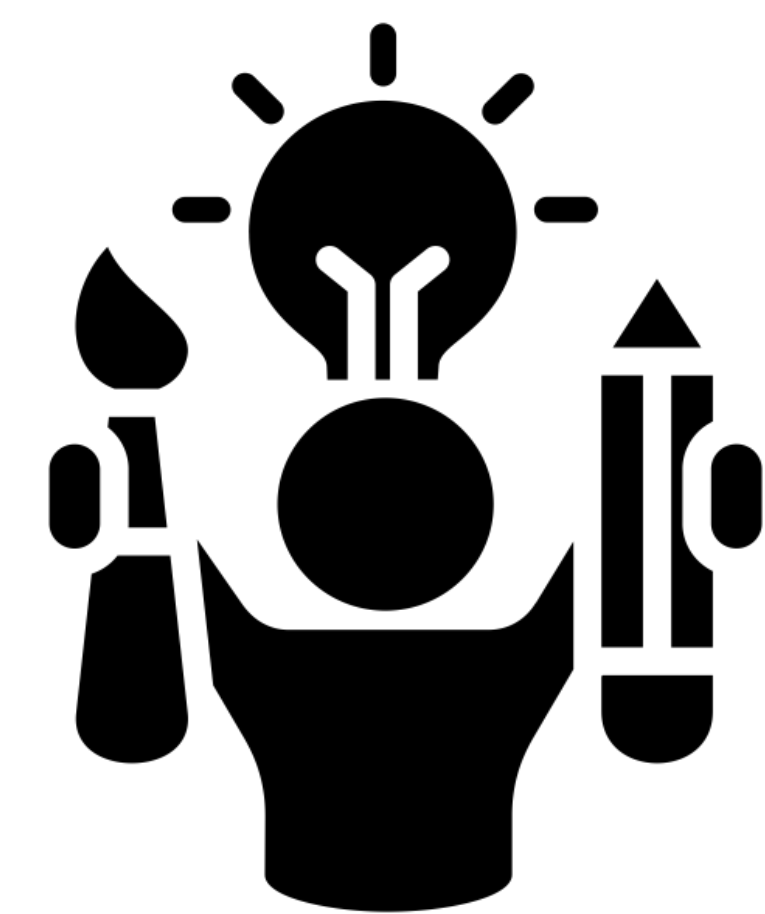
Didactic: What is Narrative Medicine?

- Storytelling, analysis, and reflective writing
- Activation of observation skills with photo-analysis, “What is the story of this picture?”



Storytellers: Listening to Forge Connection

- Three first-year students & two attending physicians submitted stories and performed live readings before the entire first-year class!
- Students received coaching support and rehearsal prior to the session
- Themes explored working in a rape crisis center, hosting a podcast, burnout in the pandemic, and the post-op conversation when things don't go as planned



Small Group Discussions

- Share “What is your favorite creative activity?”
- Reading of “The Waiting Room” and journal prompts around feeling vulnerable and finding hope.
- Debriefing the session and discussing “narrative humility”



Learning the Story of Your VP

- Assignment to meet with their VPs for the first time.
- Students submit a written reflection of the visit, including a summary of what they learned about their VP, what is important to them, and what is the VP's “story?”

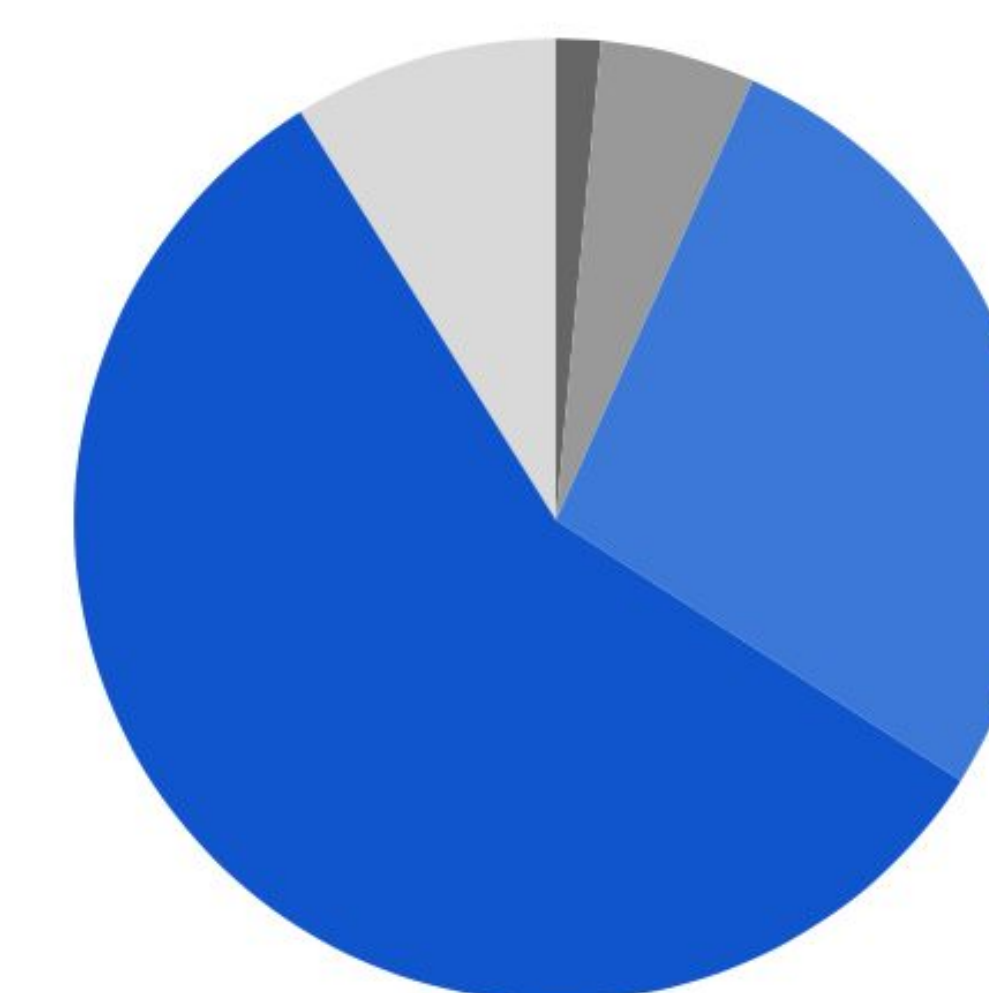


IMPACT AND RESPONSE

Student and Faculty Feedback

- Students submitted anonymous, post-session surveys
 - “I enjoyed the opportunity to hear our classmates share their stories and hope for more of these sorts of events throughout HD in the future.”
 - “It truly was a gift to listen to our fellow students and faculty share stories that were beautifully written - this allowed me to think of my own experiences.”
 - “More of these sessions should be incorporated into HD, so we're all reminded of why we choose to pursue medicine.”
- Feedback asked to have more stories, varied topics and less heavy/sad themes.
- Faculty roundtable discussion following the session aligned with student feedback.

- Strongly Disagree
- Slightly Disagree
- Slightly Agree
- Strongly Agree
- No Feedback/Not Applicable



Student Survey Question - Learning Objectives Were Met

- Understand the role of narrative medicine in enhancing empathy and patient-centered care
- Develop reflective skills by exploring personal reactions, biases, and emotional responses to visual stimuli and narratives
- Cultivate a deeper connection to patients, acquiring key observation skills, and embracing a more humanistic approach to healthcare through narrative medicine

DISCUSSION / CONCLUSION

- Storytelling is a powerful mechanism to develop empathy and humanism as well as a tool for wellness. We were pleased with the reception of this first session. This is a model that is transferable to undergraduate and graduate medical education programs alike.
- Given the feedback, we hope to expand the number of submissions we receive and increase the diversity of stories and storytellers. Many students and faculty commented on the power of hearing from peers as well as advanced physicians. The unique perspectives of learners at each level: preclinical and clinical students, interns, residents, fellows, early career attendings, and beyond hold insights and opportunities for reflection and resilience.



Our storytellers from left to right: Hannah Varkey, Emma Maiman Stadtmuer, Susannah LaPointe, Dr. Patrick Roth, Dr. Shanda McManus

REFERENCES / ACKNOWLEDGEMENTS

Graham J, Benson LM, Swanson J, et al. Medical humanities coursework is associated with greater measured empathy in medical students. *Am J Med.* 2016;129(12):1334–1337.

Silverman, Emily, host “The Nocturnists”
<https://thenocturnists.com/>

Howley L, Gauferg E, King B. *The Fundamental Role of the Arts and Humanities in Medical Education.* Washington, DC: AAMC; 2020.

BACKGROUND

- Clinical radiology medical education primarily relies on passive learning methodologies due to the specialized and complex nature of the field, coupled with limited foundational knowledge among medical students.
- Traditional teaching methods in clinical radiology involve students observing radiologists during routine work, resulting in passive learning experiences, especially during busy periods when teaching time is limited.
- This passive learning approach contrasts with other medical rotations where students are more actively involved in patient care, discussions, and exploring key learning points.
- The disparity in educational approach underscores a significant gap in clinical radiology training at the medical student level.
- Our proposed curriculum changes aim to bridge this gap by evaluating curriculum modifications for the diagnostic radiology elective at HMSOM to enhance student engagement and develop a deeper understanding of the clinical radiologist's dynamic role.

INTERVENTION DESIGN & EVALUATION PLAN

This curriculum revamp introduces additional experiences during the diagnostic radiology elective aimed at deepening students' understanding of image interpretation and the clinical role of radiologists.

Final Project: Implementation of a final project where students present a 10-15 minute case study of a case they observed during their rotation, consisting of:

- Providing clinical context and rationale for the imaging.
- Reviewing and discussing the imaging during the presentation.
- Detailed exploration of the clinical correlation and the impact of imaging on patient care.

Ultrasound Skills Session: Integration of a hands-on ultrasound session within the elective

- Learn basic ultrasound image acquisition and essential skills such as performing biopsies and peripheral IV placements.
- Work alongside ultrasound technicians for practical experience with live patients.

Tumor Board Attendance: Facilitation of student attendance at tumor board sessions to observe the role of radiologists in patient care and treatment planning.

- Encouragement for student interaction and question sessions post-observation.

Final projects will be evaluated using a standardized rubric, and ultrasound skills and tumor board sessions will be graded based on participation.

FEASIBILITY & INTENDED OUTCOMES

These changes are extremely feasible to implement. Some considerations include ensuring the availability of radiologists to mentor students for their case presentation and facilities for practical sessions (e.g., ultrasound, tumor boards).

Learning Objectives

- LO #1: By the end of the radiology elective, students will have determined and realized the role that a radiologist plays in providing care to patients.
- LO #2: By the end of the radiology elective, students will understand the basics of ultrasound by engaging with hands on scanning.
- LO #3: By the end of the radiology elective, students will recognize how to present a proper radiology case report, combining clinical and imaging findings.

TRANSFERABILITY

- Elements such as case presentations and ultrasound skills sessions can be adapted to other medical specialties or incorporated into other educational programs as understanding how to create them are a useful skill.
- The curriculum encourages collaboration across departments, enhancing interdisciplinary education and potentially influencing other specialty education methods.

CONCLUSIONS

- These curriculum changes significantly enrich the educational experience for students by integrating more active learning opportunities, which helps in bridging the gap between theoretical knowledge and practical skills
- Preliminary outcomes suggest that students are more engaged and develop better diagnostic skills through the redesigned curriculum, fulfilling the primary goals of the project [1, 2].

REFERENCES

- [1] Erinjeri JP, Bhalla S. Redefining Radiology Education for First-Year Medical Students. *Academic Radiology*. 2006;13(6):789-796.
- [2] Hiatt KD, White JC, Marsh KA, Geer CP. Subinternship in Diagnostic Radiology: Bringing the Shadows Out of the Shadows. *Curr Probl Diagn Radiol*. 2023;52(4):269-274.



BACKGROUND

Background:

Digital Pathology showed an explosion with regards to incorporation in Medical Education during the post-COVID era with the advent of virtual education, effectively supplementing or in some cases replacing Pathology courses taught via the conventional microscopy method

Objective:

To conduct a scoping review of the current literature with regards to Digital Pathology in Medical Education and accordingly suggest future possible directions as it pertains to research

Knowledge Action Gap:

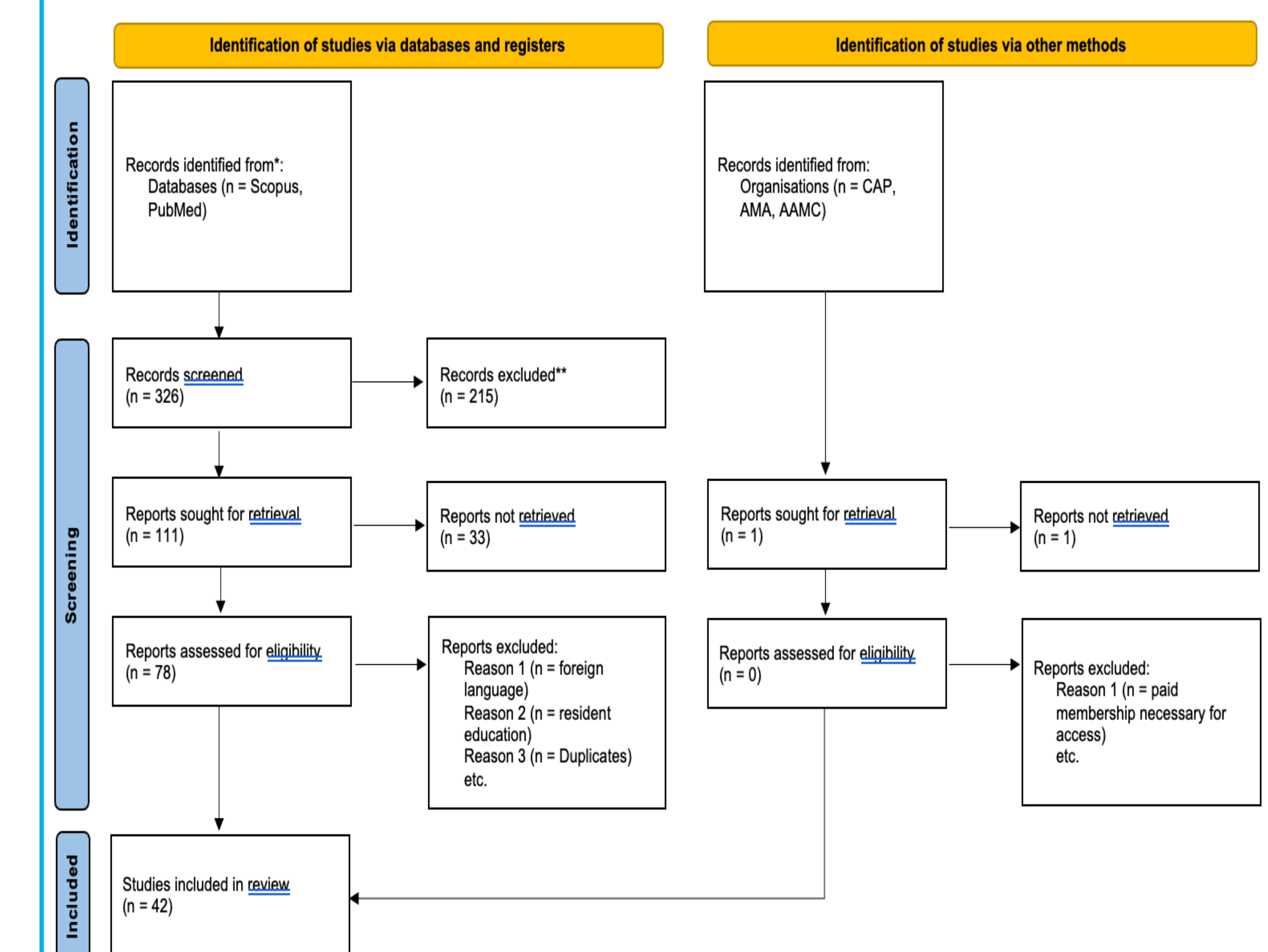
Considerable research has already been done regarding Digital Pathology in Medical Education however as the topic is relatively new current studies are centered more around a relatively superficial level. This article aims to suggest areas for more in-depth research and appropriate directions for future studies

CURRENT LITERATURE

Common Themes Identified in Current Literature:

1. Origins of Digital Pathology in Medical Education
 - Started in hospitals in 2000s
 - Made possible by improved computer memory, WSI and VM technology
 - Adopted by medical schools as early as 2006
 - Post-COVID era accelerated utilization
2. Virtual Microscopy versus Conventional Microscopy
 - VM associated with better/non-inferior academic scores
 - Advantages: accessibility to slides, advanced features, image standardization, female
 - Disadvantages: lack of practical skills, internet connection, image limitations, limited archive
3. Cost Effectiveness of Virtual Microscopy
 - WSI and VM software are expensive
 - Free resources; Biolucida
 - Low maintenance/upkeep costs e.g. no breakage/deterioration of slides, no equipment, cheap archive rare diseases
 - Greatly increased accessibility in Developing Nations
 - Disadvantages; large amount of computer memory required, lack of student equity
4. Increased Student Engagement and Interest in Pathology
 - Overwhelming preference for VM vs CM
 - Gamification e.g. zoom polling, annotation features, different question formats
 - VM; increased attendance/enrollment
 - Appeals to “digitally native” newer generation
 - Disadvantages; limited social interaction opportunities, lack of equity, lack of motivation and real-time feedback
5. Virtual Microscopy from a Teacher’s Perspective
 - Advanced features e.g. annotation → lesson customizability
 - Time-saving; classroom can work with single slide
 - Standardization of learning material; objective assessment of students
 - Downsides e.g. cheating during virtual exams → proctoring, customizability of lessons e.g. TBLs → more preparation time → need for educators to adapt

SEARCH STRATEGY



DISCUSSION / CONCLUSION

Recommendations for Future Research:

- Explore which advanced VM software features were particularly influential
- VM results maximized in combination with other measures which increase student engagement e.g. gamification, TBLs, frequent testing, blended approach
- Interesting to track popularity of Pathology as a specialty post VM introduction
- Intriguing to witness how VM evolves with other innovations in the field e.g. Virtual Reality and Artificial Intelligence

Background

- Approximately 1.8-3.8 million sports-related mild traumatic brain injuries occur each year.¹
- Misdiagnosis can lead to increased morbidity and mortality.^{2, 3}
- Primary care serves as the likely initial entry point to healthcare for initial injuries and medical clearance for return-to-play.^{4, 5}
- Approximately 95% of family physicians will encounter concussions annually.⁶
- Studies have shown that primary care residents have identified deficiencies in concussion management and diagnosis, as well as broader sports medicine education.^{6, 7}

Purpose

- To assess the attitudes and knowledge of family medicine residents in the diagnosis and management of concussions.
- Our secondary goal was to evaluate the change in assessment scores following the implementation of a concussion curriculum.

Methods

- From November 2023 to February 2024, family medicine residents (n=23) in a community medicine residency program in New Jersey were required to complete a multimodal concussion curriculum.
- The curriculum included a lecture, a practical workshop and board style questions.
- Residents participated in a pre and post curriculum survey, adapted by Boggild and Tator⁸, assessing resident's knowledge and comfort in concussion.
- The survey was sent by google forms and results were anonymous.

Results

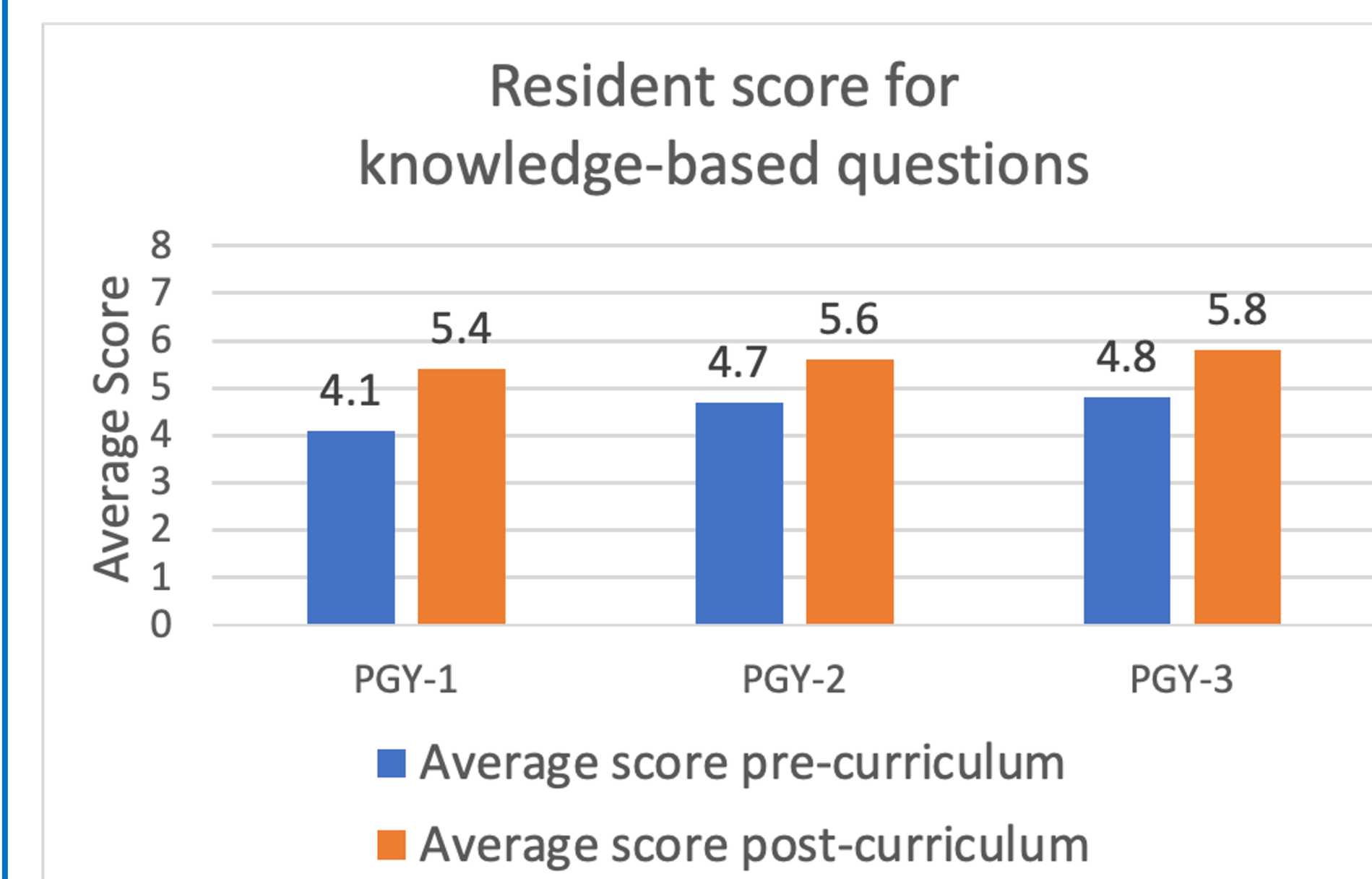


Figure 1. Change in resident knowledge score pre and post intervention

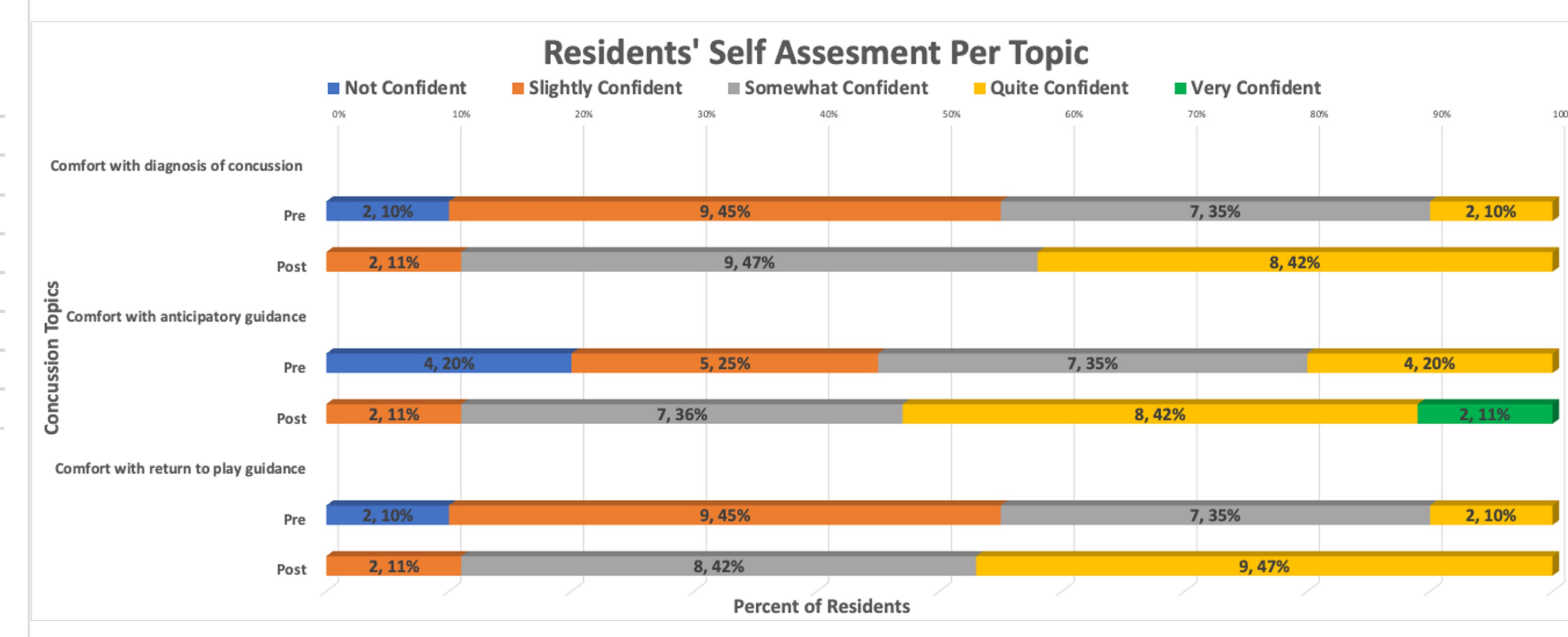


Figure 2. Change in resident self assessment pre and post intervention

- 20 pre-curriculum (87%) and 19 post-curriculum surveys (82%) were completed.
- 70% of residents (n=14) identified that they have never managed a patient with concussion in residency and 85% (n=17) have never managed post-concussion syndrome.
- 70% of residents indicated that they desired more education about concussions
- On average, residents scored 1.17 points better on post-intervention knowledge questions (Fig. 1).
- Reported comfort with diagnosis of concussion, return-to-play and anticipatory guidance improved post-intervention (Fig. 2).
- The survey identified misconceptions among residents. Prior to the curriculum, 15% of residents thought a loss of consciousness was necessary to diagnose concussion, which reduced to 0% post-curriculum. Similarly, when asked to select the appropriate management of concussion, 20% did not select "every concussed individual should see a physician". This improved to 10% of residents following the intervention.

Discussion

- Concussion rates are overall increasing, making it important to diagnose and treat effectively.
- Most residency programs do not have a specific concussion curriculum.⁹
- Our study showed that the majority of residents have not managed a patient with concussion.
- Pre and post intervention results demonstrate that a formal curriculum in family medicine residencies can improve concussion knowledge, reduce misconceptions and improve overall confidence.
- We propose that standardized concussion curriculums could result in a reduction in unnecessary imaging and decrease the need for subspecialists.
- Larger studies including multiple family medicine residencies over a longer period are needed to strengthen this recommendation.
- Future studies should incorporate clinical experience to enhance knowledge application.

References

- Wiebe DJ, Comstock RD, Nance ML. Concussion research: a public health priority. *Injury Prev*. 2011;17(1):69-70. Epub 2013 Jul 22.
- Tator CH. Concussions and their consequences: current diagnosis, management and prevention. *CMAJ* 2013; 185 (11): 957-9.
- McCoy P, Meeuwisse WH, Aubry M, Cantu B, Dvorak J, Echemendia RJ, et al. Consensus statement on concussion in sport: the 6th International Conference on Concussion in Sport held in Zurich, October 2016. *Br J Sports Med* 2017 Jun; 51 (11): 838-847.
- Arbogast KB, Curry AE, Pfeiffer MR, et al. Point of health care entry for youth with concussion within a large pediatric care network. *JAMA Pediatr*. 2016;170(7):e160294. doi: 10.1001/jamapediatrics.2016.0294
- Albano AW, Jr, Senter C, Adler RH, Herring SA, Asif IM. The legal landscape of concussion: implications for sports medicine providers. *Sports Health*. 2016;8(5):465-468.
- Lebrun C, Mirzakhani M, Prasad A, et al. Sport concussion knowledge base and current practice- a survey of physician sections from the Ontario Medical Association. *Br J Sports Med* 2014; 48: 623-623.
- Mann A, Tator CH, Carson JD. Concussion diagnosis and management: knowledge and attitudes of family medicine residents. *Can Fam Physician*. 2017; 63 (6):460-466.
- Boggild, Miranda, and Charles H. Tator. "Concussion knowledge among medical students and neurology/neurosurgery residents." *Canadian Journal of Neurological Sciences / Journal Canadien Des Sciences Neurologiques*, vol. 39, no. 3, May 2012, pp. 361-368. <https://doi.org/10.1017/S0317167100013524>.
- Demorest RA, Bernhardt DT, Best TM, Landry GL. Pediatric residency education: Is sports medicine getting its fair share? *Pediatrics*. 2005;115(1):28-33. doi: 115/1/28 [pii].

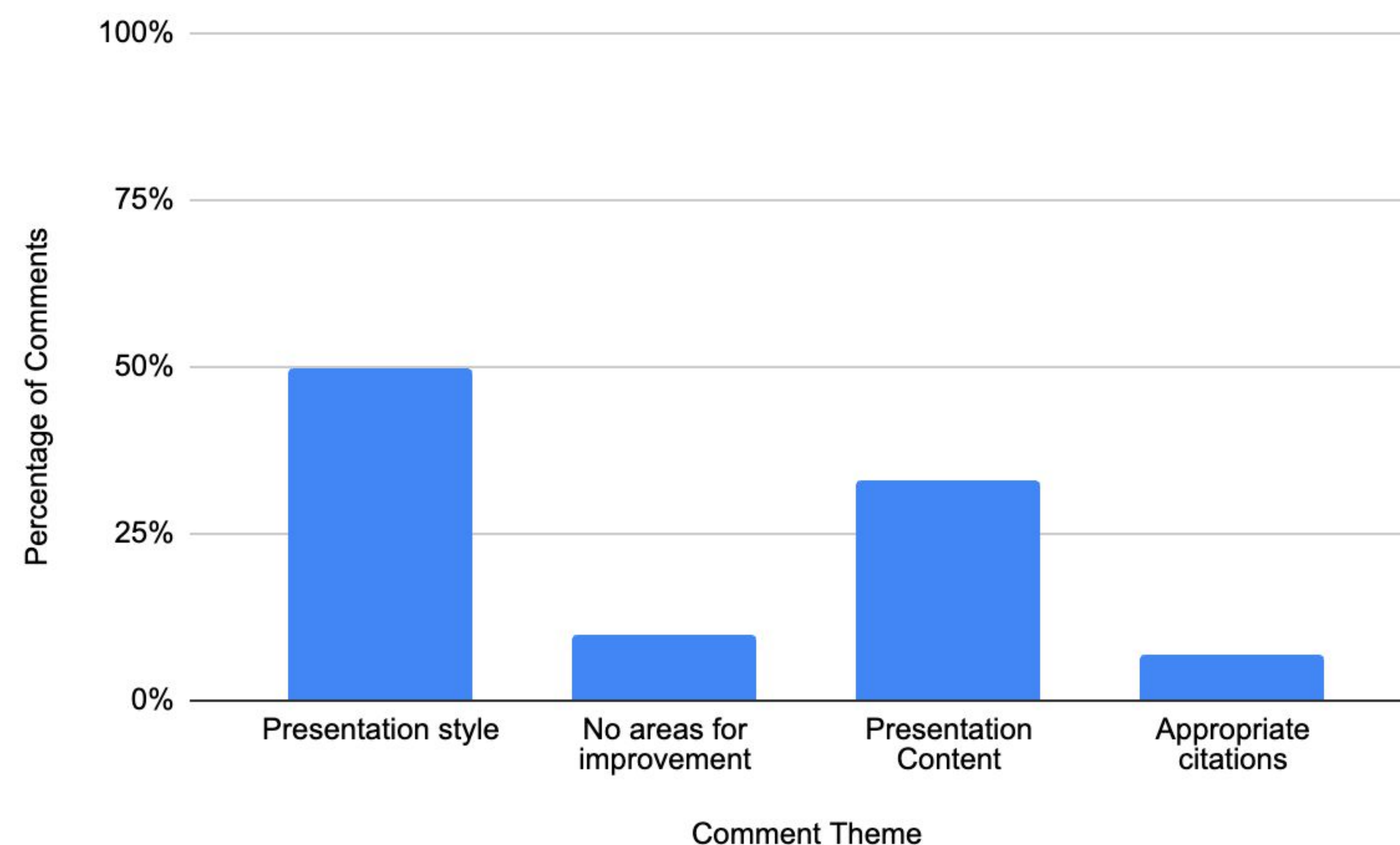
BACKGROUND

Purpose: To examine themes in feedback that students provide to one another on their research presentations during a Problem Based Learning (PBL) curriculum

Background: At Hackensack Meridian School of Medicine, students create self-directed learning presentations during our modified PBL course, Patient Presentation PBL Curriculum (PPPC). They develop these presentations independently on a topic of their choice and present on a regular schedule during small group sessions to their classmates and faculty facilitator. Students receive peer feedback from one colleague each week they present. We sought to classify the students' written feedback into themes to identify what positive and negative feedback students gave. Giving and receiving feedback is a critical skill for students to develop as future clinicians, educators and colleagues.

INTERVENTION DESIGN & EXPECTED IMPACT

Methods: After evaluating the first twenty students' feedback we identified that there were four themes crossing positive and negative feedback on their peers. These themes were (1) comments on styles of presentation (ie: verbal or visual) (2) that the student had nothing to improve on (3) the actual content of the presentation (4) whether the student had included appropriate bibliographic citations. We evaluated 346 research presentations and classified the first comment the student made into one of these categories.



Results: 50% of the comments addressed issues of presentation style, 10% had no substantive feedback or said the presentation was good, 33% percent commented on content, and 7% commented on issues with citations.

DISCUSSION / CONCLUSION

Discussion: Only 10% of the time was no substantial feedback given. 90% of the time students were able to give feedback, both formative and complimentary. Future studies could look at the type of feedback given over time and if the feedback becomes more or less substantial over time.

Conclusions: Students were able to reliably provide substantive feedback on their colleagues' research presentations. The majority of comments fell into either areas for improvement or praise for presentation style or for content covered. Despite frequently reminding the students about the importance of citing resources utilized, this remains an area for improvement.

REFERENCES / ACKNOWLEDGEMENTS

- (1) Association of American Medical Colleges. Core entrustable professional activities for entering residency: curriculum developers' guide. Association of American Medical Colleges, 2014.
- (2) Cohen-Osher M, Davies TA, Flynn DB, Young ME, Hoffman M. Finding Information Framework: A Tool to Teach Life-Long Learning Skills. PRIMER. 2021 May 26;5:16. doi: 10.22454/PRIMER.2021.934572. PMID: 34286219; PMCID: PMC8284495.
- (3) Slawson, David C. MD; Shaughnessy, Allen F. PharmD. Teaching Evidence-Based Medicine: Should We Be Teaching Information Management Instead?. Academic Medicine 80(7):p 685-689, July 2005.

BACKGROUND

Purpose: Developing diagnostic reasoning skills is important for pre-clerkship students. This is practiced iteratively in Hackensack Meridian School of Medicine's modified Problem Based Learning (PBL) curriculum, Patient Presentation PBL Curriculum (PPPC).

Background: Pre-clerkship students work in groups of 8 and receive information from a clinical case that relates to the basic, clinical, and health systems science content taught that week. A Google form was developed for sequential release of case information to practice diagnostic reasoning. The initial section is devoted to development of the differential diagnosis based on the patient's chief complaint, age, and gender. Students use this tool weekly starting midway through the pre-clerkship curriculum. Instruction in differential diagnosis generation is given in a process based manner in the PBL and clinical skills curriculum.

INTERVENTION DESIGN & EXPECTED IMPACT (METHODS)

Methods: We reviewed Google form submissions for each small group starting during Unit 2, the second semester of the pre-clerkship curriculum. We looked at each category of VINDICATES for a specific chief complaint. The first diagnosis listed was graded on a score of not reasonable (0 points), reasonable but unusual (1 point), or reasonable (2 points), for a maximum score of 20. Diagnoses were scored by a trained PBL facilitator.

	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
V: Vascular	Myocardial infarction (2)	pulmonary embolism (2)	CHF (1)	pulmonary embolism (2)	pulmonary embolism (2)	pulmonary embolism (2)
I: Infectious	COVID pneumonia (2)	pneumonia (2)	pneumonia (2)	pneumonia (2)	COVID (2)	pneumonia (2)
N: Neoplastic; Neuropsych	Lung cancer (2)	lung cancer (2)	lung cancer (2)	lung cancer (2)	lung cancer (2)	cancer (2)
D: Drugs	propranolol (1)	anaphylaxis due to drugs (1)	penicillin (0)	Drug allergies (ex. penicillin) (2)	overdose (0)	tobacco (1)
I: Inflammatory	sarcoidosis (1)	lupus (2)	asthma (1)	Atherosclerosis (1)	Atherosclerosis (2)	pericarditis (2)
C: Cardiac; Congenital	Left sided heart failure (2)	patent ductus arteriosus (1)	atrioseptal defect (2)	Dissection (2)	sickle cell (1)	CHF (2)
A: Anatomical; Allergic	asthma (2)	anaphylaxis (1)	drug allergy (1)	asthma (2)	anaphylaxis (2)	pneumothorax (1)
T: Toxic	atropine (1)	trauma (1)	opioid overdose (2)	smoking (2)	overdose (0)	"shrooms" (2)
E: Endocrine; Metabolic	thyroid storm (1)	anemia (2)	hypothyroidism (1)	anemia (2)	diabetes (0)	anemia (2)
S: Social	anxiety (2)	anxiety disorder (2)	anxiety (2)	anxiety (2)	anxiety (2)	anxiety (2)
Total Score	16	16	14	19	13	18

Examples of Diagnoses and Scoring during the second course, HA, for the chief complaint of a 63 year old male with shortness of breath

Results:

In the first course, virtually all groups provided a diagnosis in each category using the VINDICATES model (95.4%). The average score for each group was 13.95 (standard deviation 1.24). In the second course, the average score was 15.33 (standard deviation 1.74). In the third course, the average was 12.63 (standard deviation 2.41). In the last pre-clerkship course, the average was 13.84 (standard deviation 3.04). Over four courses, we saw that groups did not share the same average value with a p-value for difference of 0.03.

DISCUSSION / CONCLUSION

Discussion: Students are able to develop reasonable differential diagnoses using a structured model (VINDICATES) during the organ-systems based pre-clerkship courses. Scores were relatively consistent across the four courses. Data would benefit from review from an additional clinician as scoring can be subjective. Scores may not significantly improve due to student disengagement or due to new chief complaints and content learned.

Conclusions:

Despite limited medical knowledge, students suggest diagnoses that they have not yet covered in coursework the majority of the time. Diagnostic accuracy was generally average and consistent over time.

REFERENCES / ACKNOWLEDGEMENTS

Ivry Zagury-Orly, Daniel S. Kamin, Edward Krupat, Bernard Charlin, Nicolas Fernandez & Krisztina Fischer (2022) The Student-Generated Reasoning Tool (SGRT): Linking medical knowledge and clinical reasoning in preclinical education, *Medical Teacher*, 44:2, 158-166, DOI: [10.1080/0142159X.2021.1967904](https://doi.org/10.1080/0142159X.2021.1967904)

Joseph M Maciuba, Renee Mallory, Luke Surry, Ting Dong, Eulho Jung, Dario Torre, Steven J Durning, Teaching Students How to Think: A Longitudinal Qualitative Study of Preclerkship Clinical Reasoning Instruction, *Military Medicine*, Volume 188, Issue Supplement_2, May-June 2023, Pages 50-55, <https://doi.org/10.1093/milmed/usad036>

Nicola Cooper, Maggie Bartlett, Simon Gay, Anna Hammond, Mark Lillcrap, Joanna Matthan, Mini Singh & On behalf of the UK Clinical Reasoning in Medical Education (CRME) consensus statement group (2021) Consensus statement on the content of clinical reasoning curricula in undergraduate medical education, *Medical Teacher*, 43:2, 152-159, DOI: [10.1080/0142159X.2020.1842343](https://doi.org/10.1080/0142159X.2020.1842343)

BACKGROUND / METHODS

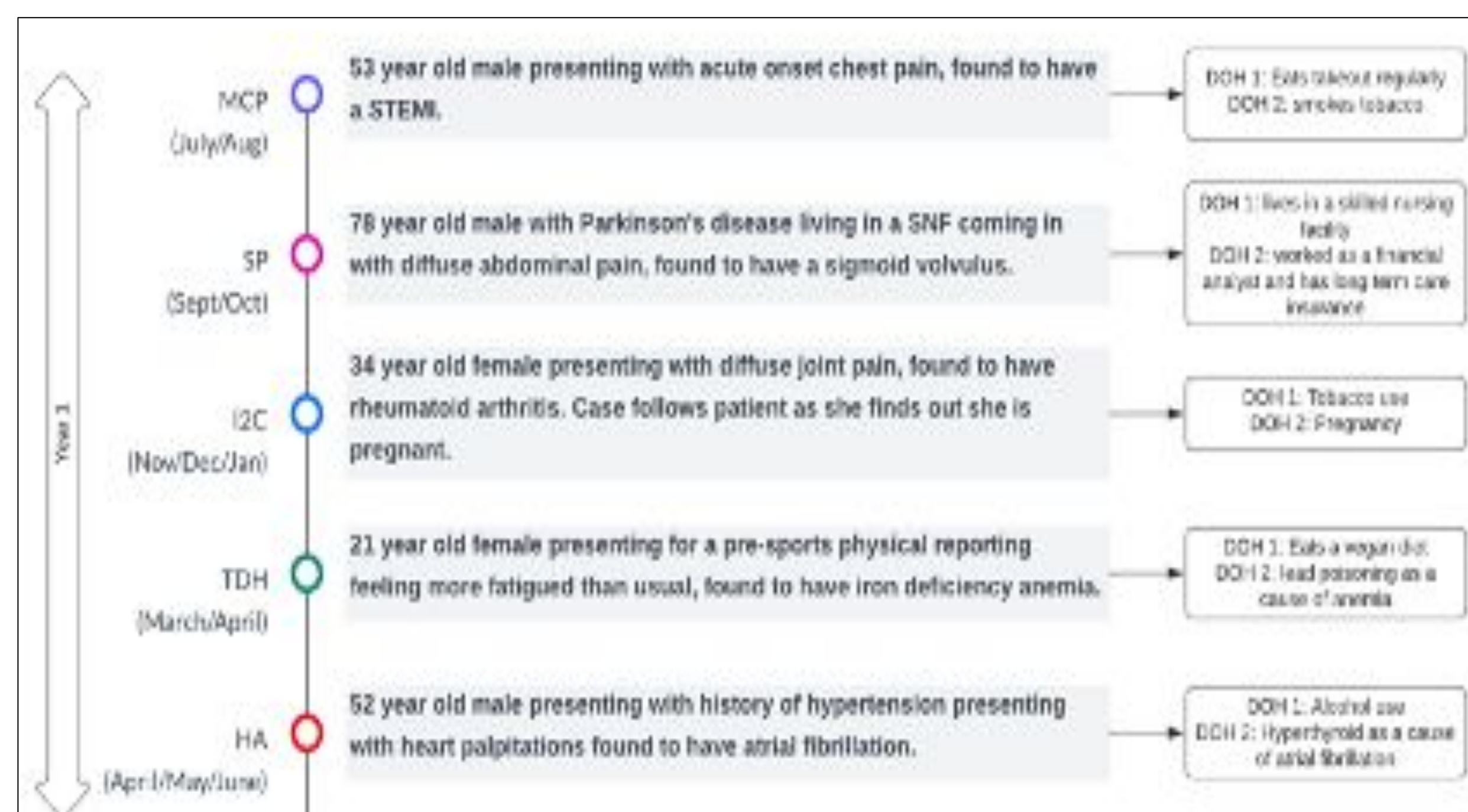
Purpose: Students struggle to contextualize health systems science and the course can feel divorced from patient care.

Background: Hackensack Meridian School of Medicine (HMSOM) was founded on a vision of addressing the determinants of health (DoH) in the daily practice of medicine. The school has an active learning curriculum partially conducted through a small group modified problem-based-learning (PBL) entitled Patient Presentation PBL Curriculum (PPPC). This course includes a Monday discussion of a patient case and a Friday small group session includes concept mapping of the week's basic, clinical, and health systems science (HSS) content. To help students contextualize and bring HSS principles into practice, PPPC at HMSOM requires that concept maps include not just basic science content from the week but also explicitly HSS topics and the DoH.

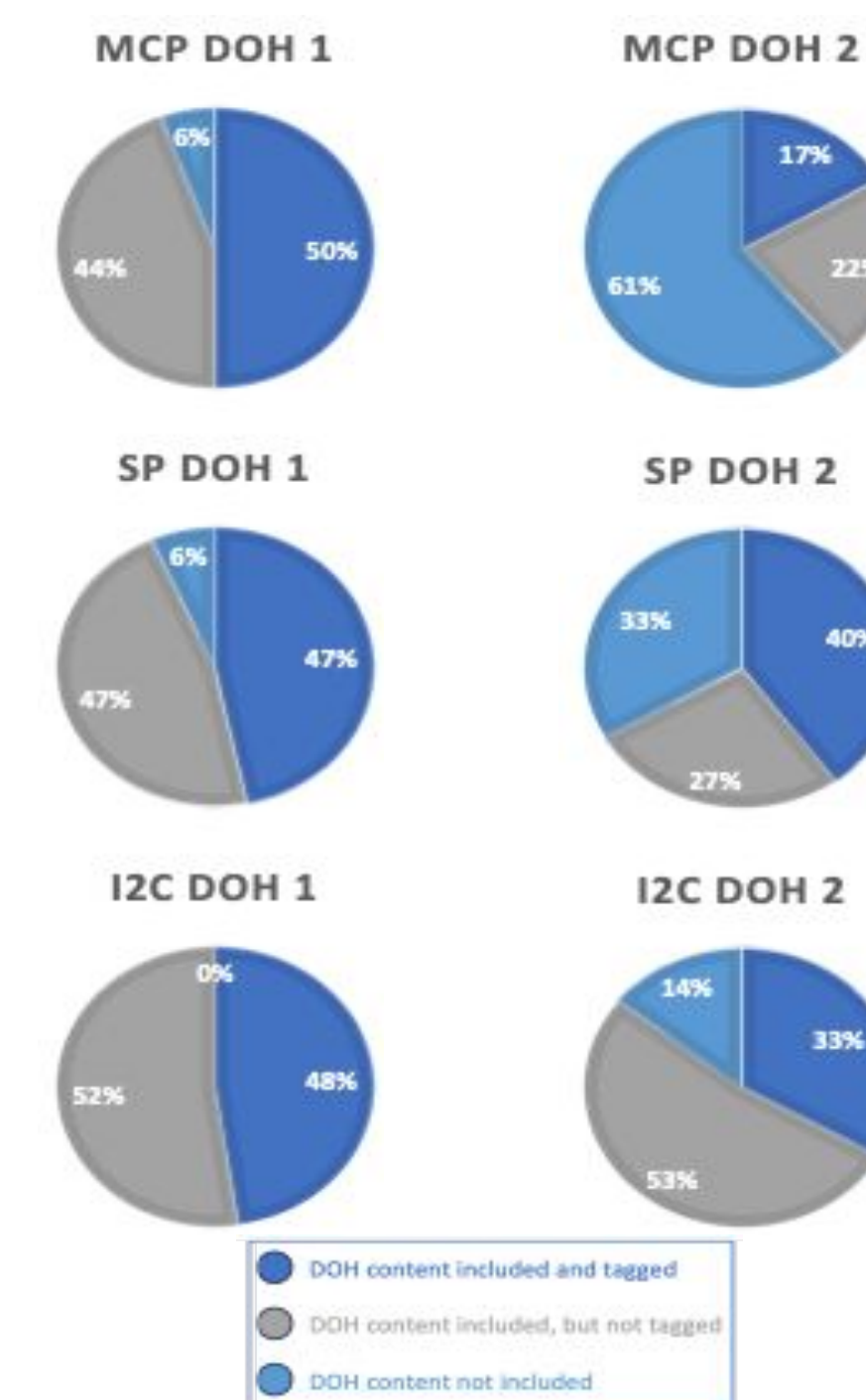
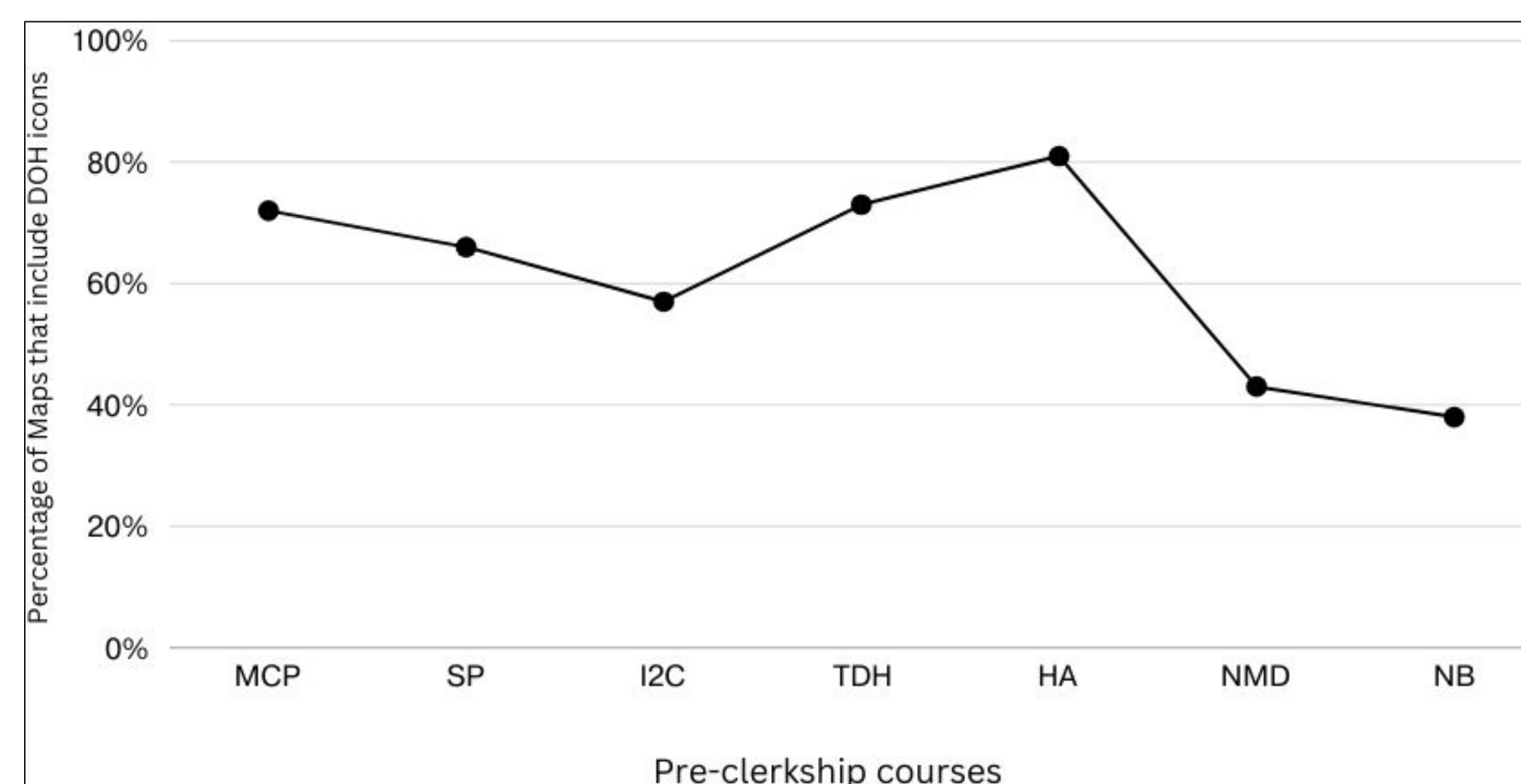
Methods: We reviewed one group concept maps from 7 preclerkship courses. There were an average of 18.9 group concept maps per course available to review, with roughly 8 students per group. We reviewed concept maps for inclusion of DoH icons and HSS content and followed the trend throughout each course of the pre-clerkship curriculum.

INTERVENTION DESIGN & EXPECTED IMPACT

Cases chosen over the course of the pre-clerkship curriculum and DoH expected to be included in group concept maps.
Acronyms: MCP (Molecular & Cellular Principles), SP (Structural Principles), I2C (Infection, Immunity, & Cancer), TDH (The Developing Human), HA (Homeostasis & Allostasis)



Results: HSS content appeared in 45% of group concept maps in the first pre-clerkship course, but did not appear in any concept maps in subsequent courses. DoH content was inconsistently present in group concept maps throughout the first three courses, increased towards the end of the pre-clerkship curriculum.



DISCUSSION / CONCLUSION

Discussion: Inclusion of DoH and HSS content was not as robust as expected and declined over time. This may be due to:

1. Student resistance to concept mapping due to high cognitive load and competing demands in other coursework
2. Declining student interest in concept mapping towards the end of the pre-clerkship curriculum
3. Student struggles with integration of content
4. Faculty not holding student accountable or being content experts
5. Content in the individually created concept maps may get lost when group maps are created

Conclusion: Students sometimes include DoH on their concept maps and this improves from the first three courses towards the end of the first academic year. However, students do not prioritize inclusion of DoH in their concept maps at the end of the pre-clerkship curriculum. HSS content is included in less than half of the concept maps in the first course, and then is not included in any group concept maps for the remainder of the curriculum. This may be due to a decreased focus on DoH and HSS, or related to students' tiring of preclerkship curricular activities including concept mapping. Providing feedback to students on inclusion of DoH and HSS in concept mapping may help improve this skill prior to the start of clerkships.

REFERENCES / ACKNOWLEDGEMENTS

1. Baum F. The Commission on the Social Determinants of Health: reinventing health promotion for the twenty-first century? *Crit Public Health*. 2008;18(4):457-466. doi:10.1080/09581590802443612
2. Lewis JH, Lage OG, Grant BK, et al. Addressing the Social Determinants of Health in Undergraduate Medical Education Curricula: A Survey Report. *Adv Med Educ Pract*. 2020;Volume 11:369-377. doi:10.2147/AMEP.S243827
3. Mangold KA, Bartell TR, Doobay-Persaud AA, Adler MD, Sheehan KM. Expert Consensus on Inclusion of the Social Determinants of Health in Undergraduate Medical Education Curricula. *Acad Med*. 2019;94(9):1355-1360. doi:10.1097/ACM.0000000000002593
4. Gonzalo JD, Dekhtyar M, Starr SR, et al. Health Systems Science Curricula in Undergraduate Medical Education: Identifying and Defining a Potential Curricular Framework. *Acad Med J Assoc Am Med Coll*. 2017;92(1):123-131. doi:10.1097/ACM.0000000000001177
5. Rowland-Seymour A, Mann D, Singh MK, Padrino SL, Wilson-Delfosse AL. Identification of Health Systems Science in a Problem-Based Learning Clinical Reasoning Exercise. *Med Sci Educ*. 2022;32(1):51-55. doi:10.1007/s40670-021-01490-w
6. Novak JD, Cañas AJ. The Theory Underlying Concept Maps and How to Construct and Use Them. *2010.44(5):440-448*. doi:10.1111/j.1365-2923.2010.03628.x
7. Torre DM, Dunning SJ, Daley BJ. Twelve tips for teaching with concept maps in medical education. *Med Teach*. 2013;35(3):201-208. doi:10.3109/0142159X.2013.759644



BACKGROUND

Ultrasound-guided peripheral intravenous catheter insertion (USGIV) is a valuable skill for all internal medicine (IM) residents.

In the hospital, most patients require intravenous (IV) access for tests and treatments. Establishing IV access can be difficult due to acute conditions, like hypovolemia, obesity, or edema.

USGIV allows clinicians to establish reliable access. This can prevent acute illness progression related to delays in traditional IV placement as well as escalation of care (like central line placement or intensive care).

At the time of project inception, few residents were formally trained in the procedure at our program. Simulation-based curriculum is a well-established tool for teaching clinical procedures in residency programs, including internal medicine, emergency medicine, and anesthesia.

GOAL

To increase the number of IM residents trained in USGIV to at least 75% per class year using simulation-based curriculum

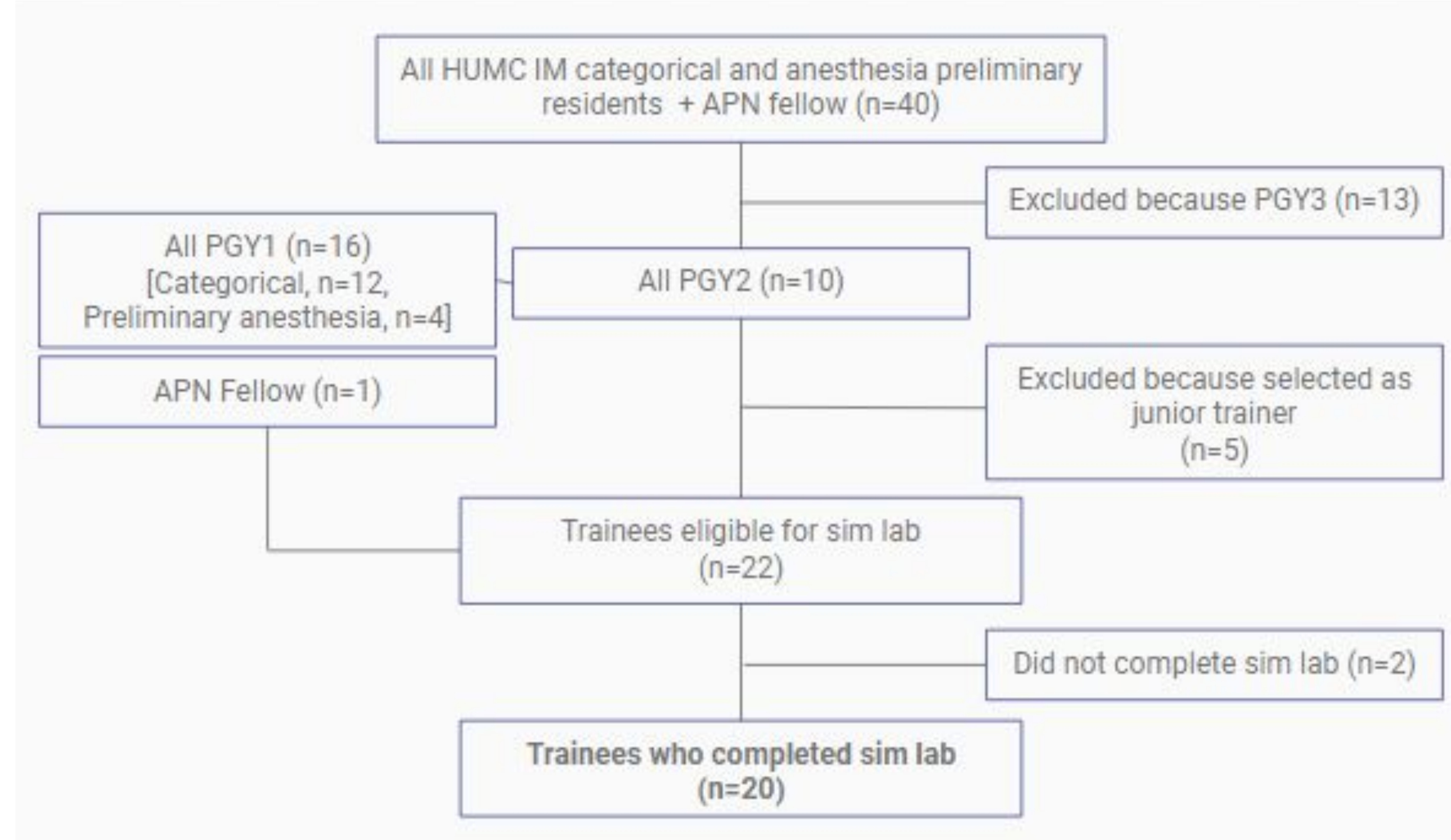
To assess comfort level in USGIV before and after project implementation

Of 40 learners (39 residents + 1 APN fellow), 12 (30%) reported competency in USGIV

INTERVENTION DESIGN

This project was conducted in March to May 2023
Non-randomized, non-blinded curriculum development project
Single tertiary care center, internal medicine residency program

Inclusion / Exclusion Criteria



Pre-Lab Survey	
Question	Answer
Email	Free text
Do you think all internal medicine residents should be trained to place ultrasound-guided peripheral IV lines?	Yes No, it should not be our responsibility No, it should be based on the individual interest of each resident Other (free text)
What is your personal level of interest in learning how to place an ultrasound-guided peripheral IV line?	Not interested Somewhat interested Very interested Other (free text)
Do you currently know how to place a US-guided peripheral IV?	No, I have never tried No, but I have attempted Yes, but I need more practice Yes, with confidence Yes, with confidence and willing to assist with teaching!
If you answered "willing to assist with teaching", how did you learn to place US-guided PIV?	Free text

Post-Lab Survey	
Question	Answer
Email	Free text
How confident are you in having the knowledge to perform the procedure now that you have completed this training session?	Not confident Somewhat confident Very confident
Now that you have completed this session, do you think all internal medicine residents should be trained to place ultrasound-guided peripheral IV lines?	Yes No, it should be our responsibility No, it should be based on individual interest
Do you agree with this approach of training? Feel free to leave comments	Yes, sim lab is a great introduction No, an alternative approach is needed
If you answered "No, an alternative approach is needed", how can we improve training?	Free text
You will be requested to self-assess competency by completing a Google form for each successful real-world attempt (under supervision for 3 times). Will you participate?	Yes No



Methods

1. Pre-session survey
2. Online instructional video
3. Supervised simulation lab
4. Post-session survey
5. Self-assessment surveys during clinical practice

Trainees were divided across 5 sessions

Led by 1 critical care attending, project leader, and one junior trainer

Supplies:

- 20-gauge peripheral IV catheters
- IV insertion kits
- IV extension kits
- 1 commercial venipuncture pad
- 1 homemade ballistics gel block



DISCUSSION / CONCLUSION

88% (20 of 22) of eligible trainees completed simulation for USGIV

Prior to training

- 80% (16 of 20 respondents) believed all IM residents should be trained in USGIV
- 20% (4 of 20) believed training should be based on individual interest
- 75% were "very interested" in training
- 40% of trainees did not know how to place USGIV and only 20% (4 of 27) were confident to teach

After training

- 100% of respondents were "somewhat" to "very confident" with USGIV
- 100% now believed that all IM residents should learn USGIV
- 100% endorsed using simulation to learn USGIV

Simulation is a great tool to improve comfort in USGIV

Learning USGIV is valued by IM residents

REFERENCES / ACKNOWLEDGEMENTS

Vusse LV, Shepherd A, Bergam B, Andros J, Morris A. Procedure Training Workshop for Internal Medicine Residents that Emphasizes Procedural Ultrasound: Logistics and Teaching Materials. *MedEdPORTAL*. 2020;16:10897. https://doi.org/10.15766/mep_2374-8265.10897

Dhanani M, Pfeiffer KV, Rogers J, Leo MM, Sheng AY, Jung CF. Outcomes of a resident-led ultrasound-guided peripheral intravenous catheter placement training program and validation of a procedural training checklist. *Intern Emerg Med*. 2022;17(6):1837-1841. doi:10.1007/s11739-022-03031-8

Paré JR, Pollock SE, Liu JH, Leo MM, Nelson KP. Central venous catheter placement after ultrasound guided peripheral IV placement for difficult vascular access patients. *Am J Emerg Med*. 2019;37(2):317-320. doi:10.1016/j.ajem.2018.11.021

Adhikari S, Schmier C, Marr J. Focused simulation training: emergency department nurses' confidence and comfort level in performing ultrasound-guided vascular access. *J Vasc Access*. 2015;16(6):515-520. doi:10.5301/jva.5000436

Amick AE, Feinsmith SE, Davis EM, et al. Simulation-Based Mastery Learning Improves Ultrasound-Guided Peripheral Intravenous Catheter Insertion Skills of Practicing Nurses. *Simul Healthc*. 2022;17(1):7-14. doi:10.1097/SH.0000000000000545

Adrian RJ, Choi A, Lamba S, et al. Teaching Module on Ultrasound-Guided Venous Access Using a Homemade Gel Model for Fourth-Year Medical Students. *MedEdPORTAL*. 2022;18:11222. Published 2022 Feb 2. doi:10.15766/mep_2374-8265.11222

Sajadi K, Crosby L, Yu M, Longenbach J, Welch KC, Cooper M. Comparison of Commercial Versus Homemade Models for Teaching Ultrasound-Guided Peripheral IV Placement. *J Emerg Med*. 2022;62(4):500-507. doi:10.1016/j.jemermed.2022.01.003

Ballard HA, Rivera A, Tsao M, et al. Use of an ultrasound-guided intravenous catheter insertion simulation-based mastery learning curriculum to improve paediatric anaesthesia care. *BJA Open*. 2022;4:100101. Published 2022 Oct 29. doi:10.1016/j.bjao.2022.100101

Davis EM, Feinsmith S, Amick AE, et al. Difficult intravenous access in the emergency department: Performance and impact of ultrasound-guided IV insertion performed by nurses. *Am J Emerg Med*. 2021;46:539-544. doi:10.1016/j.ajem.2020.11.013

Thank you to Dr. Zetkovic, Dr. Ballachanda, Jessica our program coordinator, Anita and Justin our former and current chief residents, Ahmad, Asna, Hirva, and Uri our junior trainers, Dr. Shah, Dr. Sheth, Dr. Paralkar, Dr. Morchel, and all my IM colleagues for making this project possible



Spiral Integration of Acute Care Skills with a Longitudinal Emergency Medicine Clerkship

Monica Hernandez, M.D.; Ofelia Martinez, M.D.

BACKGROUND

Effective interns are expected to recognize an acutely ill patient, correctly diagnose them and implement initial management.

- Skills in clinical reasoning and recognition and intervention in acute care scenarios are core skills needed for effective interns.
- These skills require successful building of the foundation science knowledge and clinical skills across clinical rotations.
- Clerkship students tend to compartmentalize content and skills learned from clerkship to clerkship, and from pre-clerkship into the clinical setting: negatively impacting integration of acquired knowledge and skills.

Knowledge Integration Challenge

Integration of concepts learned in Phase 1 into the Phase 2 clerkship can be difficult for students who are advancing from pre clinical years into the clinical arena.

- Longitudinal integrated clinical experiences tend to improve long term retention and recollection of content through repetition over a longer period of time (1).

Objective of the project/study

- Leverage spiral integration in a longitudinal clerkship across clerkship year to promote lifelong learning of essential skills needed for an intern with emphasis on clinical reasoning and acute care management.

CLERKSHIPS*								STEP 1 & 2
Transitional Clerkship	Internal Medicine	Surgery	Family Medicine	Pediatrics	OB/Gyn	Psychiatry	Neurology	
4 weeks	8 weeks	8 weeks	8 weeks	6 weeks	6 weeks	8 weeks	6 weeks	12 weeks
Emergency Medicine								

INTERVENTION DESIGN & EXPECTED IMPACT (METHODS)

Design

- The Emergency Medicine (EM) longitudinal clerkship at the Hackensack Meridian School of Medicine uses the Clerkship Directors of Emergency Medicine Curriculum (CDEM) modified from the traditional 4 to 6 week elective into a yearlong curriculum.
- The clerkship is integrated into all other block clerkships (Surgery, Family Medicine, Internal Medicine, Psychiatry, OBGYN, Neurology and Pediatrics).
- Students are assigned block specific topics in Emergency Medicine that also apply to the specialty clerkship they are rotating through.
- Students complete the CDEM assigned readings prior to the start of their block and to add to the EM concepts learned as they progress through the specialty block.
- Content further emphasized by monthly pre-core curriculum session assignments and zoom meetings that cover essential topics and progress to more advanced concepts.

Evaluation Plan

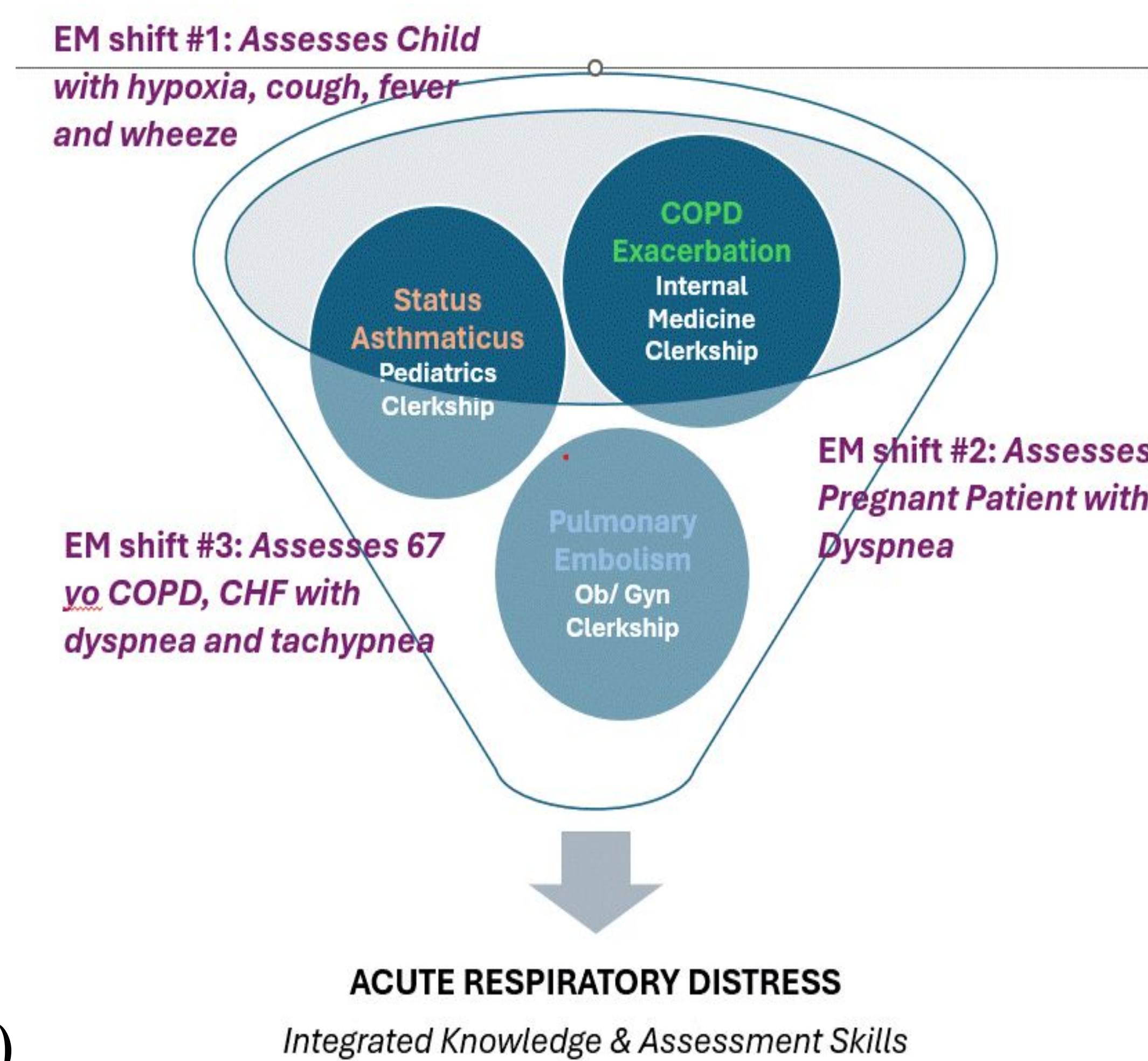
- At the conclusion of each block, students complete the specialty clerkship National Board of Medical Examiners (NBME) subject exam and then take the EM Advanced Clinical Examination at the end of the clerkship year.
- Students are tested in the areas of diagnosis and emergency care in all 7 clerkships and again on the Advance Emergency Medicine Subject exam which further consolidates acute care related content.
- Emergency Medicine Advanced Clinical Examination also allows evaluation of content specific area performance outcomes.
- Clinical Skills Assessment information is also acquired from Block OSCE's.

Intended Outcomes

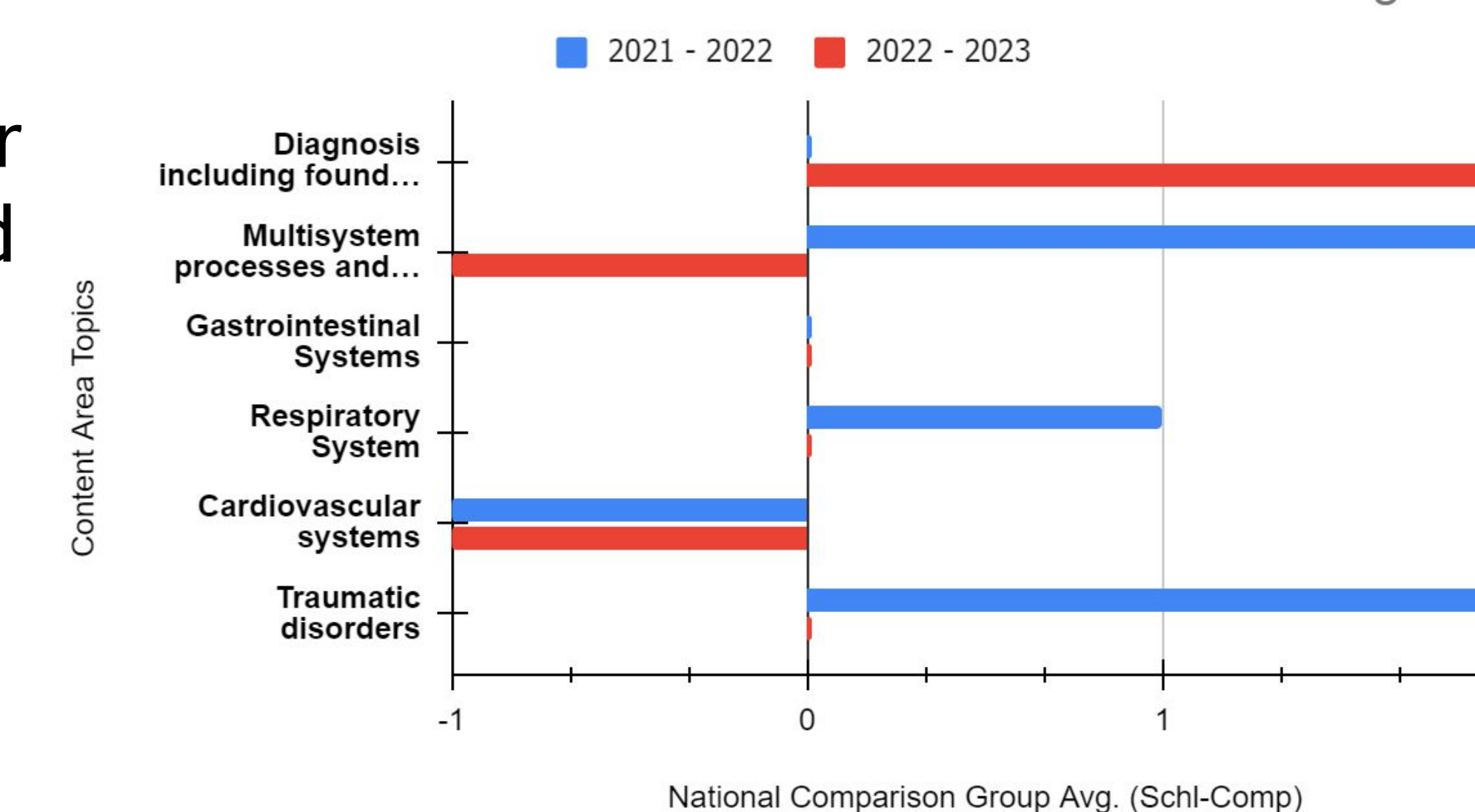
- Key content reinforced multiple times across the clerkship year with the goal that this spiral integration will result in improved retention of knowledge and its application in the clinical workplace (2,3).
- Student performance in acute care and diagnostic reasoning indicate this approach has yielded the intended gains as assessed in the simulated environment, at mid-clerkship and end of clerkship and in the NBME subject exams on these areas.

Transferability

- Integration can be applied to other core skills (communication skills, professionalism, knowledge acquisition) to increase retention and bedside application.



HM SOM Content Area Performance Difference in Averages



DISCUSSION / CONCLUSION

Discussion

- The spiral integration of emergency medicine topics into traditional clerkship blocks allows for cross-disciplinary learning and facilitates recall of previously learned concepts promoting enhanced application of acquired knowledge to patient care.
- Although students may experience repetitive exposure to specific encounters, the longitudinal aspect of the clerkship, such as increased time between EM shifts, can pose a challenge to students with respect to recall of ED specific processes.
- The ED is an exceptional environment to integrate learned concepts to undifferentiated patients as early as their first shifts promoting lifelong learning.
- Similarly, EM Advanced Clinical examination can serve as an important preparatory step for success on the USMLE exams.

Conclusion

- The integration of a longitudinal Emergency Medicine (EM) Clerkship into the traditional clerkship year served as a way to reinforce and extend knowledge of concepts that are critical to student performance in the areas of acute care management and diagnostic reasoning.
- These data suggest spiraling acute care content among the clerkships with emergency medicine is an effective approach for learners to acquire these knowledge and skills.

REFERENCES / ACKNOWLEDGEMENTS

- Hauer, Karen E. MD; O'Brien, Bridget PhD; Poncelet, Ann N. MD. Longitudinal, Integrated Clerkship Education: Better for Learners and Patients. Academic Medicine 84(7):p 821, July 2009. | DOI: 10.1097/ACM.0b013e3181a824bc
- Fraser, S., Wright, A.D., van Donkelaar, P. et al. Cross-sectional comparison of spiral versus block integrated curriculums in preparing medical students to diagnose and manage concussions. BMC Med Educ 19, 17 (2019). <https://doi.org/10.1186/s12909-018-1439-0>
- R.M. HARDEN (1999) What is a spiral curriculum?, Medical Teacher, 21:2, 141-143, DOI: 10.1080/01421599979752



Enhancing Emergency Medicine Specialty Appreciation and Learning through a Longitudinal Integrated Emergency Medicine Clerkship

Monica Hernandez, M.D.; Atul Pasricha, D.O.

BACKGROUND

The introduction of the Hackensack Meridian School of Medicine in 2018 prompted the creation and development of an innovative longitudinal Emergency Medicine (EM) clerkship integrated into the fabric of the traditional clerkship year.

- Emergency Medicine (EM) is typically considered an advanced elective traditionally taught in the 4th year of medical school.
- A little over half of U.S. allopathic medical schools require an EM elective for all students.(1)
- Even less medical schools require it in the 3rd year.(2)
- Success in EM requires application of knowledge acquired from multiple other specialties.
- EM as a separate clerkship block in 3rd year medical school can be challenging when taught as the first or second block rotation.

Objective of the project

The integration of emergency medicine topics into traditional clerkship blocks allows for enhanced cross-disciplinary learning and facilitates the application of emergency medicine principles across different specialties, promoting a holistic understanding of patient care.

- Iterative application of foundational medical knowledge into real patient care scenarios from the start of the clerkship year
- Improved synthesis of medical evaluation and treatment of patients as the year progresses.
- Ensures 100% student exposure to EM specialty with resultant increased appreciation and interest in EM.
- Ensures that all students have a similar exposure to EM while undertaking the clerkship.

CLERKSHIPS*							
Transitional Clerkship 4 weeks	Internal Medicine 8 weeks	Surgery 8 weeks	Family Medicine 8 weeks	Pediatrics 6 weeks	OB/Gyn 6 weeks	Psychiatry 6 weeks	Neurology 6 weeks
Emergency Medicine							

Block Student	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
IM	Morning	Morning	Morning	Morning	Morning	Morning	Morning
FM	PSYCH	OB/GYN or SURG	SURG	FM	IM	FM or SURG	NEURO
SURG	Evening	Evening	Evening	Evening	Evening	Evening	Evening
OB/GYN	IM	NEURO	OB/GYN	FM	PSYCH	SURG	NEURO
PSYCH	Overnight	Overnight	Overnight	Overnight	Overnight	Overnight	Overnight
NEURO		OB/GYN	OB/GYN		IM	PSYCH	

INTERVENTION DESIGN & EXPECTED IMPACT (METHODS)

Design

- 12-month longitudinal clerkship starts in Phase 2 with orientation and procedure sessions during transitional block.
- 2 shifts per block each in Internal Medicine, Family Medicine, Surgery, Neurology, Psychiatry and OB/GYN blocks and 4 shifts during the Pediatric block
- Integration of the Clerkship Directors in Emergency Medicine curriculum (CDEM) divided into manageable topics to enhance learning while in the ED and its applications to the specialty block teachings the students are rotating through.
- Curriculum supplemented by self-study modules and interactive zoom sessions covering general introductory common ED presentation topics early in the clerkship year, progressing to more complex topics.
- Collaboration with and buy-in from SOM Leadership, specialty CD, EM site directors (SD), EM faculty, clerkship coordinator (CC) and students of the benefits of early exposure to EM to enhance bedside clinical performance.
- Adaptation of LCME requirements from the traditional 4 week electives (RCE's, duty hours, mid-clerkship reviews, formative and summative evaluations, final narratives and grading) to that of a year long clerkship.

Evaluation Plan

- Bedside evaluation of competencies such as caring for critically ill undifferentiated patients, development of prioritized differentials, documentation, focused presentations, key emergency procedures, and SDOH considerations.
- Increased focus on students overall growth and experiences with innovative approaches to timely daily feedback and debriefing opportunities.
- Improvements in shift schedules and access to daily performance evaluations in real time for ease in student tracking throughout network hospitals.
- Interdisciplinary collaboration to lessen disruption for students balancing two clerkships minimizing the risk of neglecting block specific requirements and longitudinal requirements.
- Use of journals and trackers to aid students with organizational skills and completion of requirements.

Feasibility

- Collaboration with specialty CD to enhance cross-disciplinary learning.
- Incorporation of new rotation sites to support the increasing cohort size.
- Flexibility in scheduling EM shifts for increasing cohort of students throughout network hospitals.
- Expedited recruitment, onboarding and development of board certified EM faculty.
- Frequent faculty and resident development teaching sessions to improve formative feedback and completion of shift evaluations.
- Close collaboration with EM site directors and CC enhancing overall clerkship experience and goal achievement.

Intended Outcomes

- Seamless assimilation of key concepts and overall EM learning.
- Focus on feedback at the bedside and student integration of feedback increases student self-awareness of growth and development of foundational medical knowledge over the clerkship year.
- Comparability of student experiences ensuring consistency and quality in teaching across multiple sites.
- Increased interest and appreciation of the specialty as a framework for assessing the impact and effectiveness of the clerkship on students' learning and career interests.
- On par performance in the Emergency Medicine Advanced Clinical Examination when compared to students in advanced electives at the completion of clerkships.

Transferability

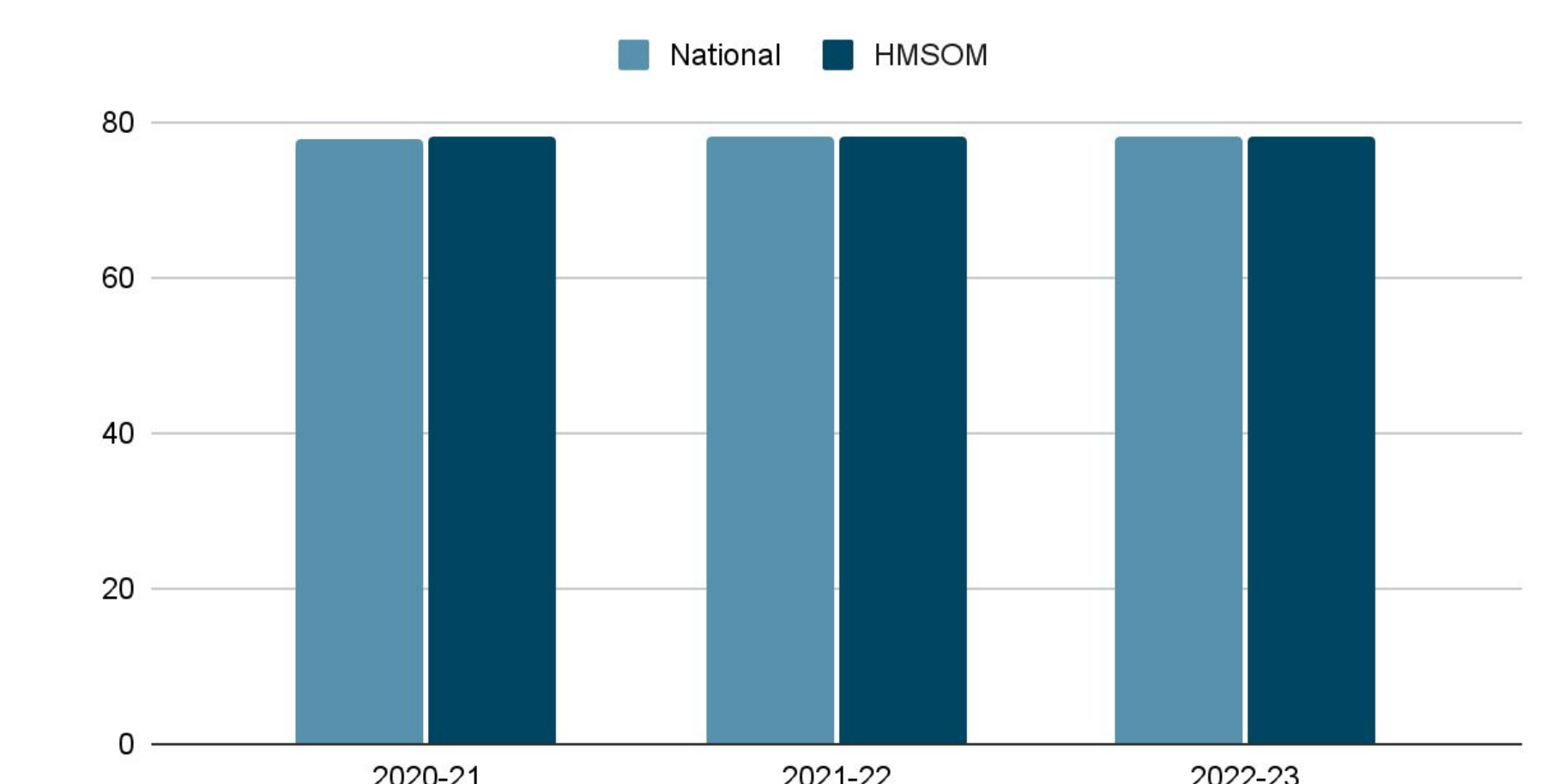
- Collaborative approach with specialty CD, adaptation of requirements, and flexibility in scheduling shifts can be implemented in other longitudinal clerkships to optimize student learning and assessment.
- Integrated longitudinal clerkships can be tailored to meet the needs of various medical schools while accommodating changes in cohort size or rotation sites.
- Investment in faculty development and training can be replicated to maintain high standards of education and optimal feedback and assessment.
- Cross-disciplinary learning can be adapted to various clerkship structures promoting a holistic approach to patient care.

DISCUSSION / CONCLUSION

Discussion

- The longitudinal aspect allowed for continuous immersion throughout the year fostering ongoing progress and success in the clerkship as reflected in students' enhanced clinical skills, smooth transition into varied emergency departments, and heightened enthusiasm for Emergency Medicine.
- Despite the unconventional scheduling, student performance in standardized tests such as the Advanced EM subject examination aligns with standards of traditional clerkships.
- The mean NBME score for HM-SOM students is on par with the national mean.

Mean NBME EM shelf score



Conclusion

- The creation, implementation and integration of a longitudinal EM clerkship at the Hackensack Meridian School of Medicine has been a complete success.
- The incorporation of a myriad of moving parts despite the rapidly increasing cohorts and a worldwide pandemic is a testament to the instrumental collaborative effort of clerkship directors, faculty and course coordinator providing a holistic and immersive educational experience, preparing students for the multifaceted challenges of medical practice.

REFERENCES / ACKNOWLEDGEMENTS

- Sorabh Khandelwal, MD, et. al. The State of Undergraduate Education in Emergency Medicine: A National Survey of Clerkship Directors. Acad Emerg Med. 2014; 21:92-95©2013 by the Society for Academic Emergency Medicine.
 - Matthew C. Tews, DO, et. al. Developing a Third-year Emergency Medicine Medical Student Curriculum: A Syllabus of Content. Acad Emerg Med. 2011;18:S36-S40©2011 by the Society for Academic Emergency Medicine.
 - Coates WC. An educator's guide to teaching emergency medicine to medical students. Acad Emerg Med. 2004 Mar;11(3):300-6. doi: 10.1111/j.1553-2712.2004.tb02215.x. PMID: 15001414
- Acknowledgements to our exceptional CC Camilla Essner who successfully juggles all the moving parts of our clerkship.

INTRODUCTION

- **Background:** Medical students routinely learn how to conduct a thorough history and physical examination (H&P). However, the Initial Psychiatric Evaluation (IPE) differs substantially from the typical H&P. Students often struggle with IPEs because they lack a roadmap for conducting a detailed, thoughtfully-structured psychiatric interview.
- **Objectives:** We sought to develop a concise, comprehensive interview tool to help students perform Initial Psychiatric Evaluations (IPEs).

METHODS

- **Design:** We designed OpenIPE via an iterative process based on Continuous Quality Improvement (CQI): (1) We constructed a one-page tool encompassing all elements of a standard IPE; (2) We field-tested the tool; (3) We reviewed relevant literature and revised *OpenIPE* to reflect current research evidence on suicide risk assessment and substance use screening; (4) Clinical faculty observed us performing IPEs with *OpenIPE*, and helped restructure the tool for enhanced rapport-building; (5) We obtained anonymous feedback from medical students (n=14); (6) We created an Epic template with fields matching all data categories in *OpenIPE*.

RESULTS

Figure 1: Percentage of students who felt that *OpenIPE* enhanced their CONFIDENCE performing IPEs

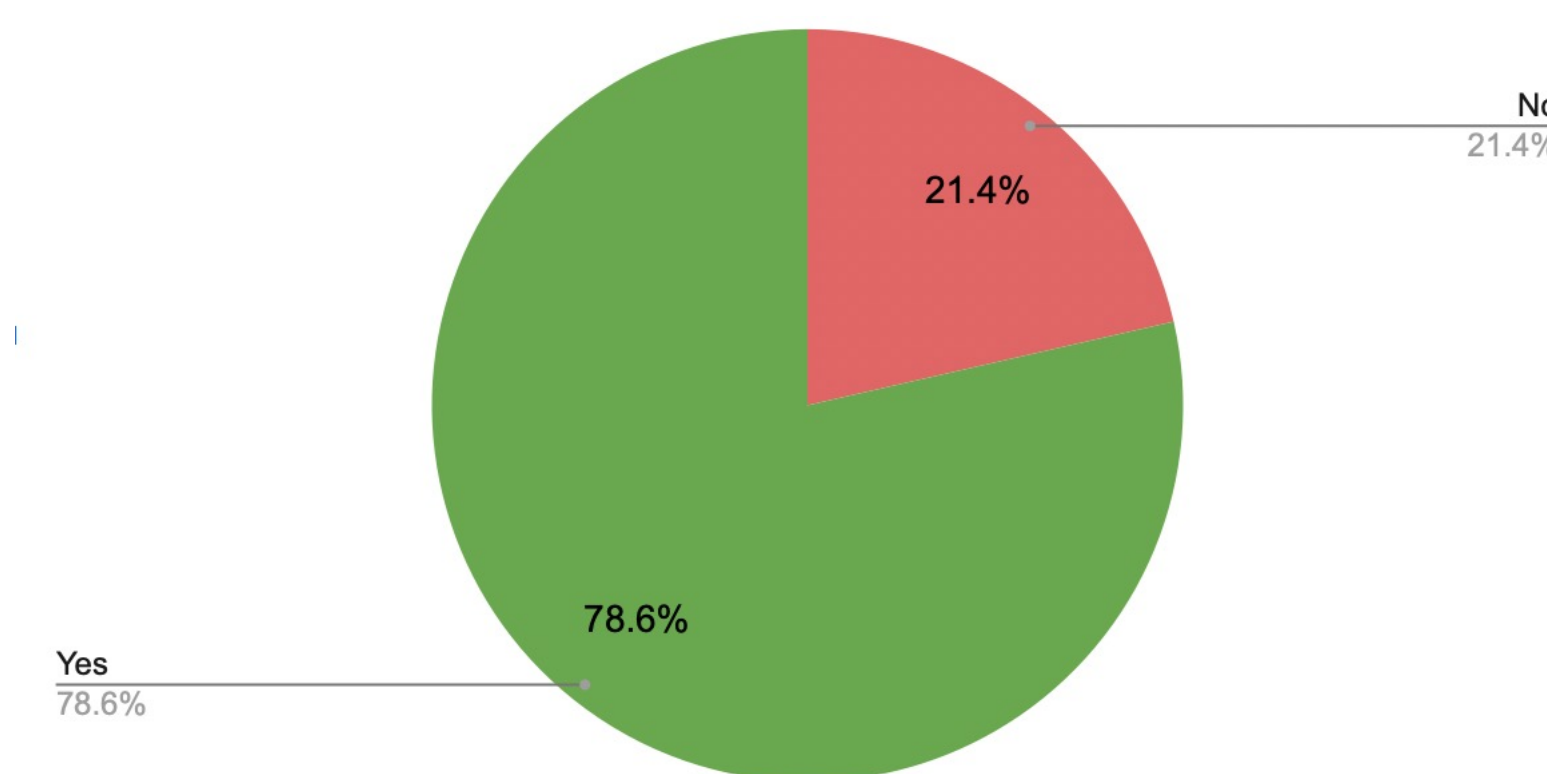


Figure 2: Percentage of students who felt that *OpenIPE* helped them to perform a more ORGANIZED IPE

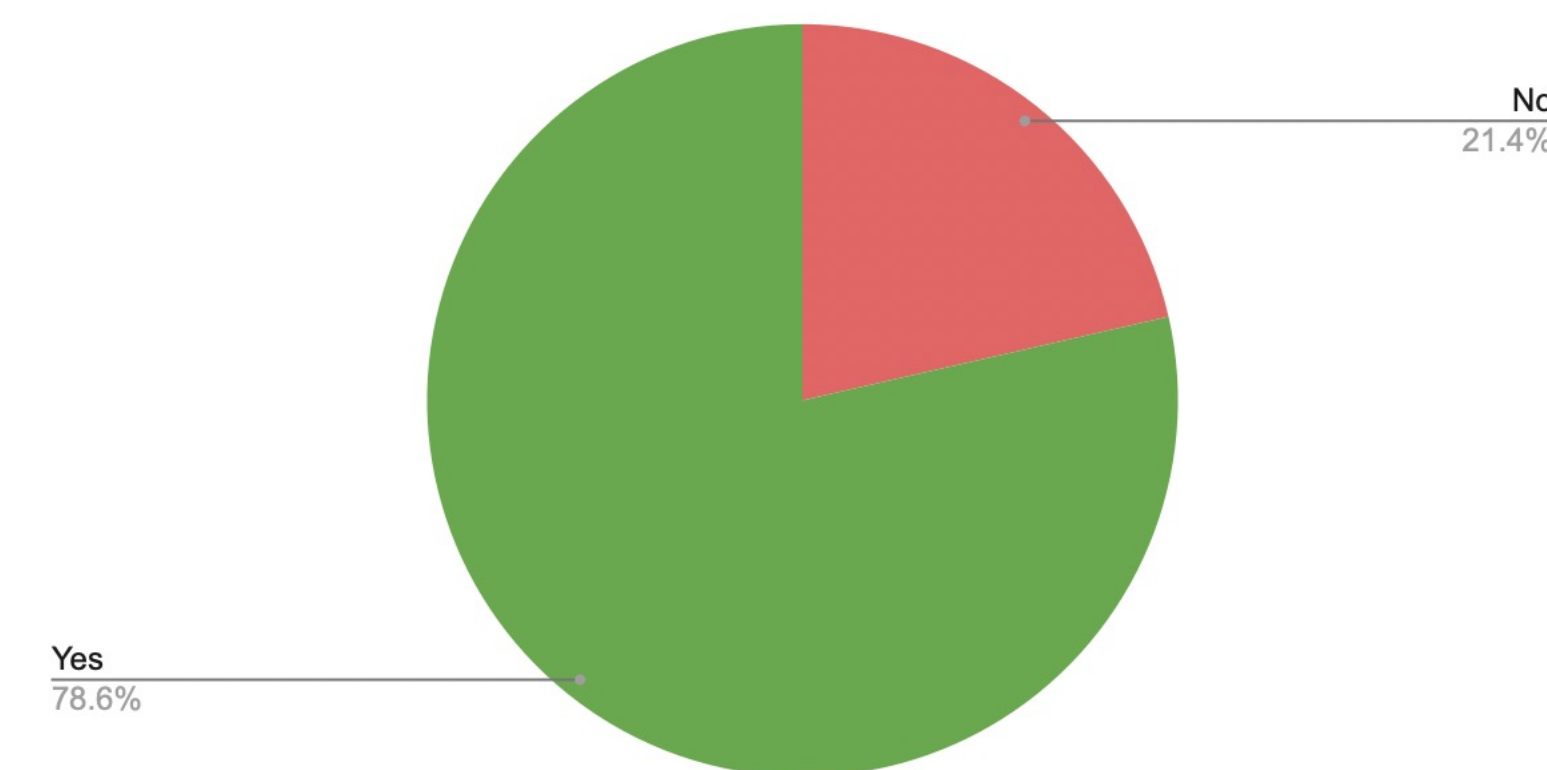


Figure 3: Percentage of students who felt that *OpenIPE* improved the quality of their DOCUMENTATION

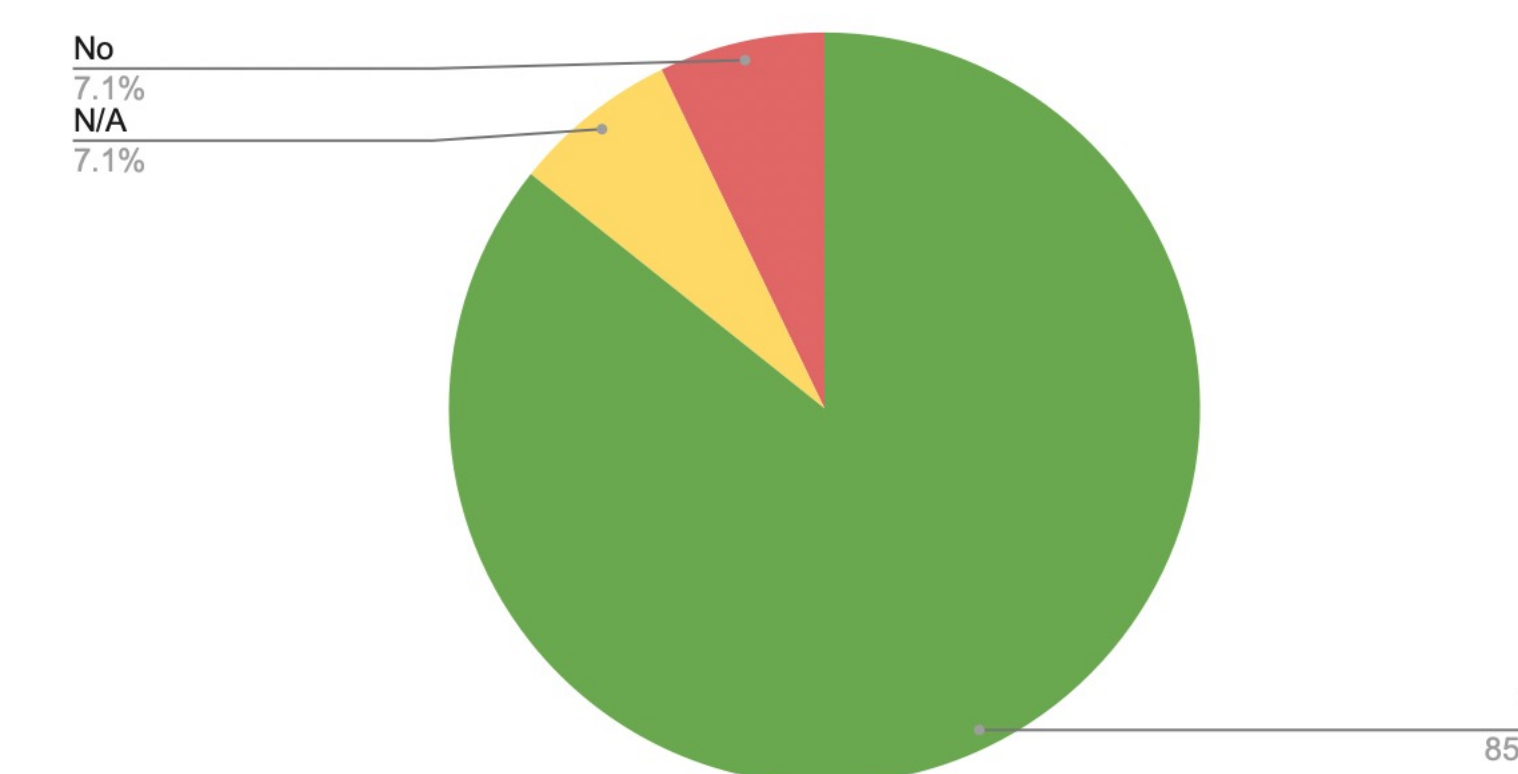
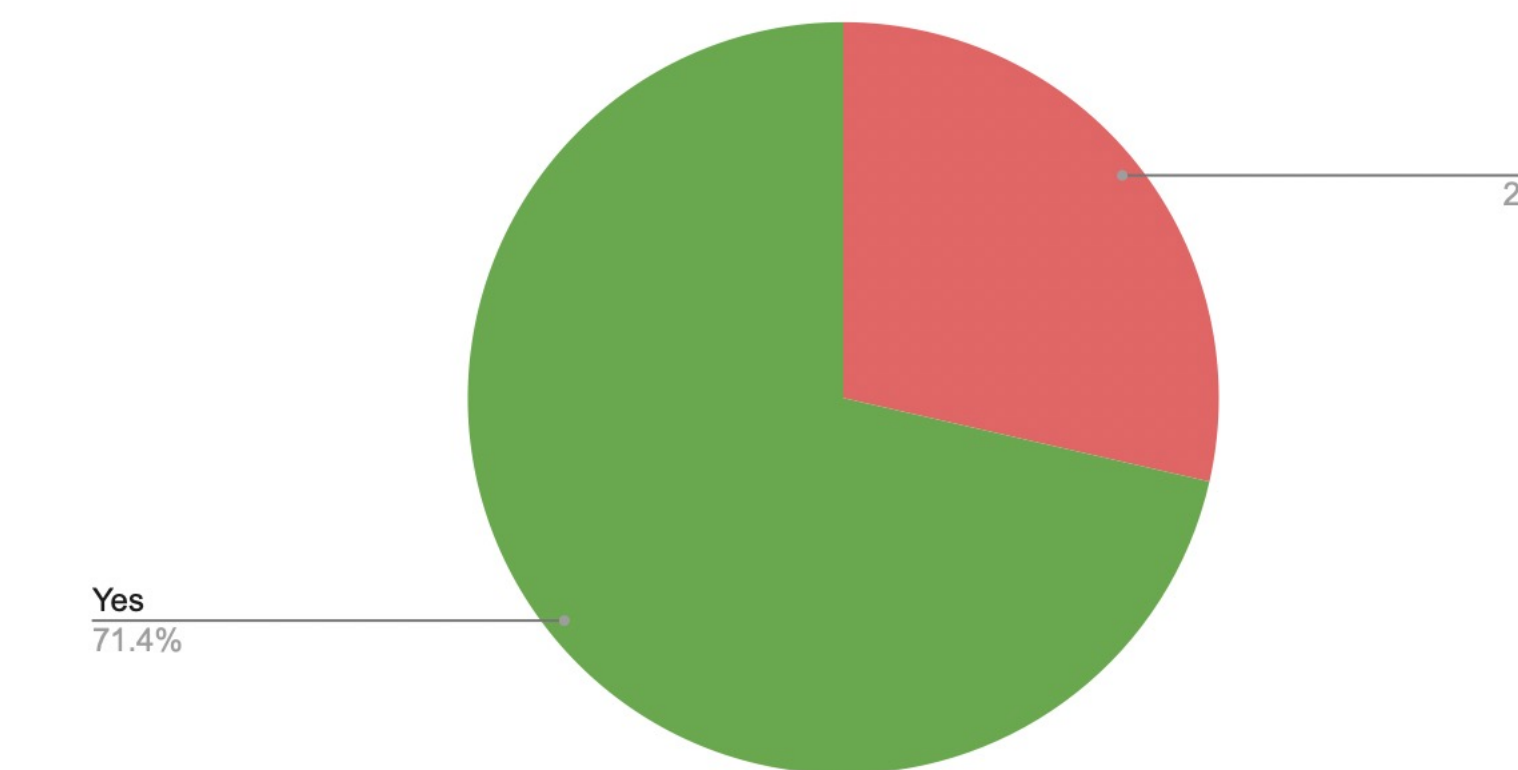
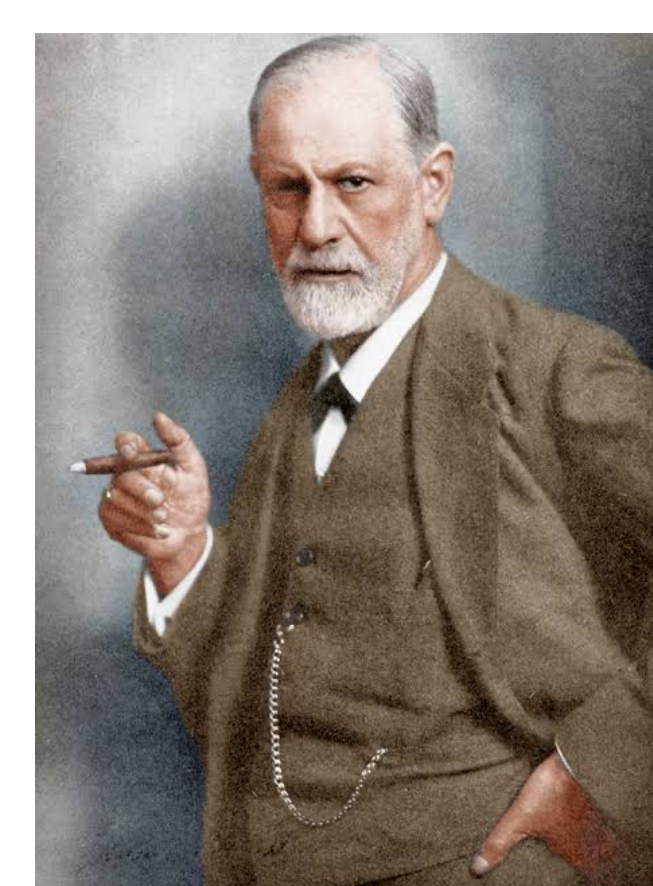


Figure 4: Percentage of students who planned to continue to use *OpenIPE* for future IPEs



Note: In addition to the above, 100% of students stated that *OpenIPE* helped them to perform a more THOROUGH Initial Psychiatric Evaluation.

Psychiatric Interviewing: A Historical Perspective



Sigmund Freud (1856-1939)

Psychoanalytic Interviewing

- examination of individual mental processes allows analyst to theorize about their meaning
- diagnostic information is secondary to exploration of “submerged complexes”



Leo Alexander (1905-1985)

Sociocultural Interviewing

- focus on understanding the patient’s symptoms in the context of social determinants
- therapeutic maneuvers (e.g. suggestion, persuasion)



Emil Kraepelin (1856-1926)

Descriptive Interviewing

- focus on “reliable” description of symptoms to determine “natural disease entities” and inform treatment
- Psychiatrist follows patient over many years if possible; “diagnosis is prognosis.”



Harry Stack Sullivan (1892-1949)

Collaborative Inquiry

- Interview conducted in such a way that patient feels the need to volunteer further information
- “smooth transitions” between areas of inquiry

LIMITATIONS

- single hospital system
- single medical student cohort
- no control group

CONCLUSIONS

- *OpenIPE* is a valuable tool for improving the quality of medical students’ psychiatric interviewing skills while achieving seamless integration with the electronic medical record.
- While our experience demonstrates *OpenIPE*’s feasibility and acceptability in both outpatient and inpatient settings, further refinements could be achieved by testing *OpenIPE* in additional settings.

REFERENCES

Ghaemi SN. Bipolar vs. borderline - diagnosis is prognosis once again. *Acta Psychiatr Scand*. 2016 Mar;133(3):171-3. doi: 10.1111/acps.12560. PMID: 26861447.

Lake C. How Academic Psychiatry Can Better Prepare Students for Their Future Patients: Part I: The Failure to Recognize Depression and Risk for Suicide in Primary Care; Problem Identification, Responsibility, and Solutions. *Behavioral Medicine* 2008. 34:3, 95-100, DOI: 10.3200/BMED.34.3.95-100.

Nuzzarello A, Birndorf C. An interviewing course for a psychiatry clerkship. *Acad Psychiatry*. 2004 Spring;28(1):66-70. doi: 10.1176/appi.ap.28.1.66. PMID: 15140811.

Scott JA, Hirshbein L. Tell Me About It: The Historical Development of the Psychiatric Interview. *Harv Rev Psychiatry*. 2021 Nov-Dec 01;29(6):438-443. doi: 10.1097/HRP.0000000000000319. PMID: 34767330.

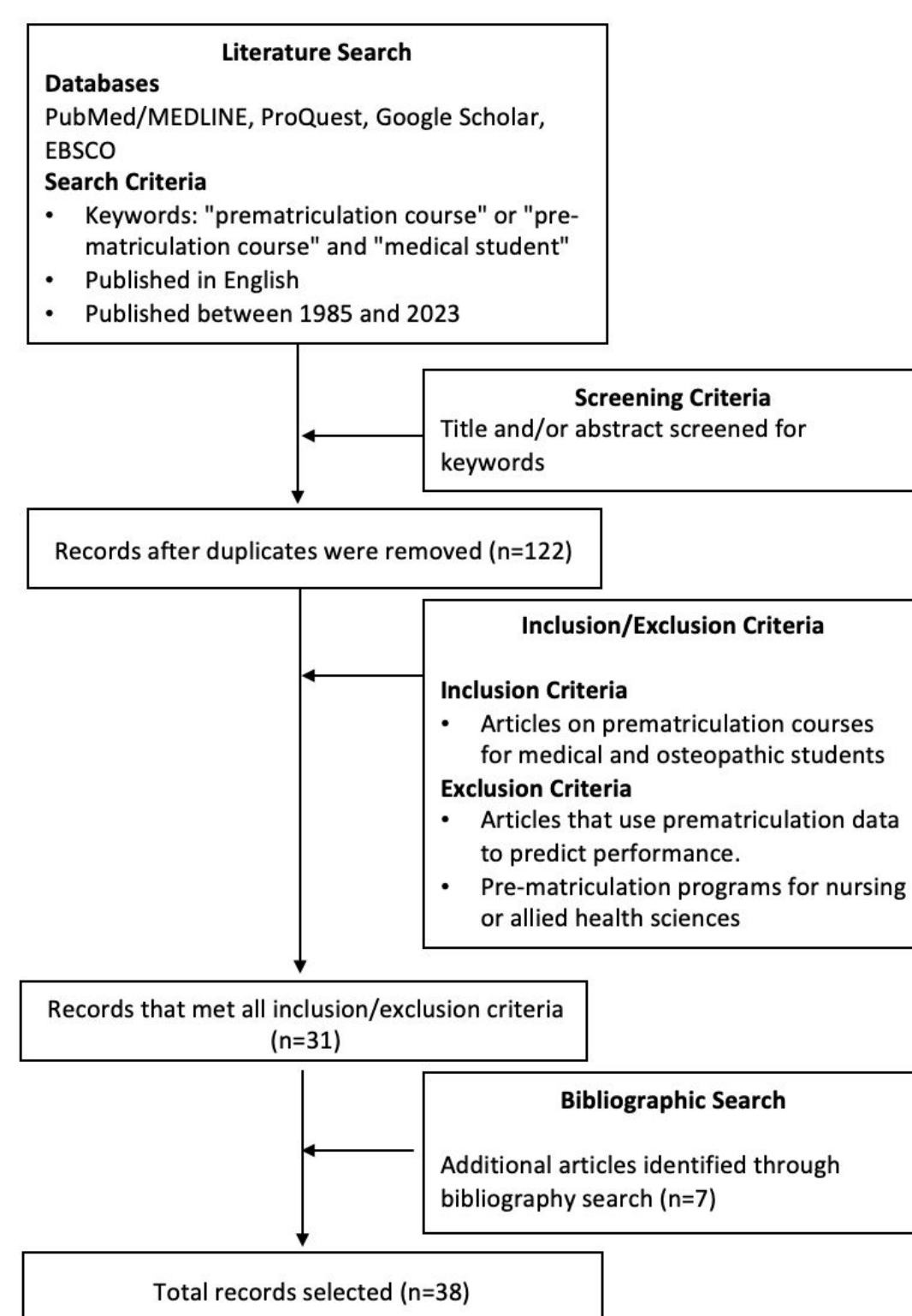
BACKGROUND

- Medical education has transformed over the recent years
- It is important to support the assimilation of medical students into these transformations
- Medical schools have developed pre-matriculation initiatives (courses, programs, events etc) to support their transition

Research question

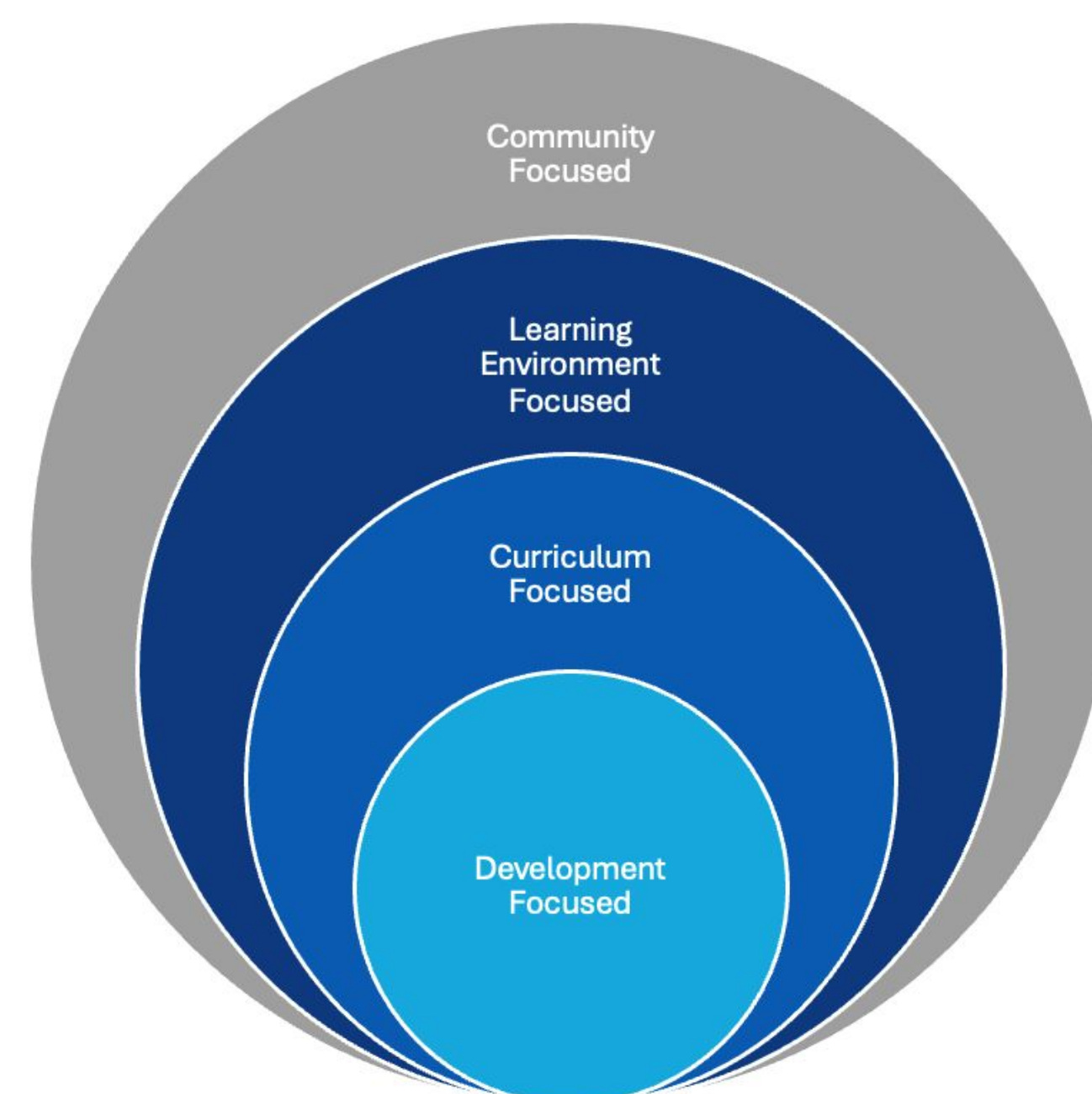
What is the current landscape of pre-matriculation initiatives in medical education?

METHODS



RESULTS

- 26 papers described specific pre-matriculation initiatives
- The scope of the programs were multi-leveled as depicted in the conceptual framework below



Community Focused Programs: that are centered around service and needs of the community that students will eventually serve as physicians.

Learning Environment Focused Programs: that address needs that are important for integration of students into the learning environment that they will encounter in their first year of medical school.

Curriculum Focused Programs: that address introducing knowledge and skills needs that are identified as important for based on the curriculum structure and expectations during the first year of medical school.

Development Focused Programs: that address developmental needs in the form of specific skills and/or attitudes that are identified as important for student success.

Comparative Overview of Pre-Matriculation Program Types in Literature

Program Type	# of papers	Focus	Program Evaluation	Outcome
Development Focused Programs	2	Wellbeing, cooperative learning	Student satisfaction	positive student feedback, request for more content
Curriculum Focused Programs	11	Anatomy, Physiology, Histology, Biochemistry, Molecular and Cell Biology	Student satisfaction, comparing performances between participants and non-participants, comparison between "supported" and "unsupported" subjects	lower course failure rates, positive correlation between participants average grade and participation, ability to identify at-risk students, significant correlation in Biochem but not Physiology, increased use of deep learning
Learning Environment Focused Programs	11	Supporting transition of specific student groups	Student satisfaction, Pre and Post Approaches to Study Skill Inventory for Students (ASSIST), linear regression analysis of performance, correlation of grades, Social Network Analysis	no significant difference, same level of connectedness, increased comfort, improved study skills
Community Focused Programs	2	Service learning, reduce "urban disruption"	Student satisfaction,	increased popularity, increased understanding of rural practice

DISCUSSION

- Significant variation exists in between programs.
- Student satisfaction of the programs regardless of their scope were consistently positive.
- There was a notable variance in the reported ability of the initiative to support student transition.
- Challenges uncovered
 - equity and inclusivity - their ability to identify and close knowledge/skill gaps
 - individualization - their ability to meet individual student's learning needs

CONCLUSION

- There is a need for a unifying outer layer to address equity, inclusivity and individualization

REFERENCES

- Battistella, M., Kaufman, D. M., & Talley, R. C. (2001). An online summer course for prematriculation medical students. *Acad Med*, 76(5), 499-500.
- Crump, W. J., & Fricker, R. S. (2015). A medical school pre matriculation program for rural students: staying connected with place, cultivating a special connection with people. *Teaching and learning in medicine*, 27(4), 422-430.
- Epps, A. C. (2015). The strategic impact of a post baccalaureate pre-medicine intervention program on medical school academic performance. *Journal of health care for the poor and underserved*, 26(1), 8-20.
- Friedman, M. A., Cenicerros, A., Kolak, M., & Ryan, E. R. (2014). A pre-matriculation, student-developed community immersion experience. *Medical Education*, 48(11), 1110-1111.
- Heck, A. J. (2014). Students' activities in a pre-matriculation course as a predictor of initial academic performance in medical school. *Medical Science Educator*, 24(3), 239-243.
- Kornitzer, B., Ronan, E., & Rifkin, M. R. (2005). Improving the adjustment of educationally disadvantaged students to medical school: the Summer Enrichment Program. *The Mount Sinai journal of medicine*, New York, 72(5), 317-321.
- Kosobuski, A. W., Whitney, A., Skildum, A., & Prunuske, A. (2017). Development of an interdisciplinary pre-matriculation program designed to promote medical students' self efficacy. *Medical Education Online*, 22(1), 1272835.
- Miller, C. J. (2014). Implementation of a study skills program for entering at-risk medical students. *Advances in physiology education*, 38(3), 229-234.
- Schneid, S. D., Apperson, A., Laiken, N., Mandel, J., Kelly, C. J., & Brandt, K. (2018). A summer prematriculation program to help students succeed in medical school. *Adv Health Sci Educ Theory Pract*, 23(3), 499-511.
- Wilson, W. A., Henry, M. K., Ewing, G., Rehmann, J., Canby, C. A., Gray, J. T., & Finnerty, E. P. (2011). A prematriculation intervention to improve the adjustment of students to medical school. *Teach Learn Med*, 23(3), 256-262.



Rheum2Play: A Podcast to Fill the Gap in Pediatric Rheumatology Education for Medical Students and Residents

Tresa Ambooken, MD, MBA¹, Sarah Molina, MD², Tara Lozy, MS¹, Miriah Gillispie-Taylor, MD^{2*}, Ginger Janow, MD, MPH^{1*}

BACKGROUND

- Pediatric Rheumatology remains one of the smallest of the subspecialties with a significant work force shortage
 - 400 pediatric rheumatologists nationwide
 - Onus of identifying rheumatic disease and initiating treatment may fall on primary care doctor
- 30-40% of pediatric residencies and medical schools lack access to a pediatric rheumatologist
- 1 in 250 children suffer with juvenile idiopathic arthritis (JIA)
 - Delays in diagnosis and treatment result in increased morbidity
- Podcasts can be used for asynchronous education at various levels
 - Data supports efficacy at Kirkpatrick level 2 and 3 primarily
- At the time of inception, there were no existing education podcasts devoted to pediatric rheumatology
- We hypothesized that a podcast covering core concepts in identification and management of JIA could help increase knowledge base of residents and medical students in a fashion that is satisfying for learners.

OBJECTIVES

- Create a series of case-based podcasts covering the subtypes of JIA
- Develop pre-and post-tests to assess the following domains:
 - learner confidence
 - knowledge uptake
 - satisfaction with the podcast as an educational intervention

METHODS

- Learners recruited via pediatric residency program directors affiliated with Hackensack Meridian Health and Texas Children's Hospital, as well as through the Pediatric Rheumatology Fellow listserv.
- Five case-based educational teleconferences were developed and held via Zoom with live audience.
- A companion website with additional resources for each case was developed to provide reinforcement of the concepts explored in the teleconference (Figure 1).
- The audio from each conference was edited into a 45 minute podcast, which was then distributed to attending rheumatologists, residents and medical students via listservs and social media platforms
- Pre- and post-testing was used to assess gain of knowledge (6 questions) and gain of confidence (3 questions)
- Subject scores were included for those who completed and submitted both the pre- and post-test for the first episode and were linked by a unique identifier
- Scores were analyzed separately for knowledge acquisition (using paired t-test) and confidence, stratified by level of training

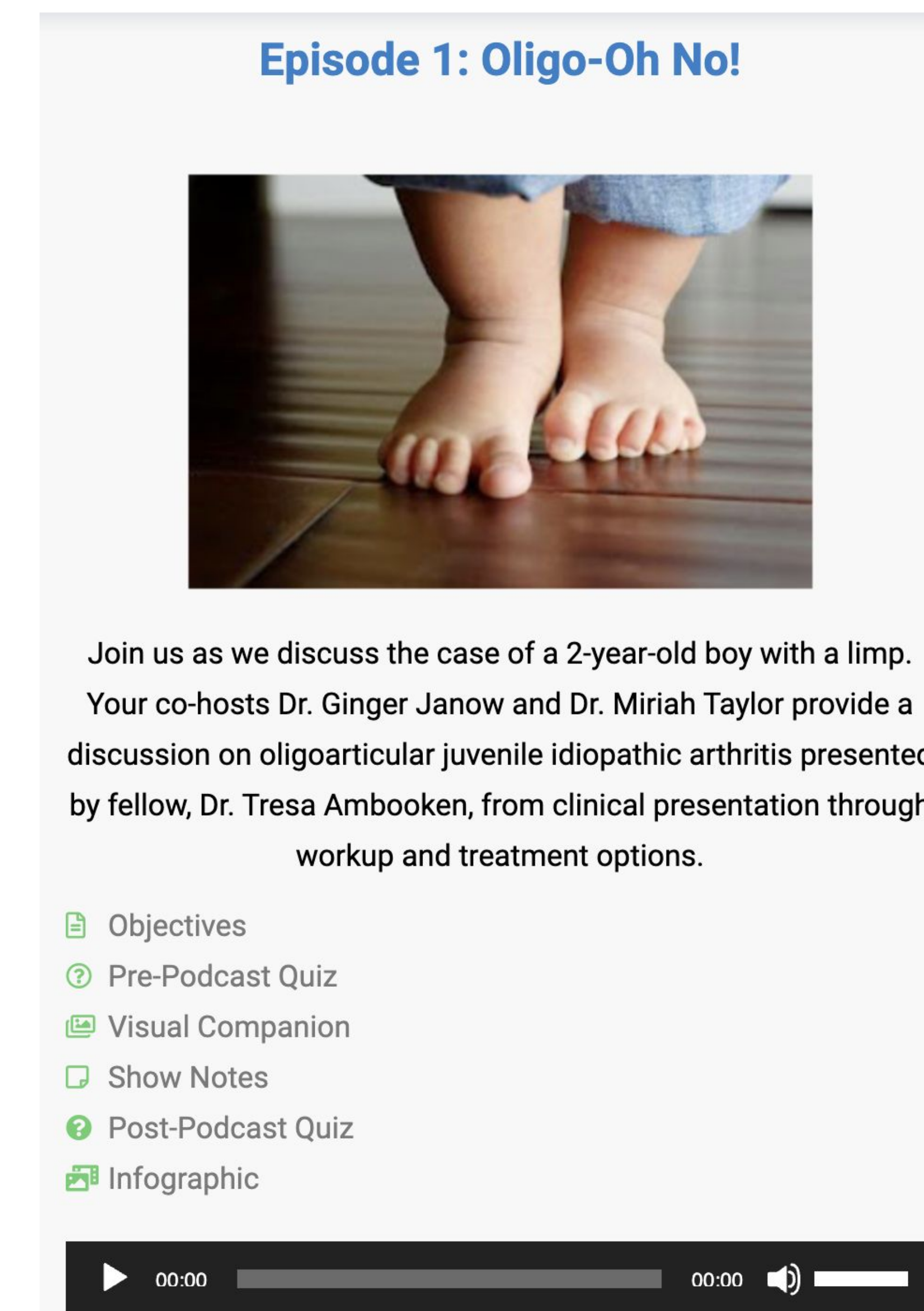


Figure 1: Example of companion website

RESULTS



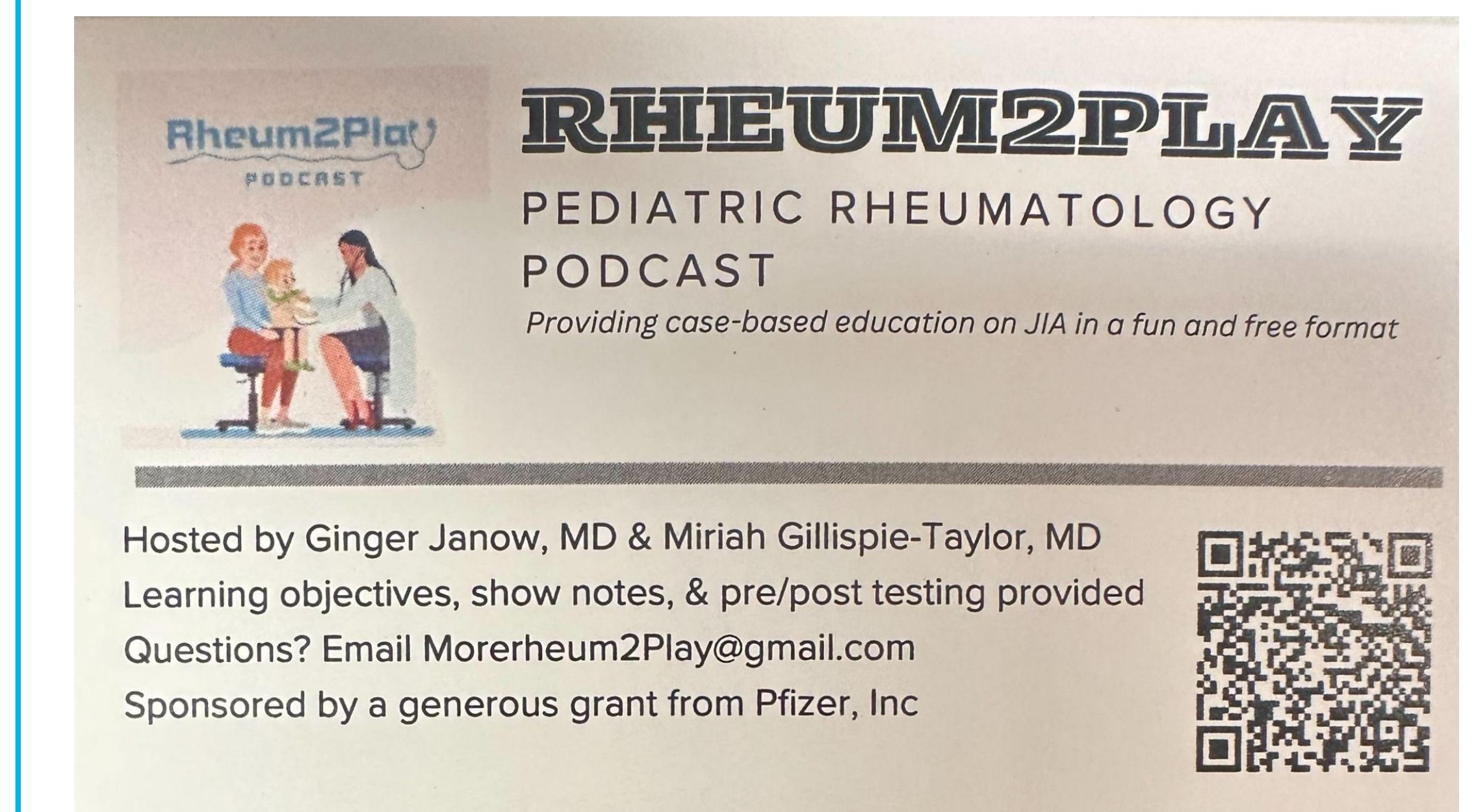
Figure 2: Increase in confidence level for medical students vs. residents

- 16 participants completed pre-and post-testing for the first episode and were included in the analysis
 - 68.8% were residents
 - 31.2% were medical students
- Participants saw a 1 (±1) point increase in their score after listening to the podcast ($p=.008$).
- Stratification by level of training revealed a greater increase in score for medical students (2 point ± 1) compared to residents (0.5 point ± 0.8)
- Medical student pre-test scores were lower overall (2, range 1-3) than residents (4, range 2-5)
- Average confidence increased by 1 point on a 5 point likert scale for topics related to pathophysiology of inflammatory arthritis and mechanism of action of medications for treating JIA
- Average confidence increased by 2 points for topics related to clinical applications (appropriate use of lab testing, imaging studies and diagnostic assessments).
- Medical students also saw a greater increase in confidence than residents (fig 2).

DISCUSSION / CONCLUSION

- Case-based podcast with pre- and post-testing is an effective method of teaching for select learners
- Medical students appeared to derive the most benefit, possibly due to a higher starting score/ceiling effect and overall larger fund of knowledge amongst the residents
- Both groups saw significant increases in post-intervention confidence surrounding clinical application of knowledge
- Largest gains seen amongst the medical students
- Future research will include assessment of other episodes to control for content-specific factors

FIND US!



REFERENCES / ACKNOWLEDGEMENTS

- Kelly JM, Perseghin A, Dow AW, Trivedi SP, Rodman A, Berk J. Learning Through Listening: A Scoping Review of Podcast Use in Medical Education. *Acad Med.* 2022 Jul 1;97(7):1079-1085.
- Correll CK, Ditmyer MM, Mehta J, Imundo LF, Klein-Gitelman MS, Monrad SU, Battafarano DF. 2015 American College of Rheumatology Workforce Study and Demand Projections of Pediatric Rheumatology Workforce, 2015-2030. *Arthritis Care Res (Hoboken).* 2022 Mar;74(3):340-348. doi: 10.1002/acr.24497. Epub 2022 Feb 2. PMID: 33107674.
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Melika Behrooz¹, Dr. Lawrence Rosen¹, Dr. Laure Veet¹, Dr. Carmela Rocchetti¹
¹Hackensack Meridian School of Medicine

The Challenge

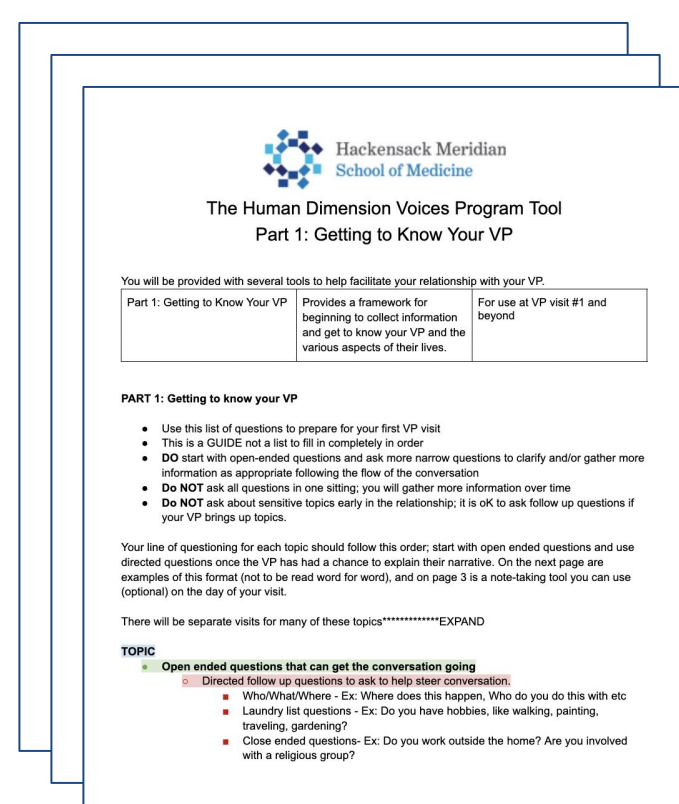
The United States must improve its health outcomes and inequities by training physicians to understand and address all Determinants of Health (DoH). Medical schools are uniquely positioned to be at the forefront of delivering this training to the next generation of healthcare providers.

Our Solution



The Voices Program is a longitudinal undergraduate medical education program that matches student dyads with individuals (**Voices Participants or VPs**) who are from historically marginalized and under-resourced communities to develop a longitudinal relationship over a series of home visits.

This year we worked to develop a **Voices Program Tool** that would aid in developing the VP-student relationship. The tool is in 3 parts, which correspond to the different stages of the student-VP relationship.



The VP Tool and Student - VP Relationship Over Time

Look beneath the soil

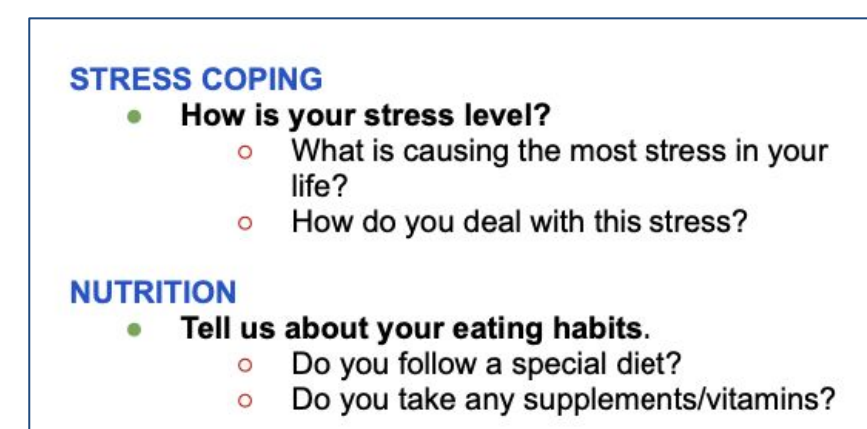
Water the sprout

Help them bloom!



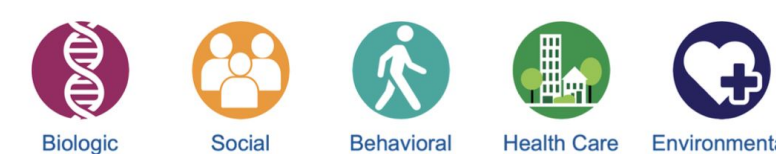
PART 1: Getting to Know Your VP

Part 1 of the tool provides a framework for beginning to gather a broad range of information about the VP and the various aspects of their lives.



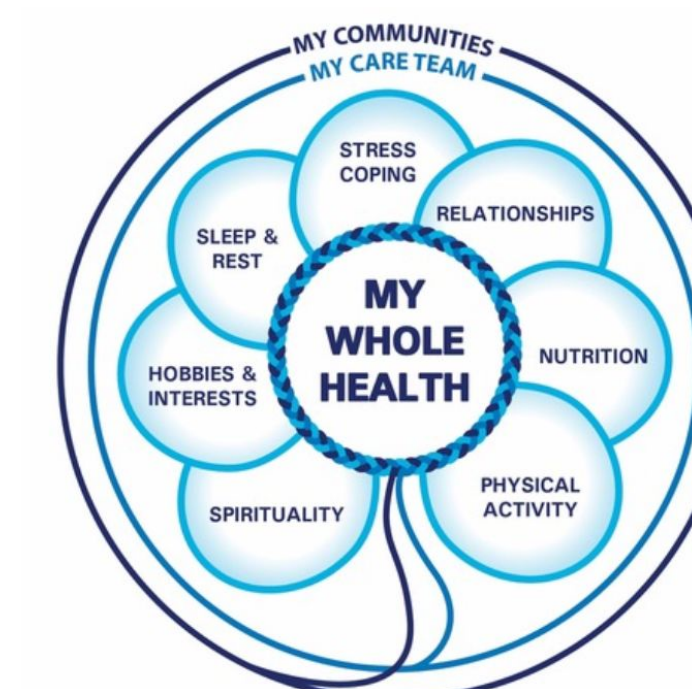
PART 2: Addressing Unmet Social Needs and Other Determinants of Health

Part 2 of the tool helps assess aspects of their VP's determinants of health and to lay the groundwork for partnering with the VP to address primarily social, environmental, and health care access needs



PART 3: Supporting Positive Behavior Change Using the HD Whole Health Model

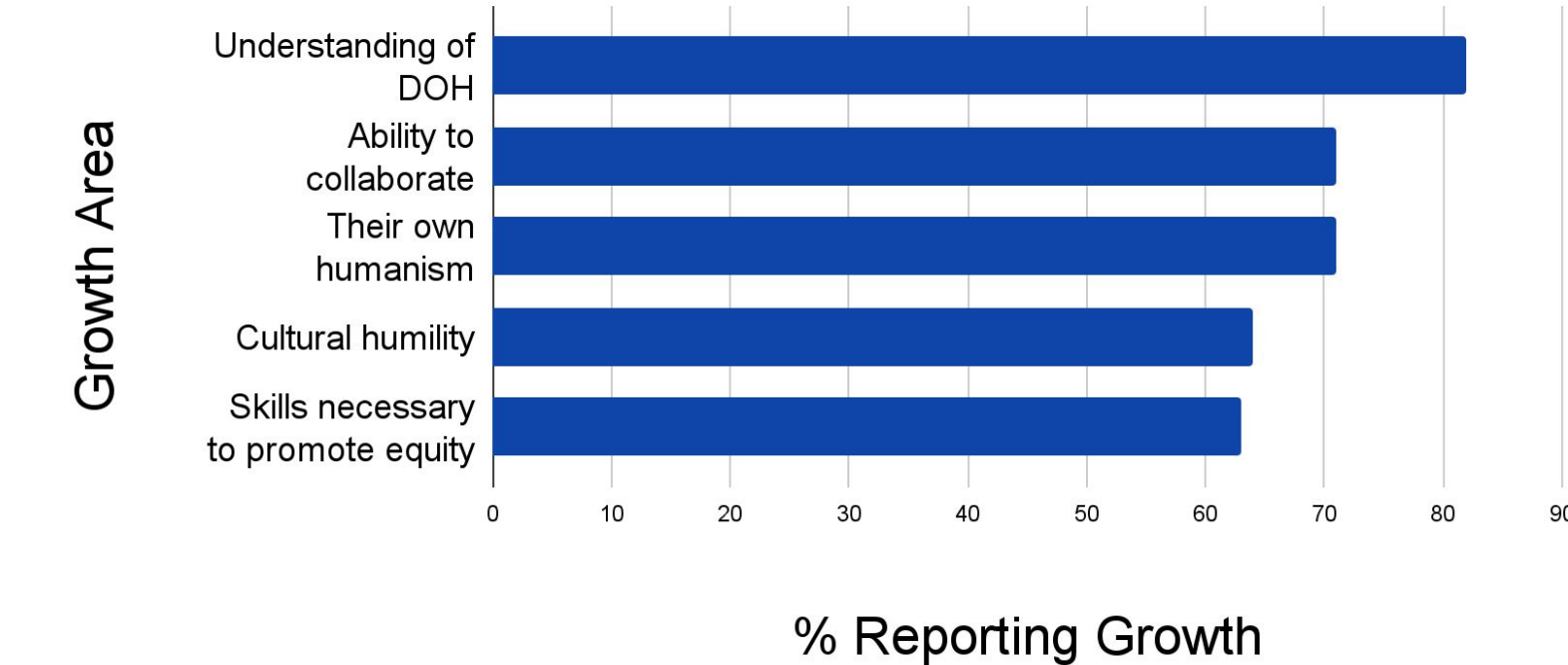
Part 3 of the tool uses the whole health framework to facilitate partnering with the VP to make positive behavior changes, in order to enhance their health and wellness



Outcomes & Feedback

The Voices Program assesses its effectiveness through a combination of VP interviews with community liaisons (CLs) employed by the SOM and course evaluations/written reflections from students. The majority of students surveyed reported that working with VPs was the most valuable part of their community engaged curriculum experience.

Students Reporting Growth



Directions for the Future

Our next stage involves expansion of the Voices Program into our Hackensack Meridian residencies. To date, 10 residencies of varying specialties have signed on to pilot the program with their residents.



BACKGROUND

With the issues of mental health coming to light in the media, it is no surprise that medical personnel have been scrutinized the most. With increasing demand and advances in medicine, both the mental health crisis and physician shortage continues to rise. This unfortunately has led to mental health crises that have led many to face burnout or even depression. While the idea of burnout has been well studied, there is no real data that shows there is a correlation between the amount of burnout the medical student experiences and the specialty they decide to go into. The purpose of this study is to assess whether the amount of burnout experienced by medical students correlates with the specialty choices they decide to pursue throughout their course of schooling.

METHODS

To assess burnout amongst students, a redcap survey incorporating the verified 23-Question Burnout Assessment Tool (BAT) was created. The survey recorded school attended, school year, interested specialty, activity level, sleep, and 23 BAT questions. Competitiveness was defined as any specialty with a match rate lower than or equal to 83.9% based off of the National Matching Residency Program (NMRP) data. 108 US medical students from LCME accredited medical schools were recruited and enrolled electronically via a Redcap link. Once data was collected, average BAT scores and standard deviations were calculated for competitive versus non-competitive groups and the four different years of medical school, with a 95% confidence interval and p-value of 0.05.

RESULTS

Figure 1: Average BAT Score by Competitiveness

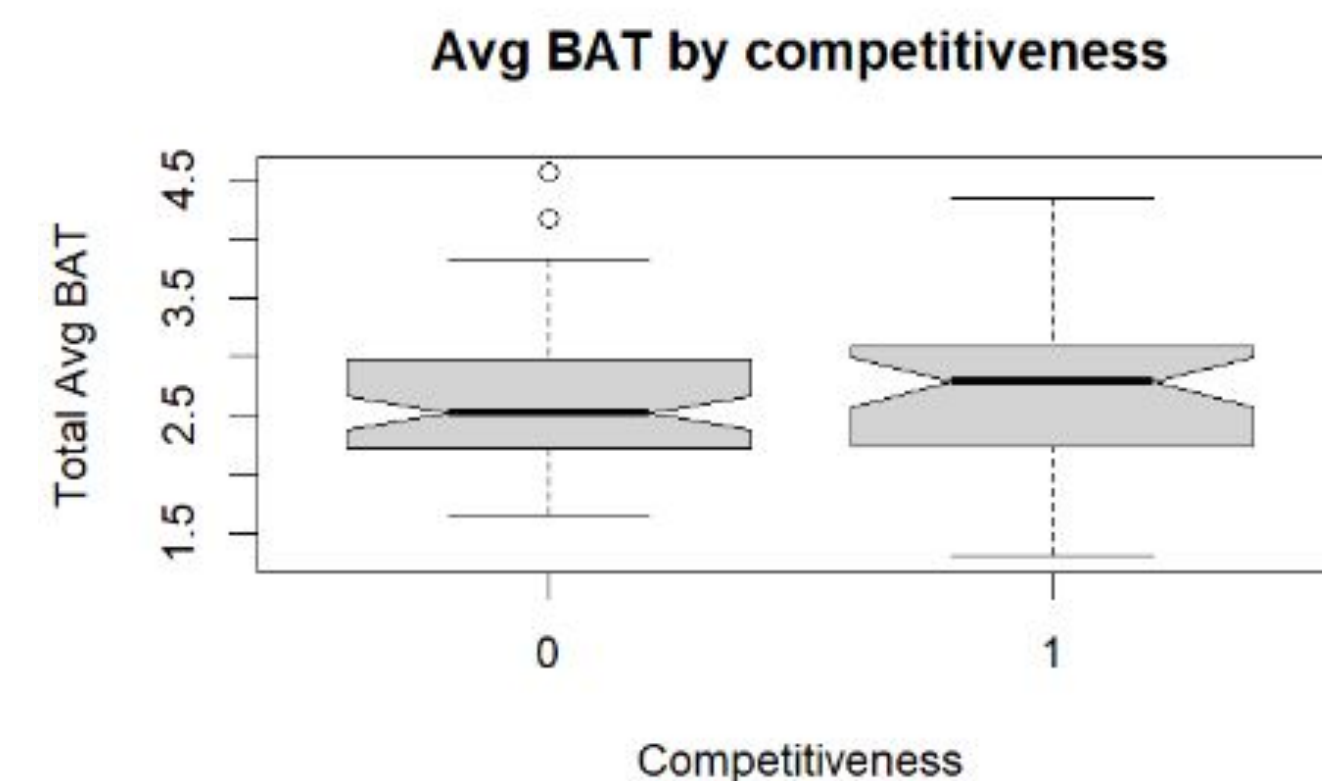


Figure 2: Average BAT by Cohort Year

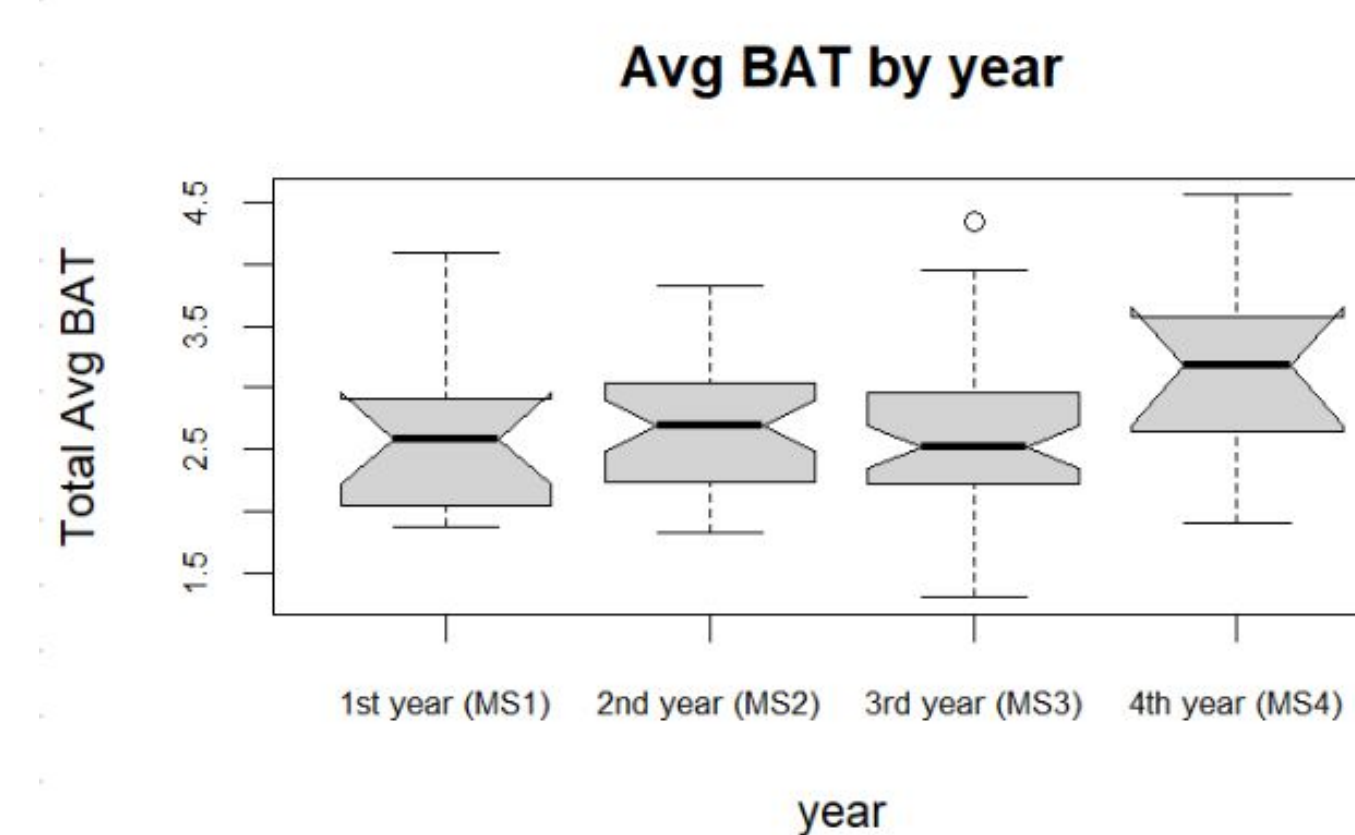


Table 1: Average BAT of Competitiveness and Year

Characteristic	Beta	95% CI1	p-value
competitiveness			
0	—	—	
1	0.14	-0.11, 0.39	0.3
year			
4th year (MS4)	—	—	
1st year (MS1)	-0.66	-1.2, -0.14	0.013
2nd year (MS2)	-0.59	-1.0, -0.13	0.012
3rd year (MS3)	-0.68	-1.1, -0.23	0.004

Of the 108 participants, those in the competitive category (n=39) scored a 2.72 (SD = 0.689) while the non-competitive category (n=68) scored 2.63 (SD 0.594) (p = 0.3). First year medical students (n=14) scored 2.57 (SD=0.617), second years (n=40) scored 2.68 (SD=0.539), third years (n=45) scored 2.57 (SD=0.624), and fourth years (n=9) scored 3.21 (SD=0.825) (p=0.013, 0.012, 0.004). Of the fourth-year students, 1 student was pursuing a “competitive” specialty while the remaining 8 were “non-competitive.” Overall, the average score for all medical students was 2.66 (SD=0.627).

CONCLUSIONS

1. The data reveals that there is no statistical correlation between the amount of burnout a student experiences and their specialty of interest.
2. Fourth-year medical students were experiencing a much higher level of burnout (3.21) than the 3 previous years, categorizing them as “burnout most likely”
3. This study highlights the importance of early intervention in combating the effects of burnout at the level of medical school, prior to students entering the workforce as residents.
4. We have created an anonymous clerkship support forum that allows students to ask their questions and receive answers in a safe space. Our goal is to create a pool of advice and resources to help students smoothly transition to clinical work.

REFERENCES

1. Maslach, Christina, and Michael P Leiter. “Understanding the burnout experience: recent research and its implications for psychiatry.” *World psychiatry : official journal of the World Psychiatric Association (WPA)* vol. 15,2 (2016): 103-11. doi:10.1002/wps.20311
2. Maslach, C., and M.P. Leiter. “Burnout.” *Encyclopedia of Mental Health (Second Edition)*, Academic Press, 2 Sept. 2015, <https://www.sciencedirect.com/science/article/pii/B978012397045900149X>.
3. “Physician Burnout Rate Spikes to New Height.” *American Medical Association*, 15 Sept. 2022, <https://www.ama-assn.org/press-center/press-releases/physician-burnout-rate-spikes-new-height#:~:text=Together%2C%20these%20studies%20found%20the,%2C%20and%2045.5%25%20in%202011.>
4. Dahlin, M.E., Runeson, B. Burnout and psychiatric morbidity among medical students entering clinical training: a three year prospective questionnaire and interview-based study. *BMC Med Educ* 7, 6 (2007). <https://doi.org/10.1186/1472-6920-7-6>
5. Dyrbye, Liselotte N et al. “Personal life events and medical student burnout: a multicenter study.” *Academic medicine : journal of the Association of American Medical Colleges* vol. 81,4 (2006): 374-84. doi:10.1097/00001888-200604000-00010
6. “NRMP Releases the 2022 Main Residency Match Results and Data Publication, the Most Comprehensive Data Resource for the Main Residency Match®.” NRMP, 1 June 2022, <https://www.nrmp.org/about/news/2022/06/nrmp-releases-the-2022-main-residency-match-results-and-data-publication-the-most-comprehensive-data-resource-for-the-main-residency-match/>.



Advancing Cultural Competency in Medical Education Through Innovative Initiatives

Olumuyiwa Fatade, MD, MPH, Harsh Patel MD, Scheherazade Elkeshk, MD, Ulrick Vieux, DO, CPE, MS, Stacy Doumas, MD, Saba Afzal, MD

BACKGROUND

Evidence of mental health disparities continues to be overwhelming as the diversity in the U.S. population has grown in the last decade. Despite advances in health equity, the role of bias, prejudice, and stereotyping on the level of institutions, health systems, and providers is an important factor that multiple organizations continue to tackle. After identifying an area for improvement in our clinical learning environment, we focused on using Justice, Equity, Diversity, and Inclusion initiatives (JEDI) to improve cultural competence in our workforce and medical education.

Purpose

To foster and develop guidelines for addressing our innate biases towards - Race, Ethnicity, Religion, Gender, mental illness, and Ageism in our clinical learning environment.

DESIGN

We developed a multipronged approach that applies community-level engagement as a core principle and emphasizes cultural competency across various domains in our institution.

- A JEDI committee was developed with ambassadors representing the various aspects of the three regions of our institution (North, Central, South) and with organizational leadership.
- Domains of improvement focused on Education, Recruitment, Mentorship, and Clinical Learning Environment with each having different outcome measures based on interventions proposed by the committee.

EVALUATION PLAN

A survey for quality improvement was disseminated across the regions to assess and establish our innate biases and understanding of JEDI principles. Following the initial survey, various community engagement activities, educational level initiatives, and cultural competency initiatives targeting each improvement domain were developed spanning one academic year. Feedback was received through comments, and reviews from participating faculty and trainees.

FEASIBILITY/TRANSFERABILITY

This project's limited resources and cost make it highly reproducible in various settings. Cultural competency events can be implemented in areas requiring improvement based on survey results and institutions can create guidelines to educate both faculty and students. A few barriers were identified including completion times, and the participation of students, residents, and faculty in the dissemination of educational information. Increasing membership in the ambassador program can be a great approach to attracting more committed members and enhancing retention by recognizing and rewarding contributions.

INTENDED OUTCOMES

1. Increasing JEDI topics and education in our grand rounds
2. Applying a holistic review process for faculty applicants, their diversity, and measuring the National Residency Match outcomes in HMH Graduate Medical Education and Medical Staff.
3. Developing mentorship programs across various demographics with a continuum of student/resident/faculty, including local organizations.
4. Guidelines to help trainees who experience aggression and discrimination were developed based on areas identified during the project's duration. A three-phase approach focused on .
 - a) Setting the stage
 - b) Responding in the moment with toolkits for trainees and faculty development
 - c) Learning from the encounter and preparing for “next time” episodes with a focus on team debriefing and critical reflections.

REFERENCES / ACKNOWLEDGEMENTS

- Agic, B. (2019). Promising Practices in Equity in Mental Healthcare: Health Equity Impact Assessment. *HealthcarePapers*, 18(2), 42-47. <https://doi.org/10.12927/hcpap.2019.25921>
- Betancourt, J. R., Green, A. R., Carrillo, J. E., & Ananeh-Firempong, O. (2003). Defining cultural competence: A practical framework for addressing racial/ethnic disparities in health and health care. *Public Health Reports*, 118(4), 293-302.
- Rice, A. N., & Harris, S. C. (2021). Issues of cultural competence in mental health care. *Journal of the American Pharmacists Association: JAPhA*, 61(1), e65-e68. <https://doi.org/10.1016/j.japh.2020.10.015>



BACKGROUND

- Social determinants of health (SDOH) wield significant influence over health outcomes and the accessibility of healthcare services, particularly in outpatient clinics
- Their impact is observed through access to healthcare services, community resources and mental health services. Recognizing and addressing these determinants is imperative for fostering health equity and ensuring continuing care efficacy in outpatient settings
- **Project Objective** :To explore the impact of SDOH on care delivery patterns, including **length of follow up period**, and **number of visits in outpatient psychiatric and primary care clinics** within an academic, not-for-profit healthcare organization in Southern New Jersey.

METHODS

- This study was approved by the Hackensack Meridian School of Medicine Institutional Review Board and consisted of a retrospective chart review of patients treated at 3 Psychiatric and 3 Primary care clinics between Oct 1, 2019, and Sep 30, 2022.
- Data regarding Age, Ethnicity, Race, Gender, Marital status, Encounters, Insurance, Department, Diagnosis and Medications was abstracted from 14392 patient charts
- The impact of demographic factors on number of visits and length of follow-up were then evaluated using simple and multivariable zero-inflated negative bimodal regression techniques.

RESULTS

- Our patient population consisted of individuals with a median age of 52, (range: 18, 103), 61% female and about 14% of non-white race and 6% Hispanic ethnicity. **(Table 1)**
- **Males** were more likely to have no follow-up period than females (OR=1.14, 95%CI: 1.06, 1.21).
- **Patients 65-years or older** were less likely to no have follow-up (OR=0.88, 95%CI:0.81, 0.95) and shorter periods of follow-up than their younger counterparts (fold-difference 0.87, 95%CI:0.81, 0.95).
- No impact of Hispanic Ethnicity was detected on whether or not follow-ups occurred, however, **Hispanics** had a follow-up period that was 0.83-fold (95%CI: 0.76, 0.91) as long when compared with Non-Hispanics.
- **People for whom Race information was missing had a 1.28-fold increased risk** of (95%CI: 1.08, 1.54) of having no follow-up period and a 0.68-fold (95%CI: 0.61, 0.76) shorter follow-up if they did have one.
- Although **African Americans and other race/Multiracial people** were equally likely to have a follow-up period, their follow-up periods were 0.82 (95%CI: 0.75, 0.89) and 0.73 (0.68, 0.80)-fold shorter.
- **Medicaid** patients were equally likely to have a follow-up period than non-Medicaid patients but when they did have one, they were for only 0.79-fold (95%CI:0.74,0.84) as long.
- **After adjustment for confounders**, Male gender (adjOR: 1.18, 95%CI: 1.09, 1.26), Age 65 or greater (adjOR: 0.67, 95%CI: 0.62, 0.73, being on Medicaid (adjOR: 0.76, 95%CI: 0.68, 0.28), and presenting at the psychiatric clinics (adjOR: 0.25, 95%CI: 0.24, 0.28) were statistically significant for likelihood of having no follow-up period. **(Table 2)**

Population (TABLE 1)

Age	Median	52
	Mean	50.9
	SD	18.5
	Range	18-103
	65 or older	26 %
	Less than 65	74 %
Gender	Female	61 %
	Male	39 %
Race	White	82 %
	Missing race information	4%
	Non-white (African Americans and other race/Multiracial people)	14%
Ethnicity	Hispanics	6%

Factors affecting Number of follow up Visits (TABLE 3)

	Fold Difference	
Males	0.95 (95%CI: 0.92,0.99)	Shorter follow up visits
Missing marital status	*0.83 (95%CI: 0.79, 0.94)	Shorter follow up visits
Missing Ethnicity	*0.86 (95%CI: 0.79,0.94)	Shorter follow up visits
65 or older	*1.12 (95%CI: 1.08, 1.16)	Longer follow up visits

*Adjusted fold difference

Factors affecting length of follow up period (TABLE 2)

Odds of No follow up	Crude	Adjusted
Male > females	1.14, (95% CI: 1.06, 1.21)	1.18, (95%CI: 1.09, 1.26)
65 or older < younger counterpart	0.88, (95%CI: 0.81, 0.95)	0.67 (95%CI: 0.62, 0.73)
Being on Medicaid < No Medicaid	0.94 (95% CI: 0.86, 1.04)	0.76 (95%CI: 0.68, 0.28)
Presenting to Psychiatric clinics < Medicine	0.28 (95%CI: 0.26, 0.31)	0.25 (95%CI: 0.24, 0.28)

DISCUSSION / CONCLUSION

- Male Gender, Age 65 or greater, Medicaid status and psychiatric clinic attendance are independent risk factors for whether patients receive follow-up care.
- Male gender and age over 65 are also independent risk factors for duration of follow-up
- Our findings suggests an enhanced attention to the specific needs of minority patients and those patients whose race and ethnicity information was missing. These population had shorter follow up visits
- This could be a result of unconscious bias or unaccounted for Cofounding factors.
- Further research is needed to evaluate if this disparity is due to differences in diagnosis, marital status, sex, or employment status.

REFERENCES / ACKNOWLEDGEMENTS

1. Pandey, K. R., Yang, F., Cagney, K. A., Smieliauskas, F., Meltzer, D. O., & Ruhnke, G. W. (2019). The impact of marital status on health care utilization among Medicare beneficiaries. *Medicine*, 98(12). <https://doi.org/10.1097/MD.00000000000014871>
2. Hahn, R. A. (2021). What is a social determinant of health? Back to basics. *Journal of Public Health Research*, 10(4), 2324. <https://doi.org/10.4081/jphr.2021.2324>
3. Vargas, G., Prunier, L., & Borus, J. (2023). Gender Differences in Routine Health Maintenance Examinations Before and During the COVID-19 Pandemic. *The Journal of Adolescent Health*, 72(2), 300-302. <https://doi.org/10.1016/j.jadohealth.2022.09.031>



Efficacy of ChatGPT vs. Cochrane Summaries on Sexual Problems: A Readability Study

Angelo Cadiente¹, Andre Ho¹, Jamie Chen¹ & Mubashir Billah²

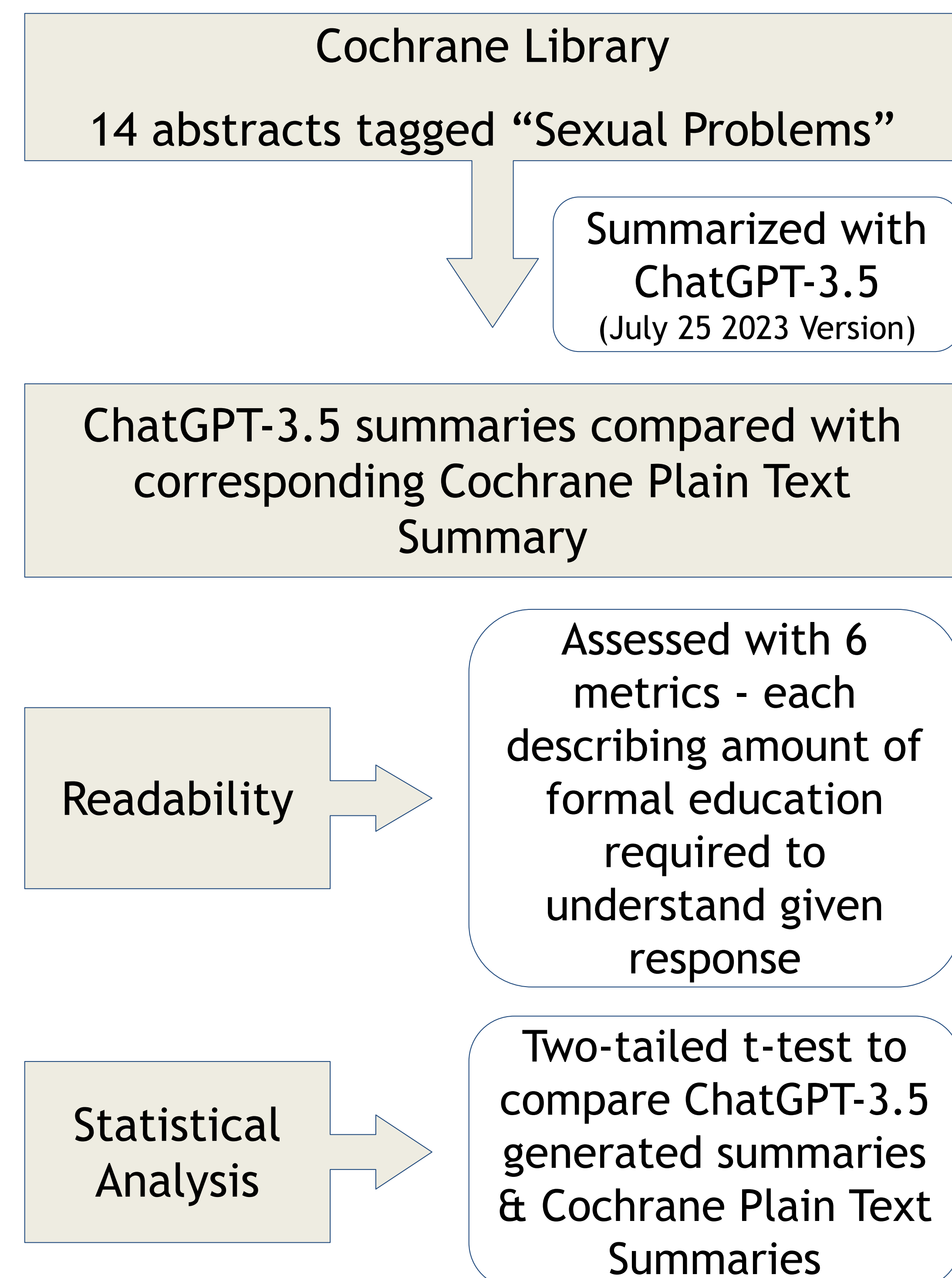
¹Hackensack Meridian School of Medicine, 123 Metro Blvd, Nutley, New Jersey 07110, USA

²Hackensack University Medical Center, 360 Essex St, Hackensack, NJ 07601

BACKGROUND

- Medical literature grows at an exponential rate, creating a challenge for clinicians to stay up to date
- Artificial Intelligence (AI) has the potential to assist with summarizing medical information
- Cochrane Review Plain-Text Summaries provide concise, user-friendly description of studies

METHODS



Each summary was evaluated by two blinded, independent graders on a 5-point scale for accuracy and adherence to the abstract, with their combined grades compared between datasets.

RESULTS

Metrics & Grades	Cochrane Plain Text Summaries	ChatGPT-3.5 Generated Summaries	P-Value
Flesch Kincaid Reading Ease	29.59 (10.60)	25.51 (9.04)	0.28
Flesch Kincaid Grade Level	14.24 (1.93)	14.46 (1.85)	0.77
Gunning Fog Score	17.88 (1.97)	18.64 (2.23)	0.35
Smog Index	12.98 (1.54)	13.33 (1.56)	0.56
Coleman Liau Index	16.26 (1.60)	17.04 (1.77)	0.24
Automated Readability Index	14.51 (2.24)	14.39 (2.31)	0.88
Summative Grade	4.21 (0.83)	4.39 (0.63)	0.37

Table 1: Mean & Standard Deviation of Readability Metrics and Grades between Cochrane and ChatGPT

- Readability scores showed **marginal differences between ChatGPT and Cochrane** summaries
- T-tests revealed no statistically significant differences in readability metrics and summative grades between the two summaries

DISCUSSION

- The comparable readability scores between ChatGPT-generated summaries and expert-written Cochrane Plain Text Summaries suggest that AI language models like ChatGPT can produce summaries that are similarly accessible and understandable for readers
- The lack of statistically significant differences in the accuracy and adherence grades between the two sets of summaries indicates that ChatGPT can generate high-quality, accurate summaries that capture the essential information from the original abstracts

LIMITATIONS

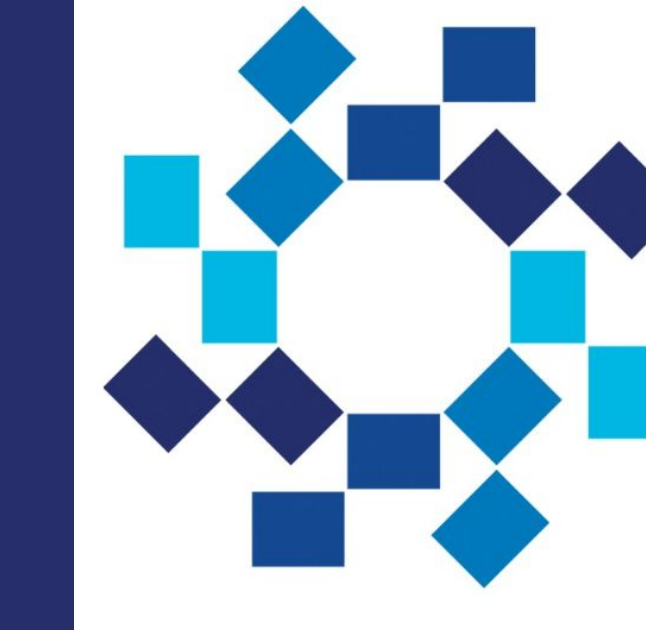
- Analysis was restricted to a relatively limited data set consisting of 14 abstracts
- Our study focused on articles related to “sexual problems”, potentially limiting the generalizability of the findings

CONCLUSION

- ChatGPT can generate summaries equivalent to the Cochrane Review regarding improved audience understanding on the topic of sexual dysfunction
- Further studies can assess a greater sample size of abstract and on topics unrelated to sexual dysfunction

REFERENCES

Search | Cochrane Library. (n.d.). Sexual Problems in Cochrane Topic. Retrieved July 1, 2023, from <https://www.cochranelibrary.com/>



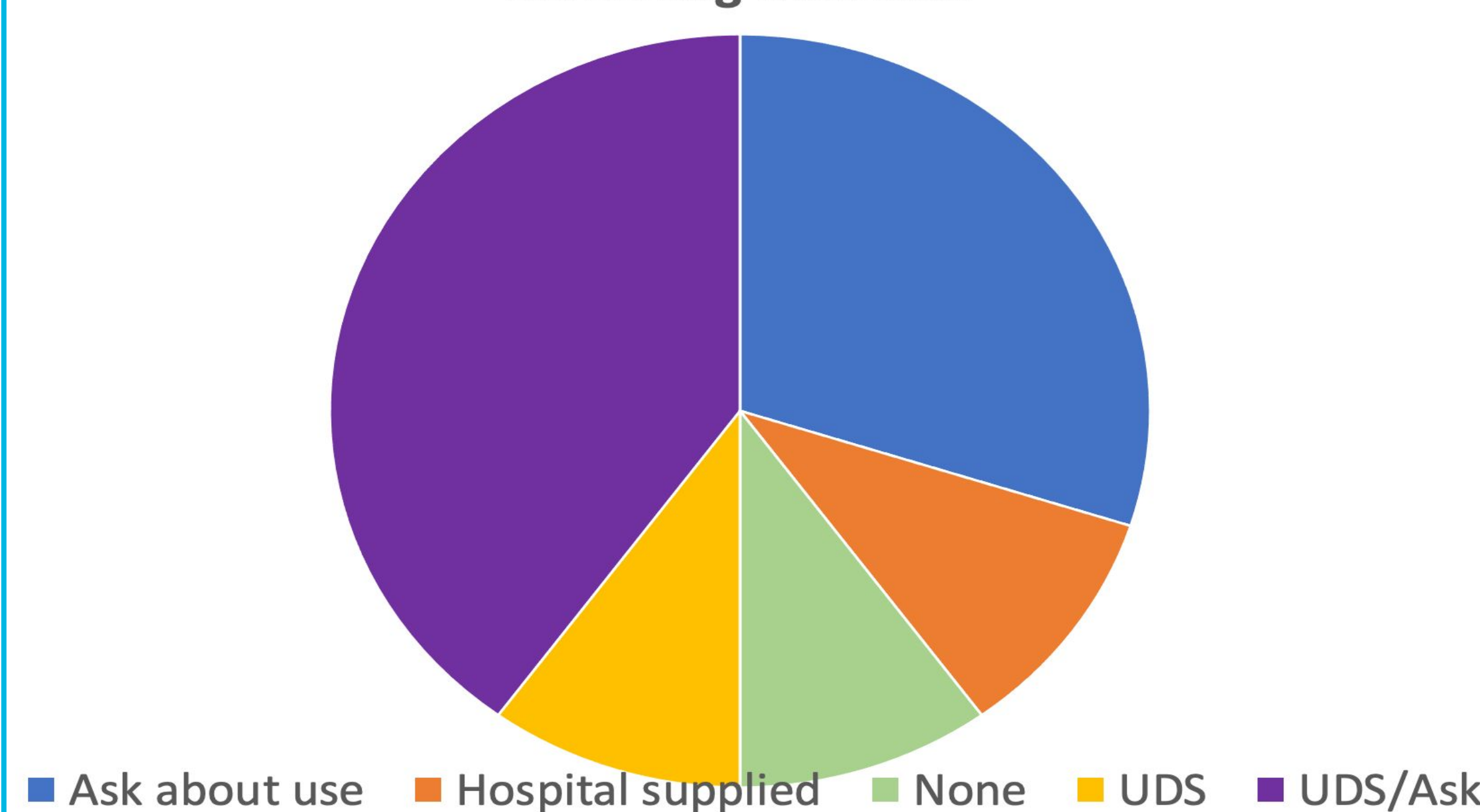
BACKGROUND

- Marijuana is the most commonly used recreational drug in pregnancy
- With the rapid legalization of cannabis across the United States, millions of people who become pregnant or who are lactating will need credible medical information regarding cannabis use during these periods.
- This study aims to evaluate the effectiveness of a Powerpoint presentation and a simulation exercise on residents' knowledge and comfort associated with cannabis use in pregnancy by using a pre and post-test.
- **Primary outcome:** To measure change in comfort with counseling after an educational intervention
- **Secondary outcome:** To measure change in medical knowledge after an educational intervention

HYPOTHESIS

The educational intervention will increase learners' knowledge and comfort regarding counseling about cannabis use in pregnancy.

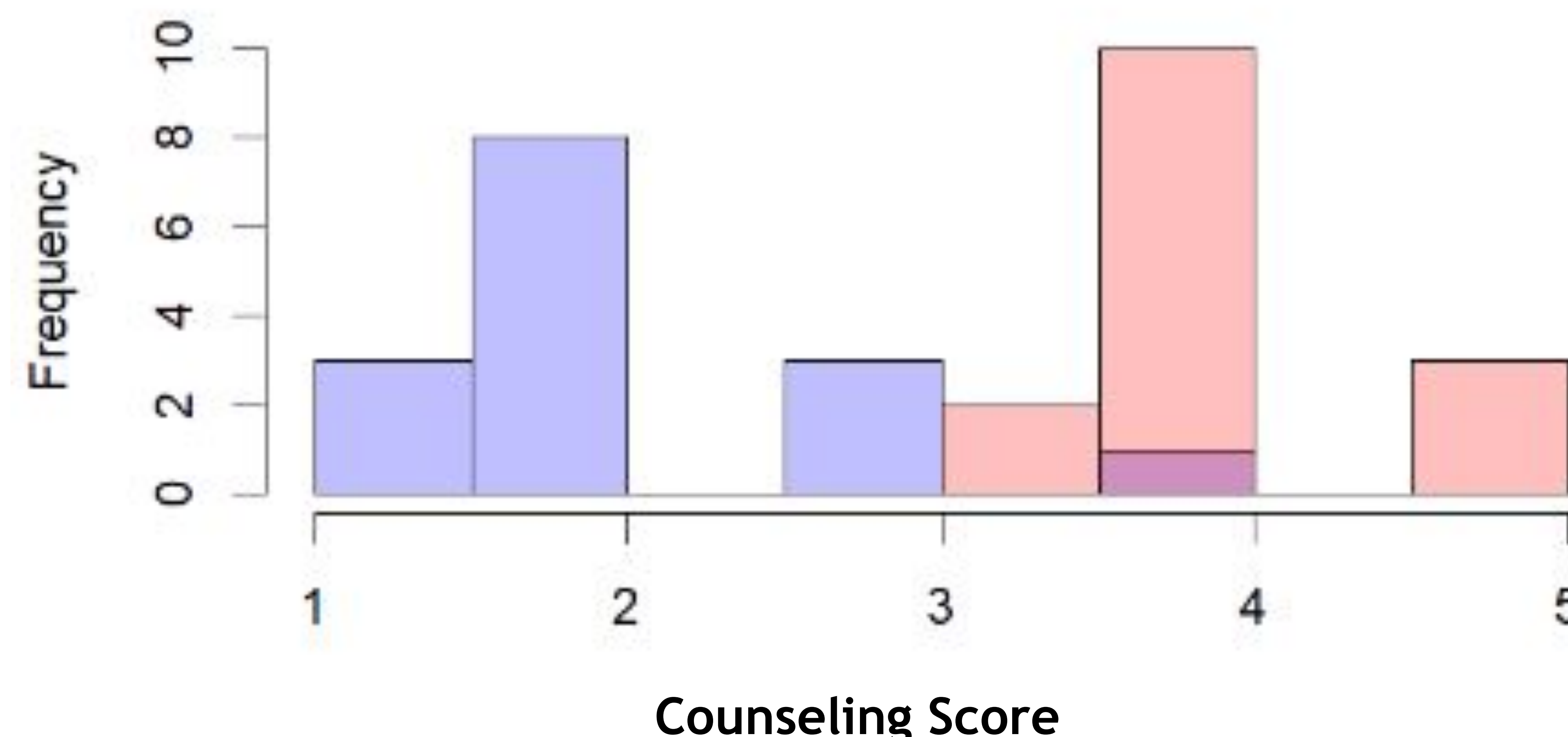
Screening Methods



METHODS

- We developed a structured didactic on counseling points regarding marijuana use in pregnant and lactating populations for an obstetrics and gynecology residency at the Jersey Shore University Medical Center in Neptune, New Jersey.
- Participation included a pretest, a 1 hour didactic session, a counseling simulation, then a post test.
- The didactic portion included the physiology of cannabis and the endocannabinoid system, various formulations of cannabis, an overview of the current evidence of cannabis' effect on gynecologic conditions and of cannabis' effect on pregnancy and lactation.
- The pre and post-test included the same 9 questions using 5-point Likert scale to assess learner confidence levels.
- Performed during scheduled didactic sessions on December 4th, 2023
- Categorical variables were summarized using frequency and percentage. Counseling and formulation responses were recategorized from a 5 point Likert scale into a trichotomous scale with 1 = not confident at all, 2 = neutral and somewhat confident, and 3 = confident and very confident. The difference in counseling and formulation outcomes were compared pre- and post-intervention using the McNemar-Bowker test for symmetry. Significance level was set at 0.05.

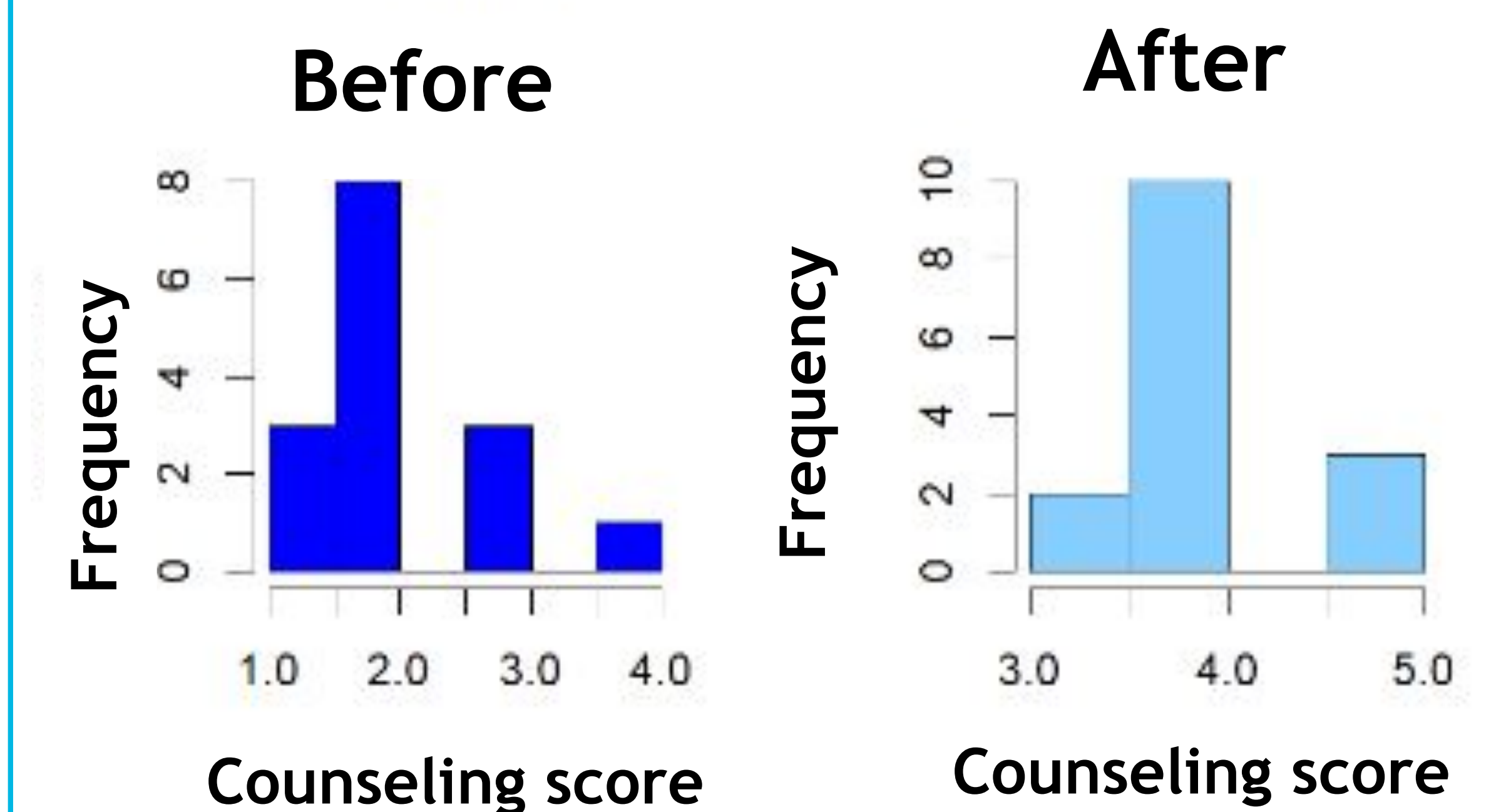
Learner Confidence Before and After Didactic



Key
Pre: Purple
Post: Pink

DISCUSSION / CONCLUSION

- A total of 15 participants completed both pre- and post-surveys, 10 residents and 5 medical students
- Participants' confidence levels in both counseling pregnant patients on cannabis and discussing cannabis formulations changed towards increased confidence after the educational intervention ($p < 0.001$ and $p = 0.008$ (as seen in the large graph in the middle))
- As marijuana becomes recreational in the majority of the United States, obstetricians and gynecologists must be able to effectively counsel their pregnant and lactating patients using the best evidence available.



REFERENCES

- Brailon, A., & Bewley, S. (2018). Committee Opinion No. 722: Marijuana Use During Pregnancy and Lactation. *Obstetrics and gynecology*, 131(1), 164.
- Thant T, Nussbaum A. What You Need to Know About Cannabis: An Evidence-Based Crash Course for Mental Health Trainees. *MedEdPORTAL*. 2020;16:10923.

Introduction

The transition from medical school to residency is a pivotal phase in a physician's journey. Interns entering medical residency come from diverse backgrounds, educational experiences, and varying clinical exposure.

This variation in background can lead to disparities in readiness and confidence levels among interns in navigating clinical and non-clinical responsibilities.

Background

Numerous studies indicate that incoming interns often exhibit deficiencies in clinical and professional skills that residency program directors anticipate should have been proficiently acquired during their medical school education [1-3].

Consequently, there have been a growing number of residency preparatory courses to address these challenges. However, these conventional courses are often rigid and predetermined, time consuming (3-4 weeks) and may not fully factor in the intern's perspectives.

Learning Objectives

This workshop, titled "Ascending to the Next Level, the Prequel: Multimodal Training Series for New PGY1 Development", is specifically tailored for incoming Internal Medicine PGY1s.

The primary objective is to:

1. Introduce interns to a standardised approach to patient care essentials within the first week of residency. This ensures all interns commence their training on the same clinical practice footing, facilitating rapid confidence development and a smoother transition into residency.
2. Accelerate the learning process for our interns during their transitory period, all within a five-day period during their first week.

Methods for Teaching

Utilizing an interactive lecture series focused on the fundamentals, practice scenarios and the simulation lab, which is updated yearly based on feedback received from the ascending PGY2s (former interns). Our intern prep camp spans five days during the first week of residency, with morning and afternoon sessions each lasting an hour.

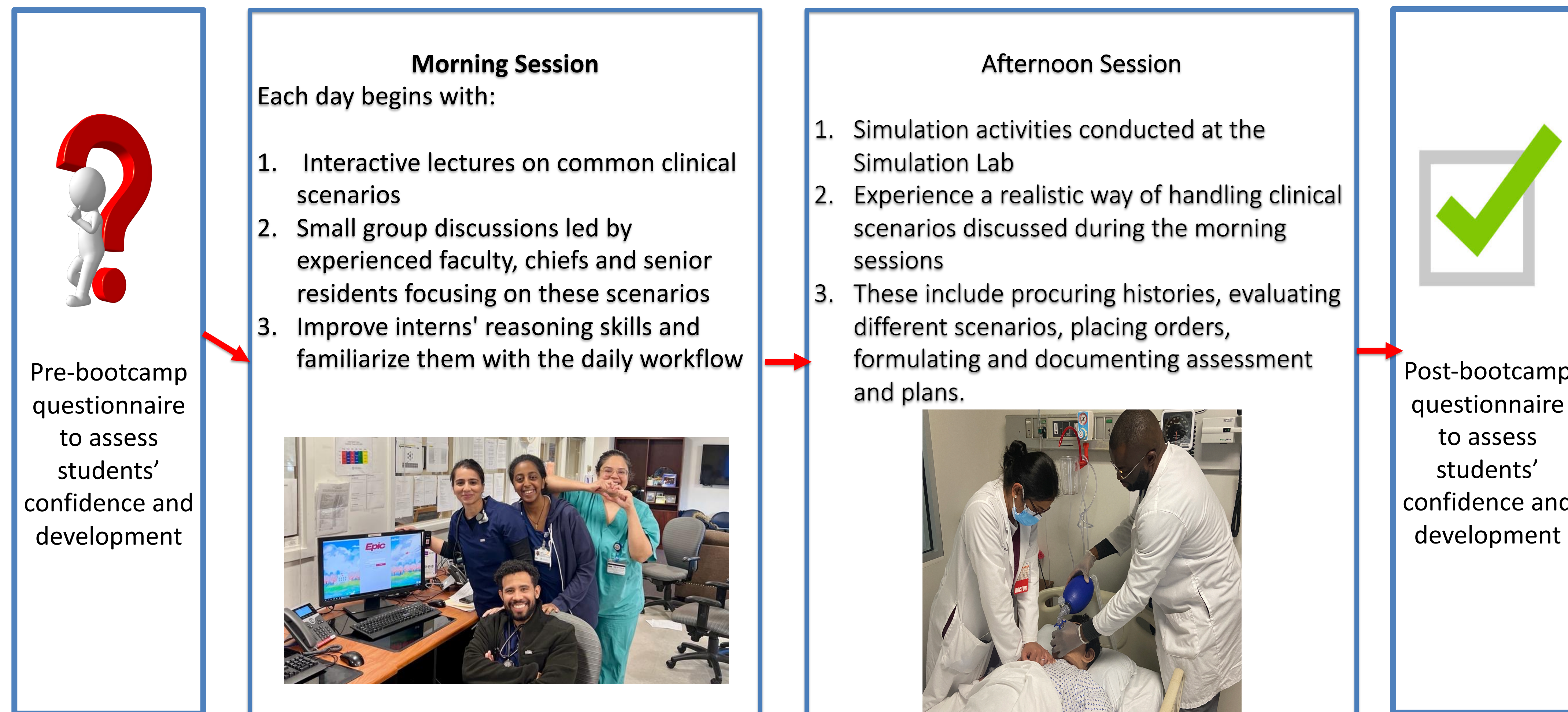
Discussion

Research shows preparatory workshops and courses boost confidence, enhance clinical skills, and increase medical knowledge [2-3]. Additionally, studies have shown certain competencies are critical in transitioning to residency [1]. These include communication, professionalism, teamwork, decision-making, handling challenging situations, specific skills and knowledge, efficiency, and how to consult effectively. Our multimodal training will combine these competencies with clinical teaching into the training to ensure optimal resident training and patient care.

Conclusion

Through this multimodal training series, we hope to facilitate a smoother and more confident start to residency, ensuring that all interns begin on equal footing and are better prepared to handle the demands of their new roles.

References



INTRODUCTION

Why does health literacy matter?

- Poor health literacy is associated with increased hospitalizations, emergency care usage, and higher healthcare costs
- Effective patient education empowers patients to make informed health decisions
- Even those with high literacy skills may have low health literacy

What makes effective education materials?

- Word choice, actionability, comprehensiveness, evidence, and visual layout
- AMA and NIH recommendations: sixth grade reading level

Aim:

- With 70% of Americans turning to the internet for health information, it's crucial to assess online patient education
- Evaluate the effectiveness of online patient education on acute laryngitis in facilitating informed decision-making

METHODS

- Search terms: "Acute Laryngitis" and "Hoarseness in adults"
- Inclusion: first 50 unsponsored Google results for each search term
- Exclusion: duplicate sites, advertisements, peer-reviewed research publications, books, images, video-based pages, pages with less than 30 sentences, and unrelated topics
- Readability: FRES, FKGL, and SMOG index
- Content quality, understandability, and actionability: DISCERN instrument and PEMAT

FRES = 206.835 – 1.015(total words/total sentences) – 84.6(total syllables/total words)

FKGL = 0.39(total words/total sentences) + 11.8(total syllables/total words) – 15.59

SMOG=1.0430*sqrt(30*complex Words/sentences)+3.1291

RESULTS

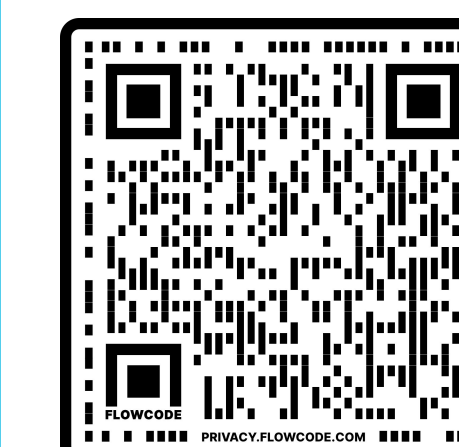
- Of 100 initial search results, 34 met inclusion and exclusion criteria
- FRES average indicates "difficult" reading level, suitable for college-level comprehension
- FKGL average was 11.35, suggesting an 11th-grade education level is required
- SMOG score was 10.25, indicating a 10th-grade education is required
- DISCERN average was 42.94 out of 80, suggesting "fair" overall content quality
- PEMAT averages were 56.23% and 57.14%, indicating moderate understandability and actionability

	FRES	FKGL	SMOG	DISCERN	PEMAT-U (%)	PEMAT-A (%)
Average	45.72	11.35	10.25	42.94	56.23	57.14
SD	10.76	3.02	2.29	9.04	11.24	8.61

CONCLUSION

- Health literacy is crucial in making informed decisions and is apart of quality healthcare
- Acute laryngitis: often confused with other diagnoses due to shared symptoms
- Current available online patient education materials on acute laryngitis are difficult for patients to understand
- Complicated resources potentially compromise patient understanding and decision-making
- Organizations can promote equitable access by publishing clear and actionable health information
- Effective education empowers patients to make informed decisions which lead to better outcomes
- Effective patient education in the office and in the virtual setting improves patient outcome and self-efficacy

REFERENCES



Please scan QR code!



Teaching Awareness of Cancer Disparities to First Year Medical Students

Alexander C. Ekwueme & Linda D. Siracusa

HMSOM, Department of Medical Sciences, 123 Metro Blvd, Nutley, NJ, USA

INTRODUCTION

Disparities exist across the spectrum of health care, and patients with cancer are no exception. The Cancer Disparities Progress Reports written by the American Association for Cancer Research (AACR) highlight multiple aspects of cancer disparities among different racial/ethnic groups and underserved populations in the U.S. Based on these reports as well as numerous publications, the cancer disparities that exist among different racial/ethnic groups include, but are not limited to, diagnosis, tumor genome sequencing, and targeted cancer therapies. The goal of this project was to introduce first year medical students to the magnitude of these cancer disparities and stimulate discussion about why they exist and whether they are impacted by social determinants of health.

THE NCI DATABASES

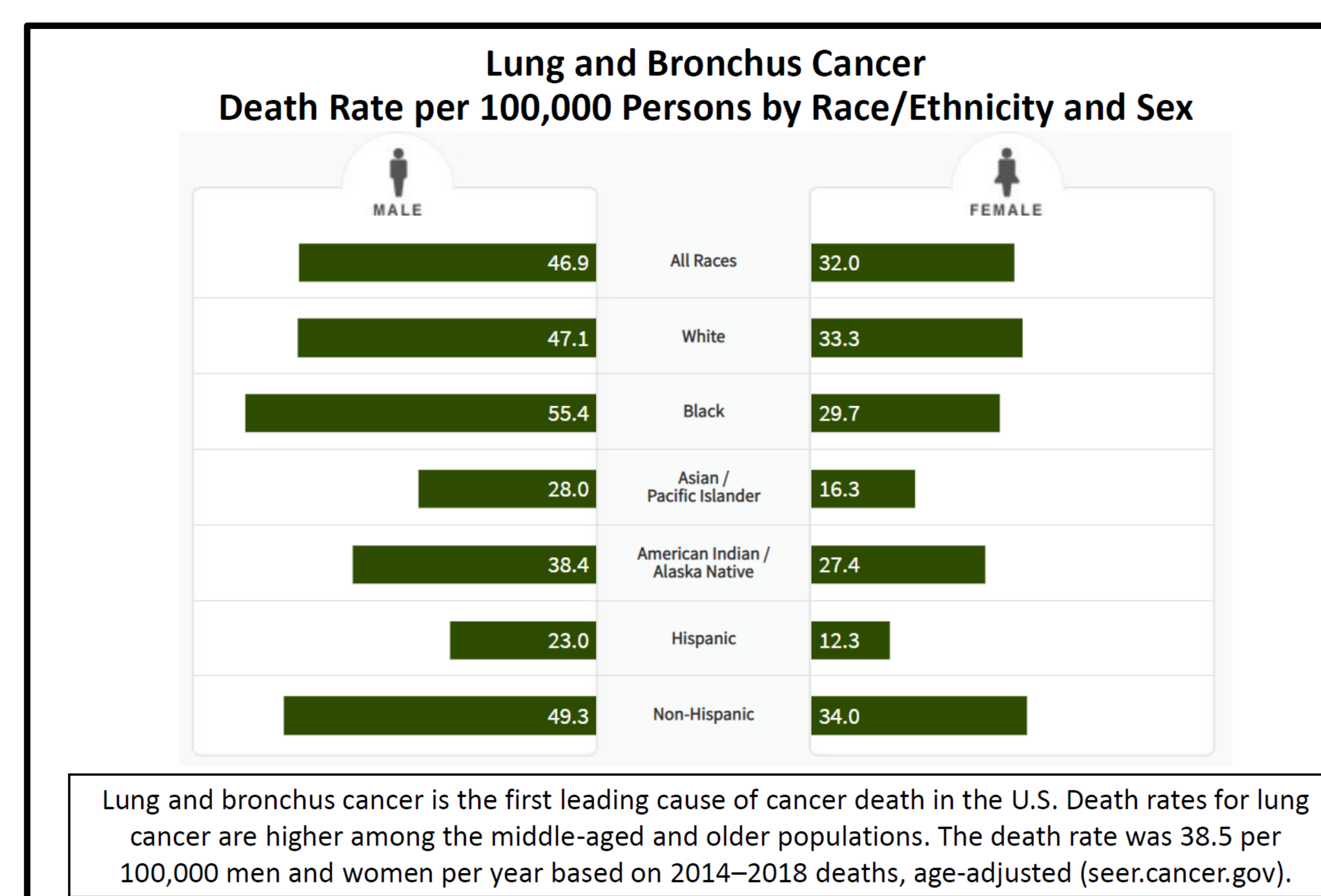
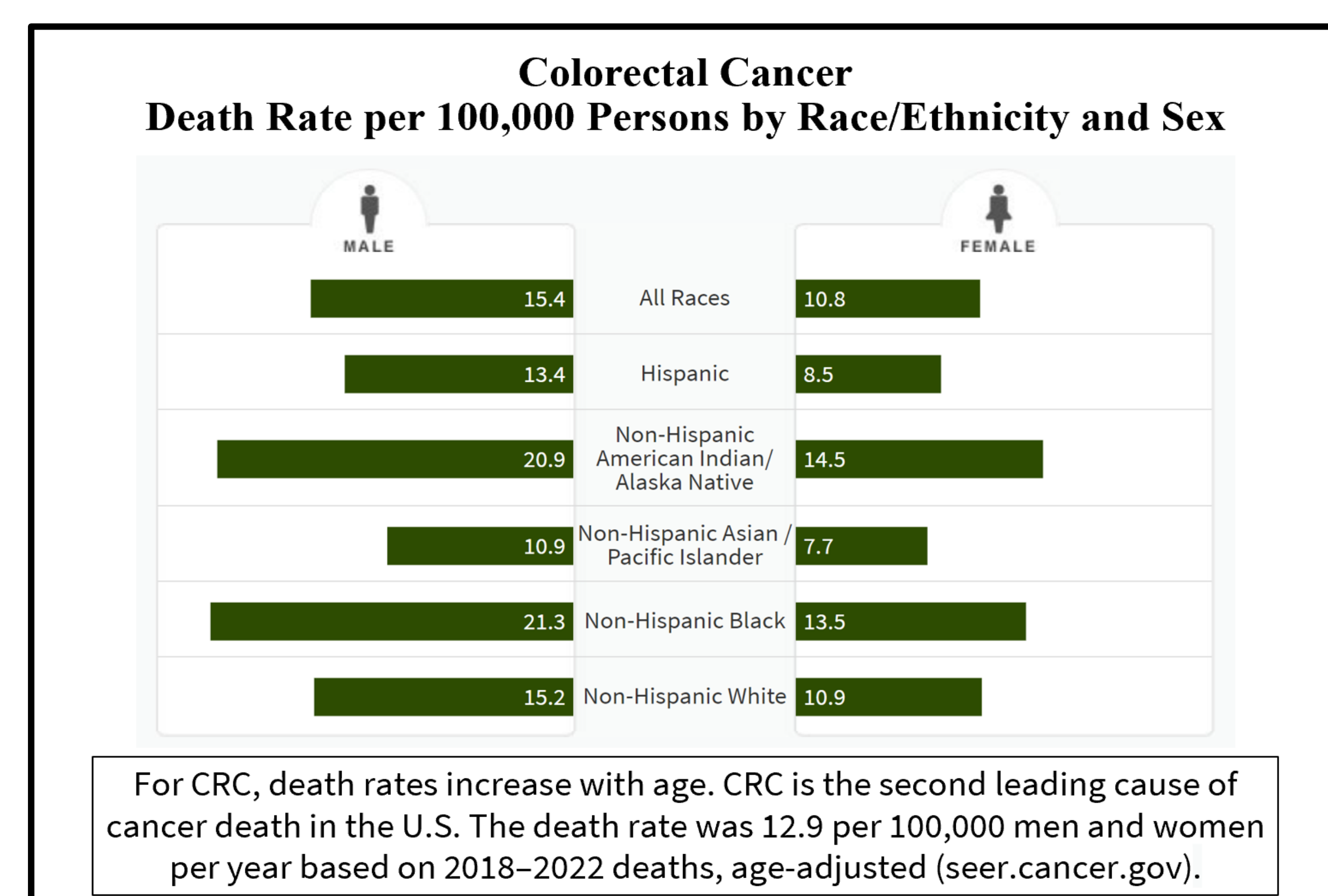
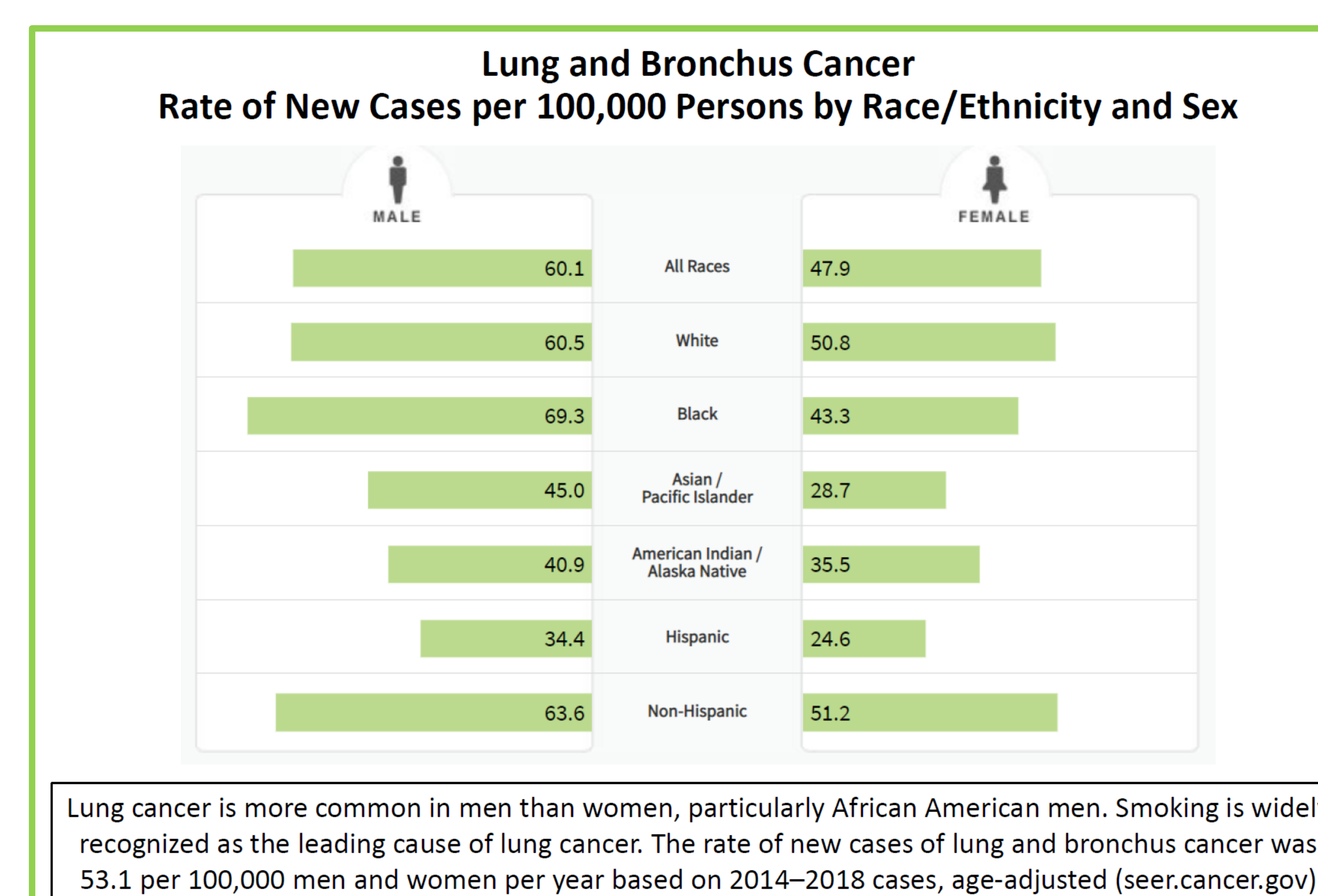
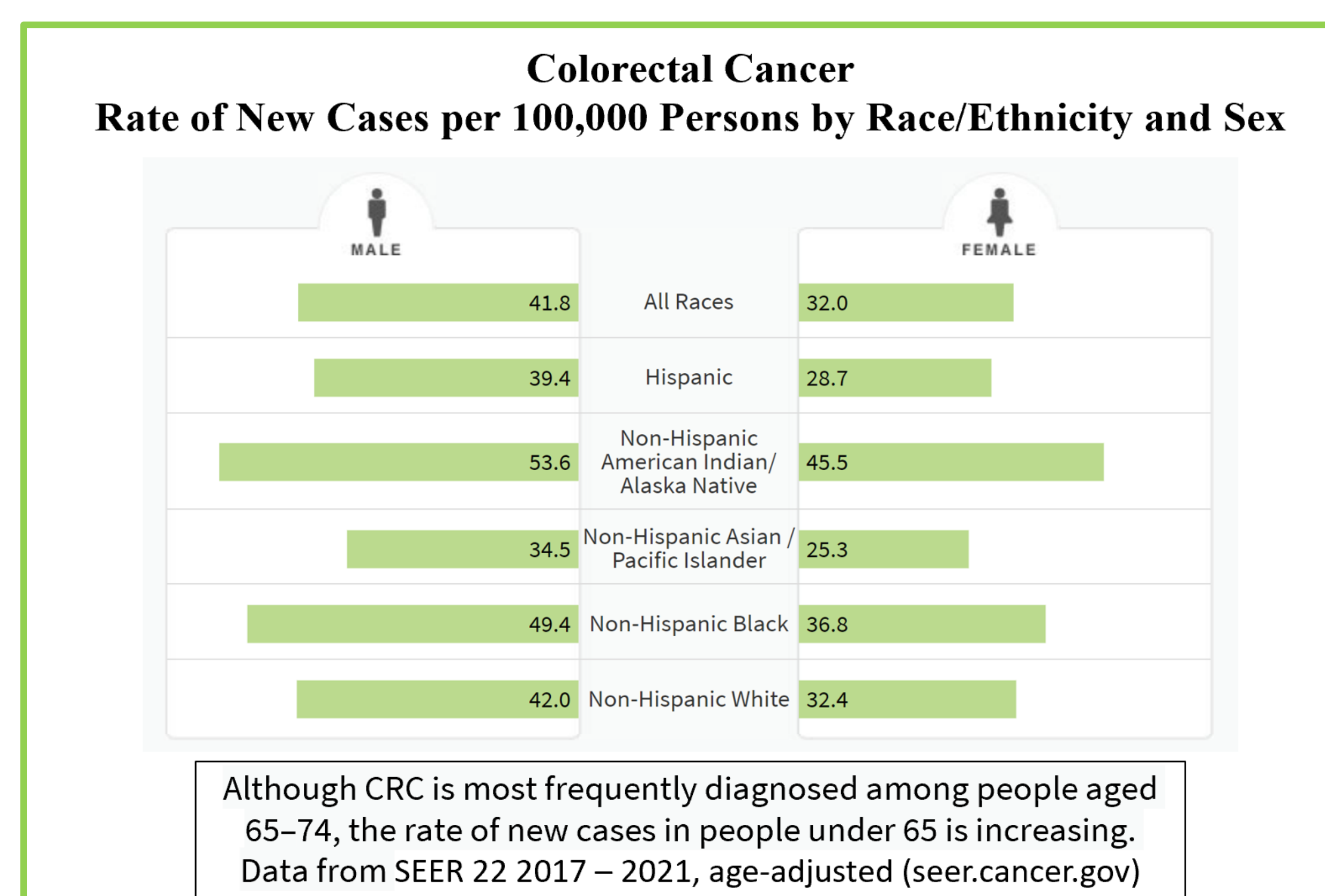
The National Cancer Institute (www.cancer.gov) has comprehensive information about cancer that is freely available to the public. First year medical students are introduced to the NCI Dictionaries (www.cancer.gov/publications/dictionaries) and cancer during their first session on cancer in week 5 of their first course. This training is followed by an active learning activity where groups identify the risk and prevention factors for 4 major cancer types (breast, colorectal, lung, and prostate) using the “patient version” of the website (www.cancer.gov/types). This educational approach empowered students to become familiar with searching the NCI databases for information.

METHODS

The publicly available Surveillance, Epidemiology, and End Results (SEER) database, supported by the NCI, was used as a starting point. SEER “provides information on cancer statistics in an effort to reduce the cancer burden among the U.S. population” (seer.cancer.gov). Short slide sets were created that showcased the rate of new cases (incidence) and the rate of death (mortality) per 100,000 persons by race/ethnicity and sex for every cancer type that was the focus of a teaching session for first year medical students.

INNOVATION DESIGN & IMPACT ON LEARNING

Powerpoint slides were created for classes using data from the SEER database, which represents approximately half of all cancer patients in the U.S.



By incorporating quantitative cancer-type-specific data into class sessions, faculty had a starting point to discuss disparities in cancer incidence and mortality between different racial/ethnic groups (as well as between the sexes). In addition, faculty had the opportunity to investigate the reasons for these disparities (where known) prior to class and discuss these with students. Further discussions about disparities in cancer diagnosis and treatment were part of later class sessions dedicated to specific cancer types.

OUTCOMES

- ❖ A review of class recordings revealed questions asked by medical students regarding the reasons for disparities across cancer types. For cancers where the cause(s) of health disparities were unclear, students expressed a desire to search the literature for a deeper understanding of potential causes and solutions.
- ❖ Reviews of the case of the week for the 2021 & 2022 cohorts revealed that students chose to present topics about cancer health disparities. For the case of melanoma in the first course, Molecular & Cellular Principles, their presentation titles included: "The influence of race and geography on cancer risk and treatment outcomes," "How does skin color affect melanoma diagnoses," and "Melanoma and race." For the case of lung cancer in the fifth course, Homeostasis and Allostasis, their presentation titles included: "Treating Lung Cancer: Determinants and Disparities" and "How Social Determinants of Health affect Cancer Rates and Mortality."

DISCUSSION / CONCLUSION

- ❖ The NIH databases provide a wealth of medical information that is useful when designing class sessions that cover different types of cancers.
- ❖ Quantitative data showing the number of people in different racial/ethnic groups and the sexes affected by cancer are powerful examples to open the door to awareness about disparities across cancer care.
- ❖ Teaching medical students about disparities in cancer using incidence and mortality rates from the SEER database provided the foundational knowledge needed to appreciate the magnitude of this problem in health care.
- ❖ Talking about these problems during class made medical students question why the differences existed and have thoughtful discussions about the underlying causes and potential approaches for reducing disparities among patients with cancer.
- ❖ Students chose to delve into topics more deeply by exploring health disparities in cancer and creating oral presentations for small group sessions about the case of the week.

REFERENCES

- ❖ American Association for Cancer Research: Cancer Disparities Progress Report 2022 (https://cancerprogressreport.aacr.org/wp-content/uploads/sites/2/2022/06/AACR_CDPR_2022.pdf)
- ❖ The NCI collection of databases that provide free comprehensive cancer information to the public (<https://www.cancer.gov/>)

ACKNOWLEDGEMENTS

- ❖ We thank our medical students for their interest in exploring the nature of disparities in health care and for their devotion to eliminating cancer disparities.
- ❖ We thank Phase 1 Course Directors (Drs. Bardill, Battaglia, Han, Titunick, Wang & Zepf) for incorporating the described materials into sessions on cancer in their courses.
- ❖ We thank the IHS Librarians, Christopher Duffy & Peggy Drekkler, for providing the titles of student presentations.

INTRODUCTION

- Artificial Intelligence (AI), especially language models like ChatGPT, are being integrated into common medical tasks, enhancing efficiency.
- Literature is sparse on ChatGPT's ethical reasoning, empathy, and communication in healthcare decision-making.
- Early studies suggest ChatGPT's communication is clear, accurate, and sensitive, sometimes surpassing medical professionals.
- This study investigates ChatGPT's capability in navigating medical ethics, focusing on accuracy, error trends, and specialty-specific scenarios.

METHODS

- Data was sourced using the question banks UWorld and AMBOSS and ChatGPT-3.5.
- 114 questions under the category "Medical ethics and jurisprudence" were assessed.
- ChatGPT was prompted to select the correct answer and to explain why it did not choose other options to assess its accuracy and reasoning skills, supporting our error analysis.
- Questions were classified by topic according to the USMLE Content Outline, difficulty (AMBOSS only) and speciality data (UWorld only).
- Incorrect answers were classified by error type (content, application, misunderstood question).
- Statistical analysis was conducted using R, with descriptive statistics.

RESULTS

- ChatGPT's overall accuracy was 59.6%, correctly answering 68 out of 114 bioethical questions.
- Performance varied between question banks: 63% correct with AMBOSS and 51% correct with UWorld.
- Informed consent was the most common bioethical category, amounting to 38%.
- ChatGPT performed best in questions related to death (86%) and physician-patient relationships (71%).
- Most errors made by ChatGPT were content errors (43%), followed by application errors (41%).
- Accuracy decreased with higher difficulty levels of questions in AMBOSS, best at level 1 (72% accuracy) and worst at level 4 (33%).
- Highest accuracy in specialties was seen in Pediatrics (75%) within the UWorld questions.

Table 1. Error Types

Error Type	Definition	Number (%) N=46
Content Error	Error in the explanatory content provided	20 (43.5%)
Application Error	Error where the content was described accurately but used incorrectly in the context of the question	19 (41.3%)
Misunderstood Question	Error where content was described accurately, but ChatGPT appeared to be answering a peripherally related question	7 (15.2%)

Table 2. Bioethical Categories by Accuracy

Bioethical Category	Accuracy		
	Correct (%)	Incorrect (%)	Overall
	(N=68)	(N=46)	(N=114)
Abuse	2 (50%)	2 (50%)	4 (100%)
Capacity	9 (64.3%)	5 (35.7%)	14 (100%)
Informed Consent	19 (44.2%)	24 (55.8%)	43 (100%)
Culture	1 (100%)	0 (0%)	1 (100%)
Death	6 (85.7%)	1 (14.3%)	7 (100%)
Impaired Physician	1 (100%)	0 (0%)	1 (100%)
Involuntary Admissions	1 (100%)	0 (0%)	1 (100%)
Physician Misconduct	3 (60%)	2 (40%)	5 (100%)
Negligence	0 (0%)	1 (100%)	1 (100%)
Referrals	0 (0%)	1 (100%)	1 (100%)
Physician-Patient Relationships	25 (71.4%)	10 (28.6%)	35 (100%)
Unknown	1 (100%)	0 (0%)	1 (100%)

Table 3. Question Difficulty (AMBOSS only) and Medical Specialties (UWorld only) by Accuracy

	Accuracy		Overall (N=114)
	Correct (%)	Incorrect (%)	
	(N=68)	(N=46)	
Difficulty			
1	36 (72%)	14 (28%)	50 (100%)
2	7 (53.8%)	6 (46.2%)	13 (100%)
3	6 (46.2%)	7 (53.8%)	13 (100%)
4	1 (33.3%)	2 (66.7%)	3 (100%)
Missing	18 (51.4%)	17 (48.6%)	35 (100%)
Medical Specialty			
Emergency Medicine	2 (66.7%)	1 (33.3%)	3 (100%)
Family	2 (100%)	0 (0%)	2 (100%)
Medicine	3 (37.5%)	5 (62.5%)	8 (100%)
Neurology	0 (0%)	1 (100%)	1 (100%)
OBGYN	2 (33.3%)	4 (66.7%)	6 (100%)
Pediatrics	6 (75%)	2 (25%)	8 (100%)
Psychiatry	1 (25%)	3 (75%)	4 (100%)
Surgery	2 (66.7%)	1 (33.3%)	3 (100%)
Missing	50 (63.3%)	29 (36.7%)	79 (100%)

DISCUSSION

- ChatGPT showed promising results with 59.6% accuracy in bioethics.
- It performed well in physician-patient relationship scenarios and death, suggesting potential in medical decision-making.
- ChatGPT struggled with informed consent and abuse, possibly due to misunderstanding complex social relationships.
- Errors increased with question difficulty; the model performed best on easier questions, similar to student patterns.
- Content errors suggest the need for more in-depth training in ethical content.
- Limitations include: heterogeneity in question bank, limited variety of topics, small sample sizes, and prompting bias.

CONCLUSIONS

- ChatGPT is limited in answering bioethical questions at a medical student level.
- A decline in performance with more complex questions mirrors human learning behaviors.
- The presence of content-related and application errors indicates caution in AI use for ethical decision-making.
- ChatGPT has potential but its current reliability is insufficient for independent ethical assessments. The necessity of human oversight is emphasized, particularly in high-stakes bioethical decisions.



Exploring AI Assistance in Medical Education: Utilization of ChatGPT by Medical Students

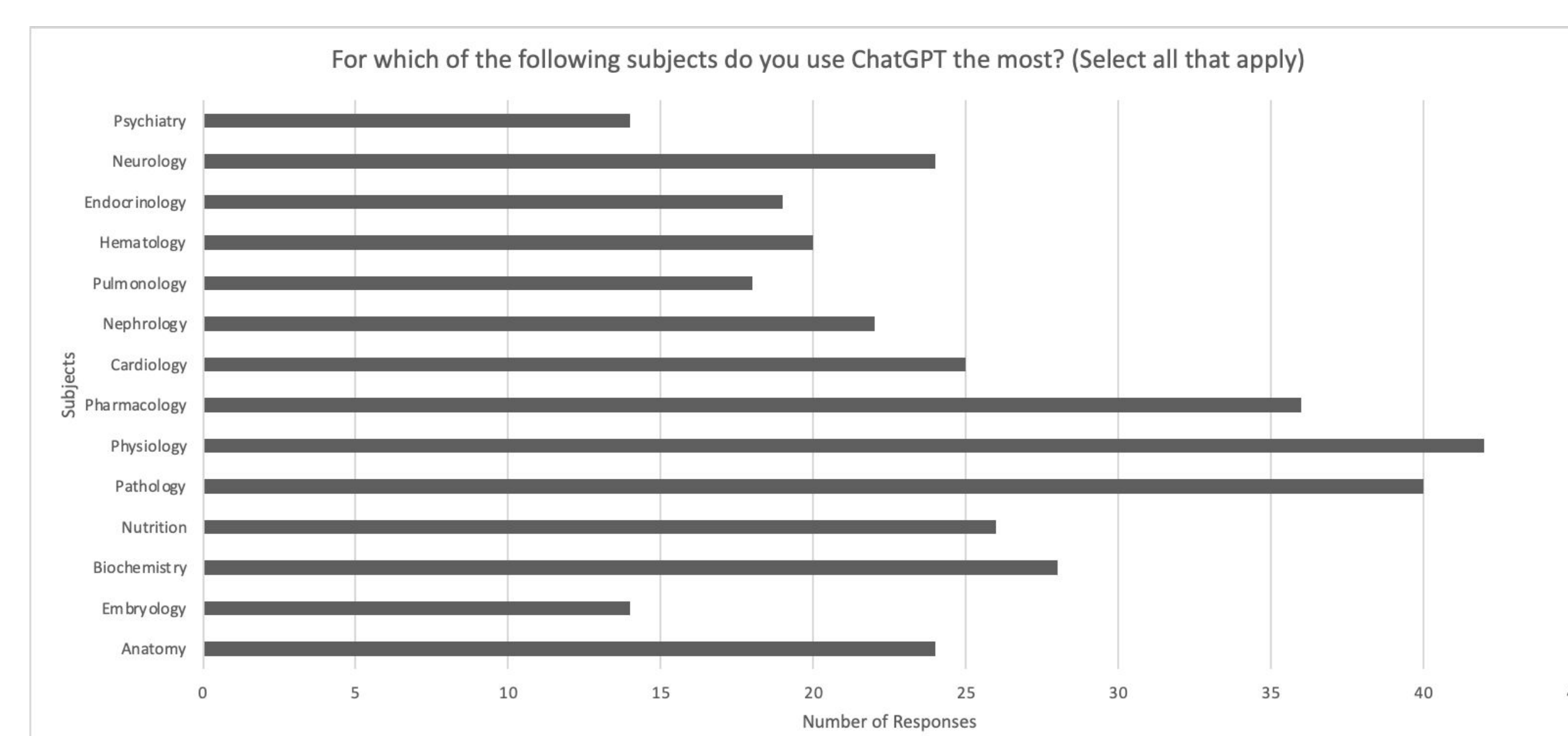
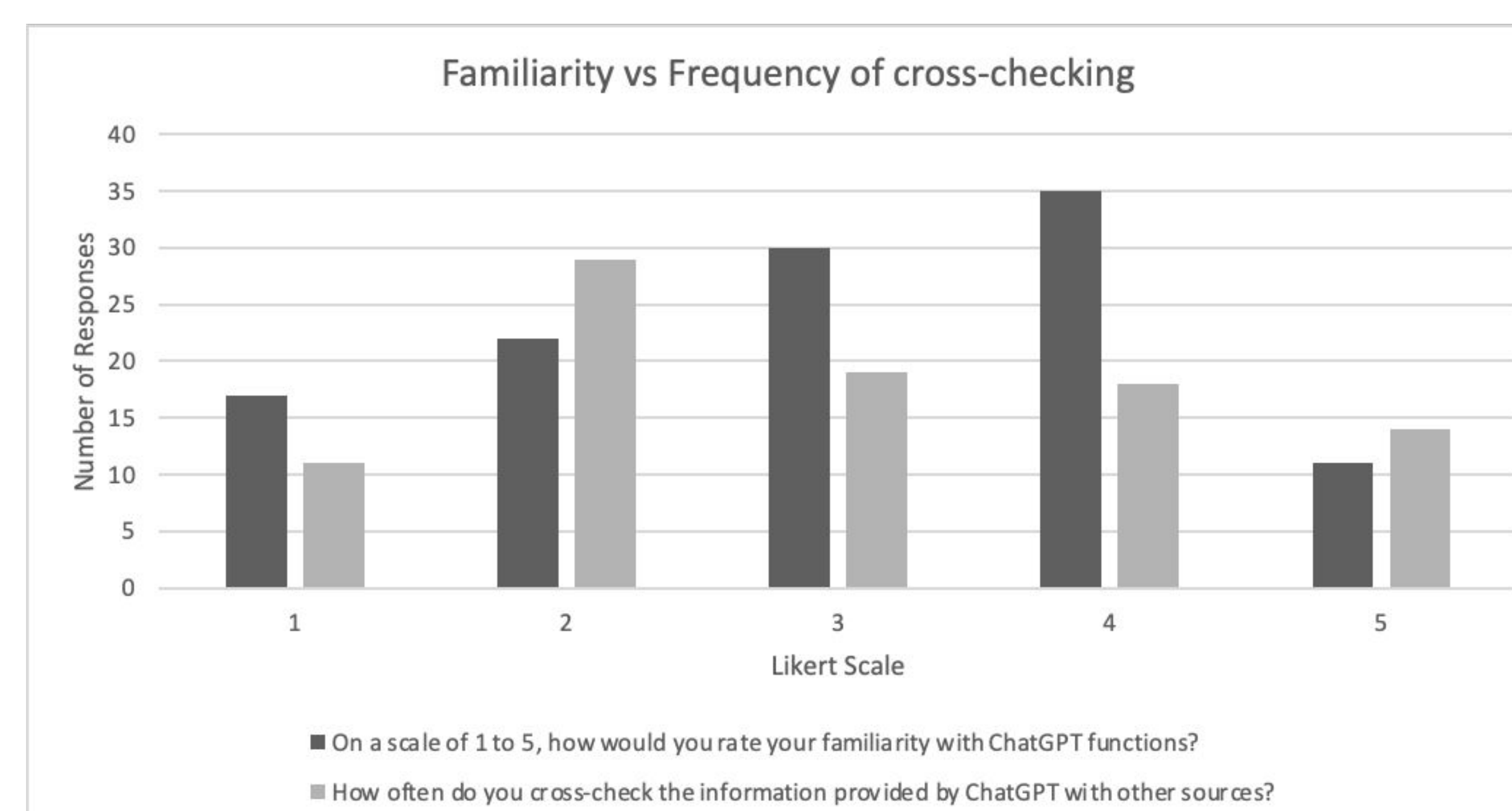
Aazam A. Parvez MS2., Hanin M. Bachir MS2, Nafee Ullah MS2, Zhiyong Han P.h.D,
Jennifer Zepf D.O.

BACKGROUND

- Artificial Intelligence (AI) is increasingly pervasive in various sectors, notably in medical education, where it may revolutionize traditional learning paradigms.
 - As AI tools like ChatGPT are utilized for academic tasks, understanding their effectiveness and the students' perception becomes essential.
- While AI's potential to personalize learning and enhance comprehension is acknowledged, the degree to which medical learners understand the algorithm, its capabilities and pitfalls remains unexplored.
- This study aims to bridge this knowledge gap by examining medical students' utilization and perceptions of AI tools, specifically ChatGPT, within their learning processes. By focusing on AI's role in medical education, we seek to identify both the benefits and challenges posed by AI integration, thus informing future educational strategies and technologies.
- This project aims to assess the extent of ChatGPT's use by medical students, evaluate its impact on their learning experience, and understand students' perceptions and confidence in using AI tools in medical education.

Methods and Results

- Methods:** This prospective, cross-sectional survey was conducted at Hackensack Meridian School of Medicine. Participants included medical students from the 2020 to 2023 cohorts, utilizing a structured questionnaire to collect data on frequency of use, purposes for using ChatGPT, and perceptions regarding its efficacy and reliability. The survey integrated both quantitative and qualitative measures, with responses collected via Google Forms. Data analysis involved descriptive and inferential statistics, using tools like SPSS and Python to identify significant correlations and trends.
- Key findings include:**
 - Usage Frequency:** The majority reported using ChatGPT 'Rarely/Never' (33 respondents), indicating varied engagement levels.
 - Confidence vs. Practice:** Despite high confidence in identifying errors in AI responses (27.2% felt confident), actual cross-checking practices were infrequent, with 27.1% rating their cross-checking frequency at 2 out of 5.
 - Perceptions of AI:** 68.4% of students recognized AI tools like ChatGPT as enhancing their learning experience, although concerns about error detection and verification were notable.
 - Primary Uses:** ChatGPT was mostly used for writing assistance (35%), explaining class material (34%), and acquiring general medical knowledge (33%).
 - Ethical Usage:** 22.6% of students view employing ChatGPT for curriculum assignments as cheating, in contrast to 8.6% who consider using it for practice questions as cheating
 - Demographic Influences:** No significant differences were found in AI usage based on demographic factors such as age or gender.



DISCUSSION & CONCLUSION

- Personalized learning experience remains one of ChatGPT's biggest assets
- ChatGPT is particularly utilized in the framing and cognitive integration phases of learning.
 - Usage in reinforcement and application phases can be further developed
- Enhanced accuracy and nuanced clinical reasoning optimizes usage
- Newer iterations of ChatGPT (GPT4) have marked improvements in accuracy and multimodal capabilities performing significantly better on United States Medical Licensing Examinations (USMLEs).
 - Step 1,2,3; GPT-4 88%, 86% and 90% respectively vs GPT-3.5 75.0%, 61.5%, and 68.8% respectively
 - However, GPT-4 is available via subscription, likely contributing to disparities in medical education based on SES status
- Unclear expectations, boundaries and limits surrounding AI usage in med-ed
 - Need for integrated guidelines, understanding of learning model data and limitations, best-practice policies and discussion of ethics into curriculum

REFERENCES / ACKNOWLEDGEMENTS

- Civaner, M. Murat, Yeşim Uncu, Filiz Bulut, Esra Giounous Chalil, and Abdülhamit Tatli. "Artificial Intelligence in Medical Education: A Cross-Sectional Needs Assessment." *BMC Medical Education* 22, no. 1 (November 9, 2022): 772. <https://doi.org/10.1186/s12909-022-03852-2>.
- Masters, Ken. "Artificial Intelligence in Medical Education." *Medical Teacher* 41, no. 9 (September 2019): 976-80.
- Nagi, Fatima, Rawan Salih, Mahmood Alzubaidi, Hurmat Shah, Tanvir Alam, Zubair Shah, and Mowafa Househ. "Applications of Artificial Intelligence (AI) in Medical Education: A Scoping Review." *Studies in Health Technology and Informatics* 305 (June 29, 2023): 648-51. <https://doi.org/10.3233/SHTI230581>.
- Wartman, Steven A., and C. Donald Combs. "Medical Education Must Move From the Information Age to the Age of Artificial Intelligence." *Academic Medicine: Journal of the Association of American Medical Colleges* 93, no. 8 (August 2018): 1107-9. <https://doi.org/10.1097/ACM.0000000000002044>.
- We would like to thank the Hackensack Meridian School of Medicine Department of Medical Education for their assistance as well as Dr. Lora Kasselmann for her assistance in organization and aid in statistical analysis.

BACKGROUND

- Medical education is increasingly incorporating technology, such as virtual reality and online platforms, shown by the swift adaptation to virtual learning and telemedicine during the COVID-19 pandemic.
- The AAMC Situational Judgment Test, launched in 2020, measures **essential non-academic competencies**, playing a vital role in the increasingly **holistic medical admissions process**.
- The objective of this study is to assess the performance of LLMs in a SJT utilized for prospective medical student applicants.

METHODS

- ChatGPT-3.5, ChatGPT-4.0, and Bard were used to assess the effectiveness of solutions in the 2021 AAMC SJT practice exam booklet
- Scoring was based on AAMC's guidelines, with full credit for exact matches and partial for near matches, to gauge the accuracy of AI responses.
- Sentiment analysis was conducted on the solutions to detect any potential biases in the language that could affect the ratings.
- Descriptive statistics, logistic regression models, and kappa were utilized

RESULTS

	ChatGPT.4.0 (N=186)	ChatGPT.3.5 (N=186)	Bard (N=186)	Overall (N=558)
Raw Accuracy				
Incorrect	77 (25.7%)	107 (35.7%)	116 (38.7%)	300 (53.8%)
Correct	109 (42.3%)	79 (31.0%)	70 (27.1%)	258 (46.2%)
Adjusted Accuracy				
Incorrect	30 (28.3%)	36 (34.0%)	40 (37.7%)	106 (19.0%)
Partially Correct	47 (24.2%)	71 (37.0%)	76 (39.2%)	194 (34.8%)
Correct	109 (42.3%)	79 (30.6%)	70 (27.1%)	258 (46.2%)

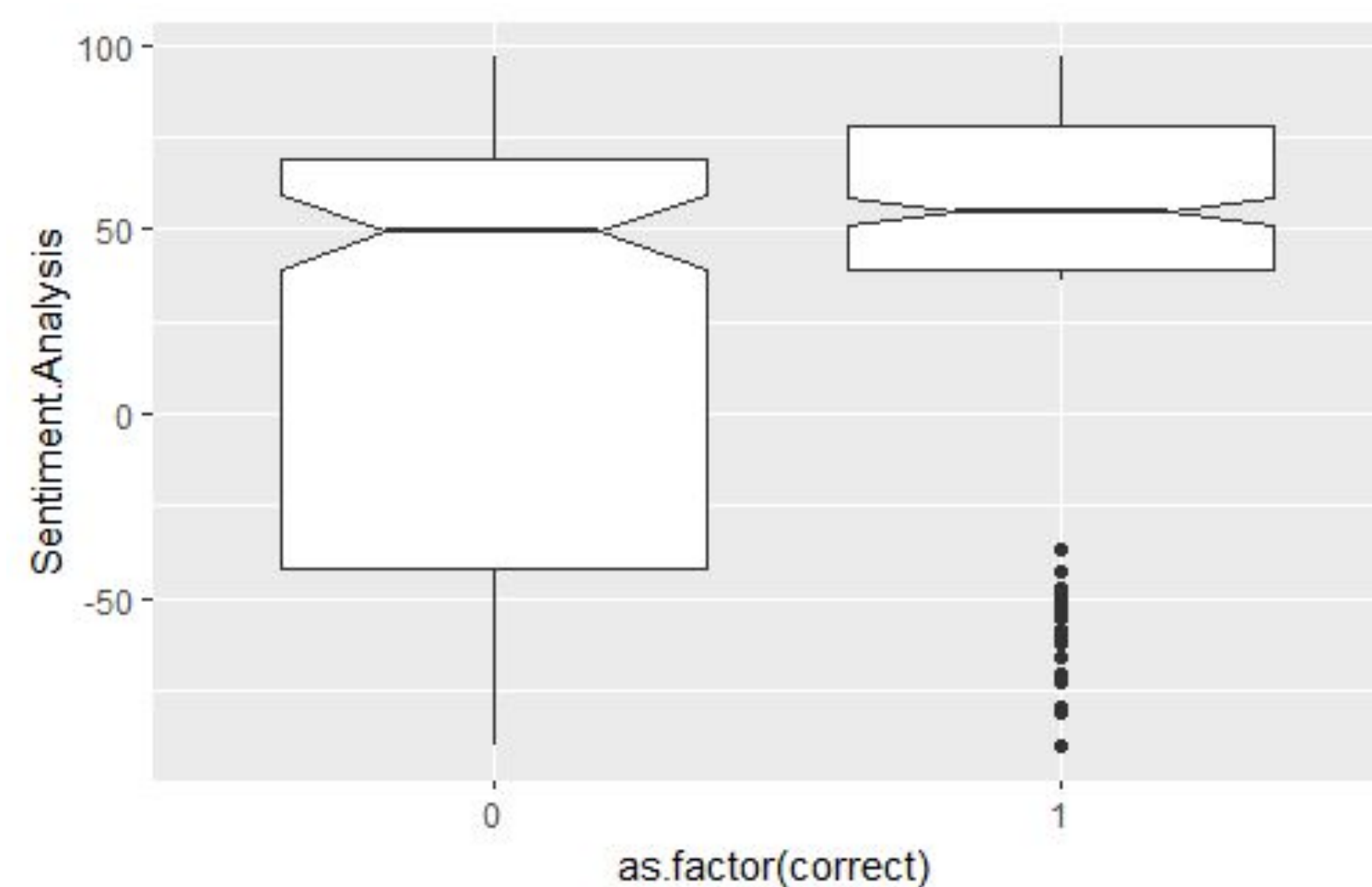
Table 1. Raw and adjusted accuracy by large language model.

	4 (N=12)	5 (N=165)	6 (N=90)	7 (N=147)	8 (N=144)	Overall (N=558)
Incorrect	9 (75.0%)	73 (44.2%)	48 (53.3%)	81 (55.1%)	89 (61.8%)	300 (53.8%)
Correct	3 (25.0%)	92 (55.8%)	42 (46.7%)	66 (44.9%)	55 (38.2%)	258 (46.2%)

Table 2. Raw accuracy by solution count among all large language models.

As **solution count increases** summatively, the **odds of being accurate using raw scores decreases** but this trend lacks statistical significance.

Summatively, the **odds of being accurate using adjusted scores also decreases** with statistical significance only noted in solution counts of 5



As **sentiment analysis increased**, there was a trend towards an **increased odds of being correct** (using adjusted scores) (OR = 1.00 , 95% CI [1.00, 1.01], p= 0.0537)

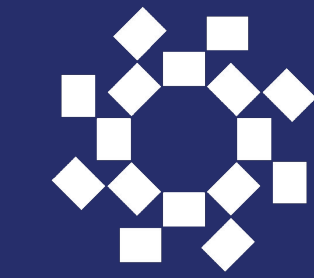
Bard had a raw score of 37.6% and an adjusted score of 58.1%.
ChatGPT-3.5 had a raw score of 42.4% and an adjusted score of 61.6%.
ChatGPT-4.0 had a raw score of 58.6% and an adjusted score of 71.2%.

CONCLUSIONS

- ChatGPT-4.0 demonstrated superior performance with raw and adjusted scores of 58.6% and 71.2%, suggesting strong intuitive judgment in assessing social response.
- Bard scored a 37.6% raw and 58.1% adjusted, displaying a **modest capability** in assessing social responses.
- ChatGPT-3.5 ranked between the other models with a raw score of 42.4% and an adjusted score of 61.6%, showing **reasonable accuracy** in assessing social response.
- Sentiment analysis was employed to detect meta-bias in responses but showed **no practical correlation with accuracy despite statistical significance**, suggesting minimal impact of sentiment on model performance.
- Solution count, indicative of scenario complexity, did not significantly affect model accuracy but had **moderate agreement among errors**.

LIMITATIONS

- Test-taker data from the AAMC's SJT is not publicly accessible; thus, unable to compare LLMs to test-takers.
- Free responses, which is a significant strength of LLMs, was not assessed given the nature of this exam style.

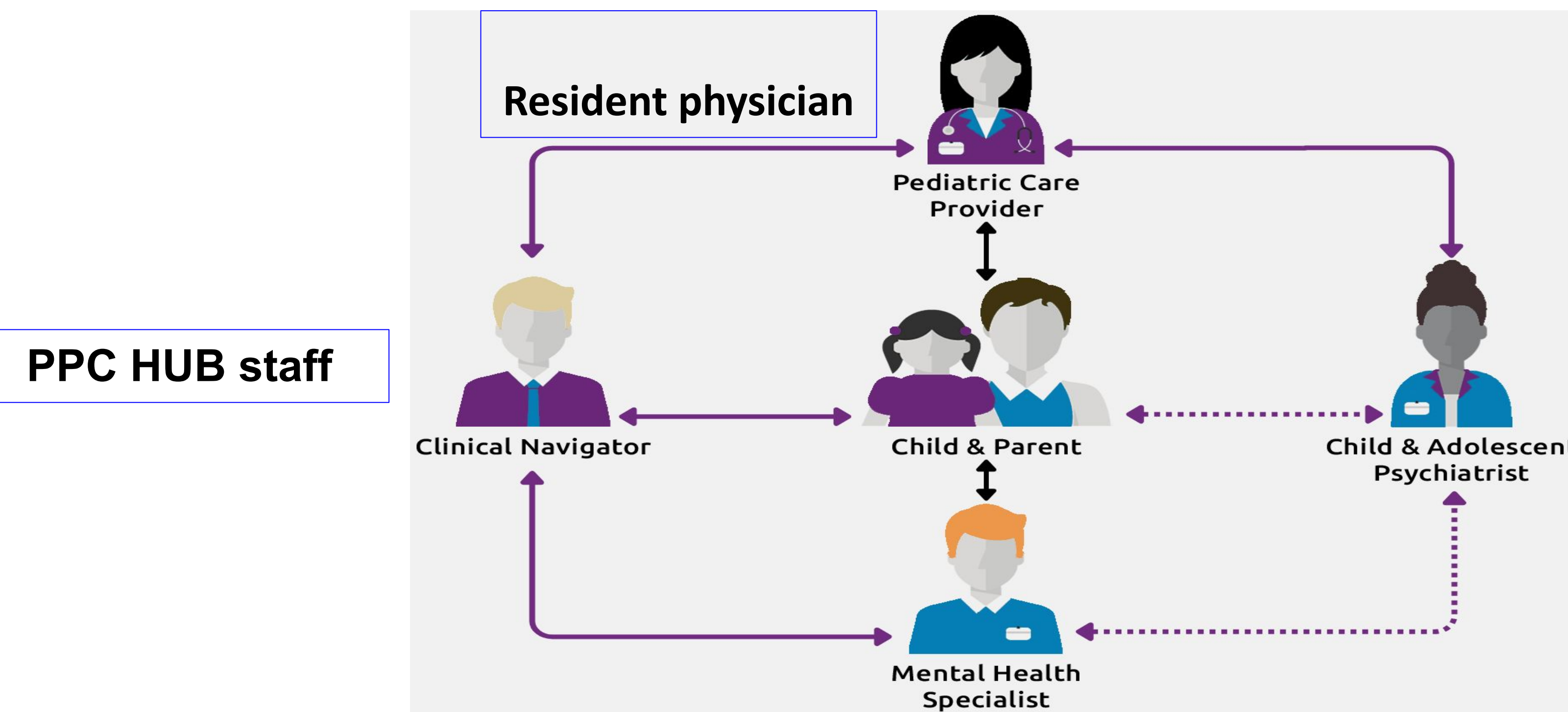


BACKGROUND

- **Background:** There is a national emergency around children’s mental health, with 13-20% of youth in the US experiencing a mental health disorder each year.¹ With limited availability of mental health professionals for children, primary care providers are uniquely positioned to assist in responding to this crisis.
- **What is the knowledge/action gap?** Recent pediatric residency graduates report limited competence in diagnosing and treating common mental health conditions.² Despite efforts by the American Academy of Pediatrics stressing the need for better mental health training for pediatricians, significant gaps in education and training exist, resulting in a pediatric physician workforce ill prepared to care for these conditions in their patients.
- **Objective of the project/study:** Describe impact of integration of a collaborative care model of mental health care into residency training on increasing comfort and competence of pediatric residents to identify and manage mild to moderate mental health conditions.

INTERVENTION DESIGN & EXPECTED IMPACT (METHODS)

The New Jersey Pediatric Psychiatry Collaborative (PPC), is a statewide, grant funded program that aims to improve access to mental healthcare for children and adolescents up to age 21. The program is helping pediatricians learn to better identify, treat and manage patients with mental health disorders in collaboration with mental health professionals.. The PPC Access model provides pediatric residents with both experiential and longitudinal training to care for patients with mental health disorders through continuous collaboration with PPC “HUBS” which are staffed with Child and Adolescent Psychiatrists(CAPS), clinical navigators, other behavioral health specialists and social workers.



Residents identify children with mental health issues by implementing universal screening at all well visits in their continuity clinics. Once identified, they will make a referral to their local PPC HUB. Based on recommendations made by CAP and mental health specialists, the resident/supervising attending will prescribe medication (if recommended) and manage the patient in their practice with the HUB staff, including CAP, available for telephone consultation for as long as needed. Residents will interact directly with CAPs to learn how to manage mild to moderate, uncomplicated mental health issues with the goal of increasing their comfort and competence. Didactic and case-based educational programming is provided by the PPC through its partner, NJ-AAP, for the benefit of the resident learners.

DISCUSSION / CONCLUSION

The impact of integration of the PPC collaborative care model for mental health into pediatric residency training programs in NJ will be evaluated via surveys at the end of each year of training. Instruments will assess competence and comfort in managing patients with mental health issues. Surveys will be distributed to residency faculty to assess perceived impact on resident education. In-service scores for pediatric residents in the domains of psychiatry and behavioral health will be monitored for improvement each year of exposure to PPC programs. We expect that these measurements will demonstrate the success of our program in preparing pediatric residents to care for mild-moderate, uncomplicated mental health issues in their future practice.

REFERENCES / ACKNOWLEDGEMENTS

- 1 Centers for Disease Control and Prevention, 2020.
- 2 Green C., et.al., Competency of future pediatricians caring for children with behavioral and mental health problems. *Pediatrics* 2020; 146:e20192884.



Developing a Comprehensive Education & Training Program for Surgical Advanced Practice Providers

Gina Pagliaro, Russell Seth Martins, Kostantinos Poulidakis, Syed Shahazad Razi, M. Jawad Latif, Jeffrey Luo, Benjamin J. Golas, Faiz Y. Bhora.



BACKGROUND

- Physician assistants (PAs) and Nurse Practitioners (NPs), collectively termed as advanced practice providers (APPs), are rapidly becoming an **integral component of the healthcare system** in the United States.

SETTING

- JFK University Medical Center is a 498-bed facility in Central New Jersey that performs approximately 12,000 surgical operations each year.
- There is currently **no surgical residency or fellowship training program** at the facility.

OBJECTIVE

- To create and mature a **formalized training program for Surgical APPs (S-APPs)** outlining both didactic and operative exposure with annual competency evaluations in the ACGME domains.

INTERVENTION DESIGN & EXPECTED IMPACT



OUTCOMES OF S-APP TRAINING PROGRAM

Didactic Education	Clinical and Operative Exposure	Academic Engagement	Surgeon Evaluation of APP
A total of 32 formal and numerous informal didactic specialty specific educational lectures completed in surgical subspecialties, pharmacology, critical care medicine, systematics and ethics	Thoracic APP <i>n = 336/304 cases assisted</i> General Surgery APP <i>n = 171/116 cases</i>	PA student and MEDical Student rotations and Student Shadow program initiated Mortality and Morbidity Conference APP presentations Thoracic APP: n= 9 General Surgery APP: n= 10	End of year evaluation in the domains of Patient Care Procedural Skills and Professional Growth yielded notable growth when compared with mid year competency evaluations

DISCUSSION / CONCLUSION

- Future improvements in the S-APP training program will center around organizational commitment to **continuous supportive education, regular and holistic competency assessment**, further delineating role clarity, and exposure to more diverse and complex clinical scenarios.
- While the learning curve for a S-APP is steep, particularly for highly-specialized subspecialties like thoracic surgery, **our preliminary experience has demonstrated the feasibility and success of a dedicated S-APP training program.**
- Long-term plans include the expansion of the S-APP program to other surgical subspecialties and developing a formal S-APP fellowship program.

REFERENCES AND ACKNOWLEDGEMENTS

We would like to thank the Department of Surgery faculty, Physician Leadership and Executive Leadership for supporting the continued growth, education and maturation of the Surgical APP Service at JFK University Medical Center.



FACULTY-LED REMEDIATION COMMITTEE in GME

Rebecca Hellmann, DO; Christina Hajicharalambous, DO MEd, MS

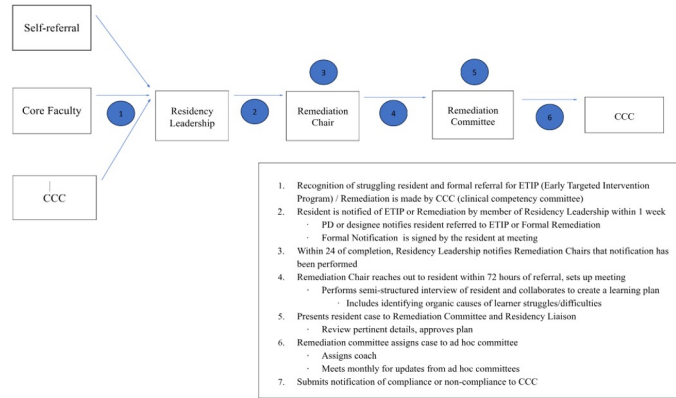
BACKGROUND

Background: Early identification and intervention for struggling learners is ubiquitous in Emergency Medicine Residency, with ~ 90% of programs having at least one learner on remediation. While there are plenty of published best practices, there is little discussion as to who should be executing these interventions. Because of this, responsibility has remained with residency leadership. This has several limitations: it under-utilizes the rich educational resources available in an academic faculty, poses a conflict of interest for residency leadership, and misses a key opportunity to shift remediation away from behaviorist theory of learning, to move towards a transformative learning theory, cultivating intrinsic motivation of the learner.

Objectives: To create a faculty-led remediation committee that creates and executes individualized learning plans for residents requiring early intervention or remediation.

INTERVENTION DESIGN & EXPECTED IMPACT

Remediation Flow Chart



Design: We created a remediation committee composed of Emergency Medicine faculty - including sub-specialties and nocturnists. The process has multiple points of entry in three areas for improvement: medical knowledge, clinical skills, or professionalism. Notification of referral is completed by the Program Director, followed by a meeting between the learner and Remediation Chair(s) to create a learner profile. The chairs then meet with the remediation committee and together they create a learning plan for the resident. A faculty coach is chosen for regular meetings with the resident. At the end of a three month period, the remediation committee reports back updates to CCC (clinical competency committee).

Impact: The primary outcome was to transfer responsibility of early intervention/remediation from residency leadership to academic faculty. By formalizing the process, we demystified it for both learners and faculty while capitalizing on the diverse academic strengths in our faculty. The secondary outcome was to increase intrinsic motivation through learner autonomy, developing purpose within medicine, and improving competency in skills.

DISCUSSION / CONCLUSION

Discussion: This is an ongoing project. Preliminary data shows, through semi-structured interviews with residency leadership, a significant reduction in workload and an increase in ability for objective evaluation of interval progress to milestones and competency. Early data also suggests an increase in resident autonomy, perceived competence, interest, and relatedness within the medical community. These early findings would suggest that shifting from a residency leadership led remediation program to a faculty-led remediation program has several important benefits.

REFERENCES

- Silverberg M, Weizberg M, Murano T, Smith JL, Burkhardt JC, Santen SA. What is the Prevalence and Success of Remediation of Emergency Medicine Residents? West J Emerg Med. 2015 Nov;16(6):839-44. doi: 10.5811/westjem.2015.9.27357.
- Katz, E.D., Dahms, R., Sadosty, A.T., Stahmer, S.A., Goyal, D. and (2010), Guiding Principles for Resident Remediation: Recommendations of the COD Remediation Task Force. Academic Emergency Medicine, 17: S95-S103. <https://doi.org/10.1111/j.1553-2712.2010.00881.x>
- Smith JL, Lypson M, Silverberg M, Weizberg M, Murano T, Lukela M, Santen SA. Defining Uniform Processes for Remediation, Probation and Termination in Residency Training. West J Emerg Med. 2017 Jan;18(1):110-113. doi: 10.5811/westjem.2016.10.31483.
- Vipler B, McCall-Hosenfeld J, Haidet P. Remediation Through Transformation: Applying Educational Theory to the Struggling Resident. J Gen Intern Med. 2020 Dec;35(12):3656-3663. doi: 10.1007/s11606-020-06036-1



Ophthalmology and the Role of Tertiary Care Consults

Kevin Chung

Simeon Lauer MD Department of Ophthalmology

BACKGROUND

Medical education in ophthalmology like many other subspecialties is constrained by a compressed four year curriculum. While in the past there has been multiple avenues of learning -surgical observation, clinic visits, and didactic learning, these educational options have diminished. Ophthalmic surgeries have migrated from hospital based operating rooms to ambulatory surgical centers and outpatient clinics that are more volume driven with less tolerance for medical education.

Our innovative approach focused on the increasing challenge of providing quality inpatient and Emergency Department (ED) consults. Inpatient and ED consults do not pose the time pressures of office visits allowing ample time for the medical student to learn by creating a thorough and well-conceived medical record. This is an unexpected opportunity for medical education in ophthalmology. The attending can then review the student's assessment and note, without the pressures of a waiting room. Self-learning modules can supplement the learning experience, teaching the basic elements of an ophthalmic exam in Powerpoint format, and bringing the add-on benefit of continuing education for the attending as well.

This innovative approach would give students early exposure to inpatient ophthalmologic consults and will bring them the language and technical skills which will strengthen their candidacy.

Design

We chose a cohort of inpatient and ED consults requested of one physician (SL) from November 27, 2023 until Dec 12th 2023. A medical student (KC) was asked to review the charts retrospectively. The student was asked to familiarize himself with the clinical content, a form of immersion learning. He was asked to provide feedback on the practicality of reviewing these charts independently. A third goal was developed during the course of the project - the value of photo documentation. Ophthalmology relies heavily on imaging for diagnosis and documentation. Could the medical student assist in patient care by inserting photos in the note?

Evaluation Plan

Students would be measured, in this project, by their understanding of the eye pathologies that presented to the hospital as well as proficiency in the eye exam.

Feasibility

Students would be measured, in this project, by their understanding of the eye pathologies that presented to the hospital as well as proficiency in the eye exam.

Intended Outcomes

- Allow medical students to become more familiar with eye pathologies via consults
- Learn the eye exam and develop ophthalmic diagnoses
- Improve candidacy for students interested in ophthalmology residency

Transferability

A student driven consult elective can be scaled into other sub-specialties such as ENT, urology and neurosurgery.

REFERENCES / ACKNOWLEDGEMENTS

- Stagg BC, Talwar N, Mattox C, Lee PP, Stein JD. Trends in Use of Ambulatory Surgery Centers for Cataract Surgery in the United States, 2001-2014. *JAMA Ophthalmol.* 2018;136(1):53-60. doi:10.1001/jamaophthalmol.2017.5101
- Pelletier J, Facciani J, Gines F, Kuehl D. Use of An Ophthalmology Tutorial to Improve Resident Comfort with the Emergency Eye Exam. *J Educ Teach Emerg Med.* 2022 Oct 15;7(4):SG1-SG14. doi: 10.21980/J86H0M. PMID: 37465134; PMCID: PMC10332671.
- Bowers EMR, Perzia B, Enzor R, Clinger O, Yadav S, Commiskey PW, Mortensen P, Waxman E. A Required Ophthalmology Rotation: Providing Medical Students with a Foundation in Eye-Related Diagnoses and Management. *MedEdPORTAL.* 2021 Feb 12;17:11100. doi: 10.15766/mep_2374-8265.11100. PMID: 33598541; PMCID: PMC7880261.

BACKGROUND

- Although rheumatic diseases can mimic orthopedic conditions and vice versa, orthopedic residents have limited exposure to rheumatology beyond the basic medical school curriculum
- **As a result, there is a gap in their training that can be addressed during orthopedic residency**
- This innovative curriculum aims to address this gap by providing a comprehensive rheumatology education within an orthopedic residency program
- Increasing exposure to rheumatology during training can help orthopedic residents develop more accurate diagnoses and management plans, and foster collaborations essential for the comprehensive care of patients with rheumatic diseases

INTERVENTION DESIGN & EXPECTED IMPACT (METHODS) (Size 36 font)

- **INTERVENTION:**
 - Four-week rheumatology rotation for first-year orthopedic residents at HMH/HUMC
 - Developed by rheumatology division
- **ROTATION'S CURRICULUM AIM:** enhance residents' understanding of the pathophysiology of common rheumatologic conditions, recognizing clinical features, ordering and interpreting diagnostic tests, and collaborating with rheumatologists for optimal patient care
- **EMPHASIZED RHEUMATOLOGY TOPICS RELEVANT TO ORTHOPEDICS:**
 - Rheumatoid Arthritis, Seronegative Spondyloarthropathies
 - Preoperative recommendations for rheumatoid arthritis
 - Osteoarthritis, Erosive Osteoarthritis, Fibromyalgia, Scleroderma
 - Osteoporosis management
 - Acute and chronic presentations of crystal arthropathy
- **PRACTICAL SKILLS:**
 - Rheumatology outpatient clinics
 - Inpatient Rheumatology consult service
 - Multidisciplinary conferences with pediatric rheumatology and IM subspecialties
 - Curated reliable rheumatology resources to supplement their learning of rheumatology - orthopedic residents incorporated into their shared drive
- **MAINTAINING ENGAGEMENT**, given differences between medicine and surgical training
 - Case-based discussions
 - Image recognition
 - Ultrasound, and hands-on joint procedures (without ultrasound)
 - Weekly MKSAP rheumatology board review - 2 hours/week

DISCUSSION / CONCLUSION

EVALUATION PLAN

- Pre- and post-elective exams and case presentations to measure understanding of key rheumatology concepts
- Feedback from both residents and faculty will be gathered to continually refine the curriculum to reflect current trends
- Encourage self-assessment among residents to identify what they have learned, how it has impacted their practice, and areas where further improvement is needed
- Surveys to gather residents' perceptions of elective, highlighting valuable aspects and offering suggestions for future enhancements

IMPACT

- Improve knowledge, patient care, collaboration, career development
- Enhance the reputation of the residency program and attract top candidates and faculty members

REFERENCES / ACKNOWLEDGEMENTS

- Wayne S. Berberian MD MBA; Program Director, Dept of Orthopedics, HUMC
- Anna Broder, MD; Division Director Rheumatology, HUMC

BACKGROUND

BACKGROUND:

Despite the increasing burden of rheumatologic diseases, there is a projected severe shortage of rheumatologists [1], necessitating internal medicine (IM) physicians to become proficient in managing rheumatic conditions

However, limited education in rheumatology exacerbates the care gap, as evidenced by studies showing IM residents lack confidence in various aspects of rheumatology care [2] and generally report lower confidence in rheumatology, compared to other medicine subspecialties [3]

Strategies needed to increase confidence in rheumatology knowledge for IM residents

OBJECTIVE:

Visual pattern recognition of joint findings, rashes and nail findings are critical for making a correct rheumatologic diagnosis, therefore enhancing HMH/HUMC IM residents' ability to recognize and understand rheumatology disease pathophysiology

INTERVENTION DESIGN & EXPECTED IMPACT (METHODS) (Size 36 font)

DESIGN

- Collection of high-quality images would be gathered to represent a variety of rheumatologic conditions, including physical exam findings, imaging studies and histopathology
 - Images would be presented through a monthly webpage and/or social media platform
- Educational content would be developed to accompany the images, including key clinical features of each condition, differential diagnoses, relevant investigations, and treatment options
 - Images chosen would be relevant and appealing to residents in various fields
- To incorporate interactive elements, residents would be encouraged to discuss the images, ask questions, and participate in case-based discussions to enhance learning
- Resources to supplement the rheumatology topic presented in the image would also be provided

IMPACT

- Enhance residents' early recognition and accurate initial management of rheumatologic conditions
- Empowers residents to recognize when a condition requires an emergent rheumatology referral, and conversely, when referral to other specialties is better suited
- Potential to increase recognition of rheumatology as a career path
- Potential to enhance the reputation of the IM residency program

DISCUSSION / CONCLUSION

EVALUATION PLAN

- Conduct pre- and post-curriculum assessments to measure changes in residents' knowledge, skills, and confidence related to rheumatology
- Surveys to gather feedback on image relevance, the effectiveness of teaching methods, and overall satisfaction
- Longitudinal follow-up assessment to evaluate the retention of knowledge and skills over time would need to be created

FEASIBILITY

- **IMAGE ACQUISITION:** American College of Rheumatology Image Library and images from our rheumatology practice
- **CHALLENGES:** Ensuring the relevance of images to IM residents and maintaining residents' engagement over time

TRANSFERABILITY

- Highly adaptable and resource-efficient
- Easily transferable to other IM residency programs

REFERENCES / ACKNOWLEDGEMENTS

- Battafarano DF, Ditmyer M, Bolster MB, Fitzgerald JD, Deal C, Bass AR, Molina R, Erickson AR, Hausmann JS, Klein-Gitelman M, Imundo LF, Smith BJ, Jones K, Greene K, Monrad SJ. 2015 American College of Rheumatology Workforce Study: Supply and Demand Projections of Adult Rheumatology Workforce, 2015-2030. *Arthritis Care Res (Hoboken)*. 2018 Apr;70(4):617-626. doi: 10.1002/acr.23518. PMID: 29400009.
- Kroop SF, Chung CP, Davidson MA, Horn L, Damp JB, Dewey C. Rheumatologic skills development: what are the needs of internal medicine residents? *Clin Rheumatol*. 2016 Aug;35(8):2109-2115. doi: 10.1007/s10067-015-3150-4. Epub 2015 Dec 23. PMID: 26694057; PMCID: PMC4919226.
- Katz SJ, Oswald AE (2011) How confident are internal medicine residents in rheumatology versus other common internal medicine clinical skills: an issue of training time or exposure? *Clin Rheumatol* 30:1081-1093. 10.1007/s10067-011-1715-4