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**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.

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**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 programing 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.

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**REFERENCES / ACKNOWLEDGEMENTS**

1. Inthirani 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.

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6. Abravanel, Nicole M4; Glazt, Gwendolyn M2; Figueroa, Melissa MD, MPH, Grant Awarded HMSOM Dean’s Research Grant.

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.
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.

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.
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

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 engage adolescents.

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

Evaluations Results

- 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.

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 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

References/Acknowledgements


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!
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 interactions.
- Recommend “universal precautions” and “trauma-informed care” approaches.
- 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)

**Resident Workshop:**
1. Pre-reading
2. Didactic
3. Simulation and feedback
4. Large Group Debrief

**Student Curriculum**

**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.

DISCUSSION / CONCLUSION

**REFERENCES / ACKNOWLEDGEMENTS**

- American Telemal Association, 2013
- Acknowledgement: University of Oklahoma-Tulsa School of Community Medicine.
The ACGME Twenty-One Year Trends in Diversity, Equity, and Inclusion (DEI) in the USA: How does Neurological Surgery compare?
Ilona J. Cazorla-Morales BA1, Amber W. Chan BS1, Mirai M. Mikhail BA1, Allen Fu, BA2, George W. Koutsouras, DO, MPH4, Robert F. Heary MD1, Catherine A. Mazzola MD2,3
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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
- Residents evaluated based on gender, race, & ethnic identifications from five 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
- 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
- US Graduate Medical Education. JAMA.
A Social Ecological Model for Understanding Barriers and Solutions to Quality Healthcare for LGBTQ+ Youth

Wickman J1, Mukherjee S1, Mintz A1, and Northridge J1,2
1. Hackensack Meridian School of Medicine; 2. Joseph M Sanzari Children’s Hospital, Hackensack Meridian Health

Background

- In the US, there are approximately 4.7 million young adults aged 18-24 years 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**

<table>
<thead>
<tr>
<th>Level</th>
<th>Sub-Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsystem</td>
<td>Individual</td>
</tr>
<tr>
<td></td>
<td>Interpersonal</td>
</tr>
<tr>
<td>Mezzosystem</td>
<td>Organizational</td>
</tr>
<tr>
<td></td>
<td>Community</td>
</tr>
<tr>
<td>Macrosystem</td>
<td>Policy</td>
</tr>
<tr>
<td></td>
<td>Societal</td>
</tr>
</tbody>
</table>

**Objective**

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

**Methods**

**Articles identified through primary search terms**

- N = 1201
  - Number of duplicate articles n = 847
  - N = 354
  - Articles that did not meet inclusion criteria by preview of title and abstract n = 294
  - N = 60
  - Articles that were out of scope of the current study n = 24
  - Total number of articles included in final study N = 36

**Search Strategy**

- Source: PubMed, Google Scholar
- Time Frame: 2014-2024
- Search Terms: “LGBTQ” AND “youth” or “young adult” or “adolescent” AND “quality” or “access” or “outcome” AND “healthcare” AND “barrier” or “challenge”

**Classification of Barriers in Social Ecological Model**

| Barriers within 36 studies were classified by team and if disagreement, determined by principal investigator |

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

<table>
<thead>
<tr>
<th>Level</th>
<th>Barrier</th>
<th># of Studies</th>
<th>Perspective</th>
<th>Selected Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Micro</td>
<td>Discrimination</td>
<td>16</td>
<td>Youth, Providers, Families</td>
<td>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</td>
</tr>
<tr>
<td>Mezzo</td>
<td>Poor Provider Knowledge of LGBTQ Care</td>
<td>19</td>
<td>Youth, Providers, Families</td>
<td>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</td>
</tr>
<tr>
<td>Macro</td>
<td>Anti-LGBTQ Stigma</td>
<td>21</td>
<td>Youth, Providers, Families</td>
<td>Qualitative study of over 200 LGBTQ young adults identified reason for identity non-disclosure including concerns for negative reactions from providers.6</td>
</tr>
</tbody>
</table>

**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**

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.

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 ≥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 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.).

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.)

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.
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.

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 2022-23 were compared to MYE and EYE 2022-23. 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.

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.
Comparing Diversity, Equity and Inclusion on US MD and DO Graduate Program Websites
Michelle Timmons1; Mai Hatazaki1; Sarah Isaac1; Antonia F. Oladipo1 MD, MSCI; Jennifer Zepf, DO1
1Hackensack Meridian School of Medicine, Nutley NJ; 2Hackensack University Medical Center, Hackensack NJ

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:
  - Skin tone representation on a 10-point scale.6
  - 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 (r²=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

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

Inter-rater reliability was assessed by calculating Cohen’s kappa.⁵

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

• 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.

REFERENCES


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.

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

• 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.

PRIME ANALYSIS: SKIN TONE

X² = 12, p=0.22
Analyzing Gender, Gendered Language, and E-reader Accessibility: An Examination of US Medical School Websites

Michelle Timmons1; Mai Hatazaki1; Sarah Isaac1; Antonia F. Oladipo1 MD, MSCI; Jennifer Zepf, DO1
1Hackensack Meridian School of Medicine, Nutley NJ; 2Hackensack University Medical Center, Hackensack NJ

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:

1) 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")
2) 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

Bergen Volunteer Medical Initiative (BVMI) PLUS: Innovative Partnership Model for Student-Run Free Clinic

Katherine T. Leopold, Joselin M. Vargas, Kaitlynn Chaljub, Elma A. Chowdhury, Amanda Brand, Alina Chiccarine, Luis Francia, Mai Hazazaki, Milan Patel, Priyanka Shenoy, Jasneet Kaur MD

BACKGROUND

- 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 improved retention of empathy than their peers, and patients served by SRCs have comparable or better medical outcomes as compared to standard care.¹,³,⁴
- 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.

DESIGN

- Conception of Partnership Before October 2021
  - Dean Boscamp and students from the 2018 - 2020 cohorts began talks with BVMI regarding possible collaboration on student clinic

- Planning Phase October 2021 - March 2023
  - Students from the 2021 cohort drafted clinic proposal
  - Faculty, medical school leadership, clinical leadership, and students met several times to finalize the plan

- Pilot Phase April 2023 - present
  - Team held monthly pilot clinics in collaboration with BVMI Team
  - Students developed protocols for training and clinic planning
  - Iterative updates to clinic protocols based on feedback

- Regular Clinic Anticipated August 2024
  - Expand impact of clinic
  - Plan to increase frequency of clinic days or number of volunteers present at each clinic day to serve more patients

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.

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

REFERENCES / ACKNOWLEDGEMENTS


Thank you to our partners at BVMI including Amanda Missey, Michelle Kaye, and Dale DeAngelis Motola, and to our advisors at HMSOM including Dean Boscamp, Dr. Anjali Gupta, Dr. David Isralowitz, and Dr. Ofelia Martinez, for their continued support.
The ACGME requires that residents receive an evaluation at the completion of each rotation “in a timely manner”. 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.

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.

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).

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 from before the intervention (AY2223) and after the intervention (beginning in 8/23).

To identify whether the system has expedited our summative evaluation completion times from before the intervention (AY2223) and after the intervention (beginning in 8/23).

Figure 1. Architecture of the Summative Evaluation Request System.

Summative Evaluation Request System
Automatically runs after each block ends

Keeps a record of any evaluations that have been completed

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

<table>
<thead>
<tr>
<th>Resident</th>
<th>Block</th>
<th>Rotation</th>
</tr>
</thead>
<tbody>
<tr>
<td>John Doe</td>
<td>1</td>
<td>Ultrasound</td>
</tr>
<tr>
<td>Jane Doe</td>
<td>1</td>
<td>Trauma</td>
</tr>
<tr>
<td>John Doe</td>
<td>9</td>
<td>?</td>
</tr>
</tbody>
</table>

Rotation: Contact: Email
John Doe: Dr. US: us@email
Jane Doe: Dr. Tox: tox@email
John Doe: Dr. Trauma: trau@email

Any resident without an elective chosen receives a reminder email
Rotation Selection Reminder for Block B-3
Prerequisite: An elective chosen
Dr. US
US@email

All services with completed rotations automatically receive emails

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.

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.

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 from before the intervention (AY2223) and after the intervention (beginning in 8/23).

REFERENCES

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, and 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

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.

REPRESENTATIONAL IMAGING

**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 Giuliani, Assistant Dean of Faculty, Resident, and Student Development, for his counsel.

“Spiritual Assessment in Clinical Practice Module” GWish, GW Institute for Spirituality and Health
“Taking A Spiritual History, Belief Systems” GWish, GW Institute for Spirituality and Health
“Cultivating More Diversity in Panelists – Faith, Profession, Patient Representation” Pastoral Care and Education

Email link (2017) “Religious Diversity: Practical Points for Health Care Providers” Pastoral Care and Education

http://apps.smhs.gwu.edu/gwish/spiritualassessment/story.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)

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

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

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.

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).

• 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.

Conclusions

• ChatGPT (version 3.5) falls below the threshold likely to pass the American Board of Orthopaedic Surgery Part I written exam.
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• While encouraging, this may limit ChatGPT’s applications for orthopaedic education or tasks that require advanced orthopaedic knowledge and reasoning.

References:
**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

![Pie chart showing initial interest within STEM curriculum: General Science 55.6%, Technology 22.2%, Engineering 16.7%, Mathematics 5.6%]

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

![Bar chart showing level of agreement with statement: Strongly agree 20%, Agree 40%, Neutral 20%, Disagree 10%, Strongly disagree 10%]

Student Interest in a Career in Healthcare Beginning of Collaboration

![Pie chart showing interest in a career in healthcare: Yes 80.3%, No 19.7%]

9 Month Follow-Up

After working with the resident mentors, how likely are you to pursue a career in a healthcare field?

![Bar chart showing 9 month follow-up: Strongly disagree 0.0%, Disagree 0.0%, Neutral 100.0%, Agree 0.0%, Strongly agree 0.0%]

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

![Bar chart showing intent to enroll in pre-medical courses: Yes 44.4%, No 44.4%, Undecided 11.2%]

Resident Level of Interest In Mentorship After Collaboration

![Bar chart showing resident level of interest in mentorship: Low 0%, Average 20%, High 80%

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
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.

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

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.

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
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 groups\(^3\). 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 outcomes\(^4-7\).

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 groups\(^3\). 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 outcomes\(^4-7\).

**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.

(Parnell, 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

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**
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.

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

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.
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.

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).
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.

<table>
<thead>
<tr>
<th>Question Topic</th>
<th>Percent Correct (%)</th>
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<td>Therapeutic misconception</td>
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<tr>
<td>Elements of capacity</td>
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<tr>
<td>Elements of informed consent process</td>
<td>80.25</td>
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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

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

**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 sibling program network as a whole.

REFERENCES / ACKNOWLEDGEMENTS

- 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. 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.

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

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.

**Student Survey Question - Learning Objectives Were Met**

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Slightly Agree</th>
<th>Slightly Disagree</th>
<th>Strongly Disagree</th>
<th>No Feedback/Not Applicable</th>
</tr>
</thead>
</table>

**REFERENCES / ACKNOWLEDGEMENTS**


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

**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.

**REFERENCES**


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.

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 \(\rightarrow\) 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 \(\rightarrow\) proctoring, customizability of lessons e.g. TBLs \(\rightarrow\) more preparation time \(\rightarrow\) need for educators to adapt

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
Demystifying concussion: implementation of a concussion curriculum in a family medicine residency

Brittany Telford MBBCh, Shamik Shah MD
Hackensack Meridian Health, Hackensack Meridian JFK University Medical Center

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

- 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

**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**


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 starting midway through the pre-clerkship curriculum. Instruction in diagnostic reasoning is given in a process based manner in the pre-clerkship curriculum. Instruction in differential diagnosis generation is given weekly to students. Students use this tool weekly to develop reasonable differential diagnoses 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.

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 group’s 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.

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 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).

Discussion: 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

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Total Score

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

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

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Total Score 16
Utilization of concept mapping in a problem based learning environment to highlight Determinants of Health and Health Systems Science

Tovah Tripp, MD and Joshua Josephs, MD/PhD

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 explicit 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.

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

13. Tovah Tripp, MD and Joshua Josephs, MD/PhD.
Simulation training:
Assessing comfort in ultrasound-guided peripheral intravenous catheter placement among internal medicine residents
Stacey Damito, DO, Taaran Cariappa Ballachanda Subbaiah, MD

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 anesthesiology.

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

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

Supplies:
- 20-gauge peripheral IV catheters
- IV insertion kits
- IV extension kits
- 1 homemade ballistics gel block
- 1 commercial venipuncture pad
- 1 e-pad-package?

REFERENCES / ACKNOWLEDGEMENTS


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

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

Thank you to Dr. Zetkulic, Dr. Ballachanda, Jessica our program coordinator, Anita and Justin our former and current chief residents, Ahmad, Anna, Hervis, and Uzi our junior trainers, Dr. Shah, Dr. Sheth, Dr. Parakh, Dr. Morschel, and all my IM colleagues for making this project possible.

Stacey Damito, DO, Taaran Cariappa Ballachanda Subbaiah, MD

Simulation training:
Assessing comfort in ultrasound-guided peripheral intravenous catheter placement among internal medicine residents
Stacey Damito, DO, Taaran Cariappa Ballachanda Subbaiah, MD
**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.

**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, OB/GYN, 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.

**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**

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

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

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.

**INTRODUCTION 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.

**ACKNOWLEDGEMENTS**

Acknowledgements to our exceptional CC Camilla Essner who successfully juggles all the moving parts of our clerkship.

**REFERENCES / ACKNOWLEDGEMENTS**


**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 on 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.

**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.
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

Psyciatric Interviewing: A Historical Perspective

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

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.”

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

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

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

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


A Critical Narrative Literature Review of Pre-Matriculation Initiatives in Medical Education

Priyadarshini Dattathreya
Manager, Academic Support

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

Comparative Overview of Pre-Matriculation Program Types in Literature

<table>
<thead>
<tr>
<th>Program Type</th>
<th># of papers</th>
<th>Focus</th>
<th>Program Evaluation</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development Focused Programs</td>
<td>2</td>
<td>Wellbeing, cooperative learning</td>
<td>Student satisfaction</td>
<td>positive student feedback, request for more content</td>
</tr>
<tr>
<td>Curriculum Focused Programs</td>
<td>11</td>
<td>Anatomy, Physiology, Histology, Biochemistry, Molecular and Cell Biology</td>
<td>Student satisfaction, comparing performances between participants and non-participants, comparison between “supported” and “unsupported” subjects</td>
<td>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</td>
</tr>
<tr>
<td>Learning Environment Focused Programs</td>
<td>11</td>
<td>Supporting transition of specific student groups</td>
<td>Student satisfaction, Pre and Post Approaches to Study Skill Inventory for Students (ASSIST), linear regression analysis of performance, correlation of frades, Social Network Analysis</td>
<td>no significant difference, same level of connectedness, increased comfort, improved study skills</td>
</tr>
<tr>
<td>Community Focused Programs</td>
<td>2</td>
<td>Service learning, reduce “urban disruption”</td>
<td>Student satisfaction,</td>
<td>increased popularity, increased understanding of rural practice</td>
</tr>
</tbody>
</table>

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.

CONCLUSION

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

REFERENCES

Cohort study: Pre-medical program for rural students living connected with place, cultivating a special connection with people. Teaching and learning in medicine, 27(4),322-325.
Create a series of case-based podcasts

Satisfaction with the podcast as an educational intervention

Develop pre-and post-tests to assess the learner confidence

Data supports the efficacy of the podcast at Kirkpatrick level 3.

We hypothesized that a podcast covering the subtypes of JIA could help increase knowledge base of residents and medical students.

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.

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 and social media platforms.

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The Voices Program: Tools for Teaching SDOH via a Community Engaged Curriculum

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!**

**TIME**

**FOOD**

**SUPPORT**

**SYSTEMS**

**ACCESS TO**

**HEALTHCARE**

**HOUSING**

**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.

**STRESS CONCERNS**

- How is your stress level?
  - What is causing the most stress in your life?
  - How do you deal with this stress?

**HEALTH CONCERNS**

- Tell us about your eating habits. Do you feel you have a balance?
- Do you take any supplements/vitamins?

**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.

References:

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.
Student Burnout and Its Effects on Specialty Interest

Liem Pham, B.S., Kristen Clark M.D.

1. Hackensack Meridian School of Medicine, Nutley, NJ, 07110| 2. Jersey Shore University Medical Center, Department of Psychiatry, Neptune, NJ 07753

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 81.9% 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

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).

Table 1: Average BAT of Competitiveness and Year

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Beta</th>
<th>95% CI</th>
<th>p-value</th>
</tr>
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<tr>
<td>competitiveness</td>
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<tr>
<td>1</td>
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<tr>
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<td>2nd year (MS2)</td>
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<td>-0.13</td>
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<tr>
<td>3rd year (MS3)</td>
<td>-0.68</td>
<td>-1.1</td>
<td>-0.23</td>
</tr>
</tbody>
</table>

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


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**

**Impacts of Social Determinants of Health (SDOH) on Continuing care In Outpatient clinics**

Olumuyiwa Fatade M.D MPH1, Nicholas Flugrad M.D2, Morgan R. Peltier Ph.D3, Miqian Wu M.D4, Robert Stern M.D3, Saba Azaal M.D5

1Department of Psychiatry and Behavioral Health, Ocean University Medical Center, Ocean, NJ; 2Department of Psychiatry and Behavioral Health, Jersey Shore University Medical Center, Neptune, NJ; 3Hackensack Meridian School of Medicine, Hackensack, NJ

**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 have follow-up period (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 increase in 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)

**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 and about 14% of non-white race and 6% Hispanic ethnicity.
- Further research is needed to evaluate if this disparity is due to differences in diagnosis, marital status, sex, or employment status.

**REFERENCES / ACKNOWLEDGEMENTS**

   https://doi.org/10.1097/MD.0000000000014871
   https://doi.org/10.3402/jphr.v10.100371
   https://doi.org/10.1016/j.jadohealth.2022.09.031

**TABLE 1**

<table>
<thead>
<tr>
<th>Population</th>
<th>Median</th>
<th>Range</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>52.00</td>
<td>18-103</td>
<td>5.87</td>
</tr>
<tr>
<td>Gender</td>
<td>56.6%</td>
<td>44.7%</td>
<td>7.4%</td>
</tr>
<tr>
<td>Race</td>
<td>White</td>
<td>32.5%</td>
<td>84.5%</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>Hispanic</td>
<td>3.1%</td>
<td>5.3%</td>
</tr>
</tbody>
</table>

**TABLE 2**

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

**TABLE 3**

<table>
<thead>
<tr>
<th>Factors affecting Number of follow up Visits</th>
<th>Fold Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>0.95 (95% CI: 0.92, 0.99)</td>
</tr>
<tr>
<td>Missing marital status</td>
<td>0.83 (95% CI: 0.79, 0.94)</td>
</tr>
<tr>
<td>Missing Ethnicity</td>
<td>0.86 (95% CI: 0.79, 0.94)</td>
</tr>
<tr>
<td>65 or older</td>
<td>1.12 (95% CI: 1.08, 1.16)</td>
</tr>
</tbody>
</table>

*Adjusted fold difference*
Efficacy of ChatGPT vs. Cochrane Summaries on Sexual Problems: A Readability Study

Angelo Cadiente\(^1\), Andre Ho\(^1\), Jamie Chen\(^1\) & Mubashir Billah\(^2\)

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\(^2\)Hackensack 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

Cochrane Library
14 abstracts tagged “Sexual Problems”
Summarized with ChatGPT-3.5 (July 25 2023 Version)

ChatGPT-3.5 summaries compared with corresponding Cochrane Plain Text Summary

RESULTS

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

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

Cannabis in Lactation and Pregnancy Didactic for Obstetrics and Gynecology Trainees
Nicole Cumbo MD, MEd, Lora Kasselman PhD, MPH, Nora Doty, MD

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.

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.

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

Ascending to the Next Level, the Prequel: Multimodal Training Series for New PGY1 Development

**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.

**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.

**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.

**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**

[1]...

[2]...

[3]...
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

<table>
<thead>
<tr>
<th></th>
<th>FRES</th>
<th>FKGL</th>
<th>SMOG</th>
<th>DISCERN</th>
<th>PEMAT-U (%)</th>
<th>PEMAT-A (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>45.72</td>
<td>11.35</td>
<td>10.25</td>
<td>42.94</td>
<td>56.23</td>
<td>57.14</td>
</tr>
<tr>
<td>SD</td>
<td>10.76</td>
<td>3.02</td>
<td>2.29</td>
<td>9.04</td>
<td>11.24</td>
<td>8.61</td>
</tr>
</tbody>
</table>

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.

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

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, Titunik, Wang & Zepf) for incorporating the described materials into sessions on cancer in their courses.
- We thank the IHS Librarians, Christopher Duffy & Peggy Dekker, for providing the titles of student presentations.
Assessing the Performance of ChatGPT in Bioethics
Jamie Chen BS¹, Angelo Cadiente BS¹,² & Bryan Pilkington, PhD¹
¹Hackensack Meridian School of Medicine, Nutley, New Jersey ²Equal Contribution

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 specialty 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.

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/Nevert' (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.
- 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 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 in curriculum.

REFERENCES / ACKNOWLEDGEMENTS

- Civaner, M. "Medical Education Must Move From the Information Age to the Age of Artificial Intelligence." Academic Medicine: Journal of the Association of American Medical Colleges 90, no. 8 (August 2015): 1187-9.
- We would like to thank the Hackensack Meridian School of Medicine for their assistance as well as Dr. Lara Karmazin 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

<table>
<thead>
<tr>
<th></th>
<th>ChatGPT-4.0 (N=186)</th>
<th>ChatGPT-3.5 (N=186)</th>
<th>Bard (N=186)</th>
<th>Overall (N=558)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw Accuracy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incorrect</td>
<td>77 (25.7%)</td>
<td>107 (35.7%)</td>
<td>116 (38.7%)</td>
<td>300 (53.8%)</td>
</tr>
<tr>
<td>Correct</td>
<td>109 (42.3%)</td>
<td>79 (31.0%)</td>
<td>70 (27.1%)</td>
<td>258 (46.2%)</td>
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<tr>
<td>Adjusted Accuracy</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Incorrect</td>
<td>30 (28.3%)</td>
<td>36 (34.0%)</td>
<td>40 (37.7%)</td>
<td>106 (19.0%)</td>
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<tr>
<td>Partially Correct</td>
<td>47 (24.2%)</td>
<td>71 (37.0%)</td>
<td>66 (39.2%)</td>
<td>194 (34.8%)</td>
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<tr>
<td>Correct</td>
<td>109 (42.3%)</td>
<td>79 (30.6%)</td>
<td>70 (27.1%)</td>
<td>258 (46.2%)</td>
</tr>
</tbody>
</table>

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

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%.

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).

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

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

Gina Pagliaro, Russell Seth Martins, Kostantinos Poulkidis, 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.

OUTCOMES OF S-APP TRAINING PROGRAM

- Didactic Education
  - A total of 32 formal and numerous informal didactic specialty specific educational lectures completed in surgical subspecialties, pharmacology, critical care medicine, systematics and ethics

- Clinical and Operative Exposure
  - Thoracic APP: n =336/304 cases assisted
  - General Surgery APP: n =171/116 cases

- Academic Engagement
  - PA student and Medical Student rotations and Student Shadow program initiated
  - Mortality and Morbidity Conference APP presentations

- Surgeon Evaluation of APP
  - 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

INTERVENTION DESIGN & EXPECTED IMPACT

- 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.

DISCUSSION / CONCLUSION

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.
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 underutilizes 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

- Self-referred
- Core Faculty
- Residency Leadership
- Remediation Chair
- Remediation Committee
- CCC

1. Recognition of struggling resident and formal referral for ETP (Early Targeted Intervention Program) Remediation is made to CCC (clinical competency committee).
2. Resident is notified of ETP or Remediation by member of Residency Leadership within 1 week.
3. Self-referred or referred resident attends ETP or formal Remediation.
4. Within 24 of completion, Residency Leadership notifies Remediation Chair that notification has been performed.
5. Remediation Chair reviews notes to resident within 72 hours of referral, sets up meeting.
6. Fulfillment of remainder of resident and collaborates to create a learning plan that includes identifying organic causes of learner strengths/weaknesses.
7. Supervisor creates remediation plan.
8. Resident meets monthly to update status of learning plan.
9. Remediation committee assigns case to ad hoc committee.
10. Learner meets monthly for updates from all five committees.

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

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.

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

**REFERENCES / ACKNOWLEDGEMENTS**

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)**

- **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

**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:
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].

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.

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.

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.