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Posters

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Icahn School of Medicine at Mount Sinai

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Learning Themes with the Greatest Impact on Learners: A Qualitative Analysis

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ABSTRACT:

Introduction: Assessment drives learning and is often investigated from the point of view of teachers and researchers. However, no published research has investigated how and why assessments impact learning from the learner's perspective. This qualitative two-part study delved into how Emergency Ultrasound fellows learn from assessments using a constructivist design with an inductive thematic analysis.

Method: In the first part, a survey was sent to program directors of the 123 programs listed in the Society of Clinical Ultrasound Fellowships database to investigate what assessments were administered to fellows. The results were used to design a semi-structured interview for fellows in the second part. All interviews were transcribed and de-identified via a transcription service. The first three transcripts were coded independently, followed by a meeting whereupon researchers revised the interview guide to expand from formal assessments to learning activities due to the paucity of the former. The next three transcripts were coded, settling upon a code book under which the remaining transcripts were coded to determine if thematic saturation was reached. Initial transcripts were recoded based on the finalized codebook for a total of ten coded interviews reaching saturation. Transcripts were then coded via Dedoose and collapsed into themes that addressed how and why a particular learning activity impacted a fellow's learning.

Result: Via the survey with a response rate of 31%, program directors reported a variety of measures including OSCEs and simulation, but most assessments were via informal interactions during weekly Quality Analysis (QA), scan shifts, and conferences. For the second part, four main themes emerged: (1) Role modeling/mentoring, (2) Deliberate Practice, (3) Experiential Learning, and (4) Professional Identity.

Conclusion: As there are no definitive measurements to evaluate fellows' progress, such as a board exam, program directors gauge progress using a variety of learning modalities, but most often use scan shifts, weekly QA, and conferences. From the point of view of the fellows, most learning occurred via informal assessments and interactions rather than structured assessments initially sought in the study. These themes may be used by program directors to focus their assessments in order to make the greatest impact on fellows' learning.

INTRODUCTION:

Assessment drives learning and is often investigated from the point of view of teachers and researchers, but little is known about the learners' perspective. Teachers may use assessments to identify knowledge gaps and change course to address them if formative assessments are used and there is opportunity to gauge course-correction effectiveness. Alternatively, there is the possibility that students will study for the test in order to pass it, forsaking areas that may interest them if they perceive the material tested to be more important. However, it is unclear if this is because they value grades or because they perceive the material to be more important as it is weighted more heavily (Wormald et al. 2009). No published research has investigated how and why assessments impact learning from their view, providing an interesting area for further study.

Several theories were reviewed to establish a framework which may fit how either formal assessments or learning activities help a student learn from their perspective, including Ryan and Deci's Self-Determination Theory (2000), Marton and Saljo's Deep vs Superficial Learning Theory (1976), and Miller's Pyramid (Miller, 1990). Largely, no one theory or framework emerged as a perfect fit leading ultimately to an inductive analysis to look for themes.

METHODS :

Emergency Ultrasound is a non-ACGME Fellowship within the United States medical system. with fellows primarily having graduated from Emergency Medicine Residency (Schmid, 2018). While the fellowship varies between institutions, fellows usually work clinically as attendings 16-20 hours per week, participate in a weekly ultrasound conference, perform image review, and conduct ultrasound related research during their program. They are assessed in their ultrasound skills, teaching, and research among other areas by their program director and ultrasound faculty. The Society of Clinical Ultrasound Fellowships (SCUF) lists 123 programs across the US and Canada. All 123 fellowship program directors, 95 current fellows, and 2 fellows who have graduated after 2018 via referral were invited to participate in the study.

Using a constructivist design with an inductive thematic analysis, this qualitative study sought themes based on the collected data. Inductive thematic analysis is a method used in qualitative research to systematically identify, analyze, organize, describe and report themes from a data set (Nowell et. al., 2017). This research study was divided into two parts: Part A surveyed fellowship directors on what types of learning activities they conducted with their fellows. Part B involved semi-structured interviews with fellows based on instruments described in the Part A survey with room for details on any new learning activities not previously described.

Part A

The survey was initially developed by reviewing current practices at local Emergency Ultrasound Fellowships known to the researchers in order to identify typical learning activities but also included open ended questions for further elaboration or disclosure of learning activities not listed in the survey. Learning activities that encompassed clinical knowledge (i.e. when and what kind of ultrasound to obtain in a particular clinical scenario), image acquisition (i.e. techniques to acquire image), image interpretation (i.e. determining what the image is and its meaning within the clinical context), and clinical integration (i.e. what next steps should be taken for medical care based off of the ultrasound interpretation) were solicited. Information on what learning activities centered around ultrasound documentation, research projects, and teaching medical students and/or residents was also sought. This resulted in eighteen questions exploring each area.

Part B

Initial interview questions were developed based on a review of survey responses from Part A. Semi-structured interviews were iteratively developed as new data suggested new learning activities; the initial interviews focused on formal assessments but as data demonstrated minimal formal assessments used, the interview was expanded to include all learning activities as other activities appeared to be the main drivers of learning over the few formal assessments that were conducted. Interviews were conducted by phone and recorded using WebEx, a HIPAA compliant platform by a research assistant who was not connected to the emergency department or ultrasound fellowship in order to avoid bias. The interviewer was trained in interview techniques by a team member experienced in research interviews. Both the survey and the semi-structured interview questions were reviewed and edited by medical faculty with experience in medical education, interviews, and survey design. Prior to analysis, the recordings were transcribed by a professional transcription service which de-identified the transcripts. Transcripts were then coded via Dedoose and collapsed into themes that addressed how and why a particular learning activity impacted a fellow's learning.

Reflexivity

In order to account for how the researchers may influence the data, researchers used checks and balances to mitigate undue influence. Checks and balances include a team-based data analysis approach, reflection on prior assumptions and experiences, awareness of social distance, and use of memos.

RESULTS:

Part A

Per Program Director Survey Results the ultrasound education mainstays of Image Acquisition, Image Interpretation, and Clinical Integration were assessed via several routes with SDOTs and SIM being the most common methods, respectively (Table 1). However, the most frequent assessments came under "Other", with several listing Quality Analysis and reporting informal observation during scanning sessions as part of their assessments (Table 2).

	Assessing Image Acquisition	Assessing Image Interpretation	Assessing Clinical Integration of Ultrasound
SDOT	14	10	8
SIM	15	8	7
SP	3	4	2
OSCE	3	2	0
MCQ	0	3	5
Other	20	25	19

Table 1. Assessment of Image Acquisition, Image Interpretation, and Clinical Integration

Other Responses			
	Assessing Image Acquisition	Assessing Image Interpretation	Assessing Clinical Integration of Ultrasound
Quality Analysis	11	18	12
Direct Scanning	14	11	9
Quarterly Feedback	1	0	0
In-Person Questioning during Didactics	0	1	1
Fellow Conference	0	1	1

Table 2. Elaboration of "Other" Responses for Assessment of Image Acquisition, Image Interpretation, and Clinical Integration

Part B

The word cloud demonstrates the beginning emergence of certain codes (Figure 1) and after analysis with Dedoose (Figure 2), four themes emerged: (1) Role Modeling/Mentoring, (2) Deliberate Practice, (3) Experiential Learning, and (4) Professional Identity Development.

Figure 1. Initial Codes Word Cloud

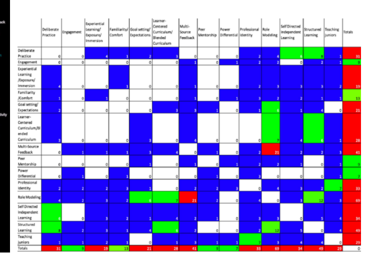


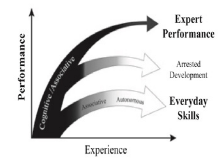
Figure 2. Co-Occurrence of Codes Matrix

Role Modeling/Mentoring

Positive Excerpt: "I think it [QA Review with faculty] is helpful, because I think this is where I learn the most, because we do see the various pathology, and learning how to interpret a scan, see if it's normal, **see if we think there is anything going on, and having …experts able to look at it too. I think that's where I learn the most**"

Negative Excerpt: "I think that the culture of this fellowship was that there wasn't a lot of handholding … But those [QA sessions] were really the only part of my time as a fellow where I felt like I had directed feedback, because during scan shifts, more often than not, were me and my co-fellows teaching each other. **And if it wasn't for my two co-fellows, if it was just me as the only fellow, I feel like I would've gotten a lot less out of fellowship."**

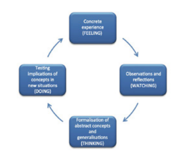
Deliberate Practice



"It's our culture here to do a check-in at the beginning of the scanning shifts… **to identify their learning goals** and objectives for that shift…then we would as a team identify what everybody's hoping to work on and **then try to make sure that we [learn that]".**

Figure 3. Deliberate Performance adapted from Ericcson, 2008

Experiential Learning



"We learn how to scan with ultrasound machines to get the images we need …I really think while lectures are helpful, it's **really the bedside teaching of learners that is the best kind of ultrasound learning that you can do…hands on practical procedural stuff**."

Figure 4. Kolb's Cycle from Taylor & Hamdy, 2013

Professional Identity Formation

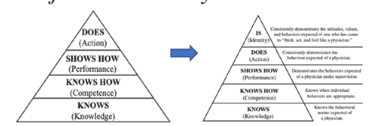


Figure 5. Miller's Pyramid and the proposed addition of Professional Identity Formation from Cruess, Cruess, & Steinert, 2016.

"People have trouble figuring out what is the zoom button or what is the gain in this machine. That made me feel useful…I did not know how deficient I was… **until I took on that role**."

CONCLUSIONS:

1. Formal assessments infrequent and not main source of learning
2. Scan Shifts, Weekly Quality Analysis and Conferences most common and greatest sources of learning
3. Using the four themes to design our assessments and learning activities would augment fellows' learning
4. Consider implementing a portfolio which touches upon the four themes
   1. Regular meetings with a Mentor to monitor progress
   2. Create lectures and workshops in passionate or weak areas as a form of Deliberate Practice
   3. Build an Image Bank from interesting cases on scan shifts during Experiential Learning
   4. Include reflections as an exercise toward Professional Identity Formation

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Assessing Resident Perceived Knowledge and Interest in Topics in Health Policy and Advocacy

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Purpose

An understanding of a physician's role in the health care system is a core milestone set forth by the ACGME for Internal Medicine (IM) residents. Our needs assessment explores resident knowledge and interest in topics relating to health policy and advocacy in order to aid in curricular development that meets ACGME milestones.

Methods

A needs assessment survey was sent via email to all IM residents (n = 152) in the Mount Sinai Hospital program. Residents rated their perceived knowledge on core topics in the field of health policy and ranked their interest in a variety of supplemental topics. Responses were recorded on a 1-5 Likert scale with 1= not knowledgeable and 5 = very knowledgeable. Residents were additionally polled on their preferred learning style. Residents who were interested in participating in supplementary activities such as a health policy journal club or practicum experience submitted their contact information.

Results

Seventy-two IM residents out of 152 IM residents (47.4%, n = 152) responded to our survey: 28 PGY1s (38.9%), 24 PGY2s (33.3%), 20 PGY3s (27.8%). Residents largely preferred in-person didactics (44.4%) or a combination of live and prerecorded didactics plus discussion sections (37.5%).

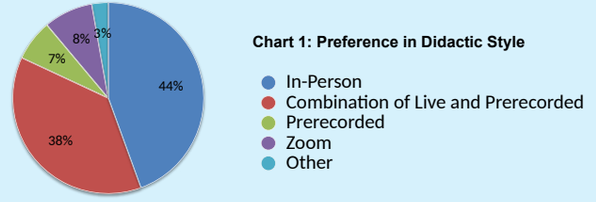

Chart 1: Preference in Didactic Style

Residents rated their knowledge of the following topics as neutral:

- "How the US healthcare system differs from other countries in terms of spending" (average rating 3.13/5)
- "How the US healthcare system differs from other countries in terms of health outcomes (3.07/5)

Residents were less confident about the following topics:

- "Measuring productivity in healthcare" (1.77/5)
- "The role of legislative committees and the state public health apparatus in developing state health policy" (1.94/5)

Thirty residents were interested in participating in a health policy journal club and 20 residents were interested in a practicum advocacy experience.

Results (continued)

Resident perceived knowledge on core topics in the field of health policy

(average rating/5; 1-5 Likert scale with 1= not knowledgeable and 5 = very knowledgeable)

Topic	Average rating/5
How the US healthcare system differs from other countries in terms of spending	3.13
How the US healthcare system differs from other countries in terms of health outcomes	3.07
Changes to US healthcare system enacted through the Affordable Care Act	2.99
The theoretical advantages and challenges of creating a single payer system in the US	2.92
Payment systems in the US (Medicare, Medicaid, private insurance)	2.88
Value-based reimbursement models such as accountable care organizations (ACOs)	2.54
The role of congress and the executive branch in creating national health policy	2.47
Alternative healthcare delivery models such as PCMHs and FQHCs	2.36
NYC's healthcare safety net (NYC Health & Hospitals) and the function/role of NYC DOH	2.18
Microeconomics of risk: eg risk pooling, adverse selection, moral hazard and cost sharing	2.09
The structure and organization and regulatory obligations of an academic medical center	1.96
The role of legislative committees and the state public health apparatus	1.94
Measuring productivity in healthcare	1.77

Discussion

Overall, there appears to be high interest and low perceived knowledge of several core topics in health policy and advocacy. Based on these results, we will pursue a combination of flipped classroom and in-person didactics. Topics residents ranked as "least knowledgeable" may be best suited for a flipped classroom approach. This approach allows for basic knowledge to be reviewed prior to a discussion section, where it can then be applied and clarified. Topics residents ranked as "most knowledgeable" may be best suited for a traditional guest lecturer format, as residents could engage in real-time to experts in the field. We plan to assess changes in knowledge and attitudes related after our intervention with a post-curricular survey.

Barriers to Telemedicine Usage in a Residency Clinic

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INTRODUCTION :

Telemedicine has allowed for access to medical care at a safe distance during the pandemic. Yet the way telemedicine is utilized in an underserved population is not well-defined. With this study, we analyzed the trends in the adoption and use of telemedicine services and identified perceived and actual barriers.

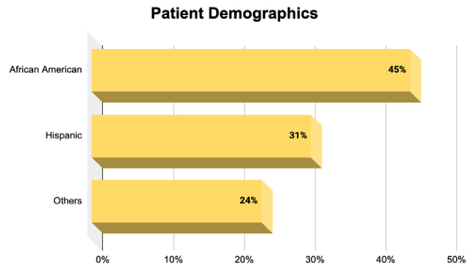

Figure 1: Patient population demographics

**Note: Demographic data may be inaccurate due to large numbers of patients who did not state self-identified race or ethnicity.*

METHODS :

- Location of project: Ryan Health Adair, a Federally Qualified Health Center,, training site for internal medicine residents.
- 58% of patients live below 100% of the federal poverty level.
- Study population - all patients with a televisit encounter from the months of March to August 2020.

Data was evaluated during two separate time periods.

a. Surge (March 2020 - May 2020)

b. Post-Surge (June 2020 - August 2020)

Residents were surveyed regarding perceived barriers to telemedicine usage.

RESULTS :

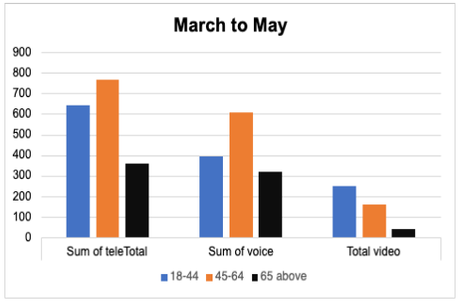

Figure 2: Televisit trend by voice and video during surge (March to May)

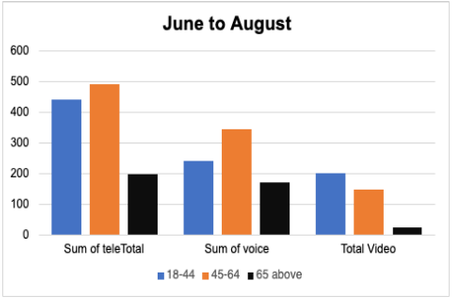

Figure 3: Televisit trend by voice and video post surge (June to August)

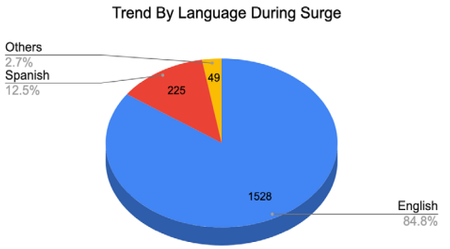

Figure 4: Televisit trend based on language during surge (March to May)

- Total televisit encounters from March to August 2020 = 2898.
- Majority of the televisit encounters were voice.
- Age group > 65 years had the lowest visit numbers overall (n=557).
- 36% average decline in televisit encounters was seen post surge (with the greatest decline among the elderly).

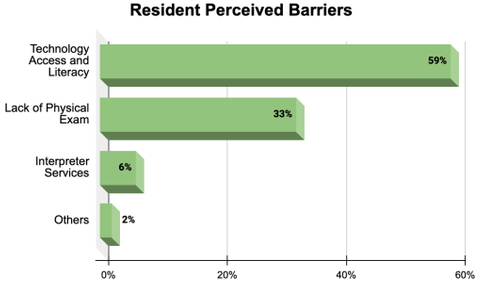

Figure 5: Resident perceived barriers to patient use of telehealth at Ryan Health Adair

CONCLUSIONS :

- Among our structurally vulnerable population, the majority of televisit encounters were conducted via phone rather than video.
- An overall decrease in the number of televisit encounters was seen post surge (June to August).
- The major resident-perceived barrier for telehealth use among our population was patient access to technology and low health literacy.

FUTURE DIRECTIONS :

- The cause of the low usage of televisits among the elderly should be sought via patient survey of barriers.
- Preceptor and staff feedback can elucidate the reason for patient visit type choice post-surge.
- To determine if resident-perceived barriers are accurate, further information from patients should be sought about comfort with, and access to, technology.

A Medical Student Led Model for Telephone-Based Opioid Overdose Education and Naloxone Distribution (OEND) to At-Risk Patients in Response to the COVID-19 Pandemic

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OBJECTIVES

1. To **increase access to OEND** for patients at risk for opioid overdose
2. To provide an impactful and **educational opportunity for medical students** interested in working with people who use drugs (PWUD)

INTRODUCTION

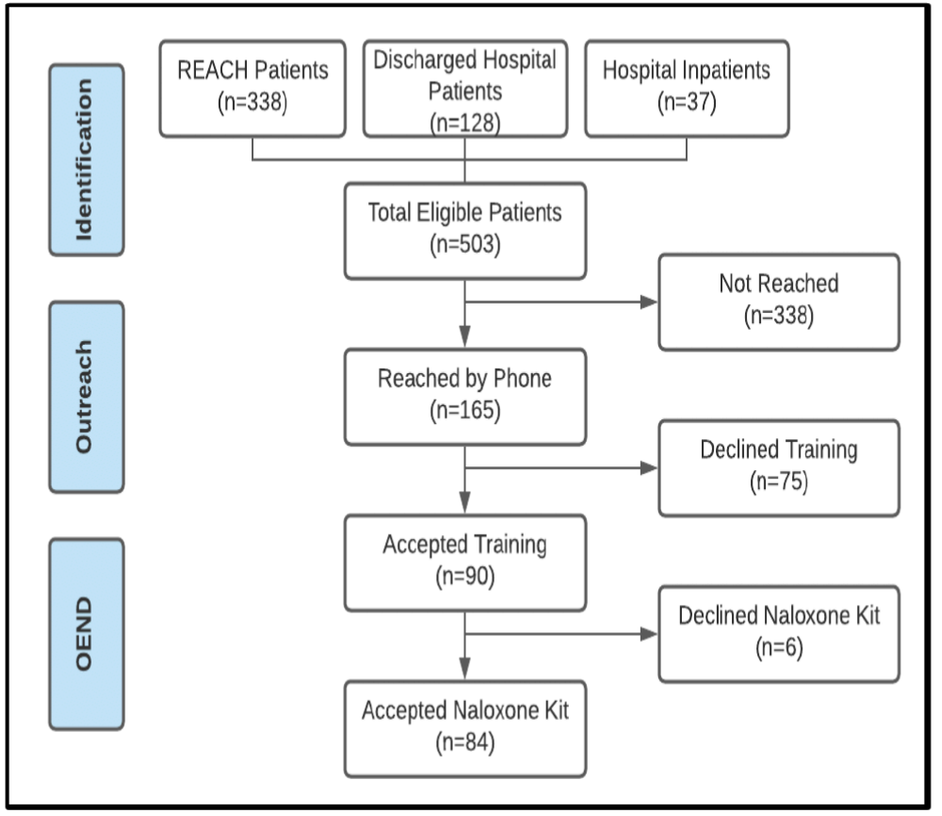
- Temporary clinic closures and social isolation endangered PWUD during the COVID-19 pandemic, particularly in the early months when care access was most compromised (e.g. through decreased access to OEND)
- Prior to the pandemic, all student-led OEND was performed in-person at REACH, a primary care program for PWUD at MSH. To our knowledge, **telephone-based OEND provided by medical students has never been documented in the literature**

METHODS

- Medical student volunteers were identified through the ISMMS COVID-19 Student Workforce and trained to provide OEND
- Students called patients and offered opioid overdose education to two populations: (1) all REACH patients, and (2) MSH patients presenting with OUD or a history of opioid overdose
- Patients who accepted opioid overdose education received a naloxone kit either by mail or at hospital discharge

RESULTS

- ✓ Over a 7.5-week period starting in May 2020, **eight medical students spent a total of 208 hours** making OEND calls
- ✓ **OEND provided by telephone was broadly acceptable**: 55% of patients reached by phone accepted training, and 93% of trained patients accepted take-home naloxone
- ✓ Patient identification, outreach, and OEND acceptance is detailed below:



CONCLUSIONS

- We present a scalable, adaptable model by which **clinics and health systems with an affiliated medical school can provide OEND** by telephone when access to on-site care is otherwise compromised
- Medical student-driven, telephone-based OEND efforts can **effectively reach at-risk patients remotely, and potentially increase naloxone access** by serving as an adjunct to traditional in-person training
- Further study is needed to understand the impact of direct, patient-facing OEND provision on medical student attitudes toward PWUD

ACKNOWLEDGEMENTS

- NYC Department of Health and Mental Hygiene for their funding and provision of naloxone kits
- The Fund for Public Health in New York, Inc. which partially funds Wilma Torbino, MD.

Creating a Health Equity Resource Collection for the MSHS Community

Nicole B Ramsey, MD, Alexander Boulus, MD, Angie Buttigieg, MD, Betty Kolod, MD, Kenneth Ashley, MD, Emily Hertzberg, MD, Haoli Jin MD, PhD, Maria Maldonado, MD, Sananda Moctezuma, MD, Edward Poliandro, PhD, Genevieve Tuveson, MD, Edgar Vargas, MPH, LMSW, Barbara Warren, PsyD, Brijen Shah, MD

Introduction

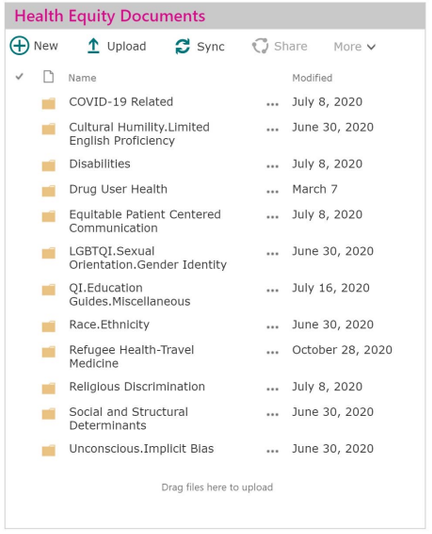
Purpose: To disseminate a curated collection of health equity educational resources to the Mount Sinai community.

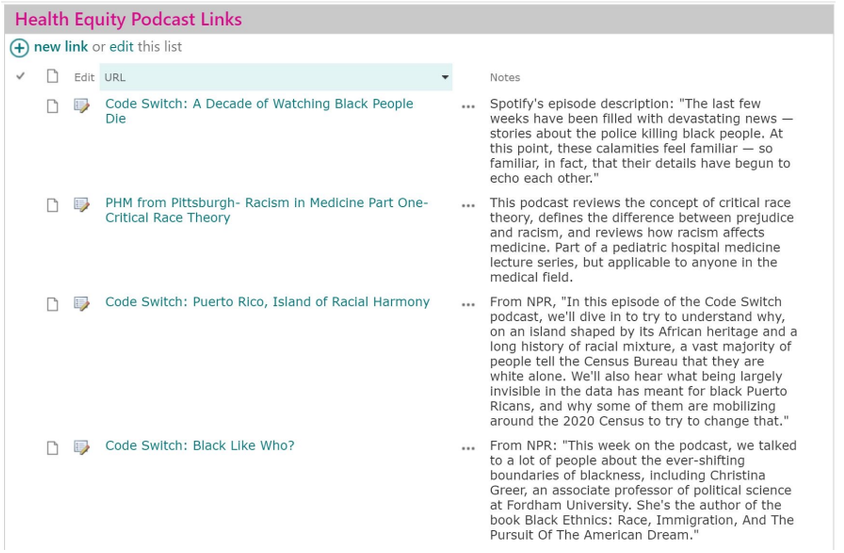
Background: There is a growing interest in incorporating health equity and health care disparities education into graduate medical education. The ACGME asks programs and institutions to teach this topic connected to quality improvement. While resources such as MedEdPortal exist with equity and antiracism resources, there are no resources that bring together topics of systems-based practice, equity, and healthcare disparities. We aim to create a curated collection of health equity educational resources for the Mount Sinai community

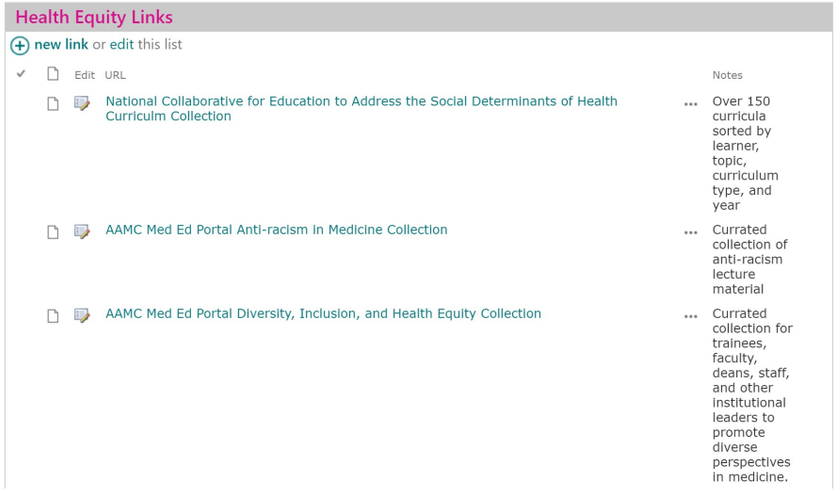
Methods: The Mount Sinai Health Equity Resource Collection (HERC) is an output of the American College of Graduate Medical Education-sponsored Health Disparities Collaborative. The HERC was created to highlight high-quality literature, curricula, and resources on common themes in the health equity space, organized by theme and audience. The HERC is housed on the password-protected Sharepoint interface, and accessible to anyone with an MSHS login at http://bit.ly/msherc

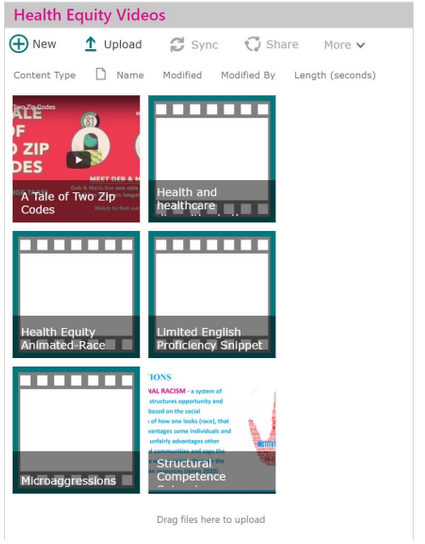
Current State

Currently, the HERC contains four media libraries-documents, links, podcasts, and videos. Within the document library, there are 11 theme folders containing 171 documents; other libraries contain 18 videos, 14 podcasts, and 10 links to other health equity resources and collections. Document topics include COVID-19 health inequities, racism and discrimination by ethnicity, cultural humility and limited English proficiency, discrimination on the basis of disability, equitable patient-centered communication, LGBTQI health inequities, refugee health, religious discrimination, social and structural determinants of health, implicit bias, and quality improvement. Each resource is annotated with a brief description, type, and audience and is vetted by health equity experts prior to being uploaded to the HERC. The HERC is updated biannually. Resources can be used as part of workshops and/or curriculum. The HERC also includes an embedded health equity-focused Twitter feed.









HERC Usage

- 393 site visits in the last 90 days
- 25 unique viewers within the last 30 days
- Majority of site visits via desktop device
- Peaks in visits correlate with large group ACGME Health Disparities Collaborative meetings

Challenges

- Currently, HERC is updated manually by Education Committee members
- HERC can be difficult to navigate, especially on small laptop devices and mobile devices
- Site visits limited, little traffic on days without large meetings

Future Plans

- Set up automated searches through Levy Library in order to keep HERC updated
- Create key resource designation for select resources within folders
- Graphic design update
- Develop strategic dissemination plan to increase awareness and use of HERC
- Expansion of HERC to include drug user health documents, quality and patient safety data, and incorporation of a user-friendly feedback area

Anti-Racist Reading and Discussion Groups for the Mount Sinai Hospital System

Jerrel L. Catlett II, Jessica Lee, Paloma Orozco Scott, and Michelle A. Tran

Icahn School of Medicine at Mount Sinai

ABSTRACT:

Introduction: In response to protests for racial justice during the summer of 2020, student leaders of Mount Sinai racial affinity groups organized anti-racist reading groups to create community and education around the urgent issue of racism.

Method: Student racial affinity group leaders were surveyed to assemble a list of recommended books, articles, and podcasts discussing racism.

Result: The majority of surveyed participants agreed their discussion groups changed the way they conduct themselves in their personal and professional lives.

Conclusion: This initiative created alternative spaces within Medical Education for people of different disciplines to discuss race, systemic racism, and racial bias in medicine and healthcare.

INTRODUCTION:

Promoting anti-racist change within an instiution requires a mutlifaceted approach. In a “Becoming Anti-Racist” framework proposed by the Washington University School of Medicine, individuals who participate in initiatives encouraging education on racial justice and systemic racism are expected to have a diverse set of reactions and experiences during their program as they progress toward becoming anti-racist. (Fig. 1)

These experiences are distributed between a Fear Zone, Learning Zone, and Growth Zone that progress with level of comfortability toward taking action against racism.

Figure 1: Becoming Anti-Racist Graphic, from the John T. Milliken Department of Medicine, Washington University School of Medicine,

METHODS:

1. Determining Reading Selections:
Sinai student affinity group (ANAMS, APAMSA, LMSA, SAMSA, SEOM, SEOS, SNMA, Stonewall Alliance) leaders were surveyed three times to select and rank their top suggestions for books, articles, and podcasts discussing racism.

2. Purchasing and Distributing Books:
Books were purchased from 14 independent bookstores. $1,357 was spent on these materials. Students received their personal copy at Aron Hall or were mailed one.

3. Recruiting Facilitators and Participants:
An invitation to participate in these reading groups and apply to be a facilitator was emailed to all medical and graduate students, post-doctoral fellows, faculty, and staff affiliated with the Mount Sinai Health System. 16 groups were formed according to reading preferences and availability.

4. Training Facilitators:
Facilitators received a guide and 30 minute training session over Zoom.

5. Meeting of reading groups
All groups met virtually for at least three times from August through October 2020 to discuss their reading selections.

6. Surveying participants and facilitators
A voluntary, anonymous exit survey was sent to all participants.

JUNE | JULY | AUGUST - OCTOBER | NOVEMBER

Survey Question	Yes	No	Maybe	Total number of respondents (n)
Did you learn something new about racism from these groups?	39 (92.8%)	2 (4.8%)	1 (2.4%)	42
Did you learn something new about the role of racism in medicine and healthcare?	31 (75.6%)	6 (14.6%)	4 (9.8%)	41
Was a thought you previously held challenged or changed in your reading group?	23 (54.8%)	9 (21.4%)	10 (23.8%)	42
Do you ever bring up your reading to others and/or speak with others outside of your group about what you read?	37 (88.1%)	4 (9.5%)	1 (2.4%)	42
Has the reading group changed your PROFESSIONAL practice? In other words, did the reading change how you think or act in your professional life?	24 (58.5%)	10 (24.4%)	7 (17.1%)	41
Has the reading group changed your PERSONAL practice? In other words, did the reading change how you think or act in your personal life?	36 (87.8%)	4 (9.8%)	1 (2.4%)	41
Have you made any new commitments to anti-racism since your reading groups?	27 (64.3%)	11 (26.2%)	4 (9.5%)	42
Would you join an anti-racist reading group again?	38 (88.4%)	1 (2.3%)	4 (9.3%)	43
Would you recommend your program to institute a first-reading for incoming classes to share around the topic of racism in science and healthcare?	38 (88.4%)	1 (2.3%)	4 (9.3%)	43

Table 1. Anonymized survey responses from reading group participants following their final group meeting.

OBJECTIVE:

These reading groups aimed to help all participants grapple with, identify, and articulate the role of systemic racism in their lives and careers and empower them to action within the Mount Sinai Health System. Our goal was to provide opportunities to educate ourselves about race and structural racism, be vulnerable about our own biases and knowledge gaps, and sit with and learn from our discomfort.

RESULTS:

There were 164 total participants who identified as Mount Sinai medical and/or graduate students, post-doctoral fellows, staff, faculty, and administration. 21 of these volunteered to be group facilitators. There were 16 discussion groups that met three times each. Out of 42 participants who responded to the feedback survey, 75.6% agreed they learned something new about the role of racism in medicine and healthcare, 88.1% discussed their reading outside their group, and 58.5% agreed the reading changed how they thought or acted in their professional life. 88.1% of the respondents would recommend their respective programs institute a first-reading for incoming classes on the topic of racism in science and healthcare.

CONCLUSIONS:

1. This initiative created alternative spaces within Medical Education for people of different disciplines to discuss about race and racism.
2. The majority of surveyed participants agreed their experiences in this program taught them something new about the role of racism in healthcare and changed the way they conduct themselves in their personal and professional lives.
3. As a result of positive feedback and interest in continuing these discussion groups, we are confident that the institutionalization of initiatives such as this will foster continued education on race, systemic racism, and racial bias in medicine and healthcare.
4. Institutional support of anti-racism programming would continue to strengthen Mount Sinai Health System’s position as a leader in healthcare education and provision by encouraging community conversations on these important topics.

Cadaveric Dissection for Anesthesia Training Augments Practical and Clinical Skills

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[1]Department of Anesthesiology, Icahn school of Medicine at Mount Sinai, [2]Center for Anatomy and Functional Morphology, Icahn School of Medicine at Mount Sinai

INTRODUCTION:

- Anatomy is ingrained in the practice of anesthesia. From basic to complex procedures, success relies on a proficient understanding of anatomical structures.
- Cadavers have been shown to be effective research and teaching tools within anesthesia, especially during procedural learning and for ultrasound-based anesthesia.
- Human cadavers have been shown to be superior to manikins for teaching of facemask ventilation, direct laryngoscopy, and fiberoptic-guided tracheal intubation.
- No prior studies have created a comprehensive cadaver-based anesthesia course which utilizes novel embalming techniques that allow ultrasound scanning and offers full dissections.
- Our aim was to design and implement such a course available to trainees and faculty that utilizes human cadavers to teach anatomy for clinical anesthesia practice.

AIM:

- Our aim was to design and implement such a course available to trainees and faculty that utilizes human cadavers to teach anatomy for clinical anesthesia practice.

METHODS :

- Six cadavers were obtained for the Anatomy for Anesthesiologists course in collaboration with the Center for Anatomy and Functional Morphology for use in our course in March 2020
- Eight residents per day participated in group discussions focused on relevant anatomy
- Using "freedom embalmed" cadavers, residents were able to utilize ultrasound to visualize anatomy (Figure 1) and perform regional and neuraxial blocks, and then dissect these structures to observe the effectiveness of these techniques.
- Residents completed anonymous pre- and post-course multiple assessments on anatomic and anesthetic knowledge

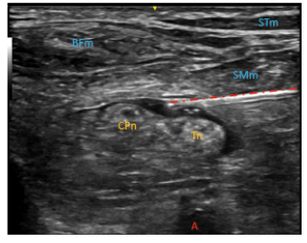

Figure 1A (left). Popliteal nerve block with spread of anesthetic around branching of sciatic nerve into the common peroneal nerve (CPn) and tibial nerve (Tn). BFm: biceps femoris muscle; STm: semitendinosus muscle; SMm: semimembranosus muscle; Red A: popliteal artery; Red dashed line: needle

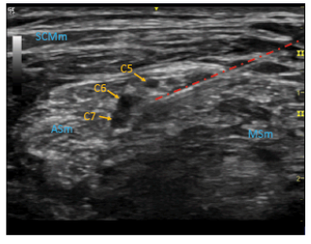

Figure 1B (right). Interscalene nerve block with visualization of C5, C6, and C6 roots. SCMm: sternocleidomastoid muscle; Asm: anterior scalene muscle; MSm: middle scalene muscle; Red dashed line: needle

RESULTS:

- Of all participants, 96% strongly agreed that it was beneficial to use human cadavers to review anatomy for anesthesia
- Residents reported a subjective improvement in their understanding of the anatomic basis for neuraxial techniques and peripheral nerve blocks (Figure 2) and found that the use of ultrasound on cadavers was extremely helpful
- Narrative comments positively emphasized the course's organization and clinical relevance
- Residents demonstrated an improvement in assessment scores after participation in the course (pre- and post-assessment means: 59 & 83, respectively), and this remained true when stratifying the scores based on training level (Figure 3)

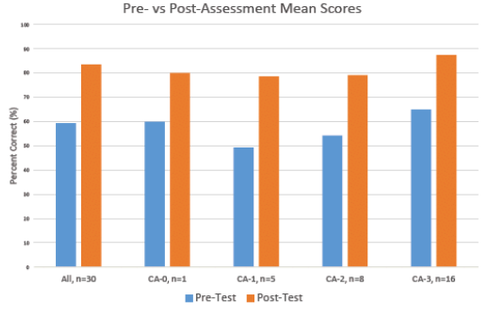

Figure 3. Comparison of Pre- and Post-Course Assessment Scores, stratified by training level (Clinical Anesthesia (CA) Year 0 through 3 = PGY1 through PGY4)

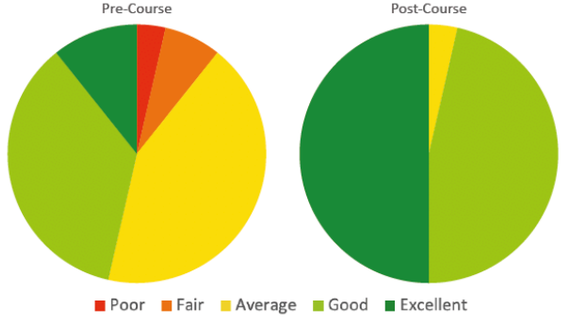

Figure 2. Self-assessment of understanding of the anatomic basis for peripheral nerve blocks before and after the course; n=28

CONCLUSIONS:

- The Anatomy for Anesthesiologists course was well-received, with both subjective and objective indicators of practical and clinical utility for our residents.
- We completed the second iteration of our course this March (2021), with preliminary data confirming the utility and benefits of the course

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Pediatric Emergency Medicine (PEM) Core Procedure Comfort Level Among Current and Incoming Fellows

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Department of Pediatric Emergency Medicine

Icahn School of Medicine at Mount Sinai

INTRODUCTION:

- PEM fellowship trainees complete residency training in either pediatrics or emergency medicine
- Though there are core procedures outlined by the Accreditation Council for Graduate Medical Education (ACGME) for all medical specialties, pediatrics residents are less comfortable performing core procedures
- Some procedures are not encountered often and many PEM physicians experience some discomfort with them
- There are no standardized procedural education programs that all incoming PEM fellows complete prior to the start of fellowship
- It is important to understand the comfort levels of incoming pediatrics-trained PEM fellows with procedures commonly performed in the pediatric emergency department (PED) to determine if certain PED procedures require special educational attention

AIM:

- To create a survey assessing the comfort levels of all current and incoming PEM fellows (defined as 3rd year pediatrics residents matched into PEM) with common PED procedures.

METHODS :

A. Literature Review

- PEM practitioners and trainees are uncomfortable with certain life-saving procedures
- PEM fellowship trauma training is varied and requires further efforts to be standardized
- PEM online curriculum improves pediatric resident knowledge
- Simulation improves pediatric resident comfort with management of critically ill emergency department patients
- No studies evaluating procedure comfort levels of pediatrics residents matched into PEM and current PEM fellows

B. IRB Approval

- IRB approval obtained**:** study exempt

C. Survey Design

- Selection of procedures
  - Comparison of ACGME procedure lists for pediatrics residency and PEM fellowship

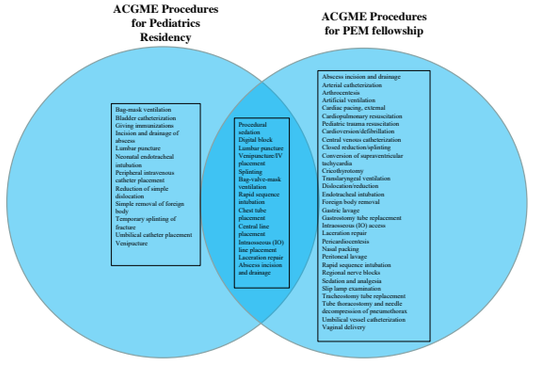


Figure 1: Venn diagram demonstrating the overlapping procedures selected for the survey by comparing pediatrics procedures on the left and PEM fellowship procedures on the right

- **Section I: Demographics**
  - Questions inquiring about respondents' prior medical experience and specifics about the training hospital and location
- **Section II: Core Procedures**
  - List of core procedures along a 5-point Likert scale assessing comfort with common PED procedures
  - REDCap Survey Development

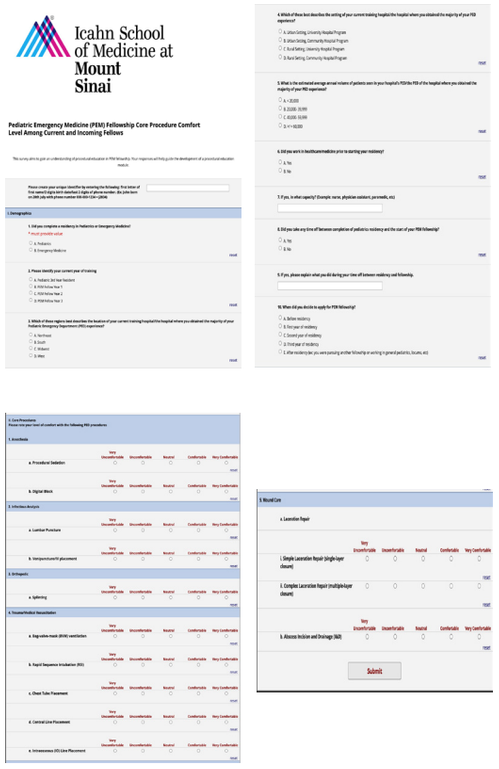


Figure 2: Survey Design on REDCap

D. Survey Distribution

- Approval by PEM Program Directors (PDs) Survey Committee
- Surveys distributed by PEM PDs to all incoming and current PEM fellows

E. Survey for Program Directors

- Survey on SurveyMonkey for PDs to complete indicating total number of trainees to whom they sent the survey

RESULTS :

- Total number of responses: 227
- Survey response rate: 49.5%
- Demographics
  - Geographic location of training hospital: 38% Northeast
  - No healthcare experience before staring residency: 86%
  - No time off between residency and start of PEM fellowship: 70%
  - Decision to apply for PEM fellowship: 45% 2nd year of pediatrics residency
- Core Procedure Comfort
  - Higher level of training correlates with increased level of comfort with PED procedures

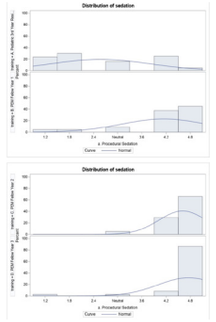


Figure 3. The responses on the Likert scale for procedural sedation show a positive correlation between increasing comfort level with procedural sedation with increasing level of training

Least Comfortable Procedures

1. Central line placement
   - Very uncomfortable: 42%
   - Uncomfortable: 31%
2. Chest tube placement
   - Very uncomfortable: 37%
   - Uncomfortable: 29%

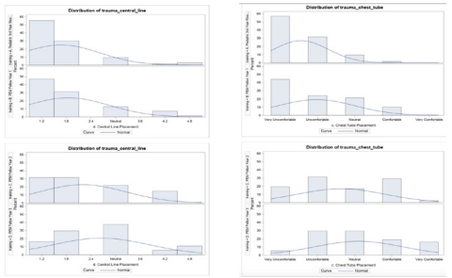
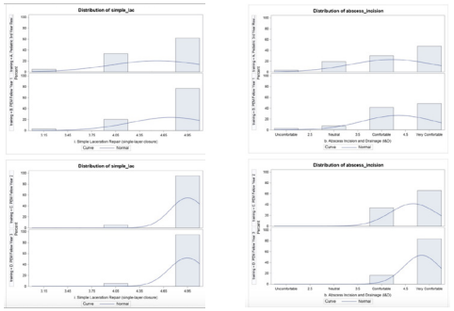


Figure 4. Least comfortable procedures: These graphs demonstrate absence of a reliable correlation between increasing level of comfort with central line placement and chest tube placement with increasing level of training

Most Comfortable Procedures

1. Simple laceration repair
   - Comfortable: 18%
   - Very comfortable: 79%
2. Abscess incision and drainage
   - Comfortable: 33%
   - Very comfortable: 58%



3. Lumbar puncture
   - Comfortable: 29%
   - Very Comfortable: 64%

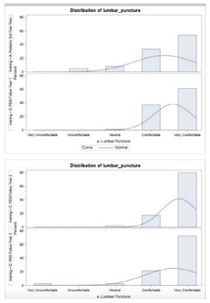


Figure 5. **Most comfortable procedures:** The graphs for simple laceration, abscess incision and drainage and lumbar puncture demonstrate a high level of comfort among trainees at all levels of training

CONCLUSIONS:

- Overall, there is a positive correlation between increasing level of comfort with common PED procedures as trainees progress in their level of training from 3rd year pediatrics residents matched into PEM fellowship to 3rd year PEM fellows
- Most trainees express discomfort with procedures such as chest tube placement and central line placement, which fall into the trauma/medical resuscitation category
- These results identify procedures that could be focused on in a standardized procedural education curriculum for all PEM fellows

FUTURE DIRECTION:

- Follow-up survey to understand which modes of education are preferred by trainees for the procedural education curriculum
- Work with other PEM departments for development and implementation of educational modules with increased attention on procedures with higher discomfort

ACKNOWLEDGMENTS:

- George Loo, PhD
- Robert Fallar, PhD

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Identifying the Optimal Implementation Strategy of a Wellness Curriculum for Trainees to Enhance Attendance while Transitioning the Format due to COVID-19 Pandemic

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Icahn School of Medicine at Mount Sinai

BACKGROUND

- Burnout is a growing area of concern impacting Pulmonary and Critical Care Medicine (PCCM) physicians.
- Junior physicians, including medical fellows, have been identified as a population more at risk of developing burnout due to the stress and demands associated with training.
- Fellowship training presents an ideal opportunity to provide wellness education and facilitate development of adaptive behaviors to cope with stress and decrease burnout.
- This need has been further emphasized as our trainees worked through a global pandemic which added a new set of stressors.

METHODS

- Pre-pandemic, a clinical social worker (SW) developed a wellness curriculum (WC) consisting of a variety of topics to address the components of burnout: emotional exhaustion, depersonalization, and reduced sense of personal achievement.
- Over a 4-year period, a WC of 1-hour facilitated discussions was established and trialed at different times, different days of the week, and frequencies (weekly vs biweekly vs monthly) within the PCCM fellowship program at a single institution based on constant fellow feedback.
- These meetings were all held indoors in-person (IIP) pre-pandemic.
- As a result of COVID-19 pandemic, the WC was transitioned by switching the physical setting from IIP gatherings to either socially distant outdoor in-person (OIP) - weather permitting or virtual online (VO) meetings.
- Attendance was tracked for each wellness session.

RESULTS

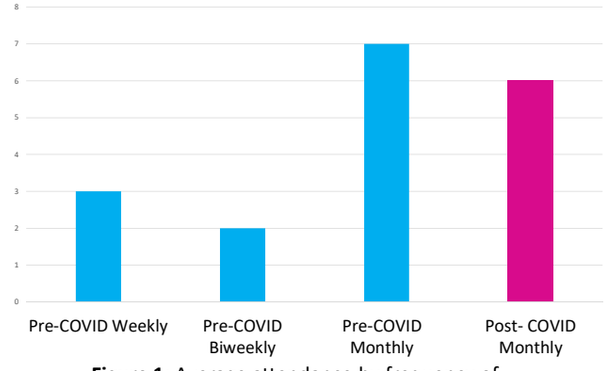

Figure 1: Average attendance by frequency of wellness session

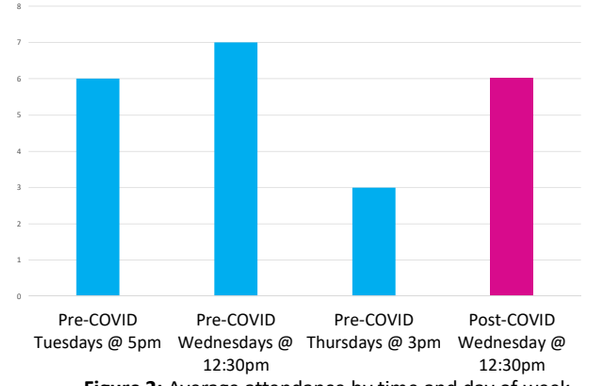

Figure 2: Average attendance by time and day of week

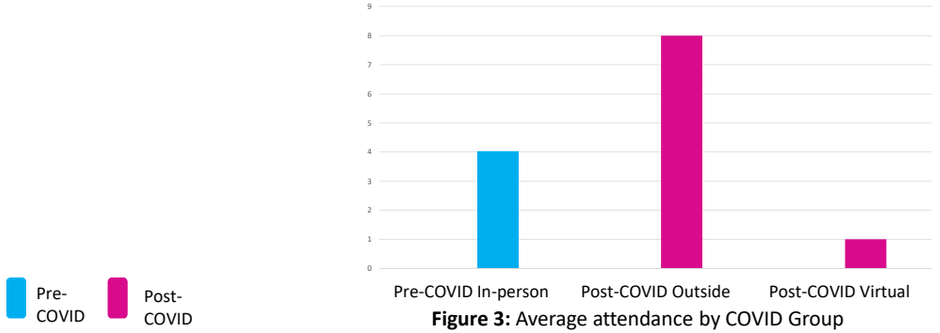

Figure 3: Average attendance by COVID Group Location

DISCUSSION

- Over a 4 year period, pre-pandemic, a WC was delivered and adjusted based on the needs of PCCM fellows by soliciting constant feedback.
- We determined that the optimal time, day and frequency of a WC was a monthly lunch hour, after fellows' continuity clinic (**Fig 1**).
- However while transitioning the format due to COVID-19 pandemic we noted a sharp decline in overall attendance for virtual online (VO) meetings compared to the pre-pandemic indoors in-person (IIP) format (**Fig2**).
- Within the new adjustments, we did note a much better attendance at socially distant outdoor in-person (OIP) meetings compared to VO (Fig 3).
- Further work will be needed to determine the optimal strategy to enhance fellow attendance of wellness sessions in the "new normal" if IIP is no longer a long-term viable option.

CONCLUSIONS

The time of the day, the day of the week, frequency, and format of wellness sessions should be customized to the structure and schedule of a specific training program in order to reach the largest possible number of trainees.

Development of a Novel Digital Oncology Curriculum for Medical Residents and Fellows

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Icahn School of Medicine at Mount Sinai

ABSTRACT:

Introduction:
Current oncology training programs are ill-suited to the educational needs of residents and fellows. Most fail to provide introductory overviews and clinically-useful diagnostic and therapeutic frameworks

Methods:
Development of clinically-applicable learning materials providing overviews of solid oncologic and malignant hematologic topics. This curriculum consists of point-of-care reference sheets and PowerPoint learning modules, which can be either taught or self-directed

Results:
Created over 20 overview modules and point-of-care reference sheets. These are currently in final development in association with the MSH Instructional Design Team, goal implementation summer 2021

Conclusions:
This digital resource provides a clinically-useful alternative to current oncologic curricula

INTRODUCTION:

Oncology is one of the most difficult subjects to learn as a medical resident and fellow

- Studies have shown that inpatient oncology ward rotations leave residents ill-equipped to manage oncologic patients and also less likely to pursue careers in oncology
- Current oncology curricula consist mostly of ad-hoc, research-focused lectures without providing foundational clinical frameworks necessary for learning basic diagnosis and therapy
- In the apprentice-model, residents are overexposed to end-stage oncologic patients resulting in insufficient exposure to initial work up and standard management practices
- Available digital resources such as UpToDate are exhaustively detailed but less useful for initial learning
- Lectures create scheduling challenges for busy residents and fellows
- This curriculum is geared toward engaging medical residents and fellows by embracing principles of adult learning theory such as:

  (1) short attention spans
  (2) self-direction
  (3) spaced learning
  (4) internal motivation

METHODS :

The core of the curriculum consists of clinically-applicable **introductory overview learning modules** paired with **point-of-care reference sheets**

CURRICULUM CONTENT:

- **Introductory overview learning modules:** Review of basic information on diagnosis, prognosis and clinical management for major oncologic topics (e.g. Lung Cancer 101)
- **Point-of-care reference sheets:** Easy-to-use charts summarizing essential, take-away material

CURRICULUM GOALS:

#1 Clinically Useful
Easily referenced both for learning and for active patient management on the inpatient wards.

#2 Quick & Easily Accessible
More concise than comparable UpToDate articles. Accommodates residents' and fellows' irregular inpatient and outpatient schedules.

RESULTS:

This digital curriculum is currently in final development. Design elements undergoing revision with the Mount Sinai Hospital Instructional Design Team.

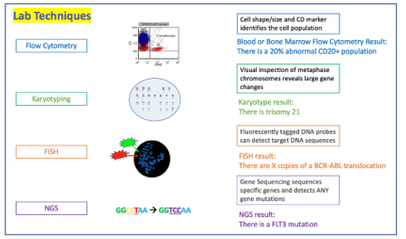
Implementation targeted for the summer 2021 class of internal medicine residents and oncology fellows.

The curriculum spans over 20 topics on both solid oncologic and malignant hematologic cancers, as listed below:

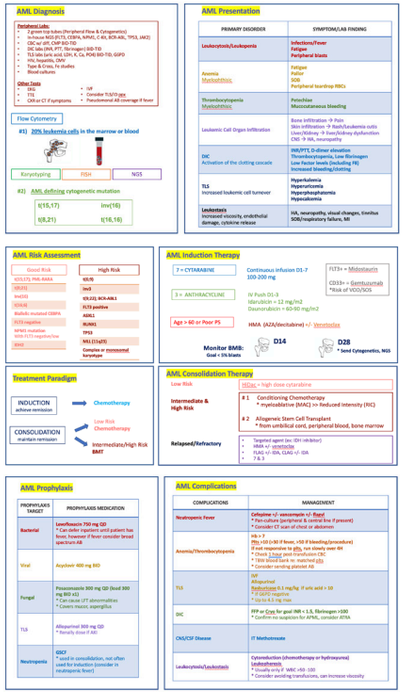
Solid Oncology Topics	Malignant Hematology Topics
Breast Cancer	Acute Myeloid Leukemia
Lung Cancer	Acute Lymphoblastic Leukemia
Prostate Cancer	Chronic Lymphocytic Leukemia
Renal Cell Cancer	Myelodysplastic Syndrome
Bladder Cancer	Myeloproliferative Neoplasm
Testicular Cancer	Multiple Myeloma
Gastroesophageal Cancer	Lymphoma
Colorectal Cancer	
Pancreatic Cancer	
Hepatobiliary Cancer	
Head and Neck Cancer	
Sarcoma	
Melanoma	
Gynecologic Cancer	

In the digital age of medical practice, the effectiveness of this curricular tool can best be measured by its usefulness via surveying quantitative usage data over time rather than by surveying unaided knowledge retention.

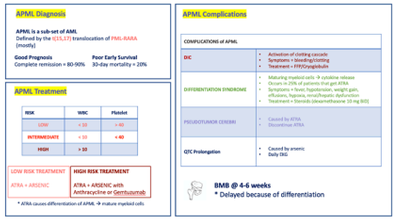
Point-of-Care Reference Sheet for Lab Techniques



Point-of-Care Reference Sheets for AML

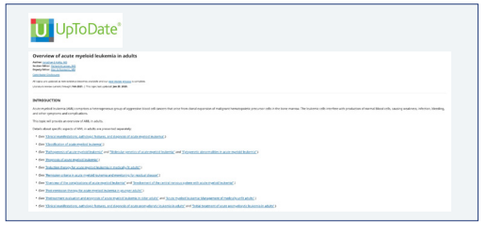


Point-of-Care Reference Sheet for APML



Comparison with UpToDate

While UpToDate is an incredibly rich resource, it can be difficult to extract concise overview information. Users are often limited by needing to know what they are looking for in advance.



Article on "Overview of Acute Myeloid Leukemia in Adults" in UpToDate.

CONCLUSIONS:

There is an educational gap that needs to be filled between the ad-hoc lecture on a series of clinical trials for lung cancer and multiple densely detailed UpToDate chapters on lung cancer.

Medical residents and fellows need a clinically relevant, easy-to-access resource that summarizes oncologic diagnostic and management frameworks and serves as a tool for both adult learning and point-of-care patient management.

This practical resource will improve upon the existent format of lecture-based learning by providing a clinically-oriented, cohesive learning experience.

Future Directions:

- Refinement & launch of the curriculum
- Focus group and survey feedback
- Evaluation of usage data
- Development of a paired case library

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Identifying Resident Barriers in Recognizing and Addressing Social Determinants of Health

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Background:

Social determinants of health (SDH) are important predictors of health outcomes. The World Health Organization defined SDH as "conditions in which people are born, grow, live, work and age."

Since 2016, our internal medicine classroom-based ambulatory curriculum has introduced residents to principles of how SDH impact the health outcomes of our patients.

This study examines the impact of the curriculum on resident knowledge and practice habits as they relate to SDH and health disparities.

Methods:

Phase 1: Resident Survey

All internal medicine residents at our large urban internal medicine program were invited to complete an online survey in the Fall of 2020. Through this survey, we isolated potential knowledge gaps, attitudes, and barriers.

Phase 2 :Peer to Peer Intervention

In the Spring of 2021, we will begin peer to peer resident education on screening for SDH, documenting assessments (Z-codes) and providing social prescriptions (referring patients to a range of local, non-clinical services).

Phase 3: Evaluation:

To assess the effect of these interventions, we will measure changes in the use of EMR-based SDH screening tools, Z-codes assessments, and utilization of social prescriptions. To assess resident knowledge and attitudes we will administer a post-intervention survey.

Results:

Of 126 potential subjects, 65 (52%) completed the survey. While 98.5% of respondents recognized the importance of SDH on health outcomes, only 7.7% use the screening tool in the clinic EMR and only 3.1% knew to document SDH as an assessment. 31.3% noted lack of knowledge about what SDH are as a major barrier. Other barriers included lack of appropriate time in clinic and uncertainty in available resources once SDH was identified. Most (84%) did consider it to be a physician's responsibility to address SDH.

In your opinion, how important are social determinants of heath in impacting preventive health outcomes for your patients?

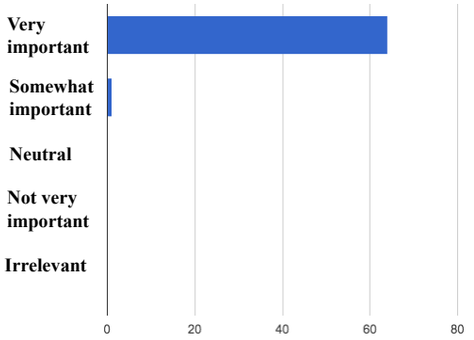


Figure 1

Do you use SDH screening tool in ECW?

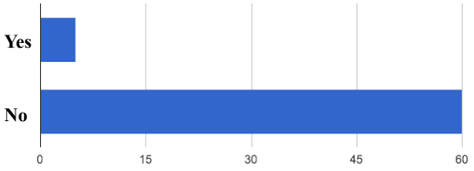


Figure 2

How often do you list specific social determinants of health as official assessments (Z-codes)?

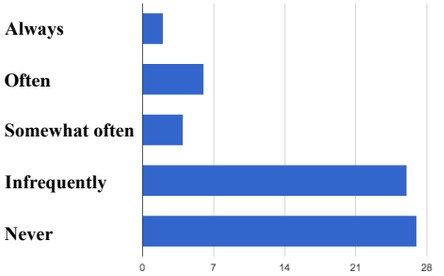


Figure 3

Lack of knowledge about what social determinants of health are

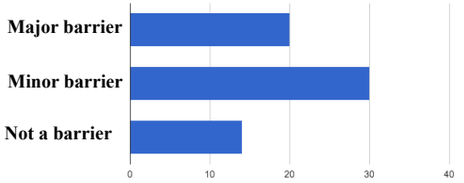
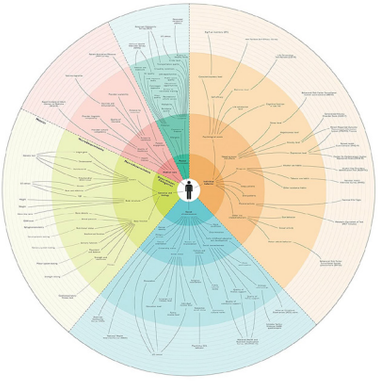


Figure 4

Conclusions:

- Our survey identified numerous barriers to recognizing and addressing SDH in our residency clinic.
- Classroom-based didactics alone do not result in effective behavior change in addressing SDH in the clinical setting.
- Peer to peer interventions have potential to reduce these knowledge gaps.
- Novel educational strategies are needed which are attuned to the application of SDH knowledge and skills within the reality of the clinical practice setting.



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The Floor Passport: Improving and Standardizing Inpatient Pediatric Resident Education

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INTRODUCTION:

- Pediatric residents spend the largest proportion of their training on inpatient floor units.
- Due to variability of inpatient census and the seasonality of certain pathologies, residents' exposure to important inpatient general pediatrics topics vary even within the same institution.
- There is currently already an intervention in place in our PICU to help mitigate these differences and ensure that residents experience a more standardized exposure to important critical care topics during their PICU rotation.
- Similarly, we aim to standardize resident education during inpatient floor rotations to cover topics essential for a general pediatrician.

OBJECTIVES :

- To implement a "Floor Passport" that aims to:
  - Improve resident education on the inpatient floor by targeting specific topics to be taught during these rotations to better standardize residents' exposure to high yield inpatient general pediatrics topics.
  - Empower residents to request teaching from faculty and fellows.
  - Assist faculty and fellows in providing effective and efficient teaching appropriate to residents' needs.

METHODS :

- Teaching topics for each inpatient subspecialty field were selected based on the American Board of Pediatrics content outline for the General Pediatrics certification examination, along with input from faculty and fellows in each field. Each topic was designed to be covered in 15-20 minute teaching sessions by faculty and fellows. Required procedures were also included.
- Topics were presented in an electronic "Floor Passport" format for residents to check off topics as they received teaching sessions, with goal minimums per block and by the end of residency.
- Passports were checked before and after each block to determine topic completion, as well as at the end of each year.
- A pre-survey was distributed to the 68 PGY1-3 pediatric residents in our program, to assess baseline resident attitudes regarding satisfaction of current teaching on the inpatient floor, and ability to request teaching sessions. Post-surveys will be distributed 6 months and a year after implementation of the Floor Passport.

RESULTS :

- 45 residents completed the pre-survey, for a response rate of 66%.
- Prior to implementation of the Floor Passport:
  - There were disparities in satisfaction with teaching between floor teams: residents reported being more satisfied with teaching on the Hospitalist Medicine team (Figure 1), while more residents reported being dissatisfied than satisfied with teaching on the Subspecialty teams (Figure 2, 3).
  - When asked to recall whether they received teaching on a given list of select topics, more residents recalled learning about Hospitalist Medicine topics than Subspecialty topics.
  - On a 2-week floor block, most residents reported receiving active teaching <3 times (44.4%) and 3-5 times (40%). On a 4-week floor block, most residents reported receiving active teaching 3-5 times (35.6%) and 5-7 times (35.6%) (Figure 4).
  - Most residents report feeling neutral to very comfortable requesting teaching sessions from faculty and fellows.
  - The two most commonly cited barriers to teaching on inpatient floor rotations were that residents were too busy with clinical duties (84.4% of respondents), and that faculty/fellows were unavailable or too busy to teach (82.2% of respondents).

Figure 1: Satisfaction with Teaching that Occurs on the Hospitalist Medicine Team

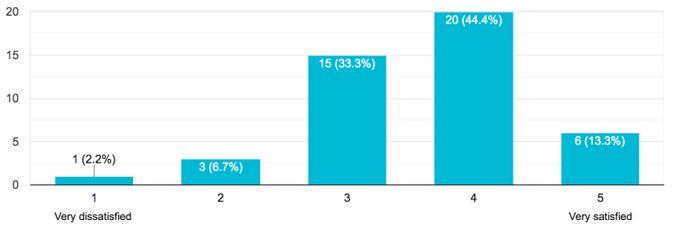
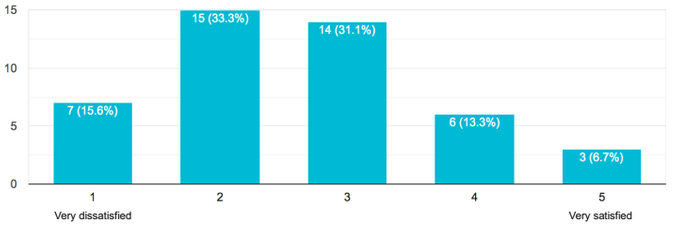


Figure 2: Satisfaction with Teaching that Occurs on the Red (Subspecialty) Team



RESULTS:

Figure 3: Satisfaction with Teaching that Occurs on the Yellow (Subspecialty) Teams

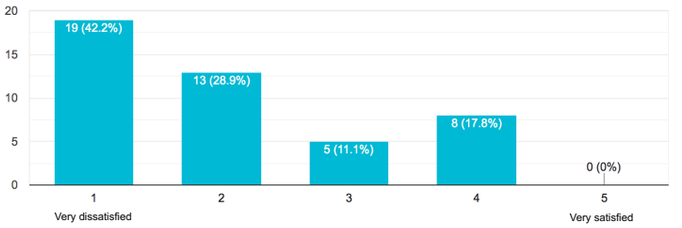
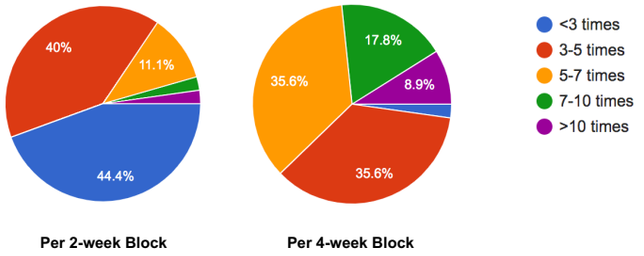


Figure 4: Resident Estimates of Number of Teaching Sessions



CONCLUSIONS AND NEXT STEPS:

- The Floor Passport is currently being implemented.
- The current number of inpatient teaching sessions that residents recall should be improved; the Floor Passport aims to facilitate teaching by providing a set list of topics.
- Teaching can vary between different floor teams likely due to various factors, including admitted patient census and diagnoses, availability of faculty/fellows given demands of other clinical obligations, and time available for teaching during or after rounds. A secondary measure should also assess the length of inpatient rounds.
- Most residents report being comfortable requesting teaching from faculty/fellows, and cite time constraints as the main barrier to teaching; in addition to further empowering residents to request teaching, the Floor Passport aims to help prioritize teaching on a busy service without compromising patient care.
- Future directions include investigating performance on In-Training Exam scores pertaining to essential inpatient topics.

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Development of a Website to Facilitate Gastroenterology/Hepatology Learning Using Interactive, Case-Based Scenarios: GiSIM

Jaclyn Chesner, Morgan Goodman, Jonathan Nahas, Kamron Pourmand, Samira Farouk, Brijen Shah, Bhavana Bhagya Rao
Icahn School of Medicine at Mount Sinai

INTRODUCTION:

- Most online educational resources (question banks, seminars) focus heavily on knowledge recall, with limited opportunities for learning by application.
- Clinical cases, as an instructional tool, serve as key anchors for learners to apply medical knowledge.
- A free open access medical education (FOAMed) website dedicated to nephrology, NephSIM, created by our collaborator provides an innovative platform for case-based learning with infographics.
- We sought to create a mobile optimized, FOAMed website, dedicated to gastroenterology(GI)/hepatology(hep) containing a collection of interactive case journeys designed to teach pathophysiology and disease management, and to support the development of clinical reasoning and data synthesis skills in trainees (Fig 1).

OBJECTIVES:

1. To create a FOAMed, GI/hep website comprising interactive case-based scenarios to be used by GI/hep fellows, internal medicine (IM) residents and medical students.
2. To assess feedback on website usability and utility from users.

METHODS:

- GiSIM website was created on Wordpress and modeled after NephSIM.
- Hypothetical cases were drafted by Mount Sinai IM residents and GI/hep fellows and reviewed by clinical GI/hep faculty.
- Each case is presented as a sequence of history and examination details, laboratory and imaging findings, endoscopy and pathology results, leading to a final diagnosis.
- At each step, questions encourage users to develop a differential diagnosis and select the next best steps in assessment and treatment, in keeping with the principles of appropriate clinical reasoning, cost conscious high-value care and guideline driven practice (Fig 2).
- Real-time feedback is provided on their choices.
- A Google Forms based survey is embedded into GiSIM to collect data on user demographics and solicit feedback using a Likert scale on website usability, content quality, difficulty level, and perceived educational value.

RESULTS:

- GiSIM was created and launched with 4 GI/hep peer reviewed cases in January 2021 (Fig 3-5).
- Website is being disseminated via email within the Mount Sinai system and with the Twitter handle @Gisim_website.
- Thus far, respondents include 4 attendings, 11 fellows, and 11 residents (Fig 6).
- Survey feedback was overwhelmingly positive (Fig 8); the majority of respondents believe that the website is easy to use, the cases are interactive, enhance their understanding of the topic, that the difficulty level is appropriate and improves their confidence in the subject area.
- All respondents agreed or somewhat agreed that they will use this resource in the future and recommend it to colleagues.

Figure 1. Learning objectives for the website using Bloom's taxonomy model

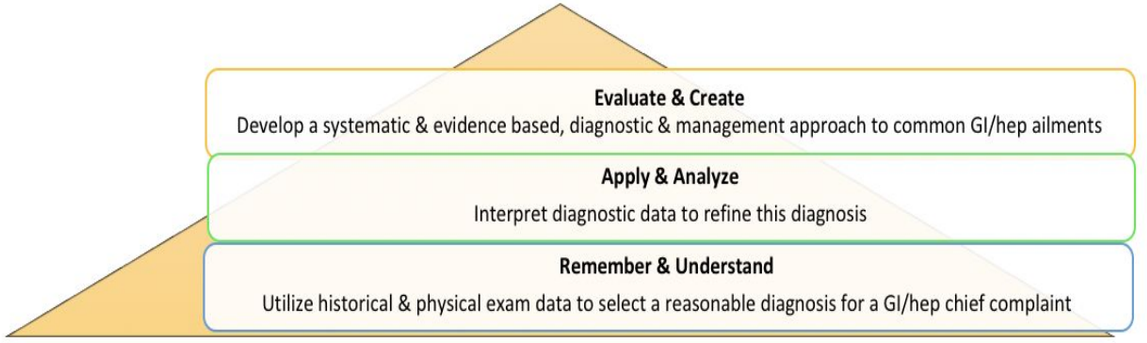
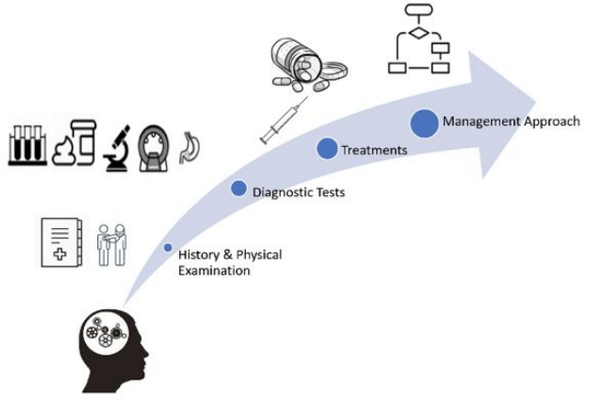


Figure 2. Schematic illustration of a sample case and cognitive aspects of Miller's prism of clinical competence that are assessed



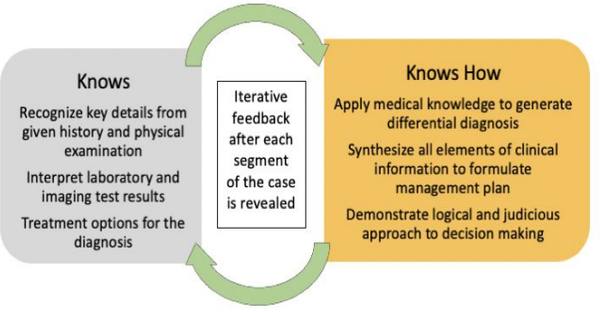


Figure 3. GiSIM Welcome Page

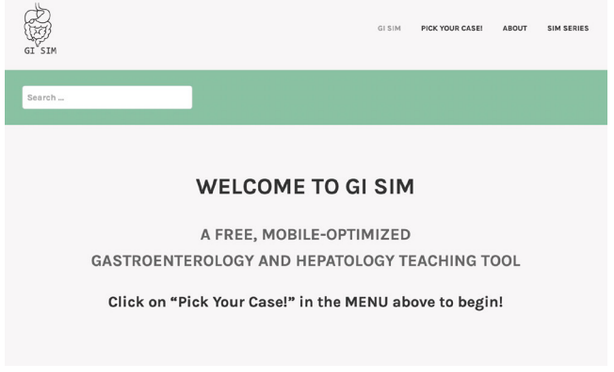


Figure 4. GiSIM Case Page

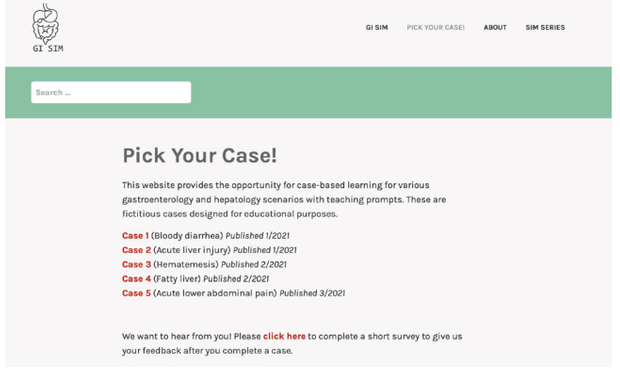


Figure 5. QR Code and sample user feedback for GiSIM website

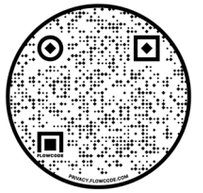


Figure 6. Training level of respondents

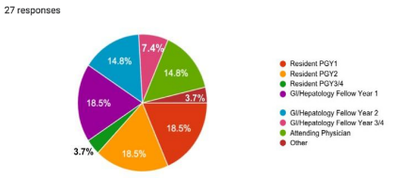


Figure 7. How did respondents hear about GiSIM?

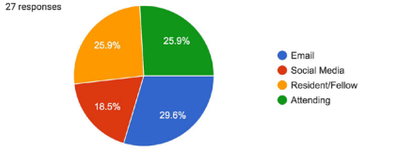
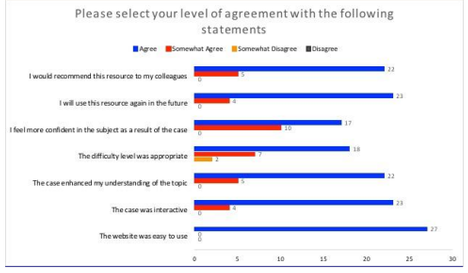


Figure 8. Respondent feedback on GiSIM



CONCLUSIONS:

- We have created a new GI/hep dedicated FOAMed website for medical trainees.
- Preliminary results demonstrate ease of use, a perceived enhancement in medical knowledge, and a majority of users are inclined to continue use and recommend it to others.
- Future efforts include creating additional case content in GiSIM, further dissemination, studies to measure the impact of GiSIM on clinical reasoning skills, and to ascertain effective strategies for integrating its use with traditional didactic formats.

Virtual Geritalk: Can communication between physicians and patients with serious illness be improved through remote learning?

Julia L. Frydman MD, Lindsay A. Dow MD, Elizabeth C. Lindenberger MD, Cardinale B. Smith MD PhD,
Stephen Berns MD, Amy S. Kelley MD MSHS, Laura P. Gelfman MD MPH

Icahn School of Medicine at Mount Sinai

ABSTRACT :

Background:

High quality serious illness communication is essential to older adults' medical decision-making, quality of life, and adjustment to serious illness. Designed specifically for geriatric and palliative medicine fellows, the Geritalk course is an educational communication skills intervention using didactics, skill practice, and reflection over 2 days in-person. Due to the COVID-19 pandemic, Geritalk was adapted to a virtual format as 1.5 hours/day for 5 days, complemented by asynchronous online learning modules. Our study evaluated the self-assessed preparedness of trainees for serious illness communication before and after the virtual course, and compared these findings to a historical control from the in-person course.

Methods:

In July 2020, Geriatric and Palliative Medicine fellows from Mount Sinai participated in the virtual Geritalk course. Fellows were asked to complete anonymous pre- and post-self-assessments of preparedness for serious illness communication with patients and families, using survey items with responses on a five-point Likert scale. De-identified and anonymous survey data was collected using REDCap.

Results:

Of the 20 Geritalk participants, 17 (85%) completed the pre-course assessment, and 14 (70%) completed the post-course assessment. After the course, 10 (71%) respondents had a "positive/very positive" attitude toward remote learning, as compared to 6 (35%) before the course. Overall, 13 (93%) rated the educational quality of the course as "excellent" and "strongly agreed" that they would recommend the training to others.

Compared to in-person Geritalk, virtual Geritalk led to comparable improvements in mean self-reported preparedness across all surveyed communication skills: giving bad news (virtual pre-course 3.1 improved to post-course 4.5, in-person pre-course 3.4 improved to post-course 4.5); conducting a family conference (virtual 2.9 to 4.1, in-person 3.1 to 4.4); discontinuing life-sustaining treatments (virtual 2.8 to 3.9, in-person 2.9 to 4.3); discussing religious/spiritual issues (virtual 2.8 to 4, in-person 2.7 to 3.7); eliciting concerns at the end of life (virtual 3.3 to 4.7, in-person 3.2 to 4.4); expressing empathy (virtual 4.2 to 4.9, in-person 3.7 to 4.6); and discussing treatment options, including comfort-focused care (virtual 3.2 to 4.1, in-person 3.2 to 4.4).

Conclusions:

Virtual Geritalk trainees reported comparable increases in self-assessed preparedness for serious illness communication to in-person trainees, yet the course format required fewer resources (e.g., participant and facilitator time, space, travel, and catering costs). Furthermore, the course was highly rated by participants and, after the course, attitudes toward remote learning improved. Future work will examine the virtual course's efficacy in increasing use of communication skills through real-time clinical evaluation of trainees.

INTRODUCTION:

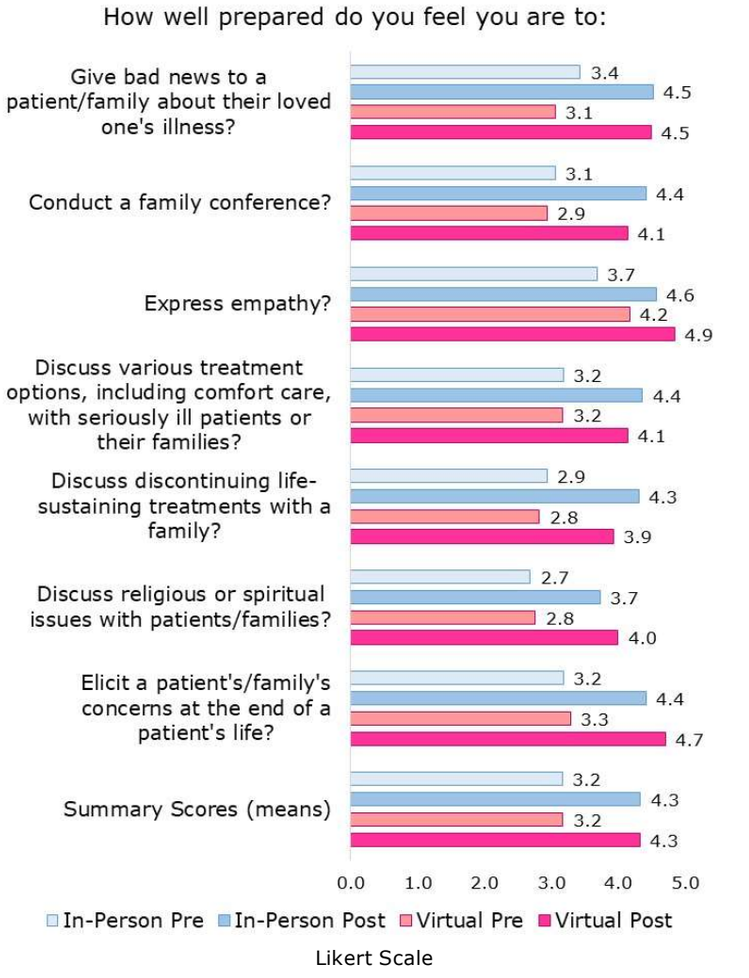
- High quality serious illness communication is essential to patients' medical decision-making, quality of life, and adjustment to serious illness.
- Prior to 2020, the Geritalk course was an intensive in-person 2-day communication skills intervention for Geriatrics and Hospice & Palliative Medicine Fellows.
- Due to the COVID-19 pandemic, Geritalk was adapted to a virtual format with synchronous sessions (1.5 hours/day for 5 days) and asynchronous online learning modules.

METHODS :

- Using pre-course and post-course surveys, we compared learner responses from in-person and virtual courses regarding:

1. Learner satisfaction
2. Self-assessed preparedness for serious illness communication

RESULTS: SELF-ASSESSED PREPAREDNESS



RESULTS: LEARNER QUOTES

"I think this was really great for us to experience especially because so many of our family meetings are being held over the phone or video visit right now."

"The patient interactions felt very real, just like telemedicine, you could see them in their homes, and … they're the only person in your field of vision, so it's easy to forget everyone else is there."

"Overall, I was very impressed with the facilitators and how relatively seamless and effective the training was for being virtual."

RESULTS: LEARNER SATISFACTION

- Of the 20 virtual Geritalk participants, 17 (85%) completed the pre-course assessment, and 14 (70%) completed the post-course assessment.
- Learner satisfaction was comparable between the in-person course and the virtual course:
  - 13 (93%) virtual and 17 (89%) in-person rated the educational quality of the course as "excellent."
  - 13 (93%) virtual and 18 (95%) in-person "strongly agreed" that they would recommend the training to others.
- Post-course, 10 (71%) respondents had a "positive/very positive" attitude toward remote learning, as compared to 6 (35%) before the course.

CONCLUSIONS:

- Virtual Geritalk trainees reported comparable increases in self-assessed preparedness for serious illness communication to in-person trainees.
- The course format required fewer resources (e.g. participant and facilitator time, space, travel, and catering costs).
- The course was highly rated by participants and, after the course, attitudes toward remote learning improved.
- Future work will examine the course's efficacy in increasing use of communication skills through real-time clinical evaluation of trainees and compare use of communication skills between those who participated in in-person and virtual courses.

Improvement of Resident Learning Environment Through Iterative Confidential Meetings Inspired by the Delphi Method

Lauren Lisann-Goldman, M.D. and Bryan Mahoney, M.D.

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ABSTRACT:

Intro: Self-determination theory, a school of thought within social psychology that describes foundations of human motivation, posits that a desire to learn arises from the fulfillment of three psychological requirements: a sense of relatedness, autonomy, and a sense of competence. This framework can be applied to curriculum development and the shaping of the culture of a department[2]. We sought to develop a structured approach to address these "psychological needs" and also improve the learning environment of our anesthesiology residency program. "Confession groups" have been demonstrated as an opportunity for residents to present, discuss and reflect on professional and personal challenges without fear of repercussion[3]. These sessions involve reading, out loud, anonymous "confessions" that have been previously submitted by group members. We applied the Delphi technique as an overarching structure to repeated "confession groups," that alternating with meetings with department leadership[4,5].

Aims: The underlying goal was to determine whether the residency working/learning environment could be improved with this structured approach in a virtual forum.

Methods: Confessions sessions were held every several months through Zoom. An email prior to each session was sent out to residents inviting responses to a brief survey and requesting attendance at the virtual meeting. The overarching meeting structure is a modification of the Delphi method[4,5] (Table 1, Figure 1). The meetings represent an end in themselves, but were also structured to enable qualitative analysis of content that arose from the meetings. The initial open-ended prompt (Figure 2) allowed us to first select concerns that could be addressed to answer the underlying question of whether the residency learning environment could be improved (i.e. purposive sampling)[6]. Several iterative meetings (including with program leadership) enabled a saturation of initial themes, followed by further clarification of those specific themes (i.e. theoretical sampling).

Results: Concerns that arose in the meetings were discussed and addressed by program leadership, as outlined by the structure in Figure 1. Perhaps the most valuable outcome of these sessions has been the generation of a class representative system, in which an individual from each resident class acts as a sounding board for residents regarding any issues that arise, and a liaison to the program leadership to voice these concerns.

Conclusion: This structure of confidential resident meetings alternating with meetings with leadership has allowed the implementation of program and departmental changes.

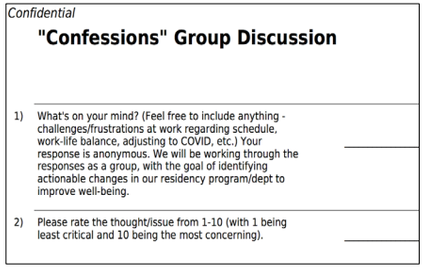
INTRODUCTION:

Self-determination theory, a school of thought within social psychology that describes foundations of human motivation, posits that a desire to learn arises from the fulfillment of three psychological requirements: a sense of relatedness, autonomy, and a sense of competence. This framework can be applied to curriculum development and the shaping of the culture of a department2. We sought to develop a structured approach to both address these "psychological needs" and to improve the learning environment of our anesthesiology residency program. "Confession groups" have been demonstrated as an opportunity for residents to present, discuss, and reflect on professional and personal challenges without fear of repercussion3. These sessions involve reading, out loud, anonymous "confessions" that have been previously submitted by group members. We held a series of meetings, with iterative discussion of challenges, obstacles and grievances. As an overarching structure, the iterative nature of the discussions were inspired by a modification of the Delphi technique4,5. These meetings alternated with meetings with department leadership. The underlying goal of this curriculum was to improve residency working/learning environment with a structure approach in virtual format.

METHODS :

Confessions sessions were held every several months through Zoom. An email prior to each session was sent out to residents inviting responses to a brief survey containing an open-ended prompt (Fig. 1) and requesting attendance at the virtual meeting. These meetings alternated with meetings with department and residency program leadership. The overarching meeting structure was inspired by the Delphi method, and modified as a framework for change management[4,5] (Fig. 4). The meetings represented an end in themselves, but were also structured to enable qualitative analysis of content that arose from the meetings. The initial open-ended prompt submitted to residents (Fig. 1) allowed us to select concerns that could be addressed to achieve the underlying goal of whether the residency learning environment could be improved (i.e. purposive sampling)[6].

One meeting amongst residents would occur followed by presentation of the findings to the program and assistant program directors. This was followed by a second set of prompts (Fig. 2): a new prompt that honed in on key concerns to clarify salient, actionable items from the first meeting, paired with the same open-ended prompt to preserve space for new concerns. This next meeting was followed by discussion with program and assistant program directors in addition to departmental non-physician and physician administrators. These iterative meetings amongst residents and with program leadership allowed identification and clarification of specific themes (i.e. theoretical sampling)[6].



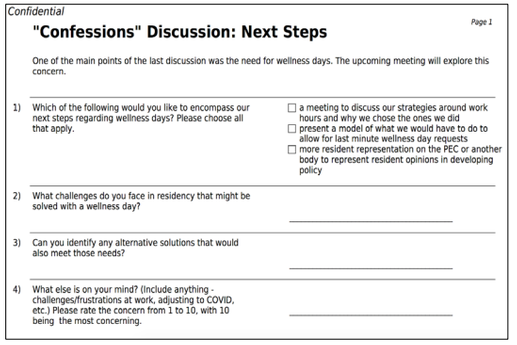
Confidential

"Confessions" Group Discussion

1) What's on your mind? (Feel free to include anything - challenges/frustrations at work regarding schedule, work-life balance, adjusting to COVID, etc.) Your response is anonymous. We will be working through the responses as a group, with the goal of identifying actionable changes in our residency program/dept to improve well-being.

2) Please rate the thought/issue from 1-10 (with 1 being least critical and 10 being the most concerning).

Figure 1. Open-ended prompt. Emailed to residents in advance of each session.



Confidential

Page 1

"Confessions" Discussion: Next Steps

One of the main points of the last discussion was the need for wellness days. The upcoming meeting will explore this concern.

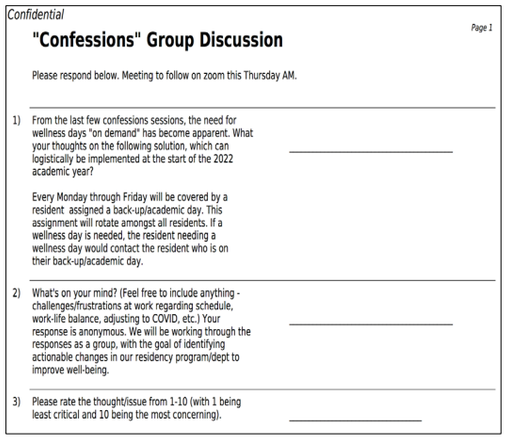
1) Which of the following would you like to encompass our next steps regarding wellness days? Please choose all that apply.
- ☐ a meeting to discuss our strategies around work hours and why we chose the ones we did
- ☐ present a model of what we would have to do to allow for last minute wellness day requests
- ☐ more resident representation on the PEC or another body to represent resident opinions in developing policy

2) What challenges do you face in residency that might be solved with a wellness day?

3) Can you identify any alternative solutions that would also meet those needs?

4) What else is on your mind? (Include anything - challenges/frustrations at work, adjusting to COVID, etc.) Please rate the concern from 1 to 10, with 10 being the most concerning.

Figure 2. Clarifying prompt + open-ended prompt.



Confidential

Page 1

"Confessions" Group Discussion

Please respond below. Meeting to follow on zoom this Thursday AM.

1) From the last few confessions sessions, the need for wellness days "on demand" has become apparent. What your thoughts on the following solution, which can logistically be implemented at the start of the 2022 academic year?

Every Monday through Friday will be covered by a resident assigned a back-up/academic day. This assignment will rotate amongst all residents. If a wellness day is needed, the resident needing a wellness day would contact the resident who is on their back-up/academic day.

2) What's on your mind? (Feel free to include anything - challenges/frustrations at work regarding schedule, work-life balance, adjusting to COVID, etc.) Your response is anonymous. We will be working through the responses as a group, with the goal of identifying actionable changes in our residency program/dept to improve well-being.

3) Please rate the thought/issue from 1-10 (with 1 being least critical and 10 being the most concerning).

Figure 3. Further clarifying prompt + open-ended prompt.

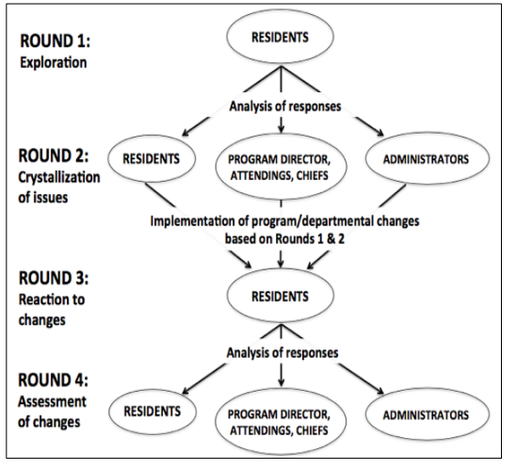


Figure 4. Overarching meeting structure for change management.

RESULTS:

Concerns that arose in the meetings were discussed and addressed by program leadership, as outlined by the structure in Figure 4.

Changes to preoperative workflow:
- Round 1: overwhelming volume of inpatient preoperative assessments without education value for call team
- Round 2: discussion amongst clinical coordinators, residency program leadership and department Wellness Champion to reduce preoperative assessment burden and increase educational value by eliminating call team requirement to complete in-depth assessment of ASA1 and ASA2 patients
- Round 3: resident agreement with plan
- Round 4: successful implementation of new preoperative assessment workflow

Establishment of Class Representatives:
- Round 1: frustration by residents that decisions are made without resident input
- Round 2: idea to have a resident representative from each class to assist in program decision-making, elected by residents
- Round 3: residents voluntarily participated in selection of class representatives
- Round 4: successful implementation of new class representatives

Wellness day plan:
- Round 1: burnout, need for time to make personal appointments
- Round 2: discussion with clinical coordinators, residency program leadership and department Wellness Champion

CONCLUSIONS:

Perhaps the most valuable outcome of these sessions has been the generation of a class representative system, in which an individual from each resident class acts as a sounding board for residents regarding any issues that arise, and serves as liaison to the program leadership to voice these concerns. In general, this structure of confidential resident meetings alternating with meetings with leadership has allowed the successful implementation of residency program and departmental changes on an ongoing basis.

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The Effect of Using the MedChallenger Question Bank and Other Study Tools on OB/GYN Resident In-Service Exam Performance

Liza Karotkin, MD; Melissa Lozano, MD; Barbara Deli, MD

Icahn School of Medicine at Mount Sinai

INTRODUCTION:

- The Council on Resident Education in Obstetrics and Gynecology (CREOG) Examination is administered annually to OB/GYN Residents to assess medical knowledge and provide information regarding educational quality of a residency program
- Educational studies have demonstrated improvement in resident CREOG scores with targeted educational interventions.
- Performance on the CREOG examination can predict successful performance on the American Board of Obstetrics and Gynecology (ABOG) written examination
- A study conducted at the UT Southwestern General Surgery program showed a positive correlation between the number of questions answered in the TrueLearn question bank and resident performance on their respective yearly in-service exam

OBJECTIVES:

- In the 2019-2020 academic year, the OB/GYN department at Mount Sinai West provided the MedChallenger question bank to its residents to aid in CREOG exam preparation
- We hypothesized that the number of MedChallenger questions answered would correlate with CREOG exam performance

METHODS :

- MedChallenger data was collected to determine the total number of questions answered for each resident
- Survey data of resident study habits and resident USMLE Step 1 and Step 2 scores were also recorded
- Resident CREOG score reports for the 2020 CREOG exam were reviewed for 25 residents
- A Spearman correlation was performed to determine the association between the number of MedChallenger questions answered and resident CREOG exam scores

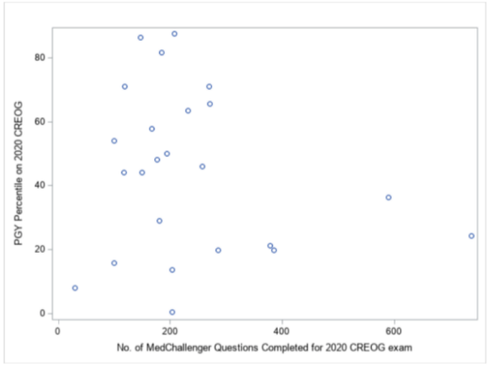


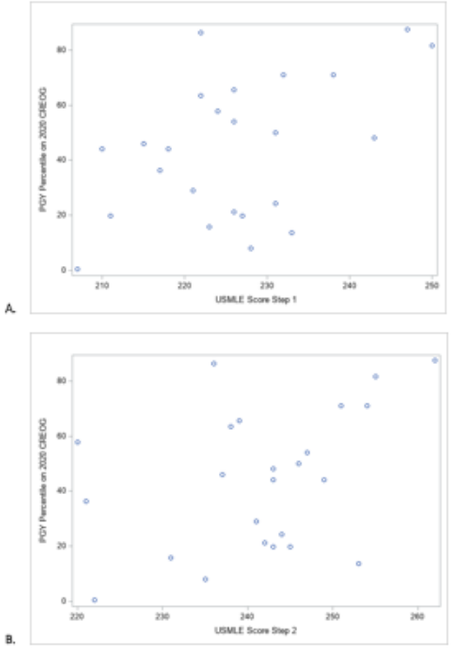
Figure 1: Scatterplot of Number of MedChallenger Questions Completed vs 2020 CREOG Scores

- A univariable analysis of the relationship between using other study resources (Prolog question list, TrueLearn question bank) and CREOG exam scores was performed

Variable	ALL (n=22)	True Learn Question Bank (n=4)	Prolog Question List (n=18)	p-value
2020 CREOG Exam Score, median (range)	197.5 (147.0, 223.0)	209.5 (202, 222)	195 (147, 223)	0.0348
PGY Percentile on 2020 CREOG, median (range)	45.0 (0.4, 87.5)	68.2 (54.0, 86.4)	40.2 (0.4, 87.5)	0.0348

Table 1: Relationship between using other question banks/lists and 2020 CREOG Scores

- USMLE Step 1 and Step 2 scores were also compared to 2020 CREOG exam scores using Spearman correlation



Figures 2A and 2B: Scatterplot of USMLE Step 1 and Step 2 Scores vs 2020 CREOG Scores

RESULTS:

- There is insufficient evidence to conclude that there is an association between number of MedChallenger questions completed and 2020 CREOG exam scores (Figure 1; p=0.68)
- There is a positive correlation between USMLE Step 1 and Step 2 scores and 2020 CREOG exam scores, but it was not statistically significant (Figure 2; p= 0.07 and 0.09, respectively)
- 2020 CREOG exam scores were found to be significantly higher in participants who used TrueLearn (Table 1; p= 0.03)

CONCLUSIONS:

- Implementation of a question bank, MedChallenger, for in-service exam preparation showed no correlation between the number of questions answered and 2020 CREOG exam performance
- Survey data of residents showed that those who used an alternative question bank, TrueLearn, had significantly higher CREOG scores
- 2020-2021 academic year data will be collected determine what effect TrueLearn question bank use has on resident exam performance

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Sinai Internal Medicine Ultrasound Group (SIM-U): A Practical, Self-Directed Pulmonary Ultrasound Curriculum for Internal Medicine Residents

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Icahn School of Medicine at Mount Sinai, Internal Medicine

INTRODUCTION:

- Bedside POCUS can identify pathology such as pleural effusion, pulmonary consolidation, and ARDS with higher degrees of sensitivity and specificity than traditional examinations[1]
- Serial POCUS for evidence of pulmonary edema improves hospital outcomes in patients with CHF exacerbations resulting in shorter hospital stays and more frequent adjustment to diuretic dosing[2]
- Formal training of medicine trainees during their residency both increases their comfort with interpreting and obtaining ultrasound images, and improves the quality of images obtained when observed by expert practitioners[3,4]
- Barriers to implementation of POCUS education in Internal Medicine Residency programs include resident time commitments, lack of experienced faculty, and access to US machines

OBJECTIVES:

1. Increase awareness and interest in the use and practicality of Point of Care Ultrasound among residents
2. Improve comfort with utilization of Point of Care Ultrasound (POCUS) for General Inpatient Medicine and ICU patient care
3. Promote proficiency in obtaining clear anatomic imaging through focused teaching from expert practitioners
4. Improve ability to interpret and identify anatomical structures, common diagnoses, and pathology from ultrasound images
5. Provide education pathway to increase frequency of utilization of diagnostic POCUS among internal medicine residents on inpatient rotations

METHODS :

Learner Survey

- Online survey was sent to all Mount Sinai Internal Medicine PGY1 and PGY2s
- Survey assessed prevalence and frequency of current ultrasound utilization within the internal medicine Program (for diagnostic and procedural purposes), attitudes regarding the current state of ultrasound utilization and education, and individual willingness to participate in a dedicated ultrasound skills development curriculum
- Respondents' were queried on their comfort utilizing POCUS (1-5 ordinal scale, 1 meaning least comfortable), satisfaction with current POCUS education (1-5 ordinal scale, 1 being least satisfied)

Faculty Identification

- Facility within the Mount Sinai Division of Hospital Medicine and Institute for Critical Care Medicine were identified and volunteered to assist in facilitating in-person didactic training and bedside practical sessions
- Institute for Critical Care Medicine faculty volunteered to review learner's ultrasound imaging studies and provide expert attestations to affirm clarity and accuracy of images

Technology

- Portable ultrasound machine was identified and underwent assessment to ensure optimal functionality and image quality
- Access for Internal Medicine residents to Q-path™, a Point of Care Ultrasound image archiving software, was obtained for review and faculty attestation of participant images

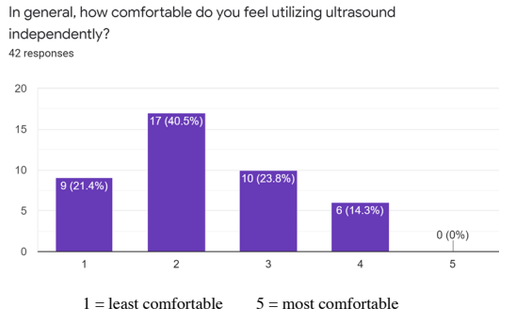

Figure 1. Reported comfort level among survey respondents form the Mount Sinai Hospital Internal Medicine residency program

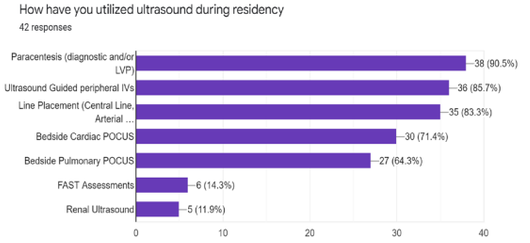

Figure 2. Areas of ultrasound utilization among survey respondents from the Mount Sinai Hospital Internal Medicine program

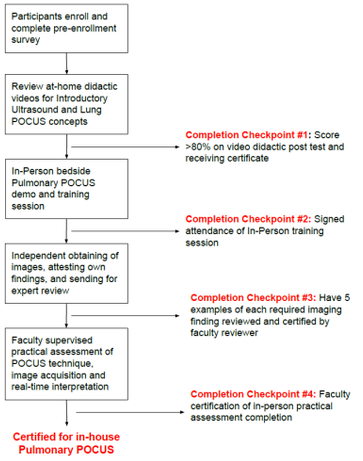

Figure 3. Stepwise advancement through POCUS curriculum with corresponding assessments to certify completion

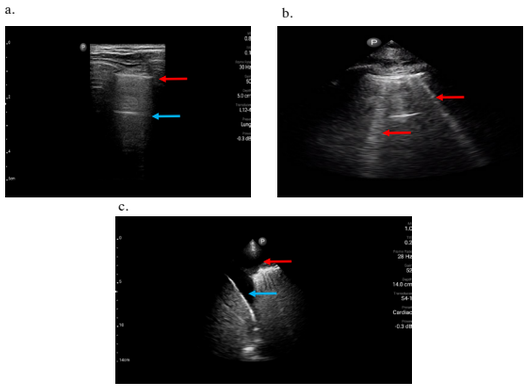

Figure 4. Examples of required images, including (a) pleural line (red arrow) and A-lines (blue arrow), (b) B-lines (red arrows), and (c) pleural effusion (red arrow) and diaphragm (blue arrow). Dynamic lung sliding not pictured

RESULTS:

- Respondents from the Mount Sinai Internal Medicine program PGY1 and PGY2 classes expressed low levels of comfort utilizing ultrasound (Figure 1), although are utilizing frequently for procedures and diagnostic purposes (Figure 2)
- A longitudinal POCUS curriculum emphasizing Pulmonary Ultrasound was formulated (Figure 3), including:
  - At home and in-person didactic learning
  - Supervised bedside teaching and demonstration from expert faculty
  - Independent practice of POCUS skills with requirement to obtain 5 examples of the six image criteria for a complete pulmonary ultrasound exam (Figure 4)
  - Expert faculty review of all image studies in Q-path™ to confirm participant attestation, provide feedback

CONCLUSIONS/FUTURE:

1. A dedicated POCUS curriculum addresses a clear need within the Mount Sinai Internal Medicine residency program
2. Self-directed online learning, in-person didactic sessions, and individual practice-based design allows for both knowledge acquisition of POCUS technique with means of honing necessary practical skills
3. Consistent expert faculty facilitation, image review and feedback can ensure appropriate assessment of learner's POCUS skill and quality
4. Self directed nature with rolling in person sessions provides framework to expand trainee participation
5. The curricular design and structure allows a similar model to be adopted for future expansion into different diagnostic POCUS examinations

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Caring for young adults with developmental disabilities: Can we improve knowledge and skills among pediatric and internal medicine residents through a multimodal ambulatory curriculum?

Alexis Tchaconas, MD and Joseph Truglio, MD

Icahn School of Medicine at Mount Sinai

ABSTRACT:

Introduction: This study seeks to improve knowledge and skills in the care for individuals with developmental disabilities (IDDs) among internal medicine and pediatrics residents. There are no formal curricula to address transitioning care of IDDs to adult providers and the complex medicolegal implications of these transitions such as guardianship. Due to the lack of curriculum to address these knowledge gaps in both trainee populations, we propose a multimodal curriculum on IDDs for the pediatric and internal medicine residency programs at The Icahn School of Medicine at Mount Sinai.

Method: We used a pre-workshop questionnaire to assess trainees' baseline knowledge of medical and social issues specific to IDDs. We then delivered a workshop with case-based discussion and resources for guardianship and transitions of care. Immediately after, 2 months after and 6 months after the workshop, we reassess the trainees using the same questionnaire to determine whether they acquired, retained and applied new knowledge regarding the care of IDDs. A virtual standardized patient workshop is currently being developed and will be compared alone and in conjunction with the workshop.

Result: Overall, 69 residents participated in the workshop (55 internal medicine, 9 pediatrics and 5 combined internal medicine-pediatrics). At baseline, participants had good knowledge of the clinical description of autism (92.7%) and cerebral palsy (84%), with only knowledge of cerebral palsy significantly improved immediately post-workshop (96%, $\chi2=4.39$, $p=0.036$). The largest baseline knowledge gaps were noted in transitions of care (4.3%) and guardianship (23.2%), both of which improved immediately after the workshop (transitions knowledge increased to 72.5% with $\chi2=58.4$, $p<0.001$; guardianship knowledge increased to 58.8%, $\chi2=14.3$, $p<0.001$). Follow-up data from 2 months after and 6 months after the workshop is pending.

Conclusion: Internal medicine and pediatrics residents significantly improved their knowledge base in cerebral palsy, transitions of care and guardianship after participating in an educational workshop addressing these topics. Further data collection is pending to determine the long-term durability of this knowledge.

INTRODUCTION:

As the life expectancy of IDDs approaches that of the general population,[1] there are a growing number of young adults with developmental disabilities who are aging out of pediatric practices and transitioning to the care of internists. The transition of care is rarely initiated at the recommended age of 12 years,[2] which leaves insufficient time to identify appropriate adult specialists and, for those with intellectual disabilities, establish guardianship. Pediatricians play an important role in the process of transitioning care of adolescent IDDs from pediatric to adult providers, given the close bonds they establish with these patients and their families during their formative years.[2] While the Accreditation Council for Graduate Medical Education mandates pediatric residency programs to provide trainees with a 1-month rotation in developmental pediatrics, most pediatric residents report no change in their comfort level with respect to care of IDDs.[3] For this reason, a longitudinal curriculum focused on IDDs and transitions of care might be more effective, though formal competencies in the care of IDDs do not currently exist for residents. There is also evidence that IDDs have worse health outcomes than their counterparts of the same age, race and gender, highlighting inequities due to poor communication skills, cognitive impairments that complicate health care treatments and lack of health care providers with experience caring for this population.[4] Collectively, these data underscore the lack of formal training both internal medicine and pediatrics residents have when caring for IDDs. This training gap permeates beyond graduate medical education and into independent practice, as evidenced by a survey that revealed most general internists and pediatricians are uncomfortable providing primary care for young adults with chronic illnesses originating in childhood, especially IDDs.[5]

METHODS:

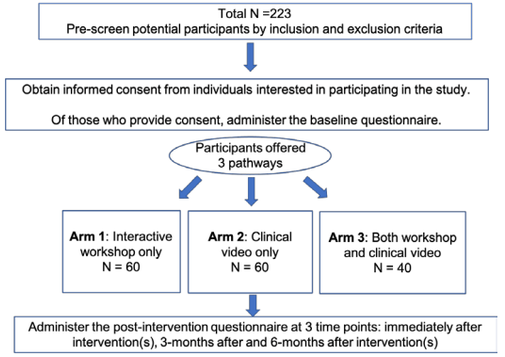
Study Participants

- PGY-2 and PGY-3 internal medicine residents
- PGY-1, PGY-2 and PGY-3 pediatrics residents
- PGY-1 and PGY-2 combined internal medicine-pediatrics residents

Study Design

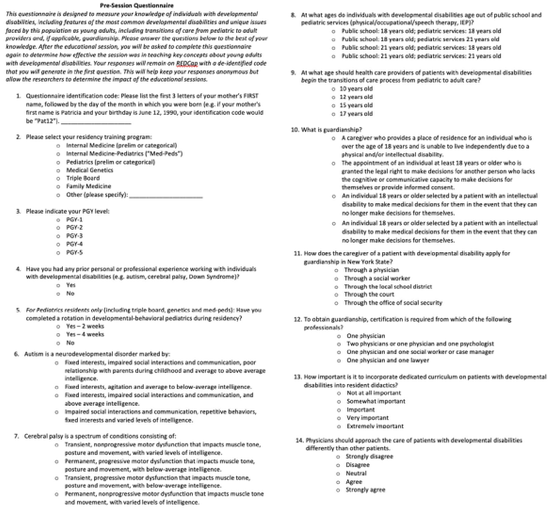
- All trainees who consented to participate where given a pre-workshop questionnaire to assess their knowledge of medical and social issues specific to IDDs, including clinical features of autism and cerebral palsy, transitions of care and guardianship.
- The workshop is a 1-hour session with the following components:
  - Description of the features of autism and cerebral palsy
  - The presentation of 2 clinical cases
    - an 18-year-old patient with autism and moderate intellectual disability presenting to the emergency room for an acute illness, accompanied by the caregiver who lacks guardianship
    - a 21-year-old non-verbal patient with cerebral palsy presenting to an internist to help facilitate the transition of care from pediatric to adult health care providers.
  - After the workshop
- The clinical video will be a "gold standard" encounter with an SP and physician to teach important knowledge and skills for interacting with caregivers of IDDs. One SP from the Morchand Center for Clinical Competence at the Icahn School of Medicine at Mount Sinai has been recruited and trained to act out a clinical scenario: the caregiver of a non-verbal 21-year-old with autism presenting for a televist to establish care with an internist, who will discuss guardianship and transitions of care. The encounter is currently being developed with anticipated production in May or June 2021.
- Trainee knowledge is assessed with a questionnaire at three times post-intervention to determine durability of knowledge:
  - Immediately after
  - 2 months after
  - 6 months after
- To compare participate data from different timepoints while retaining anonymity, participants create an identification code that consists of the first 3 letters of their mother's first name followed by the day of the month of the participant's birthday (e.g. if mother's name is Patricia and participant's birthday is June 12, 1990, their identification code would be Pat12).
- This study was presented to the ISMMS Institutional Review Board and deemed exempt from further review.

Figure 1. Proposed Study Schema



Questionnaires

Figure 2. Pre-Session Survey

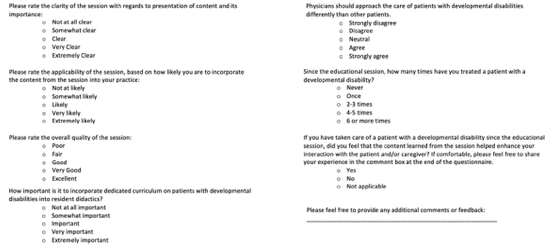


Pre-Session Questionnaire

This questionnaire is designed to measure your knowledge of individuals with developmental disabilities, including features of the most common developmental disabilities and unique issues faced by this population as young adults, including transitions of care from pediatric to adult providers and, if applicable, guardianship. Please answer the questions below to the best of your knowledge. After the educational session, you will be asked to complete this questionnaire again to determine how effective the session was in teaching key concepts about young adults with developmental disabilities. Your responses will remain on REDCap with a de-identified code that you will generate in the first question. This will help keep your responses anonymous but allow the researchers to determine the impact of the educational sessions.

1. Questionnaire identification code: Please list the first 3 letters of your mother's FIRST name, followed by the day of the month in which you were born (e.g. if your mother's first name is Patricia and your birthday is June 12, 1990, your identification code would be "Pat12"). _____
2. Please select your residency training program:
   - Internal Medicine (prelim or categorical)
   - Internal Medicine-Pediatrics ("Med-Peds")
   - Pediatrics (prelim or categorical)
   - Medical Genetics
   - Triple Board
   - Family Medicine
   - Other (please specify): _____
3. Please indicate your PGY level:
   - PGY-1
   - PGY-2
   - PGY-3
   - PGY-4
   - PGY-5
4. Have you had any prior personal or professional experience working with individuals with developmental disabilities (e.g. autism, cerebral palsy, Down Syndrome)?
   - Yes
   - No
5. *For Pediatrics residents only* (including triple board, genetics and med-peds): Have you completed a rotation in developmental-behavioral pediatrics during residency?
   - Yes – 2 weeks
   - Yes – 4 weeks
   - No
6. Autism is a neurodevelopmental disorder marked by:
   - Fixed interests, impaired social interactions and communication, poor relationship with parents during childhood and average to above average intelligence.
   - Fixed interests, agitation and average to below-average intelligence.
   - Fixed interests, impaired social interactions and communication, and above average intelligence.
   - Impaired social interactions and communication, repetitive behaviors, fixed interests and varied levels of intelligence.
7. Cerebral palsy is a spectrum of conditions consisting of:
   - Transient, nonprogressive motor dysfunction that impacts muscle tone, posture and movement, with varied levels of intelligence.
   - Permanent, progressive motor dysfunction that impacts muscle tone, posture and movement, with below-average intelligence.
   - Transient, progressive motor dysfunction that impacts muscle tone, posture and movement, with below-average intelligence.
   - Permanent, nonprogressive motor dysfunction that impacts muscle tone and movement, with varied levels of intelligence.
8. At what ages do individuals with developmental disabilities age out of public school and pediatric services (physical/occupational/speech therapy, IEP)?
   - Public school: 18 years old; pediatric services: 18 years old
   - Public school: 18 years old; pediatric services 21 years old
   - Public school: 21 years old; pediatric services: 18 years old
   - Public school: 21 years old; pediatric services: 21 years old
9. At what age should health care providers of patients with developmental disabilities begin the transitions of care process from pediatric to adult care?
   - 10 years old
   - 13 years old
   - 15 years old
   - 17 years old
10. What is guardianship?
    - A caregiver who provides a place of residence for an individual who is over the age of 18 years and is unable to live independently due to a physical and/or intellectual disability.
    - The appointment of an individual at least 18 years or older who is granted the legal right to make decisions for another person who lacks the cognitive or communicative capacity to make decisions for themselves or provide informed consent.
    - An individual 18 years or older selected by a patient with an intellectual disability to make medical decisions for them in the event that they can no longer make decisions for themselves.
    - An individual 18 years or older selected by a patient with an intellectual disability to make medical decisions for them in the event that they can no longer make decisions for themselves.
11. How does the caregiver of a patient with developmental disability apply for guardianship in New York State?
    - Through a physician
    - Through a social worker
    - Through the local school district
    - Through the court
    - Through the office of social security
12. To obtain guardianship, certification is required from which of the following professionals?
    - One physician
    - Two physicians or one physician and one psychologist
    - One physician and one social worker or case manager
    - One physician and one lawyer
13. How important is it to incorporate dedicated curriculum on patients with developmental disabilities into resident didactics?
    - Not at all important
    - Somewhat important
    - Important
    - Very important
    - Extremely important
14. Physicians should approach the care of patients with developmental disabilities differently than other patients.
    - Strongly disagree
    - Disagree
    - Neutral
    - Agree
    - Strongly agree

Figure 3. Additional Questions on Post-Session Survey



Please rate the clarity of the session with regards to presentation of content and its importance:
- Not at all clear
- Somewhat clear
- Clear
- Very Clear
- Extremely Clear

Please rate the applicability of the session, based on how likely you are to incorporate the content from the session into your practice:
- Not at likely
- Somewhat likely
- Likely
- Very likely
- Extremely likely

Please rate the overall quality of the session:
- Poor
- Fair
- Good
- Very Good
- Excellent

How important is it to incorporate dedicated curriculum on patients with developmental disabilities into resident didactics?
- Not at all important
- Somewhat important
- Important
- Very important
- Extremely important

Physicians should approach the care of patients with developmental disabilities differently than other patients.
- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Since the educational session, how many times have you treated a patient with a developmental disability?
- Never
- Once
- 2-3 times
- 4-5 times
- 6 or more times

If you have taken care of a patient with a developmental disability since the educational session, did you feel that the content learned from the session helped enhance your interaction with the patient and/or caregiver? If comfortable, please feel free to share your experience in the comment box at the end of the questionnaire.
- Yes
- No
- Not applicable

Please feel free to provide any additional comments or feedback:

_____

Table 1. Study Objectives and Endpoints

OBJECTIVES	ENDPOINTS	JUSTIFICATION FOR ENDPOINTS
Primary		
Performance on IDDs knowledge questionnaire at baseline vs. after educational intervention(s)	Change in questionnaire scores pre vs. post-intervention(s)	Assess whether these interventions are effective in improving residents' knowledge of individuals with developmental disabilities (IDDs)
Secondary		
Application of knowledge to clinical care	Percentage of residents applying knowledge acquired from intervention(s) to their clinical encounters	Understand how well each intervention presents information about IDDs to residents as assessed by their ability to apply knowledge from the intervention(s) to their clinical practice.
Tertiary/Exploratory		
Difference in performance between residency programs	Difference in mean questionnaire scores among residents from each of the residency training programs.	Determine level of preparation to care for IDDs based on residency program.

RESULTS:

Table 2. Baseline Participant Demographics (N = 69)

Specialty	Prior Experience with IDDs	Developmental Pediatrics Rotation
Internal Medicine (N = 55)	36	N/A
Pediatrics (N = 9)	6	1
Internal Medicine-Pediatrics (N = 5)	3	4

Key Findings

Table 3. Residents' Knowledge on IDDs

	Autism Knowledge (Q6)	Cerebral Palsy Knowledge (Q7)	Services (Q8)	Guardianship Definition (Q10)	Guardianship Application (Q11)	Guardianship Criteria (Q12)	Transitions of Care Knowledge (Q9)
Baseline (N=69)	92.7% (64)	84% (58)	15.9% (11)	95.7% (66)	85.5% (59)	23.2% (16)	4.3% (3)
Post-workshop (N=51)	94.1% (48)	96%* (49)	45.1%** (23)	96.1% (49)	90.2% (46)	58.8%** (30)	72.5%** (37)
2-month follow-up (N=15)	66.7% (10)	86.7% (13)	26.7% (4)	93.3% (14)	86.7% (13)	60%** (9)	26.7%* (4)

Statistical significance determine using Chi-square calculations
***statistically significant difference (p<0.05) from baseline**
****statistically significant difference (p<0.01) from baseline**

Table 4. Residents' Attitudes on the Care of IDDs

	Curriculum on IDDs is Highly Important	Support Specialized Approach to the Care of IDDs	Session Content Applicable to Practice	Session Content Enhanced Clinical Practice
Baseline (N=69)	65.2% (45)	82.6% (57)	N/A	N/A
Post-workshop (N=51)	82.3%* (42)	86.2% (44)	66.7% (34)	N/A
2-month follow-up (N=15)	60% (9)	73.3% (11)	N/A	62.5% (5/8)

Statistical significance determine using Chi-square calculations
***statistically significant difference (p<0.05) from baseline**
****statistically significant difference (p<0.01) from baseline**

CONCLUSIONS:

1. Baseline knowledge of common developmental disabilities was good overall, with a statistically significant improvement in knowledge of cerebral palsy immediately post-session ($\chi^2= 4.39$, $p=0.036$).
2. The most significant improvements in knowledge were observed in the areas of guardianship criteria, transitions of care and timespan of services for youth with IDDs.
3. Perceived importance of curriculum on IDDs was significantly greater immediately after the workshop than at baseline. Two months after the workshop, the was no change in perceived importance from baseline.
4. A majority of residents who saw patients with IDDs in clinical practice after the workshop felt that the workshop content enhanced their clinical encounters with these patients.
5. Two months after the workshop, knowledge and perceived importance of specialized training in the care of youths with IDDs tended to wane.

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Just-in-Time Physical Exam Videos to Improve Exam Performance and Documentation in the Emergency Department

Bess Storch, MD; Jared Kutzin, DNP MS MPH RN; Melissa Leber, MD; Amie Kim, MD; Monica Sethi, MD; Eric Legome, MD

ABSTRACT:

Introduction: Emergency department providers of all levels may benefit from access to a compendium of peer-reviewed, highly structured, brief videos that present a just-in-time refresher on the essential components of performing and documenting physical exams. Our purpose is to create a brief physical exam videos for the purposes of just-in-time education and training, with the goal of improving exam performance and documentation that requires minimal preparation time.

Methods: Physical exam videos will all be two minutes or less, featuring an emergency physician demonstrating the exam on a volunteer. Videos will be peer reviewed for quality and completeness. Videos will be easily accessible through a website or hyperlink in the electronic health record system.

Result: With regular application of the videos, ED providers should perform more comprehensive physical exams, carry out exam maneuvers properly, and produce more thorough and accurate documentation, without compromising preparation time.

Conclusion: Just-in-time physical exam videos may serve as an innovative educational resource for providers of all levels working on-shift in the emergency department.

INTRODUCTION:

Emergency department (ED) providers manage illnesses spanning all fields of medicine and are expected to have proficiency in a variety of physical exams. Some physical exams have multiple components or require special maneuvers. The performance of physical exams by ED providers may improve with the use of just-in-time training (JITT). JITT is a teaching method that provides brief, targeted educational material on a specific topic just prior to completing a task. JITT can minimize preparation time, allow the learner to visualize a task just before performing it, and has been rated positively by learners.[1,2] JITT in the form of brief instructional videos has been shown to reduce preparation time and increase success for simple procedures including splint application, intraosseous needle placement, and defibrillator use, compared to using traditional textbook reading material.[3,4]

A common practice in the ED is for all levels of providers to search the Internet for just-in-time educational materials in the form of videos for a quick refresher on the proper performance of complex physical exams. However, these videos are often too lengthy to be of utility. A Google search of "shoulder physical exam" videos yields results ranging from 5 to 22 minutes in length. While videos of this length may be useful for education off-shift, they are not practical on-shift with multiple patients waiting to be seen.

Additionally, the quality and applicability of online resources is highly variable. One group performed a systematic search of YouTube for videos on ophthalmoscopy, and found that of 7,640 results, only 27 (0.4%) were deemed satisfactory for educational purposes.[5]

To the best of our knowledge, JITT for physical exams has not been studied. A brief video of the essential components of a physical exam may act as a just-in-time refresher and may increase the provider's accuracy, validity and comprehensiveness of multi-pronged physical exams as well as make for more thorough exam documentation. Having JITT videos available to ED providers, rather than having them conduct an Internet search themselves, will also save time and assure use of high-quality educational resources.

ED providers of all levels may benefit from access to a compendium of peer-reviewed, highly structured, brief (less than two minute) videos that present a just-in-time refresher on the essential components of performing and documenting physical exams. Our purpose is to create brief physical exam videos for the purposes of just-in-time education and training, with the goal of improving exam performance and documentation that requires minimal preparation time.

METHODS :

Physical exam videos will be filmed in the Mount Sinai Simulation Teaching and Research (STAR) Center. The videos will feature a board-certified emergency physician demonstrating the exam on a volunteer with explanatory audio and text (Figures 1,2,3). Topics will be chiefly orthopedic, neurologic, ophthalmologic, trauma, and others that have multiple components or complex maneuvers.

All videos will be two minutes or less. The emphasis will be on brevity, with the fundamentals of an exam performed within a short time span. The videos are not meant as a form of primary education; the provider is expected to have a level of baseline knowledge and familiarity with the exam, but may not have done it completely or frequently in the recent past.

All videos will undergo peer review by senior emergency physicians with expertise in the area. There will be an explicit checklist for completeness, relevance and critical points. Once completed, depending on the platform used, the videos will be easily accessible through a website or hyperlink in the electronic health record system as a reference to the on-shift provider.

The efficacy of the videos on exam performance and documentation will be evaluated through self-assessment surveys sent to all levels of ED providers, through attending physician evaluations of residents and advanced practice providers, and in encounters with standardized patients. A prospective, randomized-controlled pilot study is currently underway to evaluate the efficacy of a brief just-in-time video on the performance and documentation of a physical exam on a standardized patient compared to more traditional learning methods.

Figure 1. Videos will feature a board-certified emergency physician. All videos will be two minutes or less.

RESULTS:

Just-in-time training in the form of brief educational videos of the physical exam that are of short duration, high quality, and peer-reviewed will be a useful refresher for providers of all levels working on-shift in a busy emergency department. With regular application of the videos, ED providers should perform more comprehensive physical exams, carry out exam maneuvers properly, and produce more thorough and accurate documentation, without compromising preparation time.

By watching the videos and then performing the exams themselves, providers will also derive an educational benefit by use of a just-in-time resource. Brief physical exam videos may also be a useful resource for clinicians working in a busy primary care or general internal medicine setting.

Figure 2. Videos will demonstrate the exam performed on a volunteer and will include explanatory audio and text.

Figure 3. Viewers are expected to have a baseline level of knowledge and familiarity with the exam. The videos will act as a just-in-time refresher for use on-shift.

CONCLUSION:

Brief, just-in-time physical exam videos may serve as an innovative educational resource for providers of all levels working on-shift in the emergency department.

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The Creation of Intergenerational Legacy Projects Via Virtual Platform as a Tool to Debunk Ageist Attitudes Among Pre-Clinical Medical Students

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BACKGROUND

- Medical students and their future patients will benefit from positive attitudes about older adults.
- The co-creation of a legacy project requires active listening and collaboration and therefore is an ideal setting for the development of a meaningful, intergenerational relationship.
- Understanding the effect of virtual settings on intergenerational relationship building is of particular importance during the COVID-19 era.

What is a legacy project?	A legacy project materializes poignant moments in a person's life

OBJECTIVE

- We investigated the feasibility of a structured, online intervention to deconstruct ageist attitudes among pre-clinical medical students .

METHODS

- This study used an interventional pre-post design. There were two components of the program
- **Component 1:** Pre-clinical medical students from the Icahn School of Medicine at Mount Sinai attended three didactic sessions about ageism and intergenerational programs and were provided with legacy project examples.
- **Component 2:** Students were randomly paired with an older adult recruited from the Mount Sinai Hospital Department of Geriatrics. Pairs met six times with optional guidance to create a legacy project together over the course of the meetings. Due to the COVID-19 pandemic, pairs met over Zoom technology.
- **Assessment**: Surveys that addressed ageist beliefs were administered to pre-clinical medical students and older adult participants both before and after the six meetings. Mid-intervention and post-intervention semi-structured interviews were also administered to participants from both age groups as an opportunity for them to reflect on their experience.

5 Older Adults	**5 Pre-Clinical Medical Students**
Mean Age**: 84.5 years** Racial/Ethnic Background: 40& African American, 40% White, 20% Puerto Rican (Self-Identified)	Mean Age: **24.6 years** 3 2nd Years, 2 1st Years Racial/Ethnic Background: 20% East Asian, 20% Asian, 20% Indian/Asian American 20% Latina, 20% Black.

Table 1: Demographics

POST-INTERVENTION INTERVIEW FINDINGS

Interviews took place over Zoom and averaged 35 minutes for older adult participants and 18 minutes for medical students. Themes are highlighted below.

Shared Themes between Older Adults and Medical Students+A1:A4	Theme 1: Remote environment was not perceived to be an obstacle.	*"We have very good conversations, so I don't think they could be that much better if we were sitting in a restaurant" – Older Adult 1*
		"[If it was in person] I just feel like I probably would not have met with him as much" – Medical Student 5
	Theme 2: A legacy project acted as a catalyst for the relationship building; their completion was not the main focus.	*"I don't feel the need for a legacy. I feel like the people that I've done things for, they know what I've done and that's all that matters...and eventually, everything, everyone is forgotten." – Older Adult 1*
		"The relationship that we have, or like the friendship is kind of like the legacy of the legacy project" – Medical Student 1
Themes of Medical Student Conversations	Theme 3: Medical students discovered previously held ageist attitudes, which were challenged by this intervention.	*"I don't think I'd ever think of two people in the same age group over the age of like 65 the same at all. I would absolutely need more information at that point. I just met someone who is around my Nana's age and they couldn't be more different. You need to just know who they are." – Medical Student 5*
Themes of Older Adults Conversations	Theme 4: Older Adults' personal experiences with the healthcare system were imparted to pre-clinical medical students.	*"And it was about that whole kind of how you're dealt with as a patient, you know, and the whole, you know, the whole kind of class system and the more money you had, the better treatments you have, you know, and how you can be dismissed because of your color and because your pocket. So we talk about that too, because that's part of life and it's been a part of my life" – Older Adult 2*

SURVEY FINDINGS

Figure 1 and Figure 2 both illustrate findings from the pre- and post-interventional survey of medical school participants. Questions evaluated attitudes around working with older adults and personally held ageist beliefs using an accredited 12-Item "Expectations Regarding Aging" questionnaire.

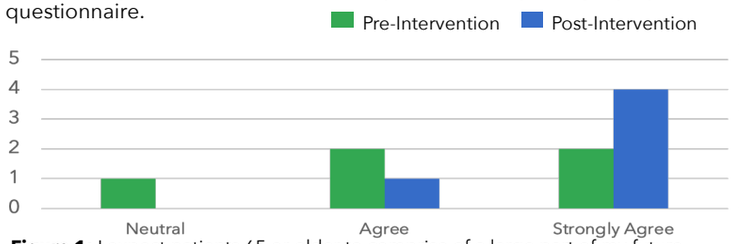

Figure 1: I expect patients 65 or older to comprise of a large part of my future practice.

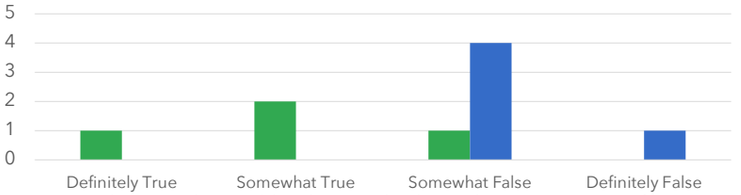

Figure 2: When people get older, they need to lower their expectations of how healthy they can be.

DISCUSSION AND CONCLUSION

- In summary, a combination of survey and interview findings indicate that this structured online intervention was able to debunk ageist attitudes among a small sample of pre-clinical medical students.
- Out of the 5 pairs, 2 completed legacy projects, 2 started but did not complete, and 1 did not attempt.
- The 3 that did not complete emphasized in interviews that the structure facilitated by creating a legacy project added depth and intimacy to the conversations.
- Further research is required to see whether increasing the number of weeks pairs can meet will allow them to complete legacy projects as well as create lasting relationships.
- In the context of a rapidly aging population, preparing medical students to care for older adults as patients and as people should be a priority in medical education. This intervention represents a model that brings us one step closer to bridging the gap in geriatric care.

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Simulation Based Education of Patient Experience to Emergency Medicine Residents

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Icahn School of Medicine at Mount Sinai

Purpose:

Over the last several years, the field of Emergency Medicine (EM) has seen an increasing focus on the importance of patient experience throughout the United States. Health care leaders and hospital systems are devoting more time and resources to both understanding and improving the patient experience. The rising attention to this area of interest has yielded over 107 publications since the year 2011, literature which has shown patient experience to be highly correlated with improved patient outcomes, increased profit, and achievement of hospital quality goals (1-4).

Surveys such as Press Ganey (PG), Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS), and RateMyHospital (RMH) and the data which they provide, are driving forces for modification and improvement practices for both Academic and Community Institutions. Despite the weight which these surveys hold from an administrative standpoint and in measuring physician performance, emergency medicine resident education and understanding of these surveys in teaching hospitals remains quite limited. There have been recent publications which describe classroom-based curriculum for patient experience (5, 6) as well as simulation-based empathy training (7). However, to date no study has utilized in-situ simulation to create a validated curriculum guided by the principles of patient experience surveys.

In an effort to address this void, this study outlines the implementation of a longitudinal simulation curriculum to teach patient experience driven patient-physician interactions amongst EM residents at our teaching institution. This curriculum was based on an objective checklist which incorporates the previously validated patient experience surveys (PG, HCAHPS, RMH). In order to analyze the patient experience, our Emergency Department administration leadership and the Simulation Division worked to create a curriculum for our residents that focuses on the patient-provider interaction.

METHODS :

In order to analyze the patient experience, our Emergency Department administration leadership and the Simulation Division worked to create a curriculum for our residents that focuses on the patient-provider interaction. Six content experts, familiar with patient experience/satisfaction, simulation, and debriefing, worked together to create two types of patient presentations commonly seen in the emergency department. Residents were prebriefed prior to each case. Subsequently, a resident participated in a simulated patient interaction while several residents observed the interaction. Our content experts used a checklist during the scenario to review which objectives were covered. Content experts then debriefed all participants with an emphasis on the pre-determined criteria for an effective and meaningful patient experience. These simulated encounters portray patients that may be considered "difficult," whether due to personality differences, language barriers, and/or concerned family members. We will evaluate future Press Ganey and Rate My Hospital responses to see if patients see and/or appreciate any change in interactions with emergency department staff.

Simulation Checklist :

Establish Physician-patient relationship.

- Introduces self
- Identifies patient(name, ID band)
- Establishes privacy

Elicits reasons for visit / concerns.

Elicits patient expectations for visit.

Expresses empathy / understanding.

- Addresses psychological and physical complaints

Recaps / summarizes.

Inquires about further needs.

- Asks if there are additional questions (Ex. Is there anything else I can do for you.)

Manages expectations / intervention.

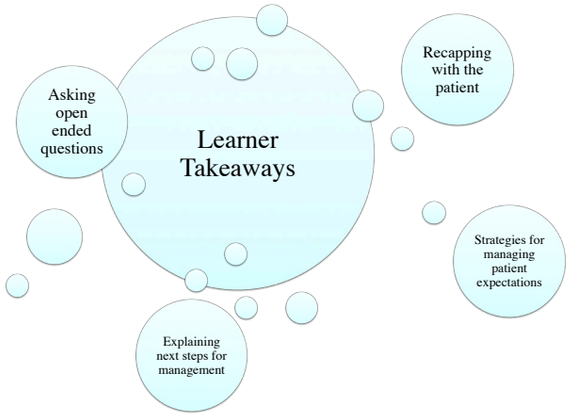
- Addresses pain

Closes the loop

- Explains testing, treatment medications
- Explains next steps after disposition.

RESULTS:

General sentiment was positive with regard to the curriculum. Residents felt that the experience would improve their patient interactions. There were several common learning points among residents that recurred during the debrief. These included asking the patient open ended questions, recaping with the patient, strategies for managing patient expectations, and explaining next steps for management to the patient.



CONCLUSIONS:

Simulation and debriefing focused on the patient experience is an immersive way to engage residents. Residents believe this curriculum will enhance their future interactions with patients. Although there are numerous variables in the Emergency Department contributing to patient interaction, we believe that optimizing frontline provider interactions will lead to increased satisfaction from both patients and physicians.

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Scrubbing SOAP: Rethinking Resident Presentations in the Outpatient Setting

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ABSTRACT:

Introduction: Traditional "SOAP" formats are not always optimal in the outpatient setting. We sought to assess if the "Problem-Based Check Out" (PBCO) was effective in an outpatient residency clinic.

Method: Pre-survey was sent to assess attitudes of outpatient check-out process. The PBCO was then explained and piloted among first and second-year residents in a primary care setting. Feedback was obtained via survey.

Result: Most residents do not have a standard way of presenting in the outpatient setting. The majority involved in the PBCO pilot had a very favorable reaction. The residents found PBCO to be effective with particular advantages in increasing efficiency and streamlining thought-processes.

Conclusion: Preliminary data is compelling that PBCO may be as or more effective in the outpatient teaching setting than traditional styles of presentation.

INTRODUCTION:

Medical students traditionally learn to present in a temporally linear style.

In the commonly used SOAP format, one presents the history followed by review of systems, exam, assessment, and plan.

While this format lends itself well to emergency or inpatient settings, its relevance to outpatient is less clear. Outpatients often have multiple complaints, asymptomatic chronic problems, care coordination needs, and preventive health care to address. Adapting oral presentations to synthesize and transmit salient details can result in significant cognitive burden on both preceptors and residents.

With this in mind, we sought to pilot utilization of "Problem-Based Check Out" (PBCO) created by the University of Alabama and assess its efficacy in our residency program.

METHODS :

Internal medicine residents in the Mount Sinai West-Morningside program who are based the William F. Ryan Community Health Center for their primary care practice were sent a pre-intervention survey to assess attitudes towards the checking-out process in clinic. This survey was sent to all residents in all three years of training. Residents in their first year (PGY-1) and second year (PGY-2) were taught the format of PBCO and asked to apply it when presenting to an attending.

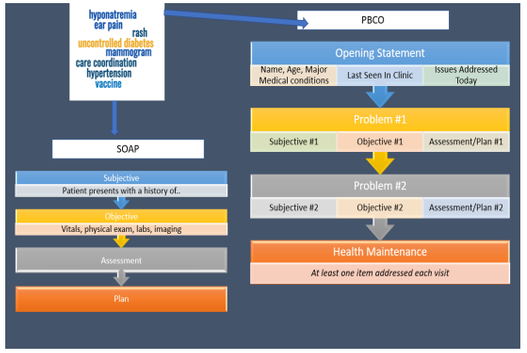

Figure 1. Schematic of the difference between the traditional "SOAP" format and PBCO

Concept

The concept of PBCO is to frame a presentation with an opening statement that includes the patient's major medical problems and timing of previous visit, then state problems addressed. This may include, for example, the chief complaint, an abnormality noted of physical exam, or a chronic condition. Each issue is then reviewed in order of importance. After each, the presenter pauses to allow the attending to provide feedback and instruction. The learner is encouraged to address at least one preventive care item in each visit.

Feedback

The intervention was assessed after two complete cycles of outpatient rotations. PGY-1's and PGY-2s were sent a voluntary, anonymous survey.

RESULTS:

Pre-Survey

A total of 56 residents completed the pre-intervention survey (25% PGY-1, 48.2% PGY-2, 26.8% PGY-3). Of these, 25% lacked a standard way of presenting in outpatient clinics. The most common factor was perceived preceptor preference (70.3%), followed by type of visits (48.6%), and time constraints (40.5%).

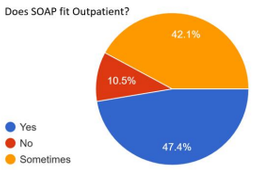

Figure 2: The following questions were asked in patient surveys: Do inpatient frameworks for presentations translate well to outpatient settings?

Post-Survey

The feedback survey was completed by 50% of residents, n=16.

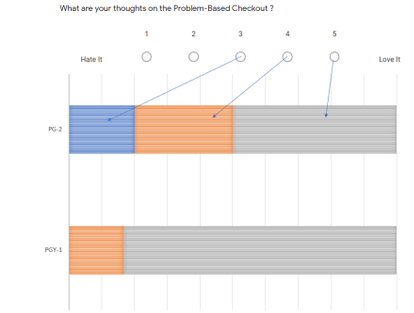

Figure 3. Likert scale assessing resident attitudes towards PBCO, stratified by training year

The majority of residents (87.5%) had positive reaction to the intervention, the rest were neutral. No survey participant felt that SOAP was more effective than PBCO in the outpatient setting, and most felt that PBCO was more effective (68.7%). Overall, 75% felt that using the PBCO as the standard way of presenting would be helpful.

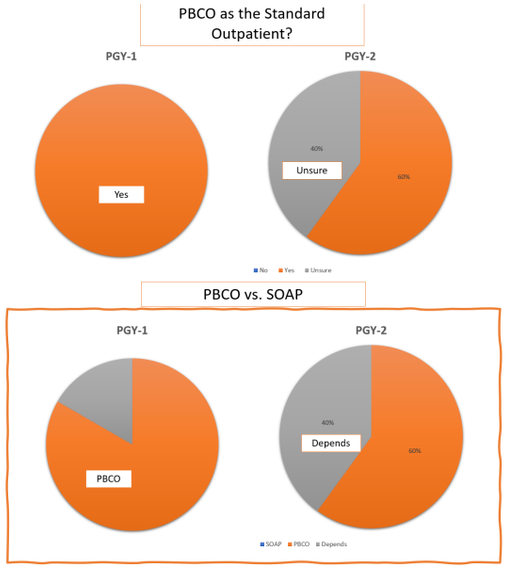

Figure 4 Taken from the following two survey questions: 1) Would using the Problem-Based checkout as the standard way of presenting in WFR be helpful? 2) In considering a SOAP note versus the Problem-Based Checkout, which one is more effective in the outpatient setting?

Nearly all residents (93.7%) agreed that this format improved/streamlined their thought process and organization. Many (75%) felt it improved efficiency and dynamic with preceptors (62.5%). Fewer (50%) agreed that PBCO decreased cognitive load or improved ability to agenda-set with patients.

CONCLUSIONS:

1. Although residents are often tethered to the SOAP format, this study offers compelling preliminary data that PBCO may be an effective method of presenting in outpatient settings.
2. Study limited by sample size.
3. Next steps include a) surveying attendings for their feedback as teachers 2) creating a formal randomization study.

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Cultural Humility in Medical Practice: A Learning Session for Trainees Across Specialties

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BACKGROUND:

In August 2018, the Icahn School of Medicine at Mount Sinai (ISMMS) Office of Graduate Medical Education (GME) joined the ACGME Clinical Learning Environment Review (CLER) Health Care Disparities collaborative. The goal of this national collaborative was to provide education and tools to develop institutional strategies to address health care disparities (HCD) involving learners and faculty in system-based solutions and through quality improvement. The focus of the ISMSS GME team was on disparities related to the intersection of race/ethnicity and sexual orientation/gender identity. As part of ISMMS GME collaborative team, we adapted an educational session on implicit bias to include topics of cultural humility, structural competency, and structural racism as well as bias mitigation techniques with cases and examples of disparities by race, ethnicity, sexual orientation and gender identity.

PURPOSE:

The purpose of this work is to evaluate a cultural humility, implicit bias, structural competency, and health equity educational session for trainees. Our aim was to increase knowledge of these topics, improve understanding and assess implementation of bias mitigation techniques through survey design.

METHODS:

The educational session is a two-hour interactive session that has been given in person or virtually via Zoom. The session was piloted over 4 sessions prior to August 2020. Between August 2020 and December 2020, there have been **6 sessions** that reached **71 trainees**. Attendees were trainees in MSWM (Mount Sinai West/Morningside) Internal Medicine, and MSH (Mount Sinai Hospital) Pediatrics. The session was assessed pre- and post-session with a 10-question survey using a 5-point Likert scale to evaluate for understanding of concepts and ability to implement bias mitigation techniques.

RESULTS:

Total number of trainees who participated in training N=71		
Pre-training survey response		69 (97%)
Post-training survey responses		39 (55%)
By Residency	Mount Sinai Morningside/West Internal Medicine	46
	Mount Sinai Hospital Pediatrics	25

Table 1. Baseline characteristics of those who participated in the training

RESULTS :

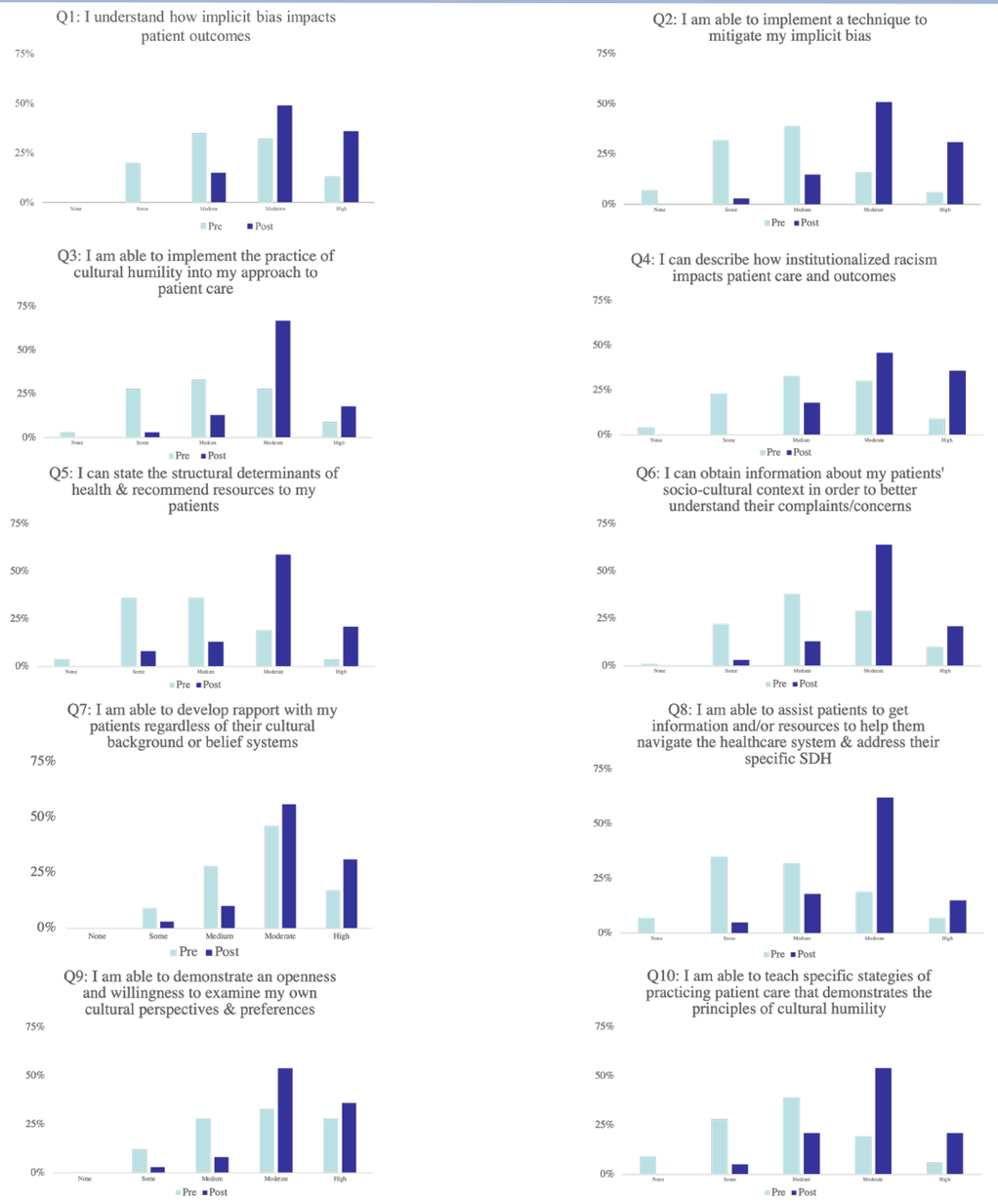

Figure 1. Survey question results pre and post training

CONCLUSIONS:

1. Our educational session provided cross-specialty education on topics of cultural humility, structural humility, institutional racism, and health equity and an introduction to mitigation techniques. A first important step is for trainees to recognize and mitigate the impact of their own implicit biases as well as employ the principles of cultural humility and structural competency.
2. Prior to our sessions, less than 10% of trainees felt they were most skilled in describing institutional racism and its impact on patient care; following the session, about one-third of trainees felt most skilled in applying their understanding of institutional racism to improve.
3. Additionally, we saw increases in self-rated ability to implement bias mitigation techniques and ability to teach principals of cultural humility following our sessions.

LIMITATIONS:

We evaluated the curriculum based on self-reported data. The workshop allowed residents to retrospectively reflect on whether implicit bias impacted their patient care, and to increase their knowledge of such principles. However, in order to demonstrate whether the workshop was effective, a debriefing session at some point after the workshop would be useful for trainees to share patient encounter experiences where they reflect on how they recognized their implicit bias in the moment and utilized the PAUSE method that was taught to them. Moreover, the purpose of such training is to mitigate healthcare disparities, and we did not evaluate pre and post patient outcomes.

FUTURE DIRECTIONS:

These sessions have continued into 2021 and will reach additional residency programs throughout the health system. We hope to expand our session assessment by investigating post-session practice changes and incorporate patient feedback through HCAHPS data and patient advisory boards as well as patient outcomes.

ACKNOWLEDGEMENTS:

- The Office of Graduate Medical Education at the ISMMS
- The Office of Diversity and Inclusion
- Team members from the ISMMS ACGME health care disparities collaborative

Effective scientific communication- Needs assessment survey

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Icahn School of Medicine at Mount Sinai

ABSTRACT:

Introduction: Effective scientific communication is as important as conducting good research. Good scientific writing entails an important skill set that needs to be nurtured and developed, but an appropriate curriculum for the same is lacking in medical school and residency training. While there are a few online resources to this end, none is tailored to the specific needs of a medical professional in training. As we implement a formal curriculum in scientific writing for our Internal Medicine (IM) Residency Program, we conducted this needs assessment survey.

Methodology: A questionnaire-based needs assessment survey was administered across all residents in our IM residency program. Google forms with QR code and hyperlink-based access was utilized to ensure high response rate. Questions were broadly divided into demographics (limited to year of training), previous research experience, comfort with manuscript preparation and any suggestions (free text). No identifying data was collected.

Results: A total of 50 responses were received, with 56% coming from 1st year residents. Only 4 had previous formal training in conducting research (MPH or PhD). 80% wanted to pursue sub-specialty fellowship and close to 60% were involved in research either at the program or previously. Only 8% have ever taken a course in scientific writing and half of the respondents are not aware of the use of reference managers in manuscript preparation. There was a heterogenous response to the best learning approach regarding the delivery of the course.

Conclusion: The survey responses solidified our work to improve the knowledge gap and develop a curriculum delivery method adapted to the heterogenous learning preferences of the residents in the program.

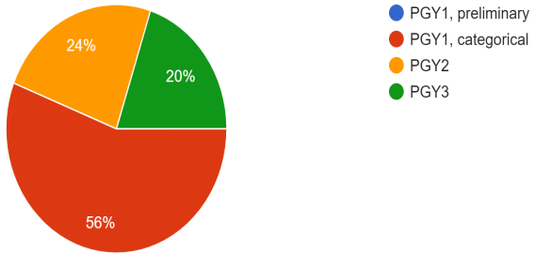


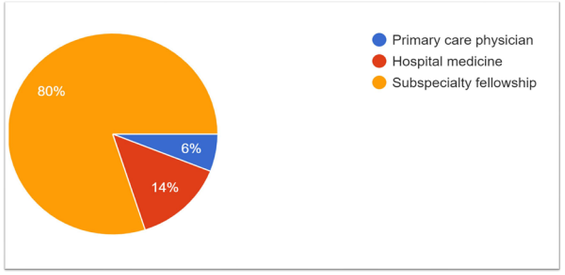
Figure 1: Responses obtained distributed by year of training (n= 50)

INTRODUCTION:

- Effective scientific communication is critical for research dissemination
- A questionnaire-based needs assessment survey was administered across all residents in our IM residency program.

METHODS:

- Questionnaire- based needs assessment survey to all residents in the Internal Medicine program
- Survey was disseminated using Google forms with QR code and hyperlink used to ensure high response rate
- NO identifying data collected
- 15 questions with majority multiple choice with option for free text
- Domains explored
  - Demographics (limited to year of training)
  - Previous research experience or training
  - Comfort with manuscript preparation
  - Career plans post residency
  - Use of social media for research promotion



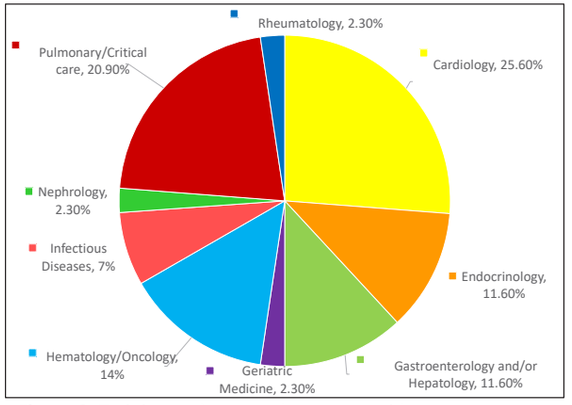


Figure 2: Training and career plans post residency

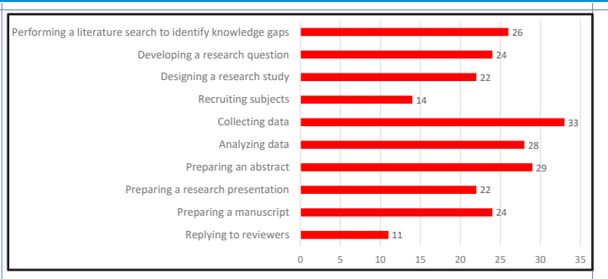


Figure 3: Research activities prior to residency training

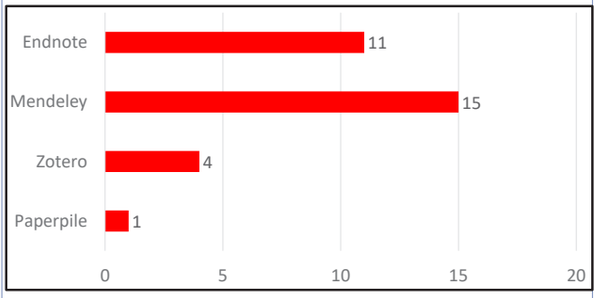


Figure 4: Reference manager utilization amongst residents

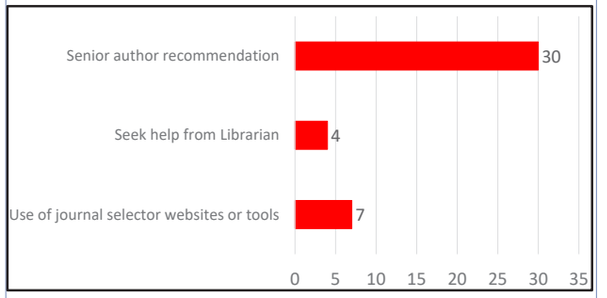


Figure 5: Journal selection process

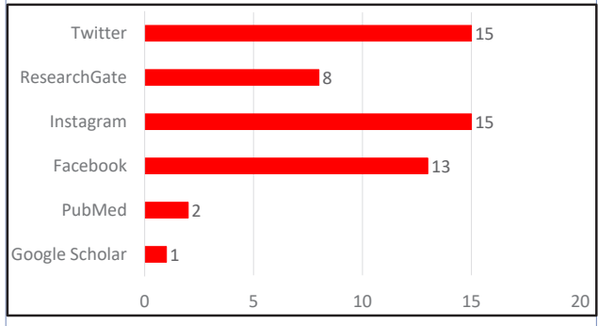


Figure 6: Social media use for research promotion

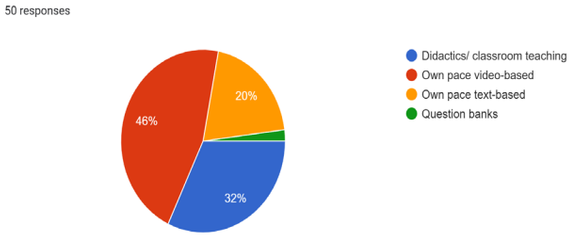


Figure 7: Preferred learning approach

Figure 8: Free text responses obtained during survey

RESULTS:

- 50 responses were received (Figure 1)
- Majority wanted to pursue sub-specialty training post residency (Figure 2) with 62 % involved in research work prior to starting residency (Figure 3)
- Majority of the respondents were somewhat (44%) or not at all (48%) comfortable with statistical methods
- Half of the respondents used some form of reference manager for manuscript preparation
- There was a heterogenous response to how residents select journal for publication (Figure 5)
- Around 40% of respondents used social media for promoting their research or learning about other's research (Figure 6)
- Residents had different preferred learning approaches (Figure7)

CONCLUSIONS:

- Great interest in residency program for a formal curriculum
- Address the knowledge gap by developing a curriculum
- Variable curriculum delivery method based on learner preferences

Improving Documentation of Pediatric Overweight and Obesity by Resident Physicians

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INTRODUCTION:

- Pediatric overweight and obesity have increased in prevalence over the last few decades.
- Despite expert guidelines that provide recommendations on pediatric overweight and obesity screening, prevention, and management, these disorders are underdiagnosed, and providers often deviate from expert guidelines.
- The appropriate education of resident physicians, who serve as front-line providers for many patients and play an important role in caring for them, is critical.

OBJECTIVE:

To evaluate the effectiveness of resident-focused educational interventions on the screening and management of pediatric overweight and obesity by resident physicians.

METHODS:

- Design: two months pre- and two months post-intervention chart reviews of preventive visits conducted by residents at an academic continuity practice.
- Charts of patients 2-18 years old with BMI ≥85th percentile for age and sex at the visit were reviewed (overweight defined as BMI 85th to <95th percentile; obesity defined as BMI ≥95th percentile).
- Interventions included:
  - Lecture on overweight/obesity definitions, screening and management recommendations
  - Information card outlining screening and management algorithms attached to computers in the clinic workroom
  - Best Practice Advisory alert in the electronic medical record
  - Handout outlining healthy lifestyle tips
- Data analysis: descriptive data were calculated; comparisons were performed using $\chi 2$ or Fisher's exact test. All *P*-values were two-tailed, with $P<0.05$ considered statistically significant.

RESULTS:

- Of 1490 total charts reviewed, the number of patients with either overweight or obesity was 667 (44.8%).
- There was no significant difference in baseline characteristics between the pre- and post-intervention groups (Table 1).
- After implementation of interventions, documentation of diet, physical activity, and family history significantly increased ($p<0.05$); however counseling on diet, physical activity and portion size did not (Figure 1).
- Correct overweight diagnosis by residents increased from 25.7% to 56.4% ($p<0.0001$). Similarly, correct obesity diagnosis increased from 60.8% to 84.5% ($p<0.0001$) (Figure 2).
- Compared to patients with overweight, patients with obesity overall were more likely to receive screening labs and counseling on diet, physical activity, and portion size (all $p<0.05$).

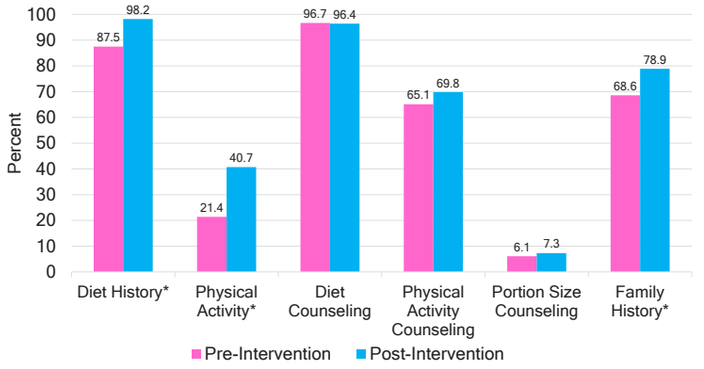

Figure 1. Percentage of charts with documentation of outcome of interest, pre- versus post-intervention.
* Indicates significant difference ($p<0.05$) between pre- and post-intervention.

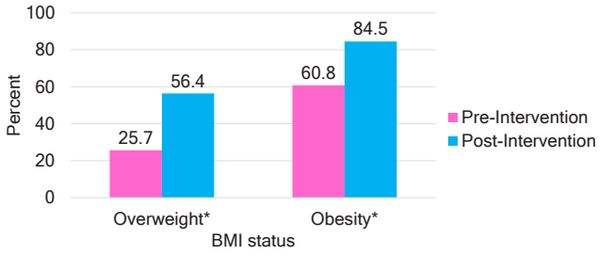

Figure 2. Pre- and post-intervention correct diagnosis rates for patients with overweight and obesity.
* Indicates significant difference ($p<0.0001$) between pre- and post-intervention.

RESULTS:

Table 1. Baseline demographics and clinical characteristics, pre- and post-intervention.

	All Patients (n=667)	Pre-Intervention (n=392)	Post-Intervention (n=275)	*P*-value
	Mean ± SD or N (%)	Mean ± SD or N (%)	Mean ± SD or N (%)	
Age	9.0 ± 4.4	8.7 ± 4.3	9.4 ± 4.5	0.057
Age Group				0.057
Age 2 - 5	196 (29.4)	125 (31.9)	71 (25.8)	
Age 6 - 11	254 (38.1)	153 (39.0)	101 (36.7)	
Age 12 - 18	217 (32.5)	114 (29.1)	103 (37.5)	
Sex				0.389
Male	377 (56.5)	227 (57.9)	150 (54.5)	
Female	290 (43.5)	165 (42.1)	125 (45.5)	
BMI Status				0.226
Obesity (≥95th percentile)	421 (63.1)	240 (61.2)	181 (65.8)	
Overweight (85th to <95th percentile)	246 (36.9)	152 (38.8)	94 (34.2)	
Ethnicity				0.385
Hispanic White/Black	6 (0.9)	4 (1.0)	2 (0.7)	
Non-Hispanic Black	235 (35.2)	148 (37.8)	87 (31.6)	
Non-Hispanic White	19 (2.8)	11 (2.8)	8 (2.9)	
Other	407 (61.0)	229 (58.4)	178 (64.7)	
No. of Patients per Resident Year				0.184
PGY-1	211 (31.6)	125 (31.9)	86 (31.3)	
PGY-2	233 (34.9)	137 (34.9)	96 (34.9)	
PGY-3	199 (29.8)	121 (30.9)	78 (28.4)	
PGY-4 & PGY-5	24 (3.6)	9 (2.3)	15 (5.5)	

CONCLUSIONS:

- Implementation of resident-focused educational interventions improved residents' diagnosis of overweight and obesity but not frequency of counseling.
- Additional efforts are needed to further boost diagnosis rates and improve counseling efforts, and further studies will ascertain whether this then translates into positive behavior changes and improved clinical outcomes.

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A Novel, Video-based, Ophthalmology Skills Curriculum for Incoming Ophthalmology Residents

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New York Eye and Ear Infirmary of Mount Sinai/Department of Ophthalmology, Icahn School of Medicine at Mount Sinai

INTRODUCTION:

"teachers...mulling over proper curriculum for years to no avail, since few institutions could or would meet such exacting measurements. The most workable plan was to outline generally what needed to be covered in a residency program and leave it up to individual institutions and their circumstances how to best cover it."

- *"Pioneering Specialists: A History of the American Academy of Ophthalmology and Otolaryngology."*

- The creation of a structured resident educational curriculum in ophthalmology has yet to be widely implemented.
- The lack of a structure described as a challenge in the 1930s has now allowed for countless innovations within resident education in ophthalmology.
  - *Virtual reality simulators*
  - *Flipped classrooms*
  - *Competency rubrics*
- However, there remains a gap in the current literature on basic skills acquisition and objective assessment of skills retention for ophthalmology residents.
- A new video-based orientation curriculum was created and implemented during this two-week orientation period for incoming ophthalmology residents to objectively teach and measure ophthalmic examination skills acquisition and retention.

METHODS :

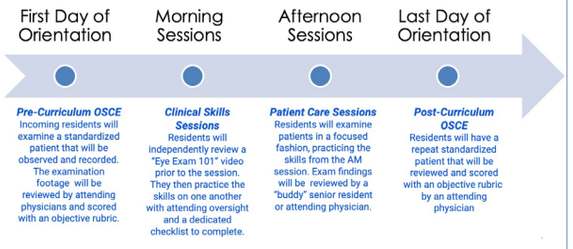

Figure 1. Basic overview of new, proposed curriculum

Orientation Schedule Optimization:

First, analysis of conventional orientation schedules broke down the two-week schedule into categorical schedules- Clinical Skills Sessions, Didactic Sessions, Administrative Sessions, Patient Care Sessions. Necessary improvements to the pre-existing curriculum structure included increased slit lamp exposure, high-yield, introductory didactics only, streamlined/minimal administrative sessions and structured practice-oriented patient care sessions.

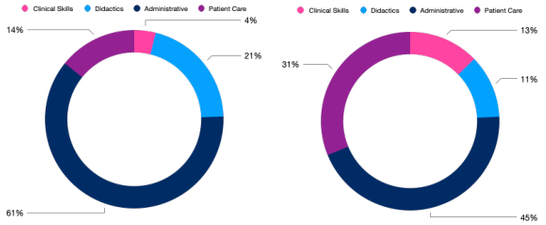

Figure 2: Breakdown of old orientation sessions (left) with an average 8.5 hours a day compared to breakdown of new orientation schedule (right) with an average of 7.5 hours a day

Video Library Creation:

A slit lamp recording set-up was used using a slit lamp phone adapter (Digital Eye Center, Miami, Florida, USA) and an Apple iPhone 8+ (Apple, Cupertino, CA, USA). This set up enabled high-quality recording of slit lamp findings and slit lamp exam techniques. Using this recording set up, exam videos were recorded and edited into instructional, five-minute videos, each focusing on a different part of the ophthalmic exam- ergonomics, slit lamp overview, anterior segment exam, applanation tonometry, and posterior segment exam. These videos were uploaded into an online educational database (Blackboard, Reston, Virginia, USA) that all residents had online access to and were able to review as instructed after the initial pre-curriculum OCEX exam.

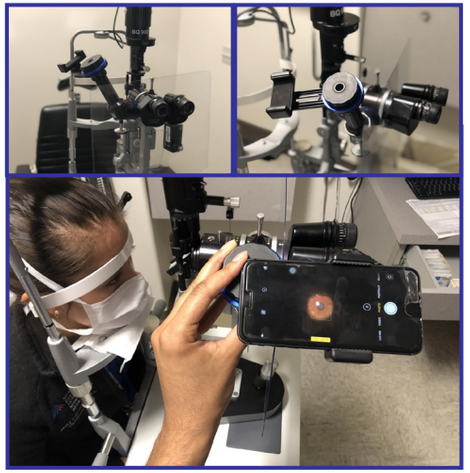

Figure 3: Compilation of slit-lamp/smartphone set-up (top-right, top-left) with example of anterior segment video capture from iPhone 8+

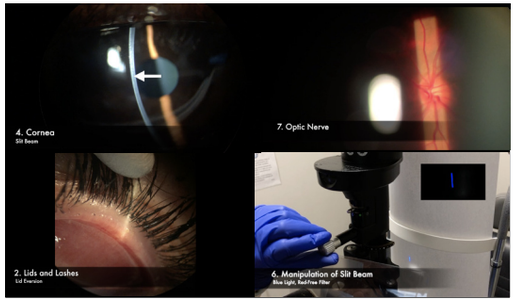

Figure 4: Compilation of screenshots from video library of ophthalmic exam skills

Pre-Curriculum Modified OCEX

On the first day of orientation, without any prior guidance or instruction, incoming residents were recorded completing an entire ophthalmic exam on standardized patients consisting of co-residents and attendings.. The recorded videos were then graded using a 36-point grading rubric based off of the validated Ophthalmic Clinical Evaluation Exercise (OCEX). An average score was generated between three independent evaluators.

ANTERIOR SEGMENT EXAM		
Examines superior and inferior lids	☐	1 point
Everts superior lid	☐	1 point
Examines conjunctiva (1 point for each quadrant)	☐	_/4 points
Demonstrates technique for checking for anterior cell and flare (brightest light, dark room, 1x1 beam; 1 point for each)	☐	_/3 points
Instills fluorescein dye into eye	☐	1 point
Examines cornea (general evaluation, blue light, slit beam with high mag for corneal layers; 1 point for each)	☐	_/3 points
Able to focus on iris	☐	1 point

Figure 5: Example of modified OCEX grading criteria

Flipped Classroom Sessions

After the initial OCEX, the residents then underwent a two-week curriculum where they were given access to the instructional video library. Each day was planned as a "flipped-classroom" model; the residents would be assigned a video to review independently at home and then undergo a morning practice session of the highlighted exam skill on one another with attending oversight and a dedicated checklist to complete for the session. The afternoon was then dedicated to practice of that same skill on patients with senior residents and attending oversight.

DATE		SKILL
7/1/2020	*AM SESSION*	
	☐	Ergonomics: adjust chair, slit lamp height, patient chair, patient face
	☐	Slit Lamp #1: turn on, adjust light beam, keeping patient in focus
	☐	Motility
	PM SESSION	
	☐	Navigate Meditech: look up patients, putting in orders

Figure 6: Example of practice clinical session checklist

Post-Curriculum Evaluations

On the last day of orientation, residents were recorded once again completing an entire ophthalmic exam on standardized patients. The recorded videos were then graded using a 36-point grading rubric based off of the validated Ophthalmic Clinical Evaluation Exercise. An average score was generated between three independent evaluators and analyzed compared to their pre-curriculum performance with students T-test. Residents also completed pre- and post- curriculum surveys assessing their comfort and confidence with the ophthalmic skills exam. Their scores were graded on a five-point Likert scale and analyzed, comparing pre-and post curriculum scores with students T-test.

RESULTS:

7 residents were recruited:

OSCE

- Average pre-curriculum scores: 16.5 +/- 5.80
- Average post-curriculum scores: 30.9 +/- 2.70

p-value (Paired T-test): 0.0002

Resident Surveys

- Average pre-curriculum survey score: 2.41 +/- 0.62
- Average post-curriculum survey score: 4.19 +/- 0.46

p-value (Paired T-test: < 0.0001

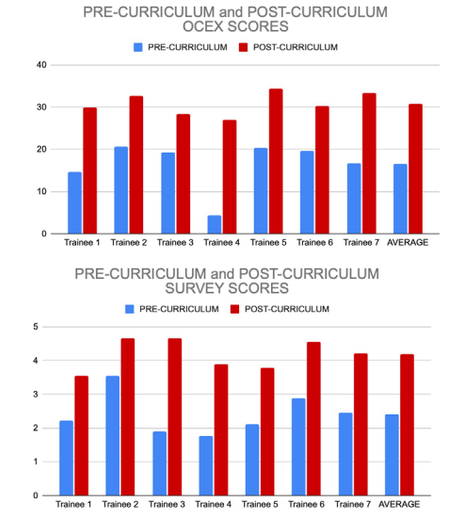

Figure 8: Graphical display of all trainees pre-and post OCEX (above) and surveys (below)

CONCLUSIONS:

- This novel curriculum incorporating a flipped classroom, novel video series, proctored clinical skills sessions, and structured patient care sessions was effective in rapidly increasing incoming ophthalmology resident comfort and skills with BOE
- Continued implementation of the orientation curriculum will allow for more data to be collected to further corroborate the promising results of this pilot program
- In a field as visually orientated as ophthalmology, video-based instruction should be more widely implemented in the training of residents.

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NeuroSim: Neurology Curriculum Through Web-Based Interactive Learning

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PURPOSE:

- While medical school curricula have shifted toward interactive problem-based learning, residency training frequently relies on lecture-based didactics and bedside learning.
- We sought to supplement and reinforce neurology training by increasing trainee exposure to atypical disease presentations, contemporary diagnostic tools, and challenging management decisions.
- We also wanted to solicit learner input on the best tools for interactive learning and effectiveness of a new learning platform.

WEBSITE:

- We created *NeuroSim* (www.neurosimg.org), an interactive website with case-based learning and multiple-choice questions to supplement resident training curriculum.
- Adapted from NephSim, *NeuroSim* is the third in the Sim Series, a collection of medical teaching websites.
- We use WordPress, self-hosting online software, funded and maintained by the Department of Neurology Residency Program at the Icahn School of Medicine at Mount Sinai.
- On December 9th, 2020, NeuroSim.org publicly released 8 interactive cases, each involving 5 – 10 imbedded multiple-choice questions.
- Since launch, 1-2 new cases have been added every month and we average ~96 visitors per month
- Current cases cover topics including Stoke Codes, Status Epilepticus, Vertigo, Increased Intracranial Pressure, Multiple Sclerosis, and Headache

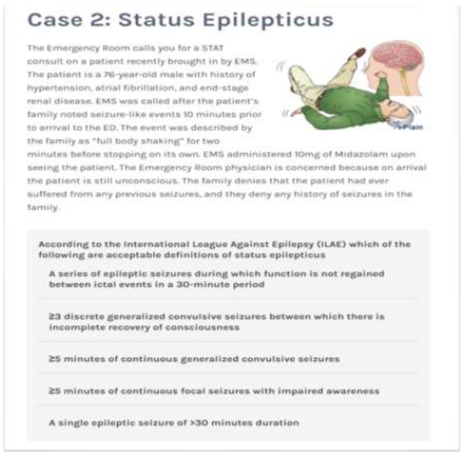
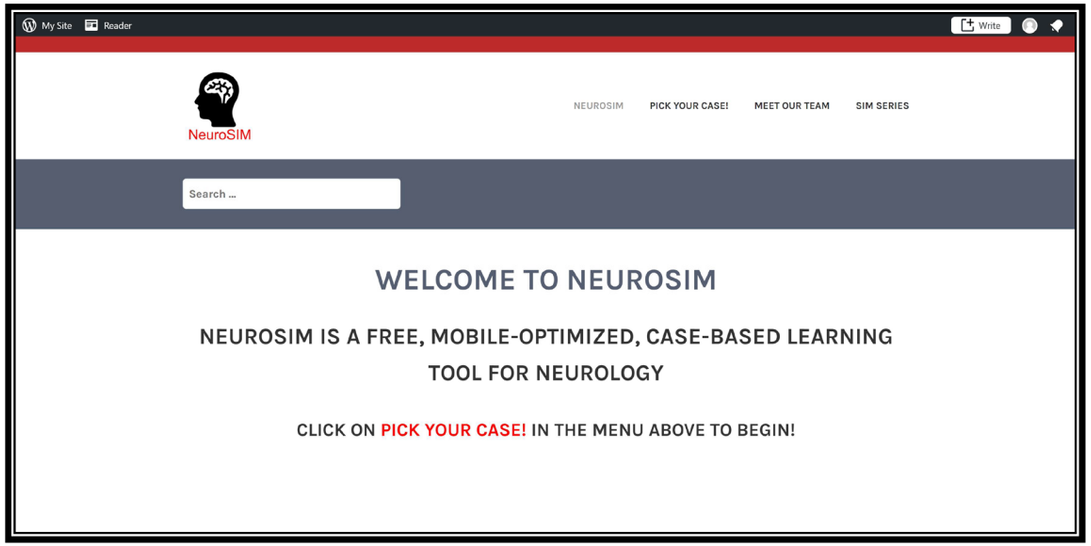
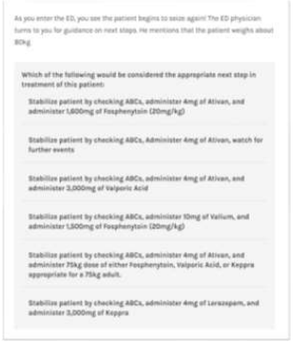
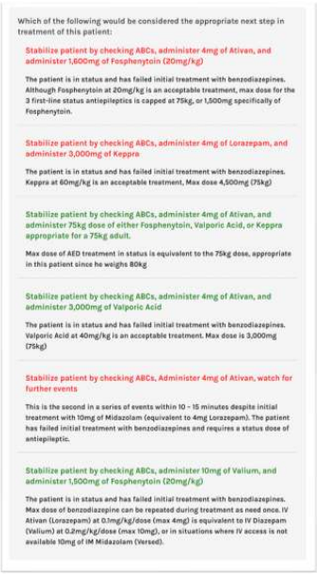


Figure 1. Each case begins with a patient presentation that individuals follow through a set of interactive diagnostic definitions, management questions, teaching pearls, and outcome analysis







Figures 2&3. Feedback is immediate. Correct answer choices light up green, and each answer choice provides an explanation. Several questions have multiple correct answers.

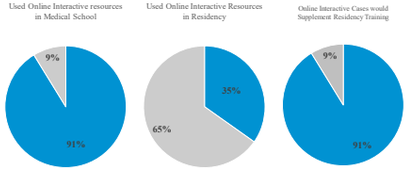
Figures 4. Cases and questions are additionally embedded with treatment guidelines, epidemiologic statistics, and/or clinical trial references. Links to primary sources and cited information for further reading is only a click away!

METHODS:

- Needs assessment surveys of PGY2 to PGY4 neurology residents were conducted to evaluate subjective gaps in training and use of online learning materials during medical school and residency.
- Cases are based on topics outlined in the American Academy of Neurology Resident Core Curriculum.
- Cases are created by senior PGY-4 residents, supervised and edited by chief resident of education as well as neurology faculty.

EDUCATIONAL NEEDS

- 79% (n=23) of residents responded to the baseline needs assessment.
- 91% described using online interactive resources during medical school and 83% rated online interactive resources in the top 3 of resources utilized in medical school
- 35% described using online interactive resources during residency, however 91% felt online interactive cases and questions would beneficially supplement their resident training
- 78% felt that developing new cases or questions would help them master a specific topic.



CASE FEEDBACK

- 8 visitors have completed post-case surveys, including medical students, neurology residents, and non-neurology providers
- Feedback has been very positive. All 8 visitors "strongly agree" that cases help them understand topics discussed and helped them build on their understanding of neurology.
- One visitor mentioned "I am a pediatrician, and this year ended a master in epilepsy, [learning through] *NeuroSim is better*" and another called *NeuroSim* "a great studying resource."

CONCLUSIONS

- NeuroSim is an innovative online interactive learning platform with potential to supplement the learning of neurology and bridge training gaps among neurology trainees.
- Data collection is ongoing, but early feedback suggests that the platform and curriculum amplifying the learning of complex topics in across learner levels.

Engaging Physician Trainees through Bedside ICU Narratives

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BACKGROUND

- Physicians in the ICU treat complex patients in a stressful environment
- Recent attention has focused on improving patient- and family-centered care but ICUs remain loci for dehumanization
- The marked increase in patient isolation and physician stress due to the covid-19 pandemic dramatically increases the dehumanizing effect
- There are many barriers to providing humanistic care including high workload, non-communicative patients, and physician burnout which can result in empathy erosion and decreased sense of fulfillment
- Narrative medicine interventions have been proposed as models to improve humane medical practice
- We implemented a novel narrative medicine intervention to reinvigorate the physician-patient relationship, improve the practice of humanistic care, increase the sense of meaning derived from work, and bring physician trainees 'Back to the Bedside'

OBJECTIVES

- Institute a narrative medicine practice to better understand critically ill patients on a personal level
- Humanize the ICU patient experience
- Foster a deeper sense of meaning and fulfillment for physician trainees in the ICU
- Assess the impact of sharing patient biographies on the attitudes and experiences of physician trainees in the ICU

METHODS

- We designed a questionnaire and poster (Image 1) to elicit and share patients' biographic and social background information
- Patients in the Mount Sinai Morningside ICU (NY, NY) with anticipated stay greater than 48 hours were enrolled
- Patients or a surrogate provided questionnaire responses and patient photographs, which were shared on daily inter-professional rounds and posted in the patient's room
- To study intervention impact on physicians, residents in the ICU were consented for enrollment

RESULTS

- The study was conducted in a New York City academic hospital during the second surge of covid-19
- Over 8 weeks, 20 patient biographies were completed and shared (Image 2)
- Demographics of the 19 enrolled resident physicians are detailed in Figure 1
- Post-intervention, residents agreed or strongly agreed that they spent more time eliciting personal information, spent additional time at the bedside, developed improved rapport with surrogate(s), felt more enthusiasm for ICU care, and derived increased meaning from work (Figure 2)
- Residents also reported increased sense of responsibility for patient welfare (37%), additional time spent with surrogate (42%), and a compulsion to monitor patient progress beyond routine duties (47%)
- The five thematic categories with representative comments are detailed in Table 1
- The majority of residents indicated that the intervention was fun and worthwhile, with only minimal interruption to ICU rounds

Figure 1: Resident demographics

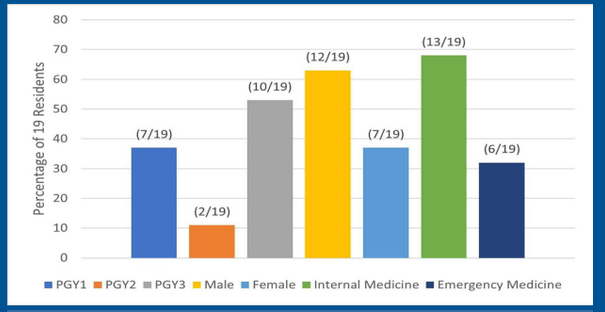

Figure 2: Resident attitudes and experiences
% who agree or strongly agree

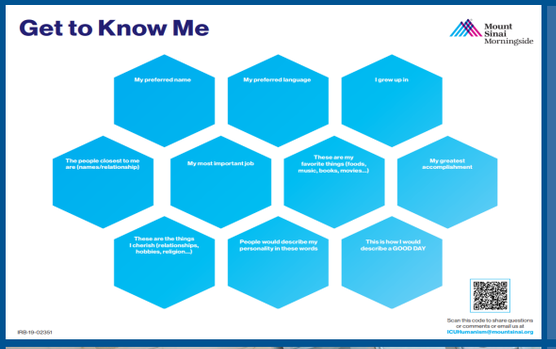

Image 1: Patient biography poster

Image 2: Fellow reading bio on rounds

SIGNIFICANCE

- Sharing patient biographies helps to overcome barriers limiting humanistic care in the ICU
- Residents spent more time with patients, developed easier rapport with surrogates, and derived more meaning from work
- Residents perceived the intervention as humanizing and felt that learning patient biographies may positively impact delivery of care
- Emotional responses were perceived as helpful and challenging, which may mitigate physician burnout, improve ICU moral climate, and enhance fulfillment from work
- Humanizing the ICU likely had a more profound impact given extreme patient isolation and physician stressors due to covid-19

Thematic Category	Table 1: Representative resident physician comments
Patient humanization	It's much better to [know] a patient [as] 'the patient that likes sushi' or 'the patient that's an author' or 'the one with 17 grandchildren' rather than calling them 'room 25' or 'GI bleed'. I have my own interests and accomplishments outside of work...similarly all patients have their interests and accomplishments. We can't define a person based on their diagnosis. We should stress their stories more often.
Communication and relationship building	[If the patient was awake] it gave us a chance to have a laugh or two [with them]...to ask them about some of the stuff we learned about them. It strengthened our resolve and our ability to conduct goals of care...we were giving off to the family that we had respect [for the patient as a person]
Impact on patient care (current and future)	I liked the picture. Seeing them how their family and friends see them. Seeing them happy, in normal clothes in a normal setting. Pushes us to get them back to the person they were in that picture. The neuro exam is more personal. I would try calling them by their preferred name and I would get a response sometimes.
Fulfillment of work	It wasn't just "going to work." It was going to work to care for a person with accomplishments and values and so many interests.
Impact on emotions and burnout	...the humanized aspects should be included [on rounds]. Because we're not robots. I don't know [the] long term effects, but you know dealing with all these...dying patients can burn you out. It maybe [did not lead to a] change in practice but definitely a change in mood. I think that's worthwhile for the team. Knowing more about their life story made it difficult for me when they passed away. I thought about other patients after I left the ICU, information about them was still lingering...I still worried about the patient. I don't know if that's a good or bad thing, but it

A New Student-Lead Digital Drawing Course: An Initiative to Bridge Patient Health Literacy though Medical Illustrations

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ABSTRACT:

Introduction: Health literacy and health inequity have emerged as extremely significant social issues currently facing the medical community. Despite in-depth verbal explanations and language translation services, many patients fail to understand the anatomy related to medical conditions and operations being offered as valuable treatments. We proposed introducing medical students to a digital drawing platform to facilitate the delivery of clear healthcare communication and more equitable care. Our study set out to evaluate how an instructional course on digital drawing would impact the likelihood of medical students to utilize medical illustrations in future patient encounters.

Method:"Draw Your Way Through Medicine" is an elective course in digital medical illustration, offered at the Icahn School of Medicine at Mount Sinai. The nine-week course hosted weekly virtual lectures and workshops during the fall 2020 semester. The first three lectures introduced students to digital drawing concepts through the Procreate iPad application, while the remaining lectures focused on using visual explanations to depict specific pathologies and procedures. Students completed pre-and post-course surveys which utilized a 1 to 5 Likert scale and included both multiple-choice and free-response questions. Statistical analysis was performed using paired t-tests.

Result: A total of 36 students enrolled in the course, 27 of which completed the pre-course survey while 21 completed both pre-and post-course surveys. The pre-course survey cohort was majority female (63%) and contained more students from preclinical years (85%). Enrolled students reported a strong perceived value in drawing as a communication tool (4.57), especially in the clinical context (4.76) prior to the course. Further, both before and after the course, enrollees felt that a digital drawing platform could enhance patient satisfaction (4.62 to 4.71, p=0.59). Students' comfort level with drawing improved from after course completion (3.14 to 3.48, p=0.27), specifically in reference to medical visuals (2.24 to 3.67, p<0.01). Qualitative responses echoed the perceived value and enthusiasm for implementing digital drawing as a clinical communication tool.

Conclusion: The introduction of a digital drawing course showed the considerable value in improving medical students' confidence in generating medical illustrations. Moving forward, the course should be expanded to additional audiences and focus on implementing this platform in actual patient encounters.

INTRODUCTION:

- Studies have shown that the correlation between insufficient health literacy and race acts as a major deterrent for individuals seeking and receiving quality healthcare.[1,2]
- As early as the 14th century, drawings have played an essential role in the development of medicine and surgery.[3]
- Few physicians receive any formal artistic instruction during the course of their medical training. Anecdotally, many also express a lack of confidence in their individual artistic abilities.
- ***Objective***: Determine how a formal instructional course in digital drawing would impact a cohort of medical students.

METHODS :

- For the fall 2020 semester, Draw Your Way Through Medicine was offered as an elective course for medical students. The course consisted of nine, one-hour sessions (**see Table 1**).
- All digital illustration was performed using *Procreate* (Savage Interactive; North Hobart, Tasmania, Australia). All classes were hosted virtually via Zoom (Zoom Video Communications; San Jose, CA, USA) and consisted of slideshow presentations, pre-recorded videos, and live drawing demonstrations.

Student Evaluation

- Students completed a pre-course survey one week before beginning the course and a post-course survey upon course completion.
- Each survey included multiple-choice questions, free response, and a 1 to 5 Likert scale ranging from "strongly agree" to "strongly disagree." The post-module survey included several additional questions aimed to obtain feedback about the course itself.

Analysis

- The mean scores were calculated for Likert-scaled questions for students who completed both surveys, and comparisons were assessed using paired t-tests. Statistical significance was defined as $p < 0.05$.

	Teaching Objective	Teaching Learning Module	Specialty, Disease/Procedure
Week 1	Understand the basics of Procreate/digital drawing	Digital Drawing Follow Along Instruction	--
Week 2	Understand layers, their function, and how to use them.	Digital Drawing Follow Along Instruction	--
Week 3	Use tracing, shading to create a database of organs.	Digital Drawing Follow Along Instruction	--
Week 4	Use drawing to study and create study guides.	Digital Drawing Follow Along Instruction	Medical Education
Week 5	Illustrate a physiological process. Practice telling a story, identify important points and steps.	Physician Guest Lecture and Workshop	Pediatric Nephrology, Hydronephrosis
Week 6	Illustrate a surgery. Practice telling a story, identify important points and steps.	Physician Guest Lecture and Workshop	General Surgery, Laparoscopic Cholecystectomy
Week 7	Illustrate a physiological process. Practice telling a story, identify important points and steps.	Physician Guest Lecture and Workshop	Emergency Medicine and Radiology, Ectopic Pregnancy
Week 8	Illustrate a surgery. Practice telling a story, identify important points and steps.	Physician Guest Lecture and Workshop	Pediatric Surgery, Inguinal Hernia Obstetrics and Gynecology, Cervical Insufficiency
Week 9	Understand how to use drawing in the clinic, medical education, and academia.	Physician Guest Lecture and Workshop	Medical Education, Medical Illustration

Table 1. Course syllabus, showing lecture objectives and topics.

RESULTS:

	Course Enrollment	Pre-Course Survey	Post-Course Survey
Total	n=36	n=27	n=21
Gender	n (%)	n (%)	n (%)
Female	24 (66.7%)	17 (63%)	12 (57%)
Male	12 (33.3%)	10 (37%)	9 (43%)
Year of Medical School	n (%)	n (%)	n (%)
Pre-Clinical (MS1/MS2)	29 (80.6%)	23 (85.2%)	17 (81%)
Clinical (MS3/MS4)	5 (13.9%)	2 (7.4%)	2 (9.5%)
Other	2 (5.6%)	2 (7.4%)	2 (9.5%)

Table 2. Enrolled student demographics.

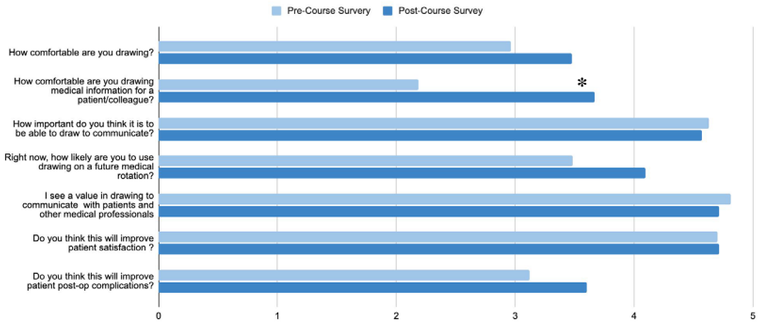

Figure 1. Pre- and post-course mean survey results.

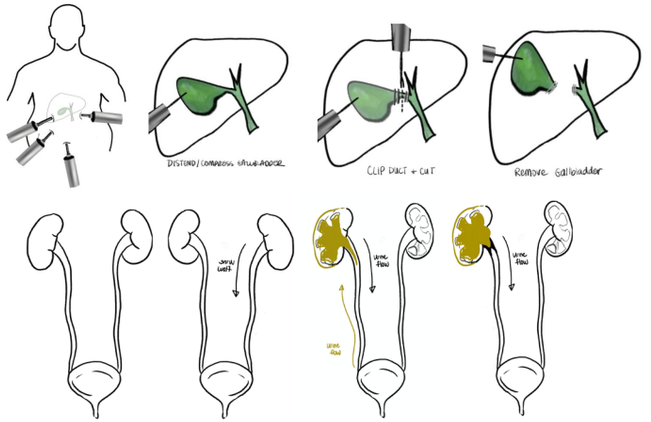

Figure 2. Sample drawings from the course.

CONCLUSIONS:

1. We proposed that integrating digital drawing through a course would facilitate clearer healthcare communication and more equitable care.
2. A total of 36 medical students enrolled in the course, spanning across medical school years 1-4.
3. A digital drawing course introduction showed considerable value in improving medical students' confidence in generating medical illustrations.
4. Moving forward, the course should expand its audience and focus on implementing this tool in patient encounters.

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MD++ a community of aspiring Physician-Innovators

Sherman Leung, Brenton Fargnoli, MD
Icahn School of Medicine at Mount Sinai, AlleyCorp

OBJECTIVES

- Does prior work experience or interest in a hybrid career decrease student interest in residency or type of residency?

INTRODUCTION

- Physician-led innovation in technology, business, health policy and life sciences has been an emerging hybrid career path, but not well supported in today's medical education system[1]
- MD++ was founded[2] by Sherman in May 2020 as a national 501c3 organization to support this emerging student population - growing to 822 medical students as of March 2021

METHODS

- 209 survey responses representing 81 medical schools
- 36% response rate

RESULTS

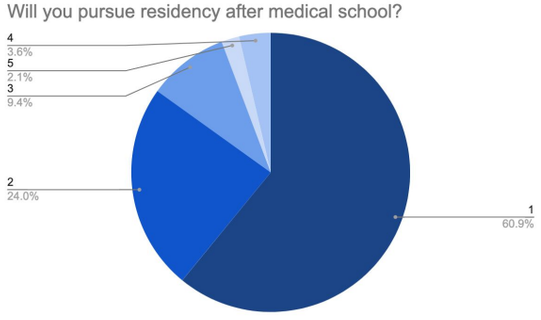

Figure 1. Likert scale of 1 = "Definitely Pursue Residency" to 5 = "Definitely not pursuing Residency"

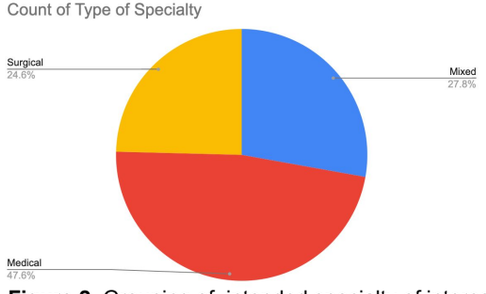

Figure 2 Grouping of intended specialty of interest

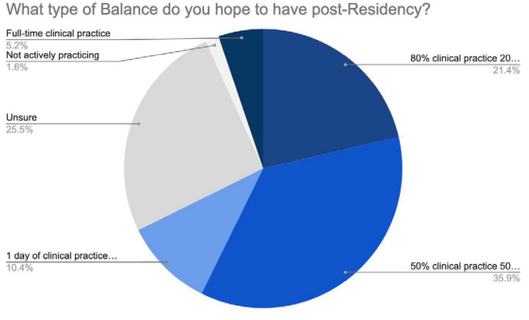

Figure 3: The majority of MD++ students plan on >50% of clinical practice post-residency

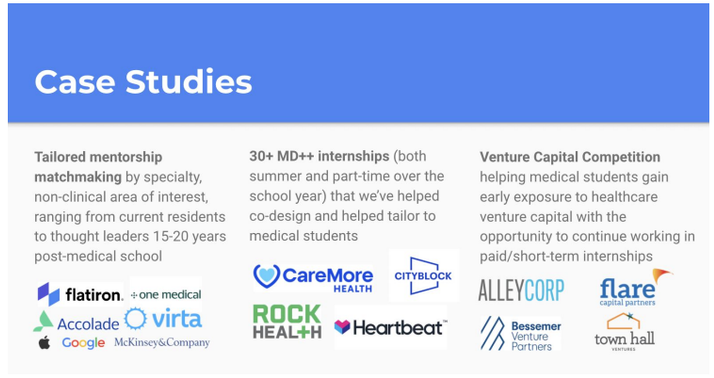

Figure 4: MD++ has facilitated 50 mentor-mentee matches, placed 30 students into tailored entrepreneurial or venture fellowships, and organized over 20 events that have collective engaged hundreds of medical students

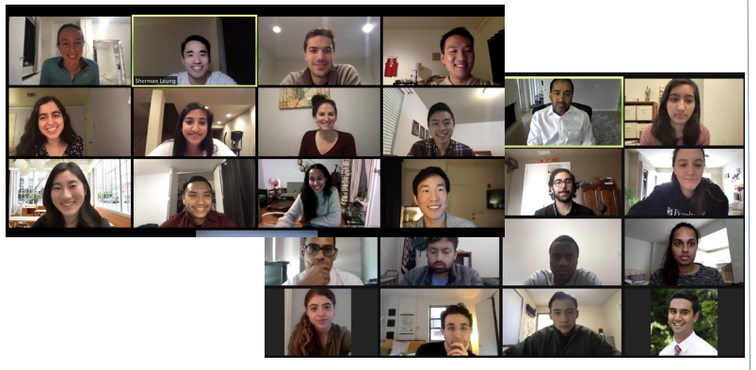

Figure 5: Some of the events MD++ has virtually hosted since our launch in May 2020. Top left: a market mapping competition to prepare medical students for venture capital fellowships. Bottom right: a fireside chat with Dr. Sachin Jain on physician-innovator career

CONCLUSIONS

- 84.9% responded positively to a Likert scale survey "Will you pursue residency after medical school?".
- Work experience prior to medical school ($\chi 2 = .23$) and interest in a hybrid physician-innovator career ($\chi 2 = .59$) did not correspond with any decrease in intent to pursue residency
- Qualitative responses suggest more institutional[1] and extracurricular opportunities would support early career exploration for aspiring physician-innovators

FUNDING & ACKNOWLEDGEMENTS

- Thanks to AlleyCorp for their early and continued sponsorship of MD++
- Huge thanks to the MD++ executive team, especially our founding VP of Community, Bethany Dubois (MS1)

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Design and Impact of a Novel Otolaryngology Virtual Sub-Internship in the Time of COVID-19

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BACKGROUND

- The coronavirus 19 (COVID-19) pandemic has necessitated unprecedented changes in undergraduate medical education, including suspension of visiting sub-internships.
- This disrupted opportunities for students to explore other residency programs, who responded by developing virtual experiences to expose outside students to their residency program.

OBJECTIVE

To discuss the design and impact of a novel otolaryngology virtual sub-internship created as a substitute for the visiting electives suspended due to the COVID-19 pandemic.

METHODS

- A two-week virtual rotation was designed and registered with the Visiting Student Learning Opportunities (VSLO) program.
- The rotation was offered the first two weeks of August and September 2020.
- Students completed pre- and post-rotation surveys, responding to statements using a 1 (Strongly Disagree) to 5 (Strongly Agree) scale, to obtain feedback and assess impact.

RESULTS

- 12 students enrolled and participated in approximately 60-70 hours of virtual interactive sessions, including clinical and surgical lectures, program overviews, resident Q&A panels, faculty “Meet & Greets,” alumni information sessions and hospital tours.
- Each student delivered an end-of-rotation presentation to the department on a clinical topic or research interest of their choice.
- Overall, visiting students indicated the virtual sub-internship was an important opportunity to better understand program structure and culture; it influenced their rankings of programs and should continue to be offered even after in-person sub-internships resume.

Statements	Pre-Rotation Rating (mean ± SD)	Post-Rotation Rating (mean ± SD)
I know about the ENT program structure and clinical rotations at Mount Sinai	2.00 ± 0.60	4.75 ± 0.45
I am aware of the educational opportunities (didactics, courses, conferences) offered to residents at Mount Sinai	1.83 ± 0.58	4.67 ± 0.49
I am aware of the housing options available to residents at Mount Sinai	2.00 ± 0.95	4.75 ± 0.45
I know about the research opportunities at Mount Sinai	2.00 ± 0.85	4.67 ± 0.49
I know about the income, meal and educational stipends, and travel reimbursements offered to residents at Mount Sinai	1.50 ± 0.52	4.67 ± 0.49
I feel like I know about what it is like to live and work in NYC	3.92 ± 1.00	4.58 ± 0.51
I feel like I know what the day in the life of a Mount Sinai ENT resident looks like	2.17 ± 0.39	4.67 ± 0.49
I know what the hospitals and resident working environments look like	2.25 ± 0.75	4.00 ± 1.13
I feel like I would get along with the residents at Mount Sinai	3.58 ± 1.00	4.92 ± 0.29

Table 1. Student responses to pre- and post-rotations surveys. Students were asked to respond to various statements using a 1 (Strongly Disagree) to 5 (Strongly Agree) scale.

Statements	Rating (mean ± SD)
I enjoyed the Mount Sinai Virtual Away elective	4.92 ± 0.29
This opportunity was helpful in learning more about the program	4.92 ± 0.29
This opportunity will factor into my ranking lists	5.00 ± 0.00
This opportunity should be continued as a supplementary experience even when in-person Sub-I's can resume	4.25 ± 0.75

Table 2. Student responses to post-rotation survey questions regarding the enjoyment and utility of the virtual sub-internship. Students were asked to respond to various statements using a 1 (Strongly Disagree) to 5 (Strongly Agree) scale.

CONCLUSIONS

- The COVID-19 pandemic has presented numerous challenges for undergraduate medical education, necessitating educational innovation to ensure continued immersion in the clinical environment, including visiting sub-internships.
- Visiting sub-internships are particularly important for students applying into competitive subspecialties or without a home program.
- Although there is no substitute for in-person visiting sub-internships, a well-designed, interactive virtual rotation can be an informative and impactful alternative.
- Future research is needed to determine how to best incorporate virtual clinical rotations in undergraduate medical education moving forward.

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An Innovative Approach to Demonstrating Clinical Reasoning in a Virtual Clerkship

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Department of Emergency Medicine at Mount Sinai Morningside-West

ABSTRACT:

Introduction: We developed a "virtual" Emergency Medicine clerkship to replace our traditional elective rotation during the COVID-19 pandemic. While converting traditional didactics to a remote-learning format was relatively straightforward, we also needed to design an instructional/assessment model to allow students to demonstrate fundamental clinical reasoning skills inherent to the practice of Emergency Medicine.

Methods: We developed a virtual precepting model based on six clinical cases. For each case students were provided with a packet of clinical data 24 hours in advance of a one-on-one meeting with an attending physician to discuss the case. Students began by 'presenting' the patient and providing their initial assessment and management plan. Preceptors probed this initial clinical reasoning, then provided additional clinical data (such as labs and imaging) and a discussion ensued to progress the case forward. Each case concluded with a mock phone call summarizing the encounter to a consultant or admitting physician. Students were surveyed about their perceptions of this activity on our end-of-course evaluation, and faculty preceptors were debriefed after each session.

Results: Five students participated in the course and each completed two virtual precepting sessions in addition to other course activities. All students reported they strongly agreed that they enjoyed the virtual precepting sessions and would recommend for a future virtual rotation. Faculty felt these sessions allowed them to get to know each student and identify patterns in clinical reasoning that may not be apparent when presentations are scattered throughout a typical shift.

Conclusions: Students and faculty found this approach to demonstrating clinical reasoning skills in a virtual rotation to be effective. It does require a significant investment of faculty time which may limit use in future rotations.

INTRODUCTION:

Medical students applying to Emergency Medicine residency typically complete away rotations during their fourth year. These rotations allow students to hone clinical skills, experience different types of Emergency Department settings before the application and interview season and obtain a Standardized Letter of Evaluation, which is an integral part of the residency application review process. Residency programs benefit from hosting visiting students as these rotations are an important tool in the recruitment process and allow faculty opportunities to interact with students for an extended period, providing insights that are valuable during the creation of a rank list for the residency match. In a typical year at our site, roughly one third of our incoming intern class rotates as a visiting student prior to matching.

In 2020, as a result of travel restrictions and safety concerns for learners in the clinical environment due to the COVID-19 pandemic, visiting rotations were markedly restricted nationally and eliminated within all sites at the Icahn School of Medicine. In order to replace some of the benefits of our traditional visiting elective rotation, we developed a "virtual" Emergency Medicine clerkship. While converting didactics to a remote-learning format was straightforward, we realized that we also needed to allow students to demonstrate fundamental clinical reasoning skills inherent to the practice of Emergency Medicine: evaluation of an undifferentiated chief complaint with a focused history; synthesis of clinical data and underlying medical knowledge to formulate an assessment, differential diagnosis and management plan; and communication of this in a succinct manner. Traditionally, such skills are demonstrated by the student evaluating real patients and presenting to a faculty preceptor. We sought to replicate this interaction for the new virtual reality.

METHODS :

Overall Rotation Format, Learning Objectives and Teaching Activities

We enrolled five students in a two-week elective course that was conducted entirely in remote instruction formats. Recognizing that most students would still be able to complete an in-person EM elective at their home institution, we designed the "virtual" rotation curriculum to focus on cognitive underpinnings of Emergency Medicine as a complement to the clinical experience they would obtain during an in-person rotation. Our overall course learning objectives were as follows:

Learning Objectives: By the end of the rotation, students will demonstrate the ability to:

1. Critically appraise resources including both peer-reviewed journal articles and online educational blogs and podcasts.
2. Apply current evidence-based medicine to the evaluation, assessment and management of patients with common emergent chief complaints.
3. Develop their understanding of the "EM Mindset" and appreciation for the specialty of Emergency Medicine.
4. Identify the essential elements of a focused history/exam for common ED complaints.
5. Work in teams to develop educational materials for their fellow students

Teaching and Learning activities included:

A. **Faculty-Led Zoom Conferences**. These didactic sessions generally followed a "flipped classroom" design, with students expected to actively prepare in advance by reviewing assigned materials and the didactic focused on discussion and elaboration.

B. **Journal Club.** Students worked in small teams to analyze assigned articles and facilitated a group discussion.

C. **Asynchronous Case Discussion Board.** Using the Slack web collaboration platform, faculty presented a series of clinical cases with questions prompting students to research clinical questions and discuss and defend their reasoning.

D. **Student-Led Zoom Didactics.** Each student designed a short evidence-based teaching session on an assigned clinical condition and presented this to the group. We introduced this with a dedicated session on curriculum design and learning theory.

E. **Virtual Precepting / Clinical Reasoning Cases**. Described below.

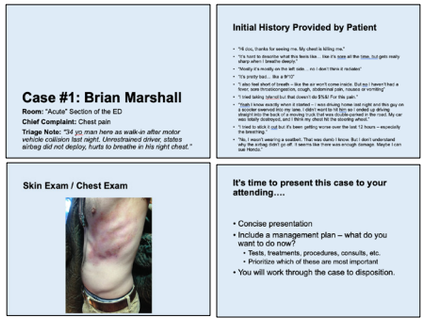

Figure 1. Example of slides of clinical information provided to students in advance of the precepting session.

Design of Virtual Precepting / Clinical Reasoning Case Sessions

We developed virtual precepting sessions based on six clinical cases. For each case, we provided students a packet of preliminary clinical data such as mock EMR notes, photos of physical exam findings, and quotes from the patient's history of present illness (Figure 1). Students were given 24 hours to review the materials and paired with an attending physician for a one-on-one mock precepting session. This began with the student presenting the "patient" and providing an assessment/plan. Preceptors then used a standardized Faculty Slide Set (Figure 2) to structure a discussion. This challenged students to justify their reasoning, then provided additional clinical data such as lab results and imaging to progress the case, which usually concluded with a mock phone call to a consultant or admitting physician. Following this, preceptors provided real-time feedback and tailored teaching points for each case. We expected the discussion to feel like the type of interaction that might occur in real life if the student presented the case during an ED encounter.

We divided the six cases into two sessions of three cases each. The first session focused on Cardiac and Thoracic emergencies including Acute Coronary Syndrome, Traumatic Pneumothorax and Acute Pulmonary Edema. The second session focused on Neurologic emergencies such as Meningitis, Ischemic Stroke and Status Epilepticus. We chose to group the cases thematically to facilitate student preparation and reduce the impact stress about what to read in advance may have on performance.

For each case we designed a faculty guide for the virtual preceptors describing learning objectives for each case, suggested questions and "if/then" scenarios for how the case should proceed depending on a student's management decisions. We instructed faculty to target teaching points based on the sophistication of a student's response to the initial phases of the case, as some students may demonstrate the need for basic content review whereas others would benefit from more nuanced discussion. Similar oral case reviews are common in Emergency Medicine residencies as preparation for the Oral Board Examination required for certification. All preceptors in the course were faculty with experience preparing residents for these exams, so the general format of each discussion was familiar to the preceptors, which we believed would aid in each student having a uniform experience.

We allotted 20 minutes for each case discussion, for a total session time of one hour. After each precepting session, faculty assessed student performance using our clinical shift evaluation and provided this assessment to the course directors for incorporation into the summative assessment and grade for the course.

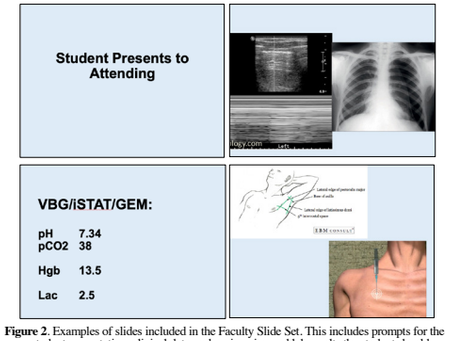

Figure 2. Examples of slides included in the Faculty Slide Set. This includes prompts for the student presentation, clinical data such as imaging and lab results the student should interpret as part of the discussion, and anatomic drawings useful for teaching procedures, such as a chest tube in this case.

Curriculum Evaluation

At the end of the rotation, we evaluated student perceptions of this activity, as well as other teaching activities in the course, using both Likert scale and free response questions. We also held a debriefing session with faculty after each session to elicit faculty perceptions of this virtual precepting model.

RESULTS:

Five students participated in this two-week course. Each student participated in two, one-hour, virtual precepting sessions. Each session was with a different faculty preceptor, all of whom were part of the residency's core education faculty (residency program leadership or clerkship leadership).

On our end-of-rotation evaluation, all students reported they strongly agreed they enjoyed the virtual precepting sessions and would recommend for a future virtual rotation. Most agreed that it felt like the type of teaching interaction they would expect when seeing a real patient. One theme that emerged from comments (Figure 3) was that students felt the sessions truly focused on clinical reasoning more than medical knowledge since they had time to look up discrete facts about each case in advance.

In addition to positive reviews from the students, faculty felt these sessions allowed them to get to know each student and identify patterns in clinical reasoning deficiencies that might not be apparent when presentations are scattered intermittently during a busy ED shift.

> I enjoyed having the chance to review the case before meeting with the instructor that was very helpful as I could identify any gaps in my presentation from flawed understanding rather than from a lack of not-knowing (since we prepared). I enjoyed how dynamic the patient case was and the fact that the case would change based on my management plans. It felt weird at first to "run" the case, but once I got into a flow I thoroughly enjoyed it--I even felt far more confident in my medicine critical thinking skills outside of the session. I believe having an attending there with you to help you understand the nuances was incredibly invaluable and would recommend this for all students. I would maybe add videos or GIFs of ultrasound findings, physical exam findings, and let the student interpret the videos.

> I really enjoyed the 1-1 sessions in particular. We wont always have this much time in the clinical setting to discuss, and this allowed us a full hour of direct teaching from an attending. It was great to be able to first look up the case on our own and do our own research, and then confidently talk through the most likely course of action and clinical reasoning behind it. Was overall a very positive experience that showed us first hand some of the great educators. Only suggestion would be to possibly have sessions with more of the faculty to experience different teaching styles and meet more people.

> I really really enjoyed this portion of the rotation very much! I loved doing this and getting direct feedback in that moment! It was very helpful and made it seem as though we truly were in the ED seeing patients.

Figure 3. Sample comments from students who participated in the virtual precepting sessions.

CONCLUSIONS:

1. This format allowed for an interactive teaching session that both students and faculty thought was a valuable activity in a virtual rotation.
2. Allowing students to read about the presentation and management of each case in advance of the session allowed preceptors to isolate their clinical reasoning skills from medical knowledge. Therefore, this type of session may have value in a traditional "in person" clerkship as a supplement to seeing patients in the clinical setting.
3. We did receive constructive feedback from both students and faculty that the 20 minutes allotted for each case felt too short, and 30 minutes is likely more appropriate. Looking to the future we will consider modifying the time accordingly.
4. If we were to implement a similar format during a typical year for our visiting students (approximately 45 students/year) or for the entire fourth year class during their required EM clerkship, it would require a significant investment in faculty teaching time which may require further modifications to the format to be feasible.

Medical Student Attitudes Towards the Use of Peer Physical Exam Learning for the Fundoscopic Exam

Daniel Henick[1], Margarita Labkovich[1], Jake Radell[1], Nitin Chopra[1], Nisha Chadha[1,2]

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2. Department of Medical Education, Icahn School of Medicine at Mount Sinai

INTRODUCTION

- **Peer physical examination (PPE)** is widely used in medical schools for pre-clinical interview and physical exam instruction due to its educational benefit, ability to improve empathy, low cost, and accessibility compared to standardized patient use.[1]
- In this approach, students can reflect on the **experience of assuming the patient's role**.[2]
- To date, no studies have specifically examined student attitudes towards PPE for learning **fundoscopy**.[2,3,4]
- Fundoscopy and dilation may be considered **a more sensitive exam technique** due to photophobia with examination, blurred vision for hours post-dilation, and the close proximity at which one must approach their peer in order to perform the exam.[2]

OBJECTIVE

- This study sought to evaluate **medical student preferences** in regard to learning the fundoscopic exam and explore attitudes towards alternate learning and exam approaches.

METHODS

Data Collection

- Medical students in the Class of 2023 at ISMMS (n=138) participated in a 2-hour fundoscopy workshop in small groups in March 2020
- An anonymous web-based survey with **Likert scale items** was sent via email the following day

Primary endpoints

- Student attitudes towards PPE and its use in fundoscopy
- Learning benefit of fundoscopy session
- Student comfort to conduct fundoscopy on a potential patient
- Empathy towards patients experiencing dilation

Secondary endpoints

- Preference towards dilation vs. alternate exam techniques for self and potential patients
- Preference to perform mydriatic vs non-mydriatic exam on peers vs. standardized patients

RESULTS

- 51 students responded to the survey (37% of the class)
- 84% of students who responded to the survey participated in dilation
- % dilation of participants was representative of the class with $X^2 = .37$, $p > .05$

Figure 1. Student attitudes towards PPE

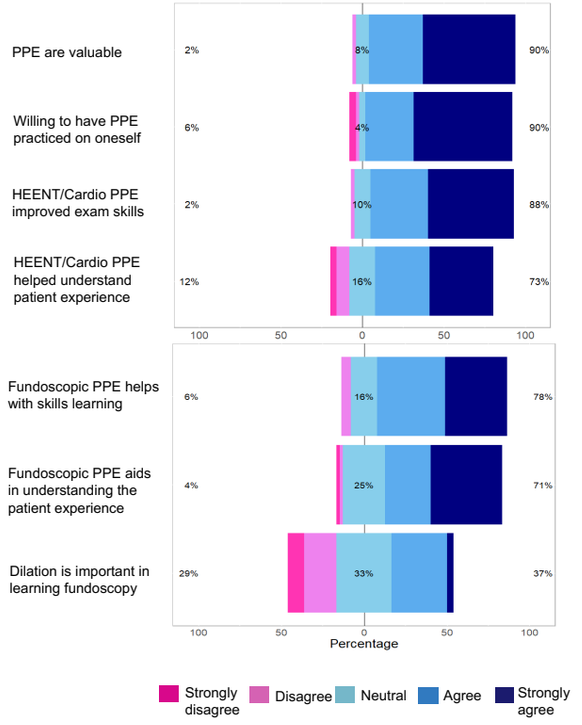


Figure 2. Student concerns with PPE in general

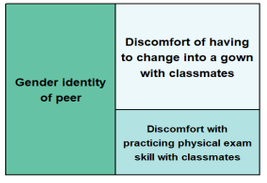


Figure 3. Student concerns with fundoscopy PPE

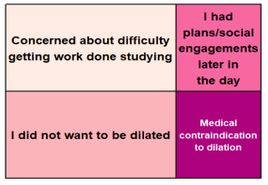


Figure 4. Effect of PPE fundoscopy session on student learning

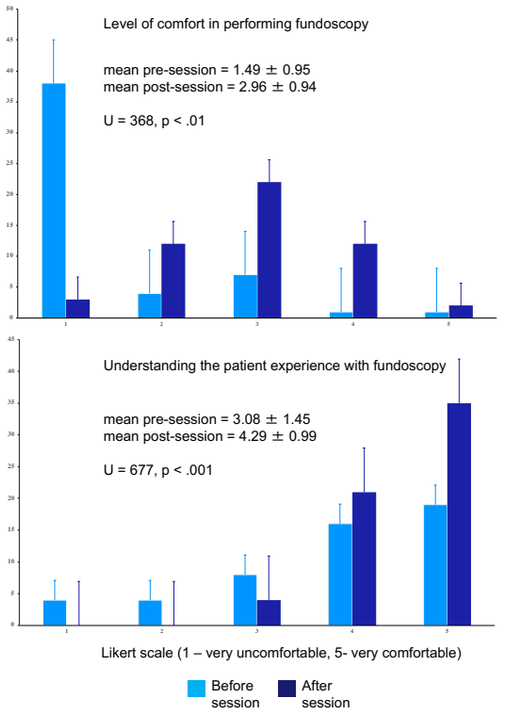


Figure 5. Choosing dilation versus alternative tools

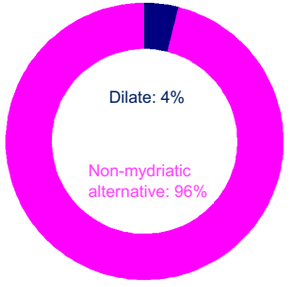
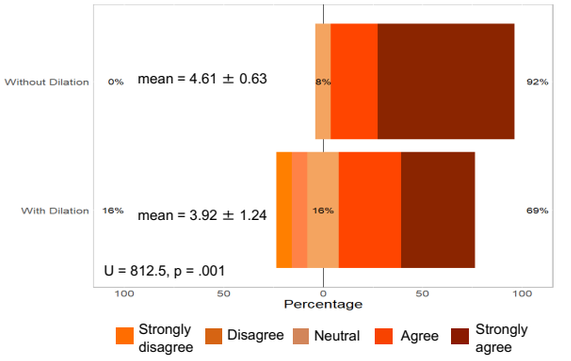


Figure 6. Willingness to participate in fundoscopy with or without dilation



CONCLUSIONS

- Students' attitudes towards fundoscopy were favorable and generally **aligned with their overall PPE preferences**.
- Students demonstrate a preference towards **alternative methods** of examination that did not require dilation.

FUTURE DIRECTIONS

- Incorporating newer methods and teaching tools, such as smartphone fundoscopy, should be considered in developing **future curricula**, and may better align with student learning preferences.
- Use of such technology is particularly relevant in the in the **COVID-19 era**.
- Improving fundoscopy education is likely to become even **more relevant** with advances in artificial intelligence and use of tele-ophthalmology

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STaR: Stroke, Thrombectomy, and Acute Revascularization a Preliminary Report on a Neurology Exposure Project

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Icahn School of Medicine at Mount Sinai

ABSTRACT:

Purpose: Despite revolutionary developments in acute stroke treatment, there is a misperception that neurological disorders are devastating and untreatable. Additionally, many students experience "neurophobia" with difficulty applying complex neuroscience to clinical neurology. At the same time, we face a shortage of neurologists when the prevalence of neurological conditions increases. A needs assessment of 58 Icahn School of Medicine at Mount Sinai (ISMMS) third-year students revealed that 86% (n=49) had no clinical exposure to stroke before the neurology clerkship and 90% (n=52) thought they would benefit from additional stroke exposure during the neurology clerkship. We sought to increase pre-clinical exposure to acute stroke diagnosis and treatment and assess its impact on familiarity with a career in neurology, level of interest in neurology, and knowledge of acute stroke diagnosis and management.

Methods: Pre-clinical students elected to participate in a 4-week clinical observation period (COP), during which they observed the number of acute stroke codes and revascularization cases they wanted. After the COP, participants attend a small group session to debrief the cases they observed. Students completed a Likert scale survey on familiarity with a career in neurology, level of interest in neurology, and knowledge of acute stroke at three time points: before the COP, after the small group session, and one year after completing the COP.

Results: We recruited eleven participants over three months. Further subject enrollment was suspended due to the COVID-19 pandemic. Prior to the COP, 18% (n=2) of participants had seen a stroke code and only 9% (n=1) a thrombectomy. By the end of the COP, 90.9% (n=10) of participants had observed a stroke code and 45.4% (n=5) had observed a thrombectomy. Data were analyzed using a paired sample t-test. After the COP, participants reported increased familiarity with the jobs of neurologists (Likert mean= 2.9 vs. 4.45), vascular neurologists (Likert mean=2.36 vs. 4.27), and endovascular surgeons (Likert mean=2.36 vs. 4.18). Participants also reported increased confidence in their ability to recognize the signs of acute stroke (Likert mean 2.36 vs. 4.36), identify the vascular territory affected (Likert mean=2.09 vs. 4.45), and familiarity with acute stroke management Likert mean=2.27 vs. 4.54). Participants' baseline interest in neurology (Likert mean=3.9) remained high after the COP and at one year (Likert means= 4.3 and 4.2, respectively). Participants' surveys completed a year after the COP reported similarly high Likert scores in familiarity with the role of cerebrovascular specialists and confidence in clinical stroke knowledge.

METHODS :

Pre-clinical medical students were eligible for participation in this study and were recruited by e-mail.

Clinical Observation Period

Participants had the opportunity to observe stroke codes with the on-call neurology resident for the duration of the clinical observation period (COP), which was 4 weeks. During those 4 weeks, stroke alerts would be forwarded to the participant. There was no minimum number of stroke code observations required for completion of the study. Participants also had the opportunity to observe stroke rounds and attend Neurovascular Conference.

Debrief

During the COP, participants were instructed to select one case for in depth discussion during the debrief session, which occurred at the end of the 4-week COP. The debrief session was led by a neurology resident and provided an introduction to basic stroke diagnosis, imaging modalities, and treatment.

The neurology resident leading the debrief reviewed the patient's presentation, NIHSS, imaging, and clinical course of the case selected by the student.

Data Collection and Interpretation

Students completed a Likert scale survey (1-5) on familiarity with a career in neurology, level of interest in neurology, and knowledge of acute stroke at three time points: before the COP, after the small group session, and one year after completing the COP. A paired sample T-test was used to compare the pre- and post- COP means.

RESULTS:

	Pre-COP Mean	1 Year Mean
Interest in Neurology	3.9	4.2
Understanding of the job of a neurologist	2.9	4.5*
Understanding of the job of a vascular neurologist	2.4	4.5
Understanding of the relationship between neurologist and neuroendovascular surgeons in stroke	2.4	4.2*
Confidence in the recognition of stroke symptoms	2.6	4.5*
Confidence in the identification of a vascular territory	2.1	4.2*
Familiarity in the general management of acute stroke	2.3	4.4*

** p-value <0.05*

CONCLUSION:

While subject enrollment was limited, our results suggest that in pre-clinical students interested in neurology, clinical exposure to acute stroke diagnosis and management improves familiarity of the roles of cerebrovascular specialists and confidence in clinical stroke knowledge.

CURRENT DIRECTION:

Due to the nature of the ongoing COVID-19 pandemic, the STaR course was converted to an 8-week virtual course that incorporates interactive lectures and virtual simulations to expose participants to the field of vascular neurology. Enrollment was also opened to clinical students and members of other health professions such as speech language pathologists, physical therapists, and nurses.

Week 1: Introduction to STaR course and stroke

Week 2: Recognizing and diagnosing acute stroke

Week 3: Imaging Modalities in Acute Stroke Care

Week 4: Logistics of a stroke code and treatment options

Week 5: Journal Club - Disparities in Stroke Care

Week 6: Stroke management in the hospital, potential residual deficits and complications, and discharge planning

Week 7: Stroke simulation! Putting it all together

Week 8: Multidisciplinary Stroke Care

A Novel, Online, Case-Based Neuro-Ophthalmology Workshop for Neurology Clerkship Students

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[1]Icahn School of Medicine at Mount Sinai, [2]Department of Neurology, [3]Department of Nephrology, [4]Department of Ophthalmology

INTRODUCTION

- Undergraduate ophthalmology education (OE) has declined, with only 16% of medical schools requiring clinical rotations in ophthalmology
- Innovative approaches are needed to integrate this content
- The neurology clerkship offers an opportunity to incorporate OE, specifically within the often underemphasized discipline of neuro-ophthalmology (NO)
- Evidence suggests learners gain and retain knowledge to a greater degree when taught in interactive formats, and medical students learn better with case-based formats
- To address this educational gap, we developed an online, interactive, case-based neuro-ophthalmology learning tool

METHODS

The study team, comprised of ophthalmology (Oph) and neurology (Ny) faculty, developed 5 high-yield NO cases informed by Oph and Ny educational organization guidelines

↓

Published 5 cases on 2020Sim.com, an OE tool modeled off of NephSIM, a free open access medical education (FOAMed) tool using Wordpress, a web publishing software

↓

All third year medical students rotate through four week neurology clerkship

↓

1-hour workshop conducted using 2020sim.com NO cases, and 10 question pre-test administered in Week 1 or 2 of clerkship

↓

10 question post-test and exit survey administered in Week 4 of clerkship

METHODS

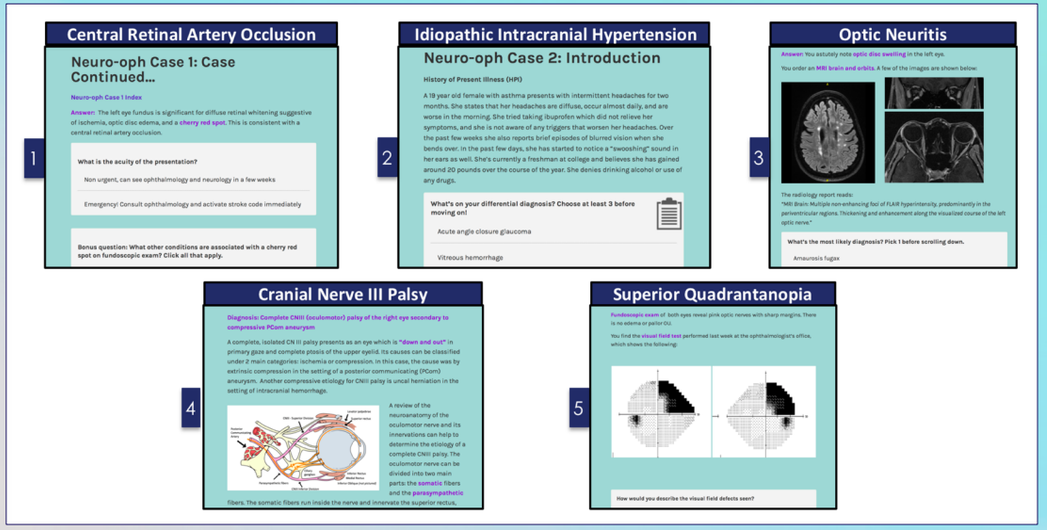
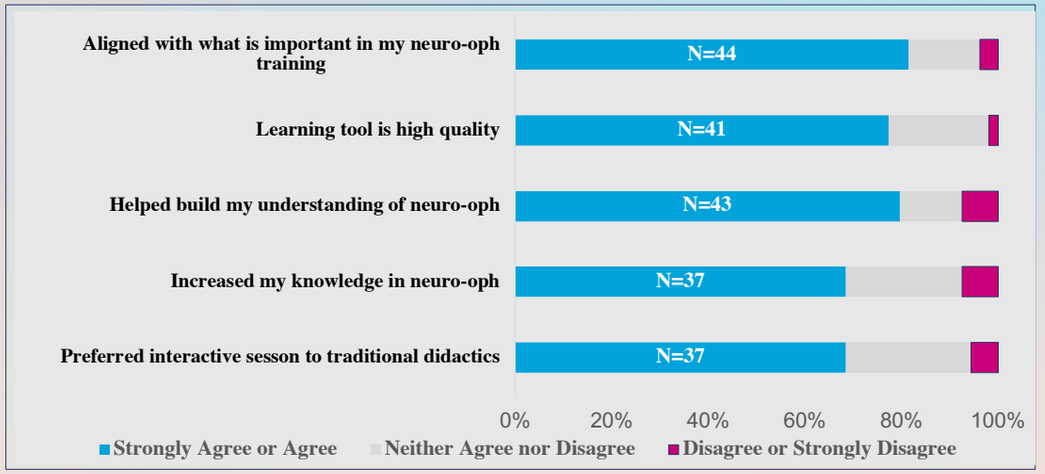


Figure 1. Five case topics published on 2020SIM.com

RESULTS



- **91%** recommend this workshop using 2020SIM cases be offered in the future
- **94%** would like to see a similar learning tool for other specialties

Figure 2. Exit survey results

RESULTS

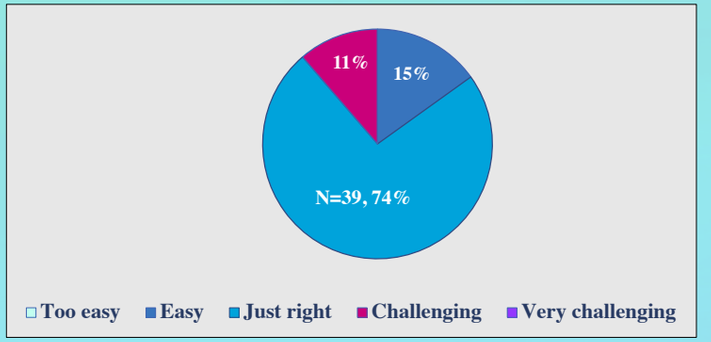


Figure 3. Difficulty of case questions from the learner perspective

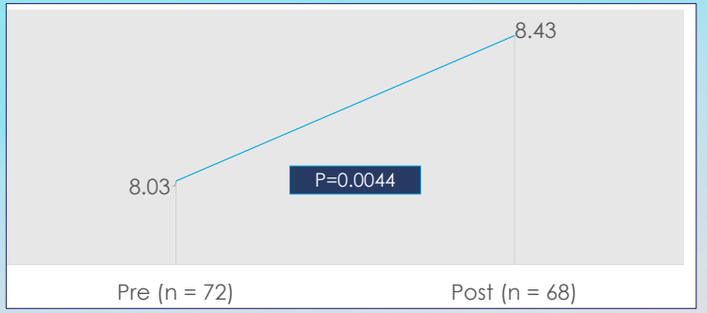


Figure 4. Test scores increased from 8.03/10 to 8.43/10 after the workshop

CONCLUSIONS

- Our novel, interactive, case-based neuro-ophthalmology tool increased student knowledge and was well-received by students.
- Collaboration with departments with which ophthalmology intersects can provide opportunities to increase undergraduate OE.
- We hope to broaden exposure of OE by introducing 2020SIM.com to other medical institutions and the medical community online.

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Virtual Review Sessions in the Structures Course in a Large-Group, Interactive Format

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[1]Medical Education, Icahn School of Medicine at Mount Sinai

INTRODUCTION

- Structures: first course of medical school, covering gross anatomy, embryology, histology
- Second-year medical students (M2s) serve as TAs; responsibilities include leading review sessions prior to exams
- Traditional approach: groups of 10-18 M1s rotate through small-group classrooms, each with M2s providing rapid review of a topic
- COVID-19 restrictions made this format impossible
- A novel approach: all M1s in the same remote video session, with M2s covering material at a slower, interactive pace

METHODS

- First 2 review sessions: groups of M1s rotated through a series of 20-minute Zoom sessions (similar to traditional approach)
- Last 2 review sessions:
  - All M1s in one 3-hour Zoom session
  - M2s covered certain material at certain times
  - Time allotted depending on difficulty and amount of material
  - M2 TAs also incorporated more interactivity, such as questions to students
- Surveyed M1s regarding their preferred format & solicited qualitative feedback from M1s and M2s

RESULTS

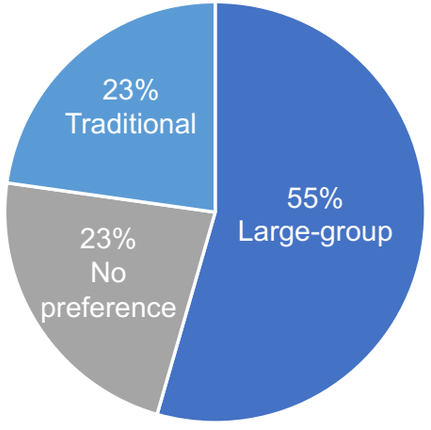

Figure 1: Preferred Review Session Formats of M1s

NB: M2s also expressed preferences for the large-group format

Table 1: Qualitative Feedback from M1s
I really enjoy the practice questions that some of the presentations have! Those are super helpful, especially for histology and imaging.
I like when TAs quiz students during the sessions and make them interactive.
The MS2s were able to be more interactive and quiz us which I found super helpful to test my knowledge!
In some cases, I find myself re-watching [TAs'] videos 2-3 times before taking the exams! TAs that bring extra energy and make it interactive are also appreciated.

CONCLUSIONS

- In remote environment, most students preferred a large-group, interactive Structures review session format
- Several advantages:
  - Different parts of the session could be different lengths: more time spent on challenging topics & interactive quizzing
  - M1s benefited from hearing answers to questions asked by all classmates
  - M2 TAs only needed to be available for a short period of time to lead their section of the session
- Implications once in-person instruction resumes: review sessions in a lecture hall (in-person) or virtually (hybrid learning system)?

Office Hours as a Method for Student Support During the Virtual Summer Enrichment Program

Nicola Feldman, MS,[1] Gabrielle Hernaiz-De Jesus,[1] David Bechhofer, PhD[1]

[1]Medical Education, Icahn School of Medicine at Mount Sinai

ABSTRACT:

Introduction: The Summer Enrichment Program (SEP) is an intensive four-week pre-matriculation program for medical students entering the Icahn School of Medicine without significant background in biological chemistry and molecular/cell biology. Traditionally, teaching assistants (TAs) provide support by leading formal review sessions, using prepared material, immediately following each lecture series on a certain topic. In 2020, the COVID-19 pandemic necessitated an all-virtual SEP held via Zoom. Understanding that virtual learning can cause preclinical students to feel isolated, we sought to provide increased opportunities for academic support and connection. In particular, TAs held weekly, informal "office hours" via Zoom as an open forum to answer student questions, a novel structure that was added to the usual TA review sessions and had not previously been included in SEP. Here, we aim to analyze the effectiveness of these office hours in supporting students in the virtual environment.

Methods: TAs held office hours once weekly, the day after lecture material had concluded for the week, to give students time to digest the material. Office hours sessions were solely an opportunity for students to ask questions; no formal review material was prepared. After SEP had concluded, all SEP students were surveyed regarding these office hours, answering several questions on a 5-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree).

Results: Of 23 SEP students, 10 unique students attended at least one office hours session, with some of those students attending multiple sessions. Of students who attended at least one session, 100% of survey respondents answered "agree" or "strongly agree" to the statement "I found the TA office hours helpful." In addition, 90% of survey respondents answered "agree" or "strongly agree" to the statement "The fact that TA office hours were offered helped me feel more supported during SEP (even if I didn't attend any of the office hours)," and 80% answered "agree" or "strongly agree" to "Having office hours in all of my courses would make me feel more supported in a totally virtual learning environment." Qualitative comments also demonstrated the effectiveness of office hours in providing student support: students wrote, "I really appreciated getting to ask my specific questions during TA office hours," "[The TAs] were not just names via an email but people whose faces we saw and who provided us support," and "[Office hours] made me feel supported and like I had another way to get my questions answered."

Conclusion: Regular, informal office hours appear to be a strong pillar of support for students in the virtual learning environment and are relatively easy to implement, as they do not require advance preparation of materials. Educators may consider this strategy as virtual learning continues into 2021.

INTRODUCTION:

At the Icahn School of Medicine at Mount Sinai, a significant proportion of each medical school class is accepted via alternative pathways, such as the FlexMed program, which allows college sophomores to apply for early admission, and partnerships with consulting firms. These students bring great diversity to the school but may enter without having completed all of the traditional premedical science requirements; therefore, it has been found that further preparation is helpful in setting up these students for success in the preclinical years.[1] At the Icahn School of Medicine, this extra preparation is accomplished in the form of the Summer Enrichment Program (SEP), a four-week pre-matriculation program that covers essential elements of organic chemistry, cell biology, molecular biology, biochemistry, and anatomy. Historically, rising second-year students have served as teaching assistants (TAs) for this program, providing a one-hour review session immediately following each section of the course.

In 2020, the social distancing restrictions imposed by the COVID-19 pandemic necessitated significant changes to SEP, most notably a shift to a virtual SEP. It has been found that the shift to virtual learning during the early COVID-19 pandemic in spring 2020 resulted in decreased student engagement in some cases;[2] in addition, research has demonstrated that interaction with peers and educators helps to make online learning more effective.[3] Based on these data and our own experiences with feelings of social and academic isolation during the shift to online learning, we sought to provide increased opportunities for academic interaction and support during SEP 2020.

METHODS:

During SEP 2020, TAs not only provided the typical one-hour review session following each section of the course, but they also held weekly, informal "office hours." In contrast to the review sessions, no formal material was prepared for these office hours; they were solely an opportunity for students to ask questions. Office hours were held the day after classes had concluded for the week, usually on Fridays, to give students an opportunity to digest the material and think of any questions they wanted to discuss with TAs.

SEP students were informed of the office hours by email and were also informed of the format of the office hours (i.e., no formal review material presented). In the same email, students were also invited to email TAs with any questions or to set up a separate time to meet individually with the TAs.

After SEP had concluded, all SEP students were surveyed regarding their perceptions of the TA office hours, including whether they had attended any office hours, how helpful they found the office hours if so, whether and how the office hours helped them feel more supported during the virtual SEP, and whether they believed similar initiatives might be helpful in other courses in the virtual learning environment. Most questions were scored on a 5-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree).

RESULTS:

Out of 23 SEP students, 10 unique students attended at least one office hours session, with some of those students attending multiple sessions. The response rate to the survey was 43%. Responses to selected survey questions are shown in Figure 1. In addition, selected qualitative feedback received from students on the survey is shown in Table 1.

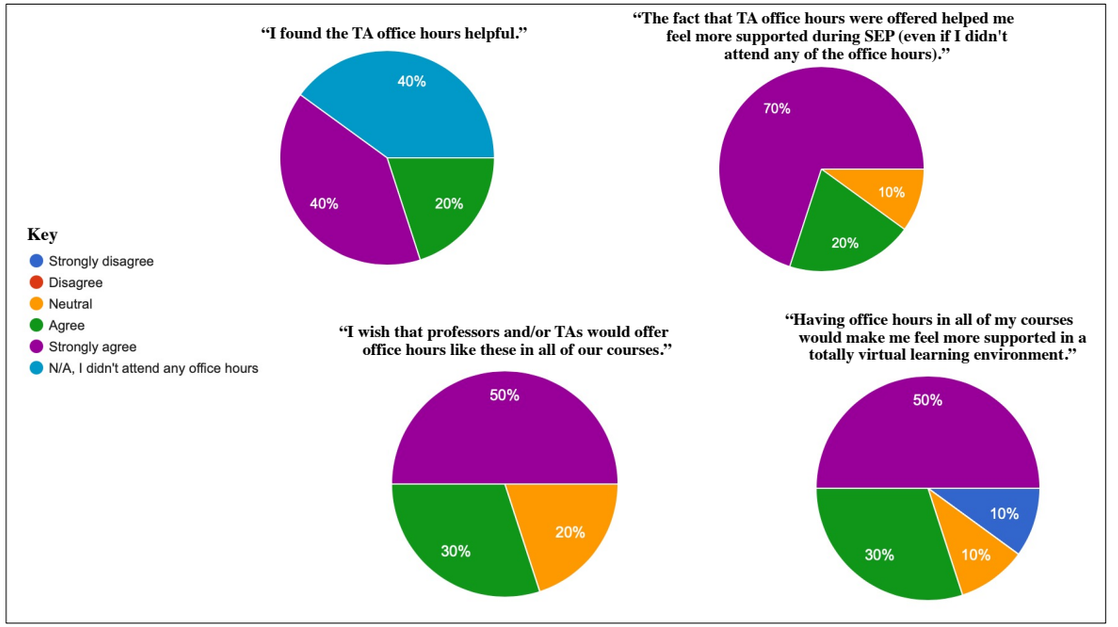

Figure 1. Survey responses.

Table 1: Qualitative Feedback
I only went to office hours when I had an urgent question/a concept that I didn't understand. However, even though I did not go every week, I really appreciate that they were there because they made me feel supported and like I had another way to get my questions answered (besides during lecture or over email).
I really appreciated getting to ask my specific questions during TA office hours.
I appreciated the office hours because [the TAs] were not just names via an email but people whose faces we saw and who provided us support. I think that is more important for me feeling supported.

CONCLUSIONS:

1. Weekly, informal TA office hours were an effective method for academic support during SEP 2020, with a plurality of students choosing to attend them and all attendees finding them helpful.
2. Offering office hours also provided a sense of social support, even for students who did not choose to attend office hours, that students found especially important in the virtual learning environment.
3. Students believe office hours would have similar effects in other courses; educators may consider implementing similar interventions, which are fairly easy to implement as no advance preparation is required, as virtual learning continues into 2021.

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Advance Care Planning Training in a Student-Run Free Clinic

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Icahn School of Medicine at Mount Sinai

INTRODUCTION:

- The East Harlem Health Outreach Partnership (EHHOP) is a student-run free clinic (SRFC) that serves the uninsured, largely immigrant, community of East Harlem.
- SRFCs have a dual mission in providing quality care to underserved populations and ensuring an effective learning and practice environment for students.
- Currently, hands on skills training regarding end-of-life (EOL) and Advance Care Planning (ACP) is unstandardized in SRFCs, with providers often inadequately prepared and lacking the cultural humility required to navigate these conversations.
- ACP prevents unwanted procedures, increases utilization of hospice and palliative care services, and empowers patients to take control over their EOL experiences.
- SRFC patients' EOL experiences can be complicated by severe symptom burden, language barriers, and lack of time for goals of care conversations. For patients who are undocumented, the identity documentation and legality of ACP forms can be particularly distressing.
- EHHOP has developed a curriculum for senior medical student-clinicians about ACP, tailored to working with the undocumented community in the primary care setting.
- Here we aim to assess the utility of this curriculum in improving student-clinician knowledge and comfort surrounding ACP.

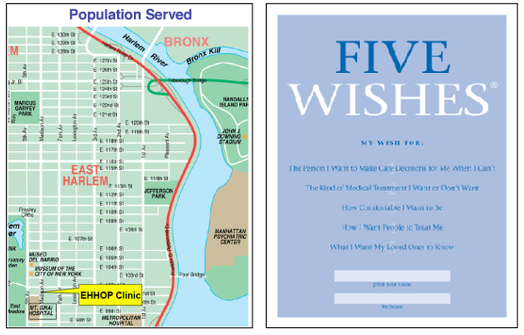

Figure 1. Left: Map of East Harlem, Manhattan demonstrating location of EHHOP Clinic; Right: Five Wishes curriculum utilized in ACP didactic

METHODS :

- An ACP didactic session (case-based, interactive) was designed by a team of palliative care physicians, primary care providers, and medical student leaders at EHHOP and taught to senior student-clinicians.
- The session focused on setting goals for EOL conversations, coaching patients through selection of healthcare proxy, and understanding cultural and legal challenges to ACP within the target population.
- An ACP conversation template was provided to students at the conclusion of the session.
- A pre- and post-session survey was administered to assess knowledge and comfort surrounding ACP.
- Student knowledge and comfort with ACP was reassessed at the conclusion of these discussions.

Didactic Structure

- Introduction to ACP & Documentation: 15 minutes
- Structure of an HCP Discussion: 15 minutes
- SSRFC Specific Caveats: 10 minutes
- Breakout Case: 15 minutes
- Group Debrief: 5 minutes

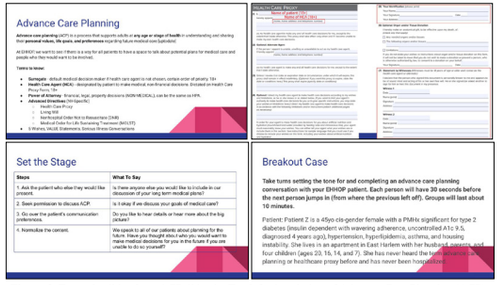

Figure 2. Example slides from ACP didactic. Top left: description of Advance Care Planning (ACP); Top Right: Example of HCP documentation; Bottom left: discussion of HCP conversation structure; Bottom right: introduction to breakout case

Pre & Post Didactic Survey

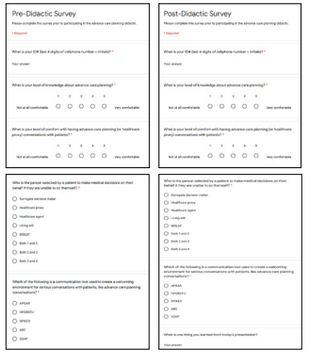

Figure 3. Left: Pre-didactic student survey; Right: Post-didactic student survey

RESULTS:

- Students' perception of their own ACP knowledge increased significantly from an average of 2.8 out of 5 prior to the didactic to 3.8 out of 5 after the didactic ($p = 0.02$).
- Students' comfort surrounding ACP conversations increased significantly from an average of 2.4 out of 5 prior to the didactic to 3.8 out of 5 after the didactic ($p = 0.02$).
- Prior to didactic, 60% of students correctly answered multiple choice questions about ACP, whereas after didactic, 100% of students answered questions correctly.
- Most common topics of interest included: understanding the structure of ACP conversations and learning the difference between healthcare proxy and healthcare agent.

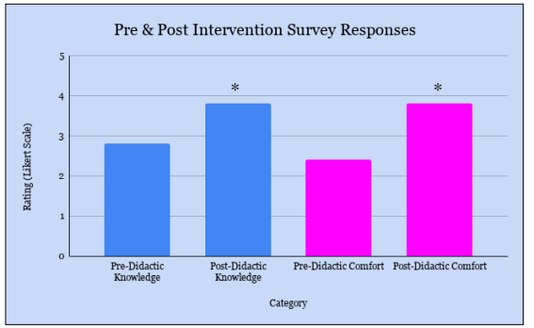

Figure 4. Changes in student perception of comfort and knowledge of ACP before and after didactic intervention; * statistically significant difference between pre- and post-intervention measurement ($p=0.02$)

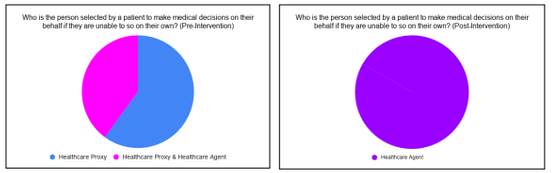

Figure 5. Left: student knowledge of healthcare agent definition (60%) pre-intervention; Right: student knowledge of healthcare agent definition (100%) post-intervention

Figure 6. Word-cloud outlining takeaway points commented upon by students at conclusion of didactic

CONCLUSIONS:

- This intervention led to implementation of formal ACP training tailored to patients in a SRFC.
- This improved medical student knowledge and comfort surrounding ACP, leading to initiation of real-world EOL conversations.
- This will reduce future stress for students, patients, caregivers, and providers in emergent situations.

FUTURE DIRECTIONS:

1. Introduction of ACP conversations into primary care visits at EHHOP clinic.
2. Long-term follow up with students; assessment of comfort and knowledge after in-clinic ACP conversations are conducted.
3. Study of patient perceptions surrounding ACP, before and after conversations in clinic.
4. Repetition of didactic curriculum with incoming student clinicians in subsequent classes at EHHOP clinic.
5. Dissemination of curriculum to SRFCs throughout the United States, tailored to target population at each clinic.

EHHOP
15 years | 2004-2019

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BRIDGING THE DISPARITY IN SKIN COLOR REPRESENTATION IN PRECLINICAL MICROBIOLOGY EDUCATION

Madeline Kim[1], Kelsey Auyeung[1], Gabriel Santos Malave[1], Sidra Ibad[1], Eden David[1], Dante Dahabreh[1], Roberto Posada, M.D.[2]

1. Medical Student, ISMMS; 2. Professor of Pediatrics and Medical Education, ISMMS

INTRODUCTION

- One of the numerous ways in which racism manifests in medical education is the scarcity of images of brown and black skin in didactic materials.[1,2]
- Currently, the vast majority of dermatology images used in the preclinical courses at the Icahn School of Medicine at Mount Sinai (ISMMS) feature light-colored skin, leaving students ill-prepared to recognize dermatologic manifestations of disease in people of color.
- Incorporating high-quality images focusing specifically on skin of color into course material may increase the ability of students to identify common infectious disease-related conditions on brown and black skin.

METHODS

- We compiled a collection of images of brown or black skin manifesting key conditions with bacterial, viral, and/or fungal etiologies to incorporate into the first-year 'Medical Microbiology' course at ISMMS.
- Images were retrieved from peer-reviewed journal articles and dermatologist-reviewed websites and were approved by the Medical Microbiology course director
- We plan to administer a brief assessment to the class of 2023 with questions featuring fictional infectious disease cases, each with an image of light or dark skin
- The performance of the class of 2024 (first class to complete the course with the new images included) on this assessment will be compared to that of the class of 2023

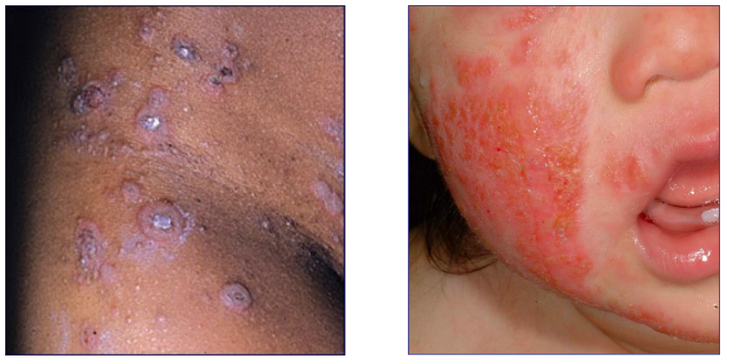

Figure 1. Examples of non-bullous impetigo on dark[3] (left) and light[4] (right) skin. Only examples on white skin (including example on the right) were provided in the 2020 lecture materials.

Figure 2. Examples of chickenpox (varicella zoster virus) infection on dark[5] (left) and light[4] (right) skin. Only examples on white skin (including example on the right) were provided in the 2020 lecture materials.

Figure 3. Examples of tinea corporis infection on dark[6] (left) and light[4] (right) skin. Only examples on white skin (including example on the right) were provided in the 2020 lecture materials.

CONCLUSION

- Course evaluations from past years have included student concerns on the limited diversity of skin tones in lecture images
- Performance on our assessment may vary based on personal experience, lecture attendance, performance in the course, and use of external study materials
- Limitations include comparison of classes with a 1-year difference in preclinical education and board exam preparation
- The study is in its early stages and will be deployed this year

ACKNOWLEDGEMENTS

- ISMMS Department of Medical Education

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Attitudes and Perspectives of Neurology Faculty Toward Neurology Resident Well-Being and Burnout

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Icahn School of Medicine at Mount Sinai

Introduction

- Neurology residents nationally have reported high rates of burnout relative to other specialties
  - In 2017, 73% of neurology residents and 55% of fellows had at least one symptom of burnout
  - 60% neurologists had at least one symptom of burnout
- The purpose of this study was:
  - To gauge the current attitudes and perspectives of neurology faculty towards neurology residents' well-being and burnout
  - Gain information that will help guide the content and structure of future faculty development

Methods

- 35-item questionnaire to obtain information about faculty demographics workload, burnout and attitudes towards resident wellness
- Utilized Likert-style response options and survey questions were thematically grouped into one of three categories:
  - Faculty-resident understanding (tendency towards empathy or understanding of resident experiences),
  - Attitudes towards residency training overall, and
  - Faculty perceptions of their own preparedness to recognize when residents are struggling due to fatigue or emotional exhaustion/depression
- Also screened for symptoms of burnout among faculty using a validated single-item questionnaire
- Survey was distributed via email to all neurology faculty at the Icahn School of Medicine at Mount Sinai's two neurology programs:
  - Mount Sinai Hospital
  - Mount Sinai Beth Israel/Mount Sinai West
- **Statistics**:
  - Group differences between respondents with and without burnout were assessed using t-tests and rank sum tests
  - Associations between categorical variables were assessed using crosstabulations and chi-square tests of association

Data

Table 1: Demographics

Respondent Demographics	
Female	57.14%
Age	48.25
Children	61.9%
Burnout	39%
Downtown	39%
Uptown	61%
Primary Inpatient	35.7%

Table 2: Faculty Attitudes and Burnout by Gender

	(n/n)	Female	Male	95% CI	P Value
Burnout	24/17	54.2%	17.6%	[.0958 -.635]	p=.0182
			Mean		
Burnout as Resident	21/16	2.67	1.88	[1.33 - .253]	p=.0052
Negative Attitude Towards Residency	21/16	4.19	3.56	[1.34 -.0848]	p=.082
Less Faculty-Resident Understanding	21/16	13.9	15.4	[-3.07 -.0365]	p=.055
Faculty Preparedness	21/15	4.81	4.2	[1.44 -.221]	p=.1449

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Results

- Survey was emailed to 113 neurology faculty and 42 surveys were completed (response rate 37.2%)
- Average age of respondents was 48.25 years (n=38)
- 57% were female (24/42)
- Burnout was reported by 39% of respondents (16/41)
- Female faculty members were more likely to report burnout (p=.02) and were more likely to provide responses indicative of faculty-resident understanding (p=.055)
- With a trend towards significance, female faculty members were more likely to express negative attitudes towards residency overall (p=.082)
- Fewer years in practice was associated with greater understanding of resident experiences (p=.002) and with more negative attitudes towards residency overall (p=.045)
- There were no significant differences in attitudes towards residency, faculty preparedness or faculty-resident understanding between neurology faculty with and without burnout.

Take Home Points

- Many early-career neurologists are recent residency graduates, which may provide an increased level of familiarity with current training practices
- Female faculty may encounter unique challenges during training, impacting their outlook on this experience
- A multitude of alternate possible explanations for these findings exist and further exploration is warranted
- These results may guide faculty development programs to help mitigate burnout and promote wellness among neurology residents and faculty.

The Utility of Mock Virtual Otolaryngology Interviews During the COVID-19 Pandemic

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BACKGROUND

The COVID-19 pandemic has greatly disrupted the otolaryngology residency application cycle. Reliance on virtual meetings, virtual electives and virtual interviews has caused considerable apprehension for students and faculty alike. The use of in-person mock interviews has been shown to improve preparedness and confidence among interviewees. Less is known, however, about the utility of mock virtual interviews. This study explores the utility of a mock residency interview program in preparing otolaryngology applicants for a virtual interview format.

METHODS

Pre- and post-mock interview surveys were administered to 19 medical students applying into Otolaryngology residency. The mock sessions consisted of 15-minute standard virtual Zoom interviews with senior otolaryngology faculty (uninvolved in the residency application process) at The Mount Sinai Hospital, followed by 15 minutes of feedback. Pre- and post-interview surveys contained 12 and 21 questions, respectively, targeting confidence levels, ease of communication, perception of non-verbal cues, technical difficulties, and overall satisfaction.

RESULTS

17 applicants responded to both surveys, yielding an 89.5% response rate. Applicants were significantly more confident in their ability to perform well during a virtual interview following their mock session (40% confident before vs. 88.2% after, p=0.001). Approximately 30% of applicants experienced technical difficulties during their session. Ease of virtual communication (65.0% vs. 94.1%, p=0.002), concern over impaired perception of an interviewer's non-verbal cues (90.0% vs. 58.8%, p=0.03), and perceived lack of control (55.0% vs. 35.0%, p=0.04) all significantly improved following the mock interview program.

Table 1: Proportion of participants who agreed with statement following mock interview

Aspect of Mock Virtual Interview	%
Found mock interview helpful	82.35%
Improved virtual confidence	58.82%
Encountered technical difficulties	29.41%
Received helpful feedback	76.47%
Adequate interview time allowed	82.35%
Adequate feedback time allowed	82.35%

Table 2: Proportion of participants who agreed with statement before and after interview

Component of Questionnaire	Before (%)	After (%)	P value
Confidence with virtual interview performance	40.00%	88.24%	<0.0001
Comfortable with virtual interview communication	65.00%	94.11%	0.002
Less control over virtual performance	55.00%	35.30%	0.05
More difficult connecting with interviewer virtually	90.00%	58.82%	0.01
Worried about detecting and responding to non-verbal cues	90.00%	58.82%	0.03

CONCLUSIONS

With new reliance on virtual platforms for communication during the otolaryngology residency application cycle, a mock virtual interview program is an impactful tool to help improve student confidence and preparedness. As virtual platforms in medicine become increasingly ubiquitous, further research is warranted to explore the longer-term impact these preparatory programs have on applicant success.

Training and Transformation of the Pediatric Healthcare Environment to Promote Positive Parenting

Aurora Lewis • Aliza Pressman PhD • Mariel Benjamin LCSW • Carrie Quinn MD • Ellen Galinsky MS • Blair Hammond MD

INTRODUCTION

- Specific parenting behaviors have been shown to promote children's early cognitive-social-emotional and health outcomes
- Babies are primed for learning. Over a million new neural connections are made each second in the first years of life
- New parents are also primed for learning during the postpartum period
- The postpartum unit offers a unique opportunity to share the science of early learning and positive parenting behaviors with families through physical messaging and staff training

OBJECTIVE

- To assess the impact of both physical messaging and training on hospital staff's self-reported knowledge, attitudes, and behaviors in regards to promoting early childhood development through everyday healthcare interactions with families

METHODS

- Staff on Mount Sinai Hospital postpartum floors, including nurses, lactation consultants, business administrators, PCAs, security, and food services were surveyed before and after placement of physical messaging and 1-hour training
- Surveys measured:
  - Knowledge and attitudes on a Likert scale
  - Behaviors on a dichotomous scale
  - Responses analyzed using *t*-tests

Table 1: Content Staff Discussed, Modeled or Praised with Families

Did You Discuss, Model or Praise the Following with Parents or Caregivers?	Pre: % of staff selected yes	Post: % staff selected yes	p-value
The brain grows the fastest during the first five years of life.	65	80	0.035
It is important the parents talk to their children for early brain development—even before their children can talk.	77	88	0.002
Having back and forth interactions with the child (pausing, waiting for response).	65	84	0.005
Talking out loud about the things you are seeing, hearing, and doing.	72	92	0.001
Making eye contact and looking into the child's eyes.	88	99	0.008

RESULTS

- 75 staff completed pre-survey
- 77 completed post- survey
- Statistically significant changes in behavior, knowledge and attitudes
- Staff knowledge on infant brain growth, the impact of positive parenting and verbal stimulation on brain development increased significantly (**Table 2**)
- Staff attitudes increased significantly (**Table 2**)

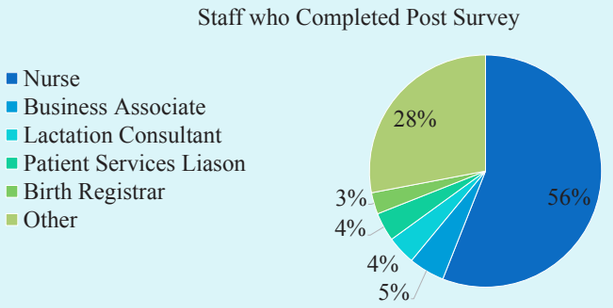
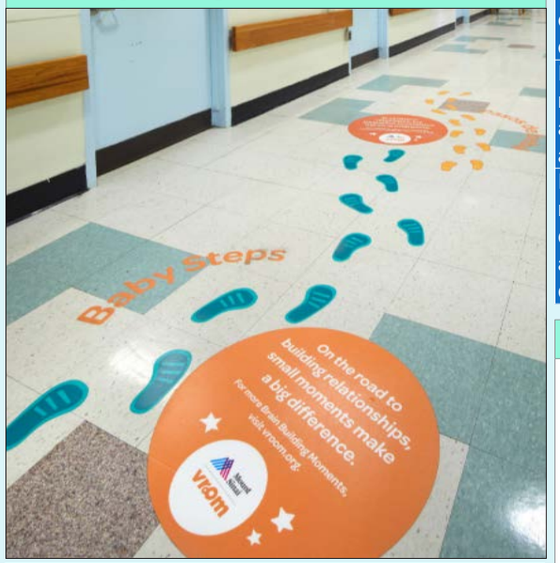


Image of Postpartum Floor Installation



Acknowledgements Our thanks to Edge Research for assistance with data analysis. This project was a collaboration between the Mount Sinai Parenting Center and VROOM and was generously funded by the Bezos Family Foundation.

Table 2: Pre/Post Staff Attitudes and Knowledge

Did you know or believe the following:	Pre: % staff selected STRONGLY AGREE	Post: % staff selected STRONGLY AGREE	p-value
Children start learning the moment they are born.	83	94	0.045
Positive relationships with caring adults are critical for early brain development.	85	96	0.013
The brain grows fastest during the first five years of life.	79	94	0.009
It is important that parents talk to their children for early brain development-even before their children can talk.	81	96	0.002
Parents can promote early brain development as part of daily routines.	86	97	0.008
Hospital staff can promote early brain development during typical interactions.	62	90	0.000
At Mount Sinai, we all have a role in encouraging children's early learning and brain development.	69	87	0.007
It is part of my role to share specific information or messages with parents and caregivers about early learning and brain development.	60	77	0.022
In my setting it is feasible to routinely demonstrate positive adult-child interactions for parents and caregivers.	61	82	0.003
In my setting it is feasible to routinely praise parents and caregivers for what they are already doing to support their children.	67	82	0.033

CONCLUSIONS

- A 1-hour staff training and physical messaging significantly changed staff reported knowledge, attitudes and behaviors regarding promoting positive parenting
- Strengths and innovations of this study are:
  - Inclusion of inter-professional staff
  - Utilization of physical space to prompt staff behavior and deliver science
  - Leveraging the postpartum period as an opportunity to promote early development
  - Cultural transformation valuing the inclusion of promoting strong parent-child relationships and early childhood development in the healthcare setting
  - Creation of a scalable model for implementation at other institutions

Point-of-Care Ultrasound Skill Acquisition and Decay Curves in Attending Physicians

Elizabeth J. Yetter, MD

Icahn School of Medicine at Mount Sinai

ABSTRACT:

Introduction:

When a medical procedure, skill, or area of knowledge isn't routinely reviewed there's a risk of losing competency. An area which is commonly practiced and has significantly impacted medical care is point-of-care ultrasound (POCUS). POCUS learning curves have been studied in medical students and resident physicians [RPs], but only in a limited fashion in attending-level physicians [ALPs]. Furthermore, research on POCUS skill decay, defining when to optimally intervene with continuing medical education re-training, is lacking. Our primary hypothesis is **that ALPs have significantly different learning curve profiles vs with those characterizing RPs and medical students. Our secondary hypothesis is that skill decay rates of ALPs will vary as a function of frequency of POCUS application over time.**

Aim 1: Determine POCUS learning curves for ALPs who were not previously credentialed in an ultrasound modality during residency. We hypothesize that POCUS learning curves differ for ALP vs RP, as their baseline medical knowledge and clinical responsibilities differ.

Aim 2: Establish the average decay rates for ultrasound competency relevant to emergency ultrasound. We hypothesize that ALPs will have diminished competency over time if they don't consistently perform or supervise POCUS; the rate of competency decay over time may also be impacted by POCUS procedural difficulty and practice of similar procedures.

Aim 3: Determine the frequency of POCUS performance or supervision for ALPs necessary to maintain competency. We hypothesize there's a minimum number of POCUS exams either performed or supervised necessary to maintain competency.

Method:

AIM 1: Attendings not credentialed in a core POCUS (Aorta, Biliary, FAST, Renal, First Trimester Pregnancy, Lung, Cardiac) will have a baseline knowledge test, a skills test via Standardized Direct Observation Tool (SDOT), and a survey on previous experience followed by a curriculum similar to that followed by RPs but adjusted to their clinical schedule. After course completion, ultrasounds will be examined in quality analysis (QA) and they will undergo a post-test SDOT.

AIM 2 & 3: Attendings credentialed in a core POCUS exam will undergo an SDOT and knowledge test without prior preparation. Studies performed either by them or while supervising RPs will be reviewed.

Proposed Analysis:

AIM 1: The number of ultrasounds performed to reach an acceptable level of skill as determined by trained faculty during QA will be examined to determine the number needed to reach competency in addition to a passing score on the post-test SDOT.

AIM 2: Attendings who do not pass the SDOT will have their QA reviewed to determine the last time they performed or supervised the scan in order to extrapolate the average decay rates.

AIM 3: Attendings who pass the SDOT will have their QA reviewed to determine the last time they performed or supervised the scan and the number of those scans performed or supervised in the past two years.

Conclusion:

Establishing and maintaining competence in a skill or area of knowledge is paramount to advancing medical education and promoting patient safety. Continuing medical education would benefit from further research, providing physicians with evidence-based recommendations to maintain competency.

INTRODUCTION:

When a medical procedure, skill, or area of knowledge isn't routinely reviewed there's a risk of losing competency. An area which is commonly practiced and has significantly impacted medical care is point-of-care ultrasound (POCUS). POCUS learning curves have been studied in medical students and resident physicians [RPs], but only in a limited fashion in attending-level physicians [ALPs]. Furthermore, research on POCUS skill decay, defining when to optimally intervene with continuing medical education re-training, is lacking. Our primary hypothesis is that ALPs have significantly different learning curve profiles vs with those characterizing RPs and medical students. Our secondary hypothesis is that skill decay rates of ALPs will vary as a function of frequency of POCUS application over time.

Aim 1: Determine POCUS learning curves for ALPs who were not previously credentialed in an ultrasound modality during residency. We hypothesize that POCUS learning curves differ for ALP vs RP, as their baseline medical knowledge and clinical responsibilities differ. Prior research has shown that basic skills require up to 50 scans while high-level expertise may require up to 750 scans depending on modality (e.g. lung ultrasound vs advanced echocardiography).

Aim 2: Establish the average decay rates for ultrasound competency relevant to emergency ultrasound. We hypothesize that ALPs will have diminished competency over time if they don't consistently perform or supervise POCUS; the rate of competency decay over time may also be impacted by POCUS procedural difficulty and practice of similar procedures.

Aim 3: Determine the frequency of POCUS performance or supervision for ALPs necessary to maintain competency. We hypothesize there's a minimum number of POCUS exams either performed or supervised necessary to maintain competency.

METHODS :

AIM 1: Attendings not credentialed in one of a core POCUS (FAST, First Trimester Pregnancy, Lung, Cardiac, Aorta) will have a baseline knowledge test, a skills test via Standardized Direct Observation Tool (SDOT), and a survey on previous experience followed by a curriculum similar to that followed by RPs but adjusted to their clinical schedule. After course completion, ultrasounds will be examined in quality analysis (QA) and they will undergo a post-test SDOT.

Pre-Course	Learning Period (2 Months Maximum)	Post-Course (~1 week after finishing scans)
• Survey of Prior Experience • Baseline Knowledge Test • Baseline SDOT	• AEUS Course videos and exams (prior to first scan) • Lectures (same as given to residents as applicable) • Scanning with US Faculty and individually • Every fifth scan will be repeated by a member of the Ultrasound Faculty up to a total of 30 scans	• Knowledge Test • SDOT

Figure 1. Outline of Course Content for Attendings Undergoing Education and Credentialing

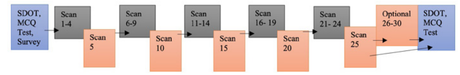


Figure 2. Schematic representation of course and scans performed by the ALP with US Faculty confirmatory scans every fifth scan

ALPs will be sent a survey inquiring about any previous ultrasound experience they have had such as previous courses and about demographic information (gender, PGY year, etc.) The baseline test will be a series of ultrasound images followed by multiple choice answers designed in-house by ultrasound faculty and administered online. A baseline SDOT will be administered by ultrasound faculty. ALPs will be given access to the Academic Emergency Ultrasound (AEUS) training videos and quizzes relevant to their area of study and will meet with ultrasound faculty to perform scans at bedside in the Emergency Department in the same fashion as those done with the Emergency Medicine residents.

As with the APECHO study, the supervised scans will be measured against an expert scan performed by ultrasound faculty at every five scans to serve as a benchmark of competence. ALPs must perform 25 scans but if they have not achieved 25 scans with basic competence, may continue until 30 scans or achieving a baseline of 25 competent scans. They will then undergo a knowledge test and an SDOT approximately 1 week from the last scan.

AIM 2 & 3: Attendings credentialed in a core POCUS exam will undergo an SDOT and knowledge test without prior preparation. Studies performed either by them or while supervising RPs over the past two years will be reviewed.

2. 41 y/o F presents with abdominal pain s/p a fall from a ladder while she was changing a lightbulb. Initial vitals are as follows: HR 100, BP 90/50, RR 25, SpO2 98% on RA. Here is the RUQ during your FAST exam. What is the next best step?

1 POINT

A call surgery immediately

B intubate this patient immediately

C no immediate action needed, trace free fluid is normal in women

D rush to CT scan for an abdomen/pelvis study

i In this image, free fluid is seen in the RUQ/Morison's pouch and extends to the inferior pole of the kidney and tip of the liver. In the setting of trauma, this is concerning for bleeding in the abdomen and in light of the abnormal vitals, surgery needs to be called immediately.

Figure 3. Example knowledge question from the pre- and post-test for the FAST exam

PROPOSED ANALYSIS:

AIM 1: The number of ultrasounds performed to reach an acceptable level of skill as determined by trained faculty during QA will be examined to determine the number needed to reach competency in addition to a passing score on the post-test SDOT. Acquisition of competence over time is defined as a percentage of agreement between the trainee and the expert above 80%.

Example

MRN	Attending	Date	PSSL	PSSA	A4C	SUBX	Overall QPATH score	% correct (1=pass, 0=fail, .=not done)	
123	Hamilton	1/3/21	1	1	0	1	3	75%	
456	Hamilton	1/3/21	1	1	.	.	3	100.00%	
134	Hamilton	1/3/21	1	1	.	.	3	100.00%	
135	Hamilton	1/3/21	1	0	.	.	2	50.00%	
148	Hamilton	1/3/21	1	1	1	.	3	100.00%	Yetter Benchmark
								90.00%	Average

Figure 3. Example of scoring for five ultrasound by ALP Hamilton. Each image is looked at individually and scored as pass or fail. The overall QpathE score is also recorded. Participants may have a study where they obtain four images, only two are required, 3 of them are acceptable and the overall score is passing score of "3" but they would receive a 75% on that exam as the Qpath Overall score is a global score where the individual images stand apart.

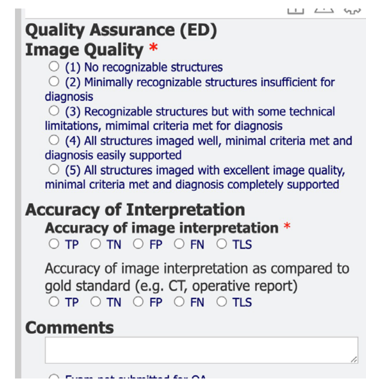


Figure 4. Quality Assurance Image Quality Designations and Accuracy. TP=True Positive, TN= True Negative, FP = False Positive, FN=False Negative, TLS = Technically Limited Study

AIM 2: Attendings who do not pass the SDOT will have their QA reviewed to determine the last time they performed or supervised the scan in order to extrapolate the average decay rates.

AIM 3: Attendings who pass the SDOT will have their QA reviewed to determine the last time they performed or supervised the scan and the number of those scans performed or supervised in the past two years.

CONCLUSIONS:

1. Pending- Currently under IRB Review; We aim to see if there is a difference between attending and resident learning curves, establish what the skill decay curves are in the core ultrasound applications, and determine how many performed and supervised ultrasound are necessary to maintain skills.

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A Coaching and Appreciation Workshop for Faculty Leaders to Enhance Faculty Well-being and Engagement

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Icahn School of Medicine at Mount Sinai, Talent Development and Learning, Mount Sinai Doctors Faculty Practice

ABSTRACT:

Introduction: Literature suggests that faculty leaders' behaviors relate to burnout and engagement of faculty and that leadership support may lead to lower rates of burnout. In particular, faculty whose leaders provide coaching and feedback and recognize them for a job well done are less likely to be burnt out while targeted coaching efforts can improve well-being at work.

Method: Utilizing literature and our needs assessment (institution-wide faculty survey), we created 2 sessions on coaching and appreciation of team members. Sessions included brief didactics, role play, polling, and group discussion. Pre-post surveys were conducted to assess pre/post workshop attitudes and post workshop satisfaction with the session.

Result: Of the 88 leaders invited, 62 (70%) attended at least one session and 43 (%) attended all sessions. 42/62 (68%) attendees completed the pre-workshop survey. Most felt they were moderately (71%) or extremely skilled (26%) in coaching, with 85% feeling reporting they sometimes or frequently provided coaching to direct reports. Most leaders felt that they show appreciation in various ways "at least some of the time" (91-100%). Barriers to coaching and providing appreciation included: not enough time, too many faculty reports, lack of direct observation and lack of skill. Over 50% of attendees responded to the post-workshop survey. The learners agreed that the workshop increased their knowledge or skills in coaching (92%) and appreciation (96%), and 88% felt that their peers would benefit from these workshops

Conclusion: We successfully recruited senior leadership to attend innovative workshops focused on coaching and appreciation skills. Although we were limited in participants and a one-time virtual workshop, participants practiced skills and received feedback. Next steps include providing the workshop to other institutional leaders and measuring long-term changes in leadership behavior and faculty well-being.

INTRODUCTION & OBJECTIVES:

Burnout in physicians remains a widespread problem across all settings of practice. As the role of the physician continues to evolve with changes in technology, policy and disease, there is an increasing pressure on doctors to meet quality standards and increase revenue generating activity while continuing to connect with compassion to their patients and colleagues. These increasing demands along with the current added stress of the pandemic are leading to increases in symptoms of mental health conditions as well as increases in burn out and stress levels. We also know that certain behaviors of physician and faculty leaders are related to burnout, stress and engagement in work and that support of leadership may lead to lower risks of burnout and mental health symptoms. In particular, physicians whose leaders provide coaching and feedback are less likely to be burnt out while targeted mentorship and coaching efforts can improve well-being, engagement and productivity in the workplace. In addition, being recognized by your leader for a job well done is associated with a lower likelihood of burnout and being appreciated by your leader can improve engagement and productivity in the workplace. Being valued by leadership may also protect against developing increased distress and mental health symptoms surrounding the pandemic.

Objectives:

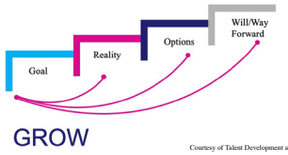
1. To deliver a coaching and appreciation workshop to faculty leaders
2. To improve skills and attitudes of faculty leaders in coaching and appreciation

METHODS :

Further qualitative and quantitative data confirmed that leaders themselves desired concrete methods and tools to improve their appreciation techniques and coaching and career development conversations with their teams. A group of physician and non-physician experts gathered to create a curriculum for leaders on coaching and appreciation. We recruited faculty leaders via leadership meetings and personal emails.

Coaching

This hourlong curriculum aimed to a) impress upon physician leaders the urgency of this issue, b) explain the value and need for coaching skills, and c) introduce best practice specific methodologies in having coaching conversations. The result was a session of blended learning incorporating brief didactic elements, role play activities, polling, and group discussion. Our session hits upon a variety of elements such as personal fulfillment and motivation, humble inquiry, active listening, cognitive bias and the GROW Coaching Model. Our faculty are a mix of 2 physicians and 2 non-physicians, including an organizational psychologist and, an MBA and leadership trainer, all with expertise in leadership development, coaching, and motivation.



Courtesy of Talent Development and Learning

Appreciation

This session aims 1) to make the case for the importance of leaders showing appreciation and recognition to team members 2) to provide concrete tools to find the praise-worthy behaviors 3) to develop cues for when to recognize team members and 4) to authentically show appreciation and recognition to your team members. This is not a workshop to create more awards, but instead intends to demonstrate how to regularly value and appreciate all of the team members. This workshop is based on the *Celebrate and Elevate* model, created by Sinai Spotlight, our Health System's collaborative employee recognition and appreciation committee. The program built on a strong leadership commitment to a culture of employee recognition and appreciation by promoting simple and memorable models to increase the impact of their efforts and communications. The program encourages leaders to actively look for opportunities to CELEBRATE, praise, recognize, and appreciate staff and offers techniques on how to ELEVATE the impact of these moments by leveling up their communication with Spotlight's *Three Levels of Praise* model and by building in cues for consistency.

Level 1: Surface Praise
Level 2: Specific Praise
Level 3: Attribute Praise

Courtesy of Talent Development and Learning

Evaluation

Our evaluation plan included surveys administered pre- and post-workshop. The pre-workshop survey assessed attitudes towards and quantity of coaching and appreciation; the immediate post-workshop survey assessed the content and delivery of the sessions. The delayed post-workshop survey will assess changes in behavior in coaching and appreciation. The former 2 surveys have been completed with descriptive data shared here.

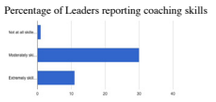
RESULTS:

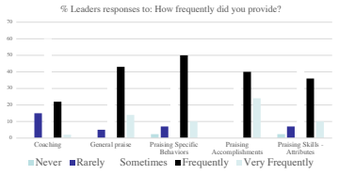
Participants

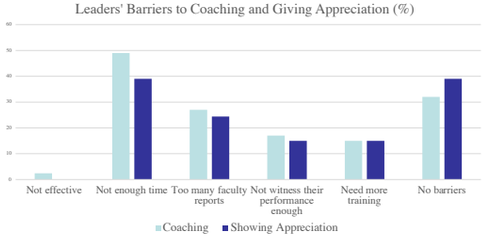
Of the 88 leaders invited, 62 (70%) attended at least one session and 43 (%) attended all sessions. This included: 23 Chairs, 15 Institute Directors, 6 Hospital CEO's/CMO's.

Pre-Workshop Survey

(n=42/65) 65%

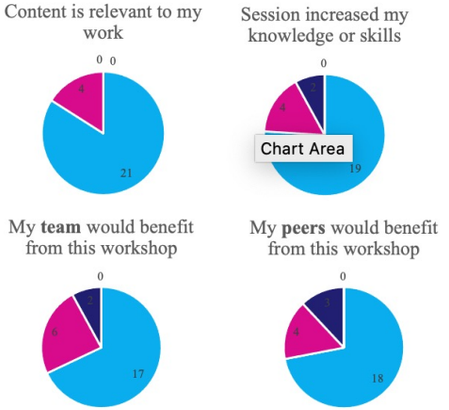






Post-Workshop Survey: Coaching

(n=25/48) 52%



Strongly Agree, Agree, Neutral, Disagree

Qualitative

What skills or information will you use?

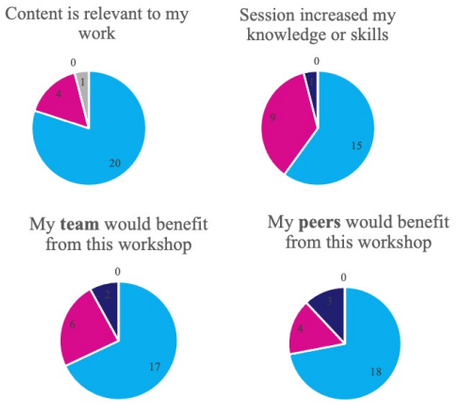
- GROW model (11x)
- Structured approach to performance evaluations with personalized interactions
- Active listening, humble inquiry

What would you suggest to improve the Coaching sessions?

- Nothing (6x)
- More time
- Expand the humble inquiry model from an interview example to a work example

RESULTS Continued

Post-Workshop Survey: Appreciation (n=25/47) 53%



Strongly Agree, Agree, Neutral, Disagree

Qualitative

What skills or information will you use?

- Three levels of praise (4x)
- Showing appreciation in a specific manner through attributable praise
- Methods to deliver appreciation, personalized notes

What would you suggest to improve the Appreciation sessions?

- Template tools
- Approaches for different types of employees
- Follow up would be useful
- More interaction

CONCLUSIONS:

1. Leaders felt moderately skilled in coaching before the workshop and most believe they provide coaching and appreciation sometimes or frequently to their reports.
2. Barriers to giving coaching and appreciation to reports included lack of time, too many reports, not enough witnessed behaviors and the need for more training.
3. We successfully recruited senior leadership to attend innovative workshops focused on coaching and appreciation skills.
4. Most attendees felt that both sessions were relevant to their work, increased their knowledge and skills and would recommend the session to others.
5. Limitations included the moderate number of participants and not yet measuring behavior changes and downstream affects of the sessions.
6. Next steps include providing the workshop to other institutional leaders and measuring long-term changes in leadership behavior and faculty well-being

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The THRIVE COVID-19 fellowship: creating a forum for collaborative team science and innovation development

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Icahn School of Medicine at Mount Sinai

ABSTRACT:

Introduction: Mount Sinai Targeted Healthcare Innovation Fellowship (THRIVE) is a 9-month program for participants from diverse professional backgrounds to develop MedTech innovations related to COVID-19. The program is designed to provide an experiential team science platform for participants to take a project idea from concept to commercially viable innovation.

Methods: Following a competitive application process, THRIVE fellows self-select into 3 transdisciplinary teams to work collaboratively across Slack and other online platforms. Success of the program will be evaluated by: 1) assessing pre- and post- collaborative research orientation among THRIVE fellows using the ROS scale,[1] 2) using social network analysis (SNA) to investigate the social networks of THRIVE fellows to capture patterns of communication and collaboration related to innovation development, 3) exploring participant experiences of group formation, teamwork and collaboration related to innovation development using one-to-one semi-structured interview, and 4) determining team success in innovation development, measured by number of publications, funding awarded, provisional patents and viable products.

Results: A total of 31 participants were interviewed and 16 selected from diverse backgrounds including medical students, graduate students, post-docs and residents/ fellows. Three self-selected teams formed to develop innovations to tackles a range of issues related to COVID-19. As the program comes to completion, SNA will be used to describe structural patterns of communication with mentors and experts in the field that occur at individual and group levels. We will also test for associations between network characteristics and team success.

Conclusion: Understanding patterns of formal and informal relationships, interactions, and perceptions of the collaborative process among individuals in THRIVE teams will demonstrate whether such a program can provide an effective forum for team science and innovation development related to COVID-19.

INTRODUCTION:

Launched in October 2020, the Mount Sinai Targeted Healthcare Innovation Fellowship (THRIVE) is a 9-month program for participants from diverse professional backgrounds to form teams to develop a HealthTech innovation related to COVID-19. This unique program is designed to provide an experiential team science platform for participants to take an idea from concept to commercially viable innovation, whilst developing the skills to work collaboratively in multidisciplinary teams. THIRVE participants are comprised of medical students, graduate students, and trainees (including residents and fellows) from across the Icahn School of Medicine at Mount Sinai.

AIMS:

THRIVE aims to allow participants to:

- gain first-hand experience in MedTech innovation,
- develop team science skills by collaborating with talented and motivated trainees with diverse backgrounds and perspectives,
- connect with top researchers leading innovation in relation to COVID-19,
- take a project idea from concept through to commercially viable innovation.

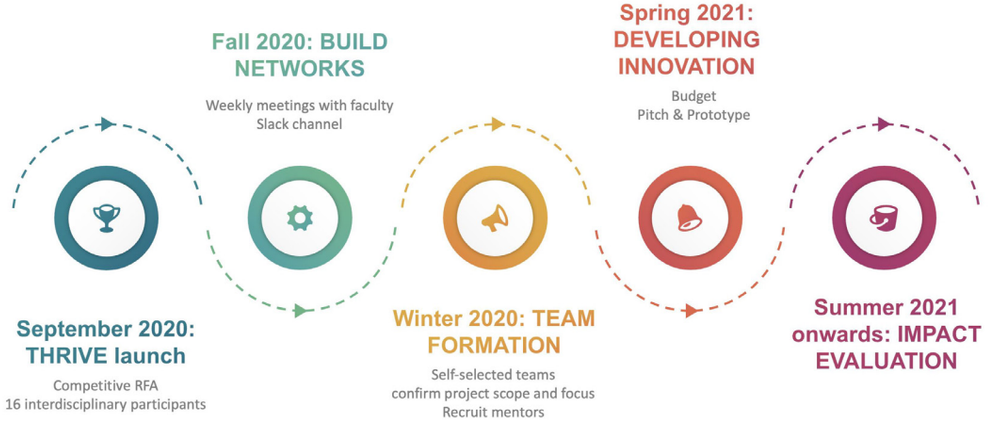
METHODS:

A competitive application process recruited trainees from across the Icahn School of Medicine (ISMMS), the Graduate School of Biomedical Sciences (GSBS) and the Mount Sinai Health System (MSHS). Participants collaborated with one another on Slack and scoped out potential team mates. Weekly Q&A sessions introduced participants to MSHS faculty who led innovation during the height of the COVID-19 pandemic, who could act as mentors, and a library of faculty videos focused on key concepts in COVID-19 innovation development.

Scan the QR code to watch!

Teams agree on a project focus, recruit advisors, engagement mentors and develop an initial project pitch. Each team is allocated $2500 for skills training and tech consultation. Guided by mentors, teams participate in external innovation competitions and internal Sinai Innovations (see Figure 1 for program timeline).

To explore our outcomes in relation to team science innovation, we will take a social network analysis (SNA) approach to explore the patterns of communication and relationships both between members of the teams, and their wider support network.



Using a mixed-methods approach, participants will be asked to drawn their own professional networks in relation to the THRIVE innovation project. This network map will be used as the stimulus to discuss teamwork and innovation development in one-to-one interviews.

RESULTS:

A total of 31 participants were interviewed and 16 selected from diverse backgrounds including:

- medical students, graduate students, post-docs and residents/ fellows
- Engineering, AI, rehabilitation, pathology, surgery, medicine

Three self-selected teams formed with common interests and diverse expertise. The demographics of THRIVE participants can be seen in figure 2 and current team projects in table 1.

Vir2U	ChangeDx	Lowe-Stock
An app that increases the quality of epidemiological data tracking with quality risk assessment for reopening strategies post-COVID-19.	A monitoring system to detect deviations in Emergency Department arrivals, in terms of patient case mix, disease distribution, and severity index quantified by Emergency Severity Index.	An app that improves supply chain intelligence for hospitals and medical centers through better equipment tracking at ground level.

Table 1. THRIVE team projects

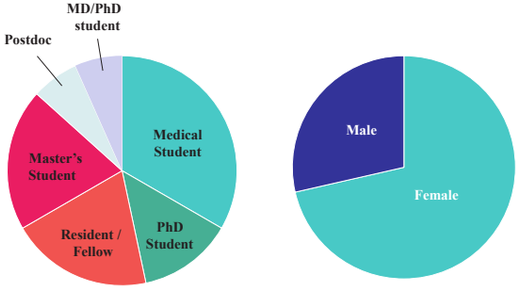


Figure 2. Self-identified demographics of THRIVE participants

Social Networks

The core network map for Team A is shown in Figure 3. You can see the variety of expertise of individuals who have come together to collaborate on this shared project. We anticipate participant interviews will enable us to explore the synergistic nature of teamwork in relation to innovation development, in addition to the interaction and impact that mentors and advisors have on team innovation. Exploring these networks in terms of cohesion and connectedness may tell us something about network patterns that support team science success.

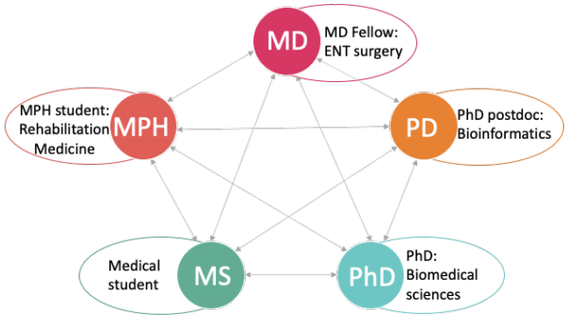


Figure 3. Team A network

ONGOING EVALUATION:

As this is an ongoing program, the following data is still to be collected:

Short term outcomes:

- Assess pre- and post- THRIVE program attitudes towards collaborative research (pre- and post- ROS scale[1])
- Investigate interdisciplinary networks of teams, advisors and mentors (social network analysis)
- Explore participant experiences of group formation, teamwork and collaboration related to innovation development (qualitative semi-structured interviews)

Long term outcomes:

Innovation success as determined by:

- Funding
- Publications
- Provisional patents and copyrights
- Implementation of viable innovations
- Integration into COVID-19 efforts at an organizational level at MSHS.

FUTURE PLANS:

Despite being an ongoing project, THRIVE is showing promise as both a forum to foster team science skills, and a platform for innovation development in relation to COVID-19.

Future plans are to:

- Provide ongoing mentorship to current teams to continue to advance projects, secure funding and launch innovation,
- Apply for, and secure, additional funding to expand THRIVE educational initiatives to address future healthcare challenges with MedTech innovation,
- Integrate this approach with others to foster a team science environment and increase teaming capacity at Mount Sinai.

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Ophthalmology Educator Attitudes Towards Gender-specific Mentorship

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ABSTRACT:

Introduction: Despite relatively equal gender representation among US medical students, a gender gap exists in female representation within academic medicine. Numerous studies have emphasized the influence of gender-specific mentors in medical students' career decisions, but this has not been explored fully in ophthalmology. Therefore, this study evaluated ophthalmology educators' attitudes towards gender-specific mentorship, to better understand how this relates to medical students' decision to enter the field and their career development. [1,2,10]

Methods: A 22-question survey was sent to AUPO Department Chairs, Residency Program Directors, and Medical Student Educators. Additionally, the gender breakdown of current AUPO members was determined through a review of the AUPO membership directory. We also compared the number of female students applying to ophthalmology residency with the number of female ophthalmology faculty using AUPO and AAMC workforce data. Student's t-tests and chi square were used for analysis.

Results:

75 members responded (23.7%), including 17 of 135 Chairs (12.6%), 34 of 114 PDs (29.8%), and 30 of 72 MSEs (41.7%). Of AUPO members, 85.2% of Chairs, 67.5% of Program Directors, and 43% of MSEs are male. Of respondents, 55.4% identified as female and 44.6% as male.

Male and female members had 47.9% and 47.6% female mentees, respectively, (p=0.451). However, 21.2% of male and 56.1% of female members agreed that a mentee of the same gender was important, (p<0.01). Furthermore, 13 of 40 female members (32.5%) reported having a significant female mentor themselves vs. 1 of 29 male members (3%), (p<0.05).

Conclusions: Male and female AUPO members reported no difference in the ratio of female mentees. However, female members were more likely to feel gender-specific mentorship was important, suggesting room for further development of this resource. Expansion of gender-specific mentorship in ophthalmology can promote equity in training and help address the lack of female representation in academic leadership.

INTRODUCTION:

Despite an increase in the number of women entering the medical field, there exists a disparity in the number of women in academic medicine.[1,2] More specifically, women comprise nearly 48% of all medical school graduates yet only represent 25% of all full time professors.[2] Furthermore, among cohorts of new assistant and associate professors beginning in 2008-2009, more men than women advanced over seven years.[2] Traditional gender roles, discrimination in the medical environment, and research intensity of institutions have often been cited as barriers.[3] In addition to this disparity, women comprise just 18.9% of department chairs across the country.[2] Nonetheless, numerous studies have suggested that mentors and role models for women in academic medicine may help remedy this disparity.[1,3]

Considering the importance of mentorship in furthering gender equity in medicine and leadership, the goal of this study is to explore the demographics of academic educational leaders in ophthalmology as well as their attitudes towards gender-specific mentorship, given this cohort is frequently involved in advising trainees. As meaningful mentorship may be a key strategy towards bridging the gender gap in female leadership within ophthalmology, understanding mentor attitudes will inform future needs to allow the field to move closer to this goal. These findings may also contribute strategies for recruitment of a diverse pool of future ophthalmologists.

METHODS :

With permission from the Association of University Professors of Ophthalmology (AUPO), a review of the AUPO directory from 2019 was conducted to determine the gender breakdown of all Ophthalmology Department Chairs, Residency Program Directors (PDs), and Medical Student Educators (MSEs).[4] We also compared the number of applicants to ophthalmology residency between 2016 and 2019 to the total number of practicing female medical school ophthalmology faculty using the Gender and Ethnicity Data from the AUPO and SF Match as well as the AAMC physician workforce data.[5,6] Results of these data were analyzed using Pearson's Rho and the associated R^2 value.

A 22-question anonymous web-based survey was sent to all Ophthalmology Department Chairs, Residency Program Directors (PDs), and Directors of Medical Student Education (MSEs) via the AUPO email listserv. Thirteen of the survey questions, including a mix of free response and Likert scale questions, inquired about attitudes towards mentorship and current mentorship experiences. Nine questions inquired about demographic information, including the participants' self-reported gender identities.

Respondent demographics were compared using summary statistics (Table 1). Additionally, all Likert scale questions, survey questions involving numerical data such as students mentored per year, time spent dedicated to mentorship, as well as the various types of mentorship, and demographic information such as age and years in practice were analyzed using Student's T-tests. All other demographic information including race and subspecialty practice were compared using Chi Square Analysis as were survey questions involving categorical data, such as whether mentors had significant mentors and whether the number of female mentees has increased throughout their careers . All analyses were conducted in R Studio. This study was determined to be exempt by the Icahn School of Medicine at Mount Sinai IRB.

Topic	Men	Women	P-Value
Sub-Specialty Practice	**30 (88.2%)**	**29 (70.7%)**	**0.65**
Cornea	5 (14.7%)	4 (12.2%)	0.51
Retina	3 (8.8%	5 (12.2%)	0.64
Glaucoma	8 (23.5%)	8 (19.5%)	0.99
Pediatrics	5 (14.7%)	6 (14.6%)	0.67
Oculoplastics	6 (17.6%)	3 (7.3%)	0.17
Neuro-ophthalmology	2 (5.9%)	1 (2.4%)	0.57
Other	1 (2.9%)	2 (4.9%)	0.18
Time in Practice (years)	**12.5 (36.8%)**	**17.5 years**	**0.10**
Age (years)	**49.26**	**45**	**0.08**
Reported Race	**31 (91.2%)**	**41 (100%)**	**0.22**
White	21 (61.8%)	23 (56.1%)	0.25
Asian or Asian Indian	6 (17.6%)	11 (26.8%)	0.34
Middle Eastern or Northern African	0 (0%)	2 (4.9%)	0.65
Black or African American Hispanic, Latino, or Spanish	2 (5.9%)	2 (4.9%)	0.85
	1 (2.9%)	1 (2.4%)	0.89
Other (Please specify)	1 (2.9%)	2 (4.9%)	0.67

Table 1: *AUPO survey respondent demographics, including sub-specialty practice, time in practice, age, and self-reported race. Note that p-values for sub-specialty and race are based on Chi Square testing whereas differences age and time and practice were evaluated using Student's T Tests. There were no statistical differences among survey respondents.*

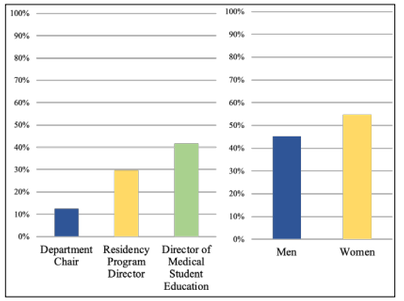

Figure 1: AUPO Respondent Demographics. (Left) Response rate based on role type. (Right) Percentage of male-identifying respondents and female-identifying respondents.

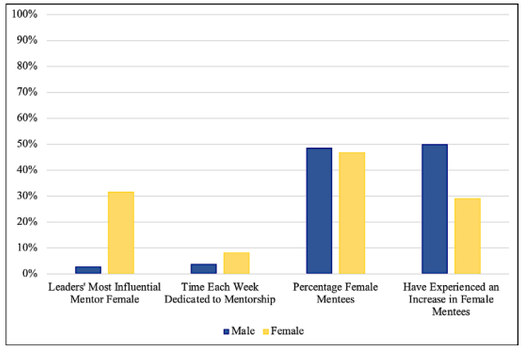

Figure 2: General Mentorship Survey Responses Based on Gender. (Left, First): Percentage of leaders whose most influential mentor in their training was female. (Second) Time each week that each leader dedicates towards mentorship. (Third) Percentage of mentees that are female for leaders. (Right, Fourth) Percentage of Leaders who have seen an increase in the number of female mentees over their career.

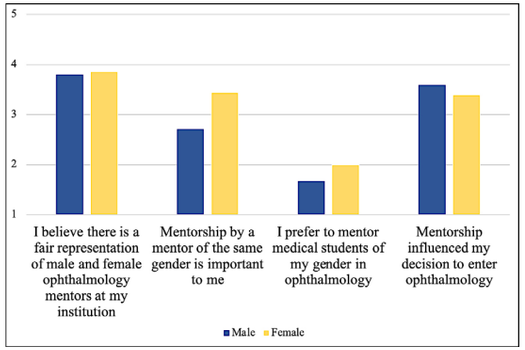

Figure 3: Average Survey Responses to Likert Scale Questions Based on Gender. 1 indicates strongly disagree whereas 5 indicates strongly agree with the statement.

RESULTS:

75 members responded (23.7% of total), including 17 of 135 Chairs (12.6%), 34 of 114 PDs (29.8%), and 30 of 72 MSEs (41.7%). Of current AUPO members, 85.2% of Chairs, 67.5% of Program Directors, and 43% of MSEs are male. Of respondents, 55.4% identified as female and 44.6% as male (Figure 1).

Male members indicating having approximately 47.9% female mentees vs. 47.6% for female members, (p=0.451). However, 21.2% of male and 56.1% of female members agreed that a mentee of the same gender was important, (p<0.01). Furthermore, 13 of 40 female members (32.5%) reported having a significant female mentor themselves compared to 1 of 29 male members (3%), p<0.05 (Figure 2) .

Women were more likely to agree that they would prefer to mentor a medical student of the same gender in ophthalmology compared to men, with average Likert scale scores of 2 and 1.67, respectively. Additionally, female members on average reported mentoring 5.27 students per year in ophthalmology vs. 4.26 students for men (Figure 3).

Finally, in the sub-analysis comparing the number of practicing female ophthalmology faculty and female applicants to ophthalmology residency between 2016 and 2019, both increased over the time period with an R2 value of 0.32, though this was not significant (0.68). Female applicants increased from 32% to 35% of all in the San Francisco Match while female ophthalmology faculty increased from 35% to 41% over the same time period.

CONCLUSIONS:

1. We found that gender-specific mentorship within ophthalmology among female AUPO Program Directors, Chairs, and Medical Student Educators exists and is valued.
2. However, respondents acknowledged that multiple forms of mentorship exist including a multiple mentor model, with gender-specific mentorship being an important component to some.
3. The development and increased institutional support of more formal trainee mentorship programs may facilitate an increase in the pool of female ophthalmology mentors
4. More investigation is also required to understand institutional, national, and societal practices that currently provide obstacles for females in ophthalmology, to ultimately help reduce the gender gap and create more opportunities for women in ophthalmology.

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Increasing Advance Care Planning in Post-Acute Rehabilitation - A Quality Improvement Intervention

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BACKGROUND:

- Post-acute Rehab (PAR) patients are fragile and high risk for decompensation
- Skilled Nursing Facility (SNF) use in last year of life

  From 2006 to 2011: **1 in 8** Medicare beneficiaries cycled between hospital and SNF during the last year of life
- This population needs advance care planning (ACP)
- This study aimed to increase ACP for PAR patients at a SNF in NYC

METHODS:

The study was conducted at a community skilled nursing facility (SNF) with 164 PAR beds. Electronic medical records for 34 recently admitted PAR patients were reviewed to quantify ACP prevalence. This facility has a PC screening tool as part of the admission process. We focused on the referral process to palliative care as it was the most modifiable component with the most potential to increase ACP completion. The first PDSA cycle focused on improving the rate of PC referrals for patients who screened positive on admission. Referrals were tracked with reminders to providers if referrals were not completed.

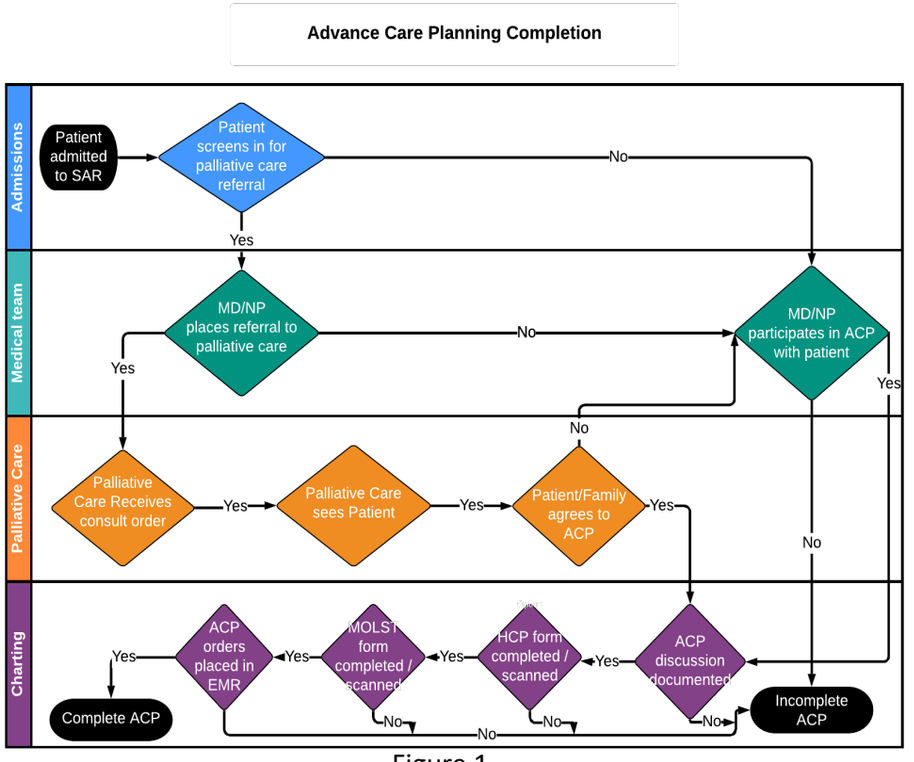

Figure 1

RESULTS:

At baseline, 23% of admissions had a Medical Order for Life Sustaining Treatment (MOLST) and 12% had a health care proxy. The palliative care screening tool identified 6 patients for referral to PC, but 0% of referrals were completed. After the PDSA was implemented 100% (9 of 9) of PC were completed. Secondary outcomes showed that the palliative care referral led to additional ACP in 30%(3 of 9) of the patients.

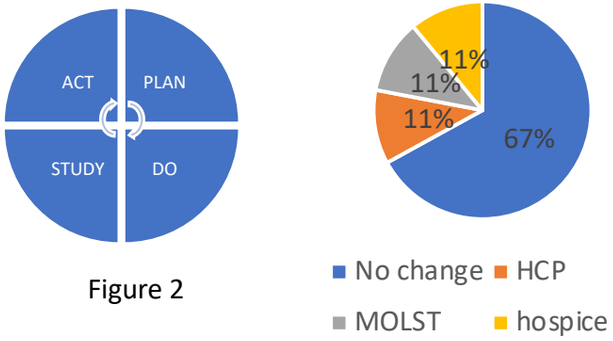

Figure 2

CONCLUSIONS:

This QI initiative increased the PC referral rate for PAR patients with identified PC needs. The low number of patients identified by the PC tool suggest that the tool is not sensitive enough. Future PDSAs will focus on revising the screening tool to more accurately identify patients who would benefit from specialty level PC, with the goal of developing a more reliable PC screening tool for PAR settings.

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Use of off-label medications and clinician uncertainty during the COVID-19 pandemic: a survey study

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BACKGROUND

- Prescription of a drug for use beyond the guidelines of regulatory authorities ("off-label") is common in medicine. [1] However, there is debate regarding the ethical and legal implications of the practice. [2,3]
- As of December 9, 2020, there have been over 15 million reported cases and over 285,000 deaths in the United States due to COVID-19, with limited treatment options [4].
- Drugs including hydroxychloroquine, lopinavir-ritonavir, tocilizumab, methylprednisolone and many others have been used off-label for COVID-19. [5]
- In the absence of evidence-based guidance for COVID-19, individual clinicians must decide if and how to prescribe medications off-label.
- The aim of this study is to assess frontline providers' attitudes regarding prescribing of drugs off-label for patients with COVID-19.

METHODS

- Online survey was emailed to 722 frontline physicians, nurse practitioners, physician assistants and clinical pharmacists at three hospitals within the Mount Sinai Health System. Survey completed over a 4-week period prior to June 8, 2020.
- Participants were eligible if they staffed inpatient medicine wards or the Intensive Care Unit (ICU) between March 1st and May 11th during the COVID-19 pandemic.
- Survey questions (Table 2) evaluated clinicians' attitudes towards prescribing medications off-label during the COVID-19 pandemic as well as factors that may have influenced off-label prescribing such as peers' practice patterns, institutional guidelines, disease severity, and drug scarcity.
- Questions were evaluated on a four-point forced-choice Likert scale and the number and proportion of responses were documented.

RESULTS

- Of 722 clinicians contacted, 242 clinicians (33.5%) provided responses (Table1).
- An overwhelming majority of providers agree or strongly agree that their decision to prescribe drugs off-label for COVID-19 has been influenced by the practice patterns of peer providers (96.3%) and that discussion amongst peers increases their confidence when prescribing off-label (90.5%).
- Of the 190 off-label prescribers, 78.4% feel somewhat or very uncertain that the benefits outweigh the risks for the drugs the clinician has prescribed.
- Most clinicians (88.8%) agree or strongly agree that institutional guidelines make them feel more comfortable when prescribing drugs off-label for COVID-19, and that these guidelines should reflect clinical severity (90.9%) and medication supply constraints (88.4%).

CONCLUSIONS

Table 1 - Baseline characteristics of survey respondents, n=242

Characteristic	Responses, n (%)
Training	
Attending <2 years	11 (4.5)
Attending 2-5	32 (13.2)
Attending 6-10 years	33 (13.6)
Attending >10 years	34 (14.0)
Fellow	25 (10.3)
Nurse Practitioner	18 (7.4)
Physician Assistant	17 (7.0)
Clinical Pharmacist	1 (0.4)
PGY1 Resident	24 (9.9)
PGY2 Resident	29 (12.0)
PGY3 Resident	11 (4.5)
PGY4+ Resident	7 (2.9)
Specialty	
Internal Medicine	163 (67.6)
Critical Care	24 (9.9)
Infectious Disease	21 (8.7)
Neurology	14 (5.8)
Other*	64 (26.4)
Setting†	
ICU	80 (33.1)
Inpatient	187 (77.3)
Outpatient	125 (51.7)
Other**	7 (2.9)

*Other specialties indicated (all <5% of total, by descending frequency): Pediatrics (9), Gastroenterology (5), Emergency Medicine (4), Pulmonology (4), Cardiology (4), Hematology/Oncology (4), Hematology (4), Family Medicine (3), Radiology (3), Surgery (3), Rheumatology (3), Endocrine (3), Environmental and Occupational Medicine (2), Unspecified (2), Medical Oncology (1), Dermatology (1), Palliative Care (1), Transplantation (1), Liver (1), Sleep Medicine (1), Adult Primary Care (1), Infectious Disease Pharmacist (1), Anesthesiology (1), Obstetrics-Gynecology (1), Pathology (1)
**Other settings indicated (all <5% of total, by descending frequency): Research (2), Radiology (2), Emergency Room (1), Home Visits (1), Administrative (1)
† Question permits multiple answers
PGY = Post-Graduate Year

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Table 2 – Select survey questions

How certain are you that the benefits outweigh the risks for drugs you have prescribed off-label for COVID-19?
A. Very certain B. Somewhat certain C. Somewhat uncertain D. Very uncertain
The following questions collected responses using a four-point Likert scale: A. Strongly Agree B. Agree C. Disagree D. Strongly Disagree
To what extent do you agree or disagree with this statement: "My decisions to prescribe drugs off-label for COVID-19 have been influenced by the practice patterns of peer providers."
Institutional guidelines make me feel more comfortable when prescribing drugs off-label for COVID-19.
Prescribing a drug off-label for COVID-19 can be justified by evidence such as a case series, retrospective review, or other non-randomized or non-controlled trials.
Prescribing a drug off-label for COVID-19 can be justified based upon clinical severity.
Discussion amongst peers increases my confidence in prescribing a drug off-label for COVID-19.
Relevant specialists should be consulted before prescribing a drug off-label for COVID-19.
Scarcity of a drug should be considered when using off-label indications for treatment.
Prescribing a drug off-label for COVID-19 is only justified if there is adequate supply remaining for patients who need it for on-label use.

Table 3 - Drugs prescribed off-label for COVID-19, n=190

Drug Prescribed†	Responses, n (%)
Hydroxychloroquine	185 (97.4)
Azithromycin	171 (90.0)
Low Molecular Weight Heparin	158 (83.2)
Glucocorticoids	149 (78.4)
Direct Oral Anticoagulant	132 (69.5)

DO WE REALLY NEED THOSE LABS: A STUDENT-LED INVESTIGATION OF CROSS- DISCIPLINARY ATTITUDES ON DAILY LAB ORDERING IN ACADEMIC INPATIENT MEDICINE

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INTRODUCTION:

- Over-ordering daily labs affects patient safety through hospital-acquired anemia, patient discomfort, frontline staff burden, and unnecessary downstream testing and cost

Learning Objective #1: To describe the current state of daily labs ordered per patient in the context of prior interventions to reduce lab burden as a means of identifying areas of improvement for future quality initiatives.

Learning Objective #2: To assess interdisciplinary attitudes on daily laboratory testing to develop a sustainable quality improvement intervention.

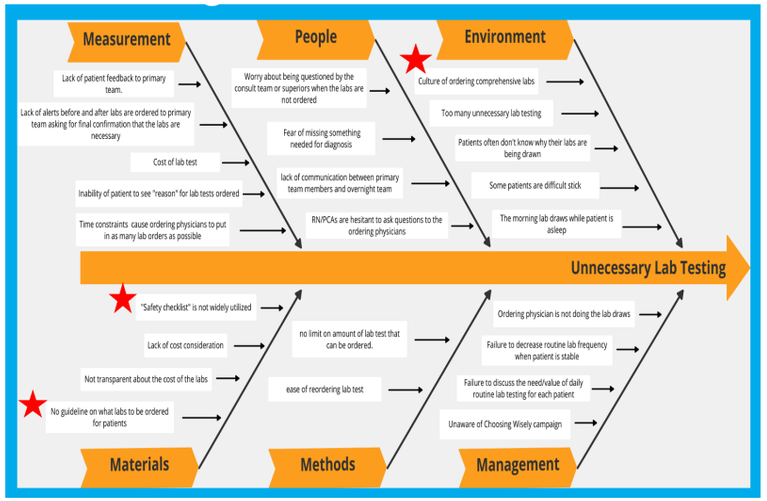

Figure 1: Fishbone diagram regarding potential factors that lead to unnecessary lab tests. The stars represent focus of intervention

METHODS :

- Mixed methods approach to assess lab ordering behaviors and attitudes
- Electronic medical record (EMR) data gathered to assess the number of daily labs (BMP, CMP, and CBC) ordered on a general medicine unit from June-October 2020
- Survey distributed to internal medicine (IM) attendings, residents, physician assistants (PA), nurse practitioners (NP), registered nurses (RN), and patient care associates (PCA) to understand cross-professional beliefs and attitudes about daily lab testing

LAB RESULTS:

- An average of 2.2 labs were collected per patient day between June – October 2020
- This was an increase from the 1.3 labs per patient day found in a similar patient population from March 2016 to August 2017 after the last daily lab reduction intervention.

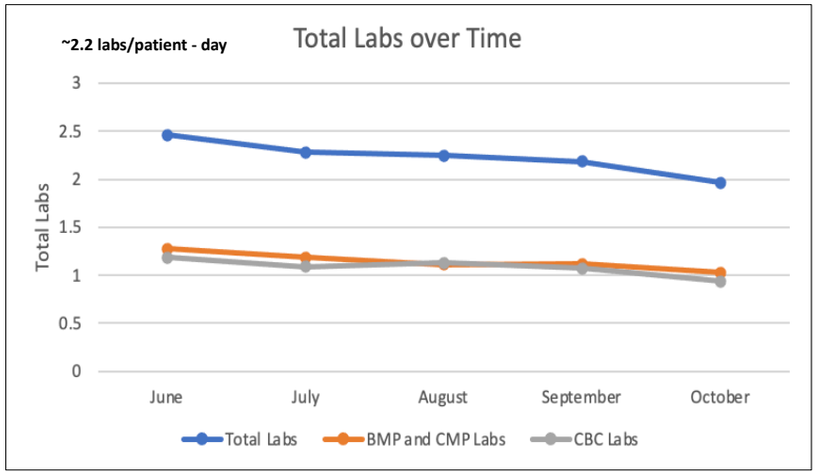

Figure 2b. Current Lab culture: June 2020 - Oct 2020

SURVEY RESULTS

Respondents: N=127

- 27 attendings
- 43 residents
- 17 NPs
- 19 PCAs
- 14 RNs
- 12 PAs

Results

- 90% of Attendings disagreed/strongly disagreed that "Daily labs enhance patient safety/care" (vs 49% of residents)
- 58% of PCAs and 71% of RNs agreed that daily labs enhance patient safety/care
- Only 16% of PCAs and 7% of RNs agreed that daily labs may have potential harms
- 41% of attendings and 51% of residents said daily labs (safety checklist) are seldom or never discussed during rounds

Figure 3. Survey Results

CONCLUSIONS:

- Sustainable interventions are needed to reduce lab burden
- Our multidisciplinary survey highlights a major discrepancy between attendings and other ordering providers on the necessity of daily tests
- These results reveal the potential impact of planned PDSA (plan-do-study-act) cycle interventions including planned educational sessions, the initiation of monthly audit and feedback email, and attending-led rounding discussions on necessary labs

NEXT STEPS:

Phase 1
- Attending-led lab discussions
- Resident Education: Encourage use of patient-safety checklist. Reinforce via email when starting inpatient medicine rotation

Phase 2
- Audit and feedback monthly email
- Partner with nurse managers for nursing-focused intervention on medicine floors

Phase 3
- Distribution of post-intervention survey
- Modify subsequent PDSA cycles based on contemporary feedback

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All We Can Be: Military Veteran Diversity in Medical School Admissions

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OBJECTIVES

- Review of Mount Sinai's Institutional Partnership with the US Military
- Recognizing diversity within student veteran applicant population

INTRODUCTION

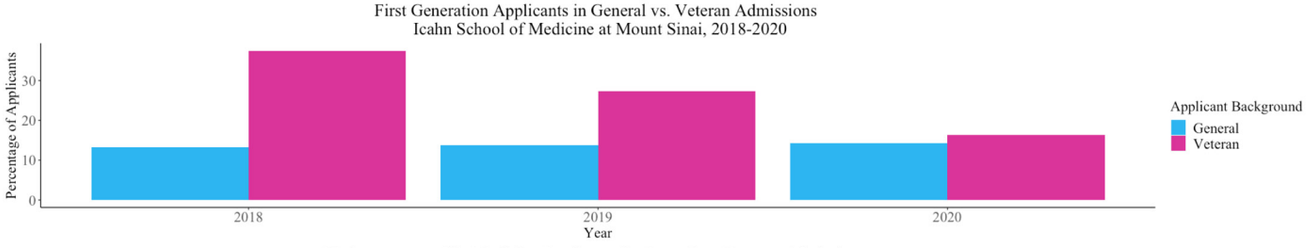
- Military veterans traditionally viewed monolithically as source of diversity in US medical school admissions
- US military is more racially diverse than civilian workforce, with minorities representing 34% of veteran population by 2040[1]

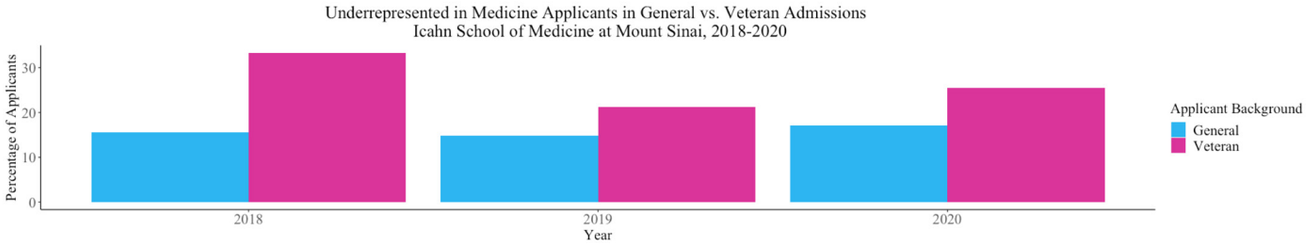
METHODS

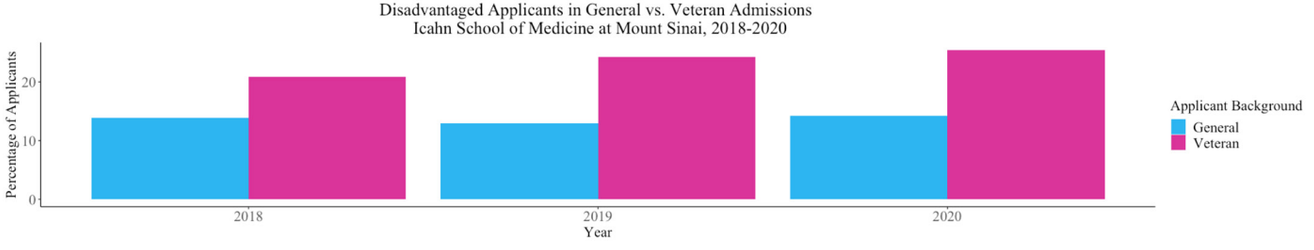
- Statistical analysis of admissions data from the Icahn School of Medicine at Mount Sinai and its Institutional Partnership with the US Military from 2018 to 2020
- Review of applicants who identified as first generation, under-represented in medicine, and disadvantaged backgrounds

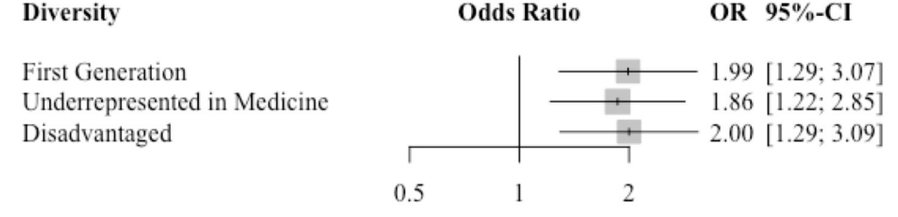
RESULTS

- Applicants to Mount Sinai's Institutional Partnership with the US Military represented statistically higher levels of diversity than general applicants in addition to their unique backgrounds in the military









CONCLUSIONS

- Military veteran initiatives further other diversity goals for US medical schools
- There is significant diversity within the student veteran population, as measured by applicants who identify as first generation students, under-represented in medicine and disadvantaged backgrounds
- Of the 21,869 matriculants to US medical schools in 2019, only 131 or 0.6% reported having served in the military[2]
- A holistic review of veteran applicants can increase diversity within the student veteran population

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Geriatric-Specific Inpatient Diabetes Management: The Effect of an Education Intervention on Healthcare Providers' knowledge levels

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ABSTRACT:

Purpose: This project seeks to incorporate an educational program for health care professionals directly responsible for directing patient care. The module "Finding the Sweet Spot, FFS," was developed by pharmacists and the geriatrician team of the Veterans Affairs Boston members of the Geriatric Research Education and Clinical Center.

Methods: A case-based educational intervention with a pretest and posttest comparison evaluation process was performed on a convenience sample of medical staff attending educational activities sponsored by the Endocrinology Department. The learners included advanced-practice registered nurses (APRN), physician assistants (PA), residents, and attending physicians. The knowledge was evaluated with ten multiple-choice questions reflecting the learning objectives. A paired t-test was utilized to assess the differences between pretest and posttest scores. The level of significance set at $\alpha = 0.1$.

Results:
The indicated that educational presentation significantly improved the knowledge by increasing the percentage of corrected answer from pretest ($M = 56.00$, $SD = 14.65$) to posttest ($M = 80.00$, $SD = 18.64$), $t = -4.755$, $p < .001$.

Conclusion: The results align with previous literature on using case-based learning as a teaching strategy in healthcare professions. More importantly, the pretests' results suggest that there may be a gap in geriatric-specific knowledge about caring for older adults living with diabetes. A gap may be addressed with practical educational programs.

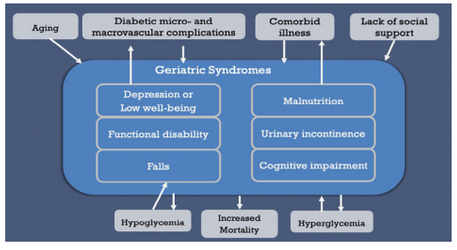
INTRODUCTION:

In "Retooling for an Aging America: Building the Healthcare Workforce," IOM recognizes that expenditures on Medicare for older adults reflect care for chronic and multi-systemic conditions associated with aging, including falls, malnutrition, and functional impairment. However, healthcare professionals trained on their care does not match the growth of this population.

As the number of health professionals trained in geriatrics is not expected to keep pace with the growing aging population, IOM recommends that "all types of healthcare workers must be educated in the care of older adults;" thus, it recommends that geriatricians be given opportunities to expect their expertise such as in educating other professionals.

Because of the effect of aging, of frailty and of comorbidities in older adults have been linked to poor health. These outcomes, represented in figure 1, include: functional decline, prolonged admission, readmissions, institutionalization, unexpected death, and increasing care costs. Therefore, interest in frailty and vulnerability indicators in this population has grown across medical specialties.

Thus, all healthcare professionals need to understand that age alone does not indicate vulnerability and that medical care that aligns with patients' vulnerabilities has good chances for positive outcomes and to lessen the risk of adverse events.



METHODS :

The project was directed toward interdisciplinary healthcare professionals who directly formulate the patient care plans for older adults with DM, including advanced practice nurses, physician assistants, residents, osteopathic doctors, and physicians rotating through or interacting with the Endocrinology department. The project excluded health care professionals with no prescriptive authority and students. And following preventive measures against current COVID-19 pandemic the program was delivered using digital HIPAA complaint platforms; REDCap, for capturing data; and Zoom, to deliver intervention and handout educational material.

Educational Program:

The educational module "Finding the Sweet Spot" was developed by Geriatric Center for Research and Education, Boston, figure 2. It is distributed by MedEdPortal which is an open-access publication distributed under the Creative Commons Attribution License.

The module consists of a guided case-based presentation with a pretest-posttest design. It was implemented in a population of 30 clinicians and trainees who were responsible for diabetes prescriptions and management. The workshop increased knowledge measured by the percentage of right answers, from 55% to 97% with $p < .05$, and it was significant (61% to 81% with $p < 0.5\%$).

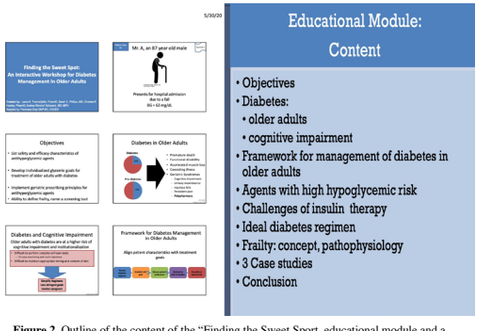


Figure 2. Outline of the content of the "Finding the Sweet Sport educational module and a copy of the first page of the handout material

Evaluation:

The learner's knowledge was assessed with questions developed for the FSS program and 5 additional question on frailty that reflect content of the American Diabetes Association medical standards 2019 and the Trauma Quality Improvement Program followed at the institution. These 10 questions were developed incorporating feedback from expert and professionals at same level. Furthermore, the post survey included 3 questions for assessment of perceived personal impact of the program and if whether it met its objectives.

The assessment of levels of knowledge was made considering the overall percentage of correct answers and a paired t test was consuded to examine the changes in overall percentages of correct answers from

RESULTS:

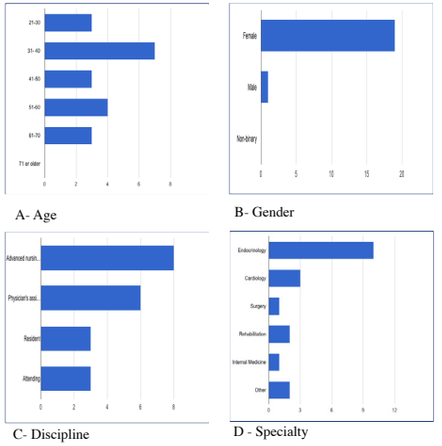
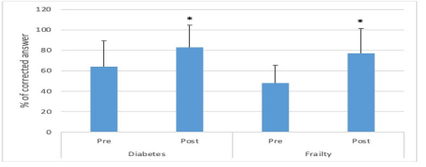


Figure 3. Four plots describing the composition of the 20 Participants: A- Age, B- Gender, C- Discipline, D- Specialty.



Diabetes: [t-test] t (19) = -2.59, p = 0.018; [Wilcoxon test] z = -2.31, p = 0.021
Frailty: [t-test] t (19) = -4.42, p < 0.001; [Wilcoxon test] z = -3.25, p = 0.001

Figure 4. Comparison results pretest versus post test on knowledge of diabetes and of frailty

PRETEST		QUESTION	POSTTEST	
Correct	Incorrect		Incorrect	Correct
12	8	Oral Medication Hypoglycemia Risks	2	18
13	7	Insulin Hypoglycemia Risks	3	17
18	2	Individualizing HgbA1c	2	18
9	11	Prescribing Anti-DM Medication	5	15
12	8	De-Prescribing Anti-DM Medication	5	15
15	5	Definition of Frailty	3	17

RESULTS:

The project had a sample size of 20 and its composition in terms of gender was not diverse, as 95% were females, figure 3. However, it was diverse in terms of participants' ages, disciplines, and specialty to render weight to its findings.

The results indicated that the educational intervention produced an improvement on the participants' knowledge which is evidenced by the increased pertencentaje of correct answers from pretest ($M = 56.00$, $SD = 14.65$) to posttest ($M = 80.00$, $SD = 18.64$), $t = 14.755$, $p < .001$.

The literature on diabetes knowledge of healthcare professional may be affected as there are no assessment tool across disciplines and because some content may change as medical standards change with time (Rubin, Moshang & Jabbour, 2007). So, studies have developed tools that created to the respective population. Furthermore, this literature is limited to compare house-staff and registered-nurses (Rubin, et al; 2007). In the first study involving residents and nurses in USA the mean score for all participants was 61% comparable to 61% in the validation study of FSS, and 58% in this project. However, the comparison may not be appropriate as this project's content is covers a subpopulation of patients with diabetes.

The results of individual answers, figure 4, is presented to illustrate that the participants' responses that experienced the most significant improvements are questions regarding aspects of significance in this populations. And thematically these questions regard knowledge on oral agents with risks for hypoglycemia, how to prescribe an agent for an older adult who lives with frailty, and on concept and assessment tool for frailty. This suggest that the participants' baseline knowledge reflect an area in which the education of the housestaff could generally improved.

The project also reflects finding in the few systematic reviews available on the critical assessment of case-based learning, CBL, in the healthcare professions. CBL although is difficult to evaluate as there is no consensus definition nor there is standard approach to deliver it, systematic reviews on its effectiveness as strategy is positive. CBL has been associated to facilitating deep learning and to stimulate critical thinking; both quality needed to care older adults as it may require not only factual knowledge, but the ability to use it judiciously.

CONCLUSIONS:

1. The project aligns with the literature regarding cases as a teaching tool in across disciplinary fields in healthcare.
2. The pretests results signal that knowledge about diabetes in older adults and about frailty are areas that need improvemntt.
3. After review of feedback, the program will be offered to the house-staff in addition to other educational activities provided by the DCES on staff.

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Improving Health Care Value with the SOFI Project:

Standardization of IV Fluids in Inpatient Settings

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Value in Inpatient Pediatrics Network

A Quality Network of the American Academy of Pediatrics

ABSTRACT:

Purpose: In 2018, the American Academy of Pediatrics (AAP) published guidelines on maintenance IV fluids (IVF) in pediatric patients, recommending isotonic (instead of hypotonic) fluid use to significantly decrease the risk of developing hyponatremia. Our quality improvement (QI) team sought to improve and sustain the exclusive use of isotonic maintenance IVF in our inpatient pediatric unit, and joined a national QI collaborative. The aims were to increase the proportion of hospital days with exclusive isotonic maintenance IVF use to ≥ 80%, to decrease the number of routine labs per hospital day by 20% from baseline, and to decrease the proportion of time (hours) on maintenance IVF during hospitalization by10% from baseline by May 2020.

Methods: The project took place at the inpatient pediatric unit of an academic community hospital. Champions from the departments of pharmacy, nursing, emergency medicine and pediatrics led the QI initiative. Each champion educated their staff about the updated guidelines, ongoing project and interventions. The study occurred over 14 months (April 2019-May 2020). Monthly data was collected. Outcome measures included tonicity of maintenance IVF, number of serum WBC levels (proxy for routine labs), and duration of maintenance IVF. Process measures were daily weight measurements while on IVF. Balancing measures included floor-to-PICU transfers, serum Na levels, adverse events, and length of stay. The model for improvement and serial PDSA cycles were utilized to test changes throughout the study.

Results: There were 314 patients (baseline: cycles 1-20, n=242; action period: cycles 21-25, n=72). There was improved exclusive isotonic fluid use over time, and 98% compliance during the action period. There was an 18% decrease in the number of routine labs per hospital day. There was no significant change in adverse events, floor to PICU transfers and hospital length of stay.

Conclusion: Participation in a national QI collaborative and interdepartmental collaboration were associated with improved health care value in the inpatient pediatric setting, as demonstrated by sustained use of maintenance fluid that is safer for the patient (isotonic vs hypotonic) and reduced number of "routine" blood draws.

INTRODUCTION:

The SOFI Project is a national collaborative that aimed to describe and standardize the use and monitoring of IV fluids in inpatient pediatric settings across the US, evaluate the impact of an intervention bundle on maintenance IVF use, and reduce the number of "routine" laboratory draws.

Figure 1. Richmond University Medical Center (RUMC) was selected to be part of a national collaborative that included 114 sites from 34 states.

METHODS :

Setting: Inpatient pediatric unit of academic community hospital

Timeline: 14 months (April 2019-May 2020)

Sample Sizes: (N=314)

- Cycles 1-20 (baseline data, n=242)
- Cycles 21-25 (intervention/action period, n=72)

SMART Aims and Measures:

Primary Aims:

- Increase proportion of hospital days with exclusive isotonic maintenance IVF use to >80% by May 2020
- Decrease number of serum WBC levels (proxy for routine labs) per hospital day by 20% from baseline by May 2020

Secondary Aims:

- Decrease proportion of time (hours) on maintenance IVF during hospitalization by 10% from baseline by May 2020.

Measures:

- Monthly data collection = up to 20 patients/month

Outcome:

- Tonicity of maintenance IVF
- Number of serum WBC levels (proxy for routine labs)
- Duration of maintenance IVF

Process:

- Daily weight measurements while on IVF

Balancing:

- Floor-to-PICU transfers
- Serum Na levels
- Adverse events (hypertension, acute kidney injury)
- Length of stay

FIGURES :

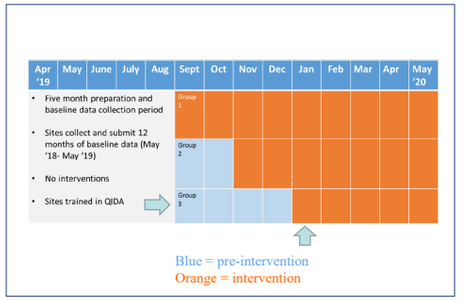


Figure 2. The project timeline was 13 months. All sites started monthly data collection in September 2019 but interventions launched at different times. RUMC was assigned to group 3, with an intervention period that started in January 2020.

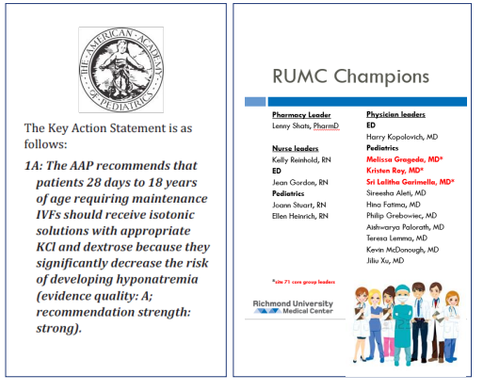


Figure 3. . Champions from the departments of pharmacy, nursing, emergency medicine and pediatrics led the QI initiative. Each champion educated their staff about the updated guidelines, ongoing project and interventions

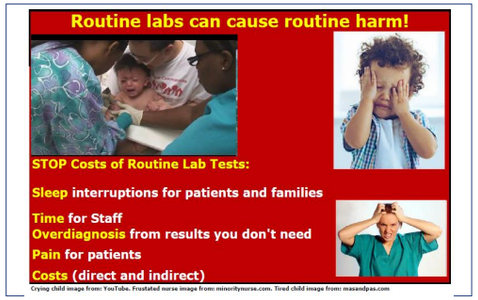


Figure 3. Harm cards were distributed to staff to remind clinicians of the potential harm from "routine" labs.

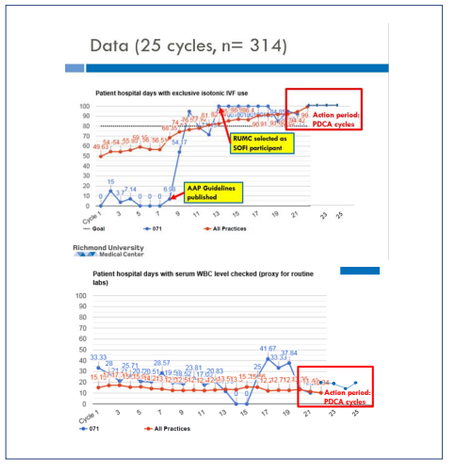
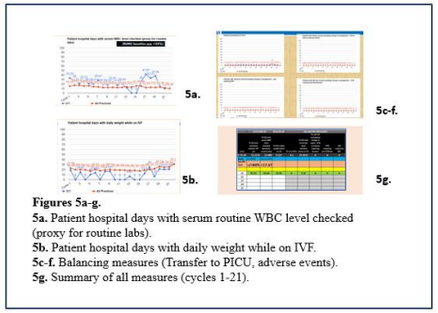


Figure 4. During the action period, there was sustained improvement of exclusive isotonic fluids and an 18% decrease in the number of routine labs per hospital day.



Figures 5a-g.
5a. Patient hospital days with serum routine WBC level checked (proxy for routine labs).
5b. Patient hospital days with daily weight while on IVF.
5c-f. Balancing measures (Transfer to PICU, adverse events).
5g. Summary of all measures (cycles 1-21).

RESULTS:

- There were 314 patients (baseline: cycles 1-20, n=242; action period: cycles 21-25, n=72).
- There was improved exclusive isotonic fluid use over time, and 98% compliance during the action period.
- There was an 18% decrease in the number of routine labs per hospital day.
- There was no significant change in adverse events, floor to PICU transfers and hospital length of stay.

CONCLUSIONS:

Participation in a national collaborative was associated with improved health care value in the RUMC inpatient pediatric setting, as demonstrated by:

1. **Sustained use of maintenance fluid that is safer for the patient (isotonic vs hypotonic); and**
2. **Reduced number of "routine" blood draws.**

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Training 2nd Year fellows as Quality Improvement (QI) mentors for a Geriatrics and Palliative Faculty and Fellow QI curriculum

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ABSTRACT:

Introduction: The Accreditation Council for Graduate Medical Education (ACGME) requires that fellows receive QI training. Feedback from the 2019-20 QI curriculum cohort indicated 46% of fellows and 62% of faculty mentors reported low fellow interest in the QI project topic as a barrier to project completion. Suggestion was made to have 2nd year fellows "pitch" QI ideas and be main project mentors. Project aims: (1) train 2nd year fellows to lead QI projects; (2) evaluate efficacy of mentor training for 2nd year fellows.

Methods: Mentor development consisted of asynchronous web-based training on QI principles, with coaching during a faculty-fellow "co-learning" QI curriculum. Seven 2nd year fellows pitched five QI project ideas to 16 1st year fellows for ranking; teams were created based on order of preference.

2nd year fellows were evaluated as QI mentors using a prospective survey of knowledge and baseline comfort with QI concepts on a Likert Scale (i.e. 5=Very comfortable, 1=Very uncomfortable). A midterm survey of all fellows and faculty assessed efficacy of mentor training and 2nd year fellows' attitudes on the junior mentor role.

Result: 94% of 1st year fellows, 83% of 2nd year fellows, and 90% of faculty mentors completed pre-curriculum surveys. 50% of 1st year fellows, 83% of 2nd year fellows and 80% of faculty mentors completed midterm surveys. Midterm results revealed faculty mentors (avg score 4.78) and 1st year fellows (avg score 4) felt that 2nd years were helpful as mentors. 2nd years reported improved comfort as mentors (Pre 2.8; Post 3.6). At four months, 1st year fellows' comfort utilizing four key QI concepts increased. Midterm surveys revealed that 2nd year fellows preferred their mentor role, but wanted clearer definition of the role. Faculty mentors (avg score 4.44) and 1st year fellows (avg score 3.75) agreed that 2nd years helped overcome QI project barriers. Faculty mentors reported fellow involvement improved over the prior year, although inequity persisted in participation by 1st year fellows.

Conclusion: Training 2nd year fellows as QI mentors can improve fellows' comfort and engagement with QI concepts. Next steps include defining roles of all QI group members and determining how to further enhance equitable fellow participation.

INTRODUCTION:

The Brookdale Department of Geriatrics and Palliative Medicine has had a quality improvement (QI) curriculum for the past eight years. An end of the year survey from the 2019-2020 academic year (year 7 of our QI program) revealed that:

- 46% (14/30; nine 1st year and five 2nd year) of geriatrics/ palliative fellows felt low fellow interest/motivation were barriers to QI project completion
- 62% (8/13) of senior faculty mentors felt the same
- Open-ended feedback urged fellows to select project topics to improve fellow interest and engagement.

For the 2020-2021 academic year (year 8), we sought to improve fellow interest and motivation in QI by:

1) Allowing 2nd year fellows to select project ideas and

2) Having 2nd years be junior QI mentors

We then plan to evaluate 2nd year fellows in the Jr mentor role using pre-, mid- and end of year surveys

METHODS :

Creation of QI Project Groups

- Seven 2nd year fellows developed and led five QI teams
- Each team with:
  - 1-2 2nd year fellows
  - 1-2 senior faculty advisors
  - 2-3 1st year fellows

QI Training

- 2nd year fellows received formal training in QI tools and methods during year 7
- Training:
  - Four QI Institute for Healthcare Improvement modules
  - Four QI team work sessions consisting of QI refresher and protected group time, held throughout the year
  - Three faculty development sessions via Zoom to build on QI concepts and discuss project leadership
  - 1st year fellows received the same QI curriculum that was provided to 2nd years the year prior, though via Zoom

Evaluation of 2nd year fellows

- Seven 2nd year fellows evaluated using a pre-curriculum and a midterm survey
- Pre-curriculum survey: demographic questions and self-assessment of QI concepts, as well as 2nd years' comfort as QI coaches
- Also evaluated by 1st year fellows and senior faculty mentors
- Survey questions were based on a five-point Likert scale, i.e. 5=very comfortable and 1=very uncomfortable
- Rated on QI leadership abilities and understanding of QI concepts
- Also assessed specific barriers to QI projects

Feedback-tailored adjustments

- Feedback was used to provide guidance to all fellows and faculty

RESULTS:

Year 8	Pre QIKAT	Midterm feedback	Post QIKAT	IHI
1st years (n=16)	94% (15)	50% (8)		75% (12)
2nd years (n=6*)	83% (5)	83% (5)		100% (6)
Attendings (n=10)	90% (9)	80% (8)		90% (9)

Figure 1. Pre-curriculum and midterm survey completion

Pre-curriculum survey results (avg Likert):

- Comfort level as QI coach: 2.8
- Comfort with the following QI concepts-
  - Constructing a Process map: 4.0
  - Constructing a Fishbone (Ishikawa) diagram: 4.4
  - Developing a SMART AIMS statement: 3.6
  - Identifying measures to assess a change: 3.4
  - PDSA model for improvement: 3.4

Midterm surveys results:

Figure 2. Barriers to QI project Y8

Barriers Y8-MT	1st year		JR M		SR M	
	N=8	%	N=5	%	N=8	%
Fellow interest/ Motivation	4	50	2	40	3	37.5
Equitable participation:	4	50	2	40	2	22.2
Group dynamics	0	0	0	0	0	0
Collecting data	5	62.5	2	40	4	44.4
Analyzing data:	2	25	2	40	2	22.2
Implementation + buy in of intervention	5	62.5	1	20	3	33.3
COVID	0	0	0	0	2	22.2
other			0	0		
Time	3	37.5	0	0	1	11.1

- 46% of fellows (6/13) felt that low fellow interest and colleague motivation were barriers to QI project completion
- 37.5% of faculty/senior mentors (3/8) felt the same
- 2nd year fellows' comfort level as QI mentors: 3.6 (5 responses)

2nd year fellows were further rated by senior faculty mentors and 1st year fellows on leadership capabilities and QI concepts as shown in the figures below.

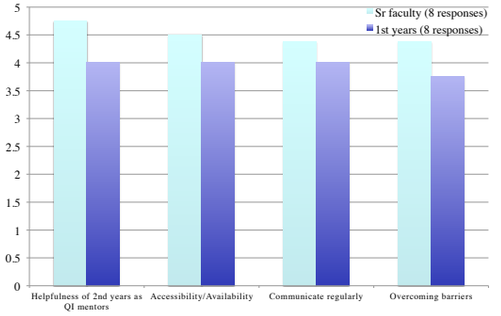

Figure 3. Assessment of 2nd year fellows' leadership skills by Senior faculty mentors and 1st year fellows

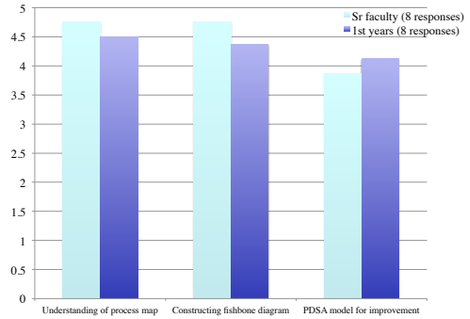

Figure 4. Assessment of 2nd year fellows by Senior faculty and 1st year fellows on QI concepts

Open-ended Midterm feedback:

Please provide us with any feedback as to how being a QI mentor is working for you so far AND how we can help you better coach the QI projects for the remainder of the year

From 2nd year fellows aka Junior mentors:

- 60% (3/5) responses indicated that role was unclear
- 50% (2/4) suggest clarifying role with respect to 1st yr fellows
- 75% (3/4) suggest clarify role with respect to Sr mentors

"I feel responsible for the work of the group and that can really depend on whether the group is pulling their weight. It would be really helpful to have a clear understanding of the role of the junior faculty. Does this individual simply guide the group and provide feedback, edits, support for ideas? Do they equally participate with the first year fellows but then also serve in a leadership position for the group?"

From Senior faculty mentors:

- 80% (4/5) great/good experience; 20% (1/5) hard to get 2nd yr fellows motivated
- 33% (1/3) emphasize ownership/accountability for 2nd yrs

"Fellow mentors have taken the lead- I provide insight and feedback (a bit of pushing) - all working well"

Role of JR mentor:

- **Project creator/manager**
- **Teach**
- **Delegate**-task on contract and planning of data collection/analysis
- **Set up monthly zoom meeting**

Role of SR Mentor:

- **Resource to JR mentor** about teaching the QI process and data; enforcement
- **Major stake holder** to engage "informal" QI members (of the IDT)
- **"Substitute"** so that a mentor is present during the formal and informal work sessions

Figure 5. Feedback tailored training

CONCLUSIONS:

1. 1st and 2nd year fellows' rating of fellow interest in QI projects and colleague motivation was similar in years 7 and 8
2. Sr faculty mentors felt fellow interest improved
3. Sr mentors perceived 2nd years as junior QI mentors slightly more favorably than 1st years

LIMITATIONS & FUTURE DIRECTION:

1. Further identifying factors that could improve fellow interest in QI would be helpful. F-u with end of year survey
2. Improvement in 2nd year fellows' comfort with being QI mentors as curriculum progressed. Determine if clarifying roles helped at end of year survey
3. Greater focus on PDSA cycle training might be helpful
4. Limitations in results due to sample size, smaller n this year compared with year 7 given fewer fellows

Halted by COVID: Pandemic Impact on QI Learning for Geriatric and Palliative Medicine Fellows

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INTRODUCTION:

- Accreditation Council for Graduate Medical Education mandates that residency programs teach quality QI concepts and skills as part of the practice-based learning and improvement core competency.
- A nine- month QI curriculum for the 2019-2020 Geriatric and Palliative Medicine fellowship at a large NYC hospital was prematurely halted by the pandemic

METHODS

QI curriculum employed

- A **"flipped" classroom** model using **Institute for Healthcare Improvement** online modules to teach basic QI concepts
- Four **protected 1-2 hour sessions** to reinforce knowledge application of QI concepts through **active** learning methods.
- **Fellow's QI Resources** were created to guide project workflow.
  - **Roadmap with resources**
  - **Accountability contracts**
  - **Presentation templates**
- Fellows worked on **departmental prioritized team-based QI projects,** scheduled for presentation at **midterm and end-of-year.**

Program evaluation consisted of

- A **prospective pre-post survey** with
  - **Demographics**
  - **6-item** questionnaire on **comfort with QI concepts** with 5-point Likert Scale (5= Very Comfortable, 1= Very Uncomfortable);
  - **3 cases f**rom the Quality Improvement Knowledge Application Tool **(QIKAT)**
  - **2 question open ended course evaluation**
    - What are the strength and weaknesses of this course?
    - Do you have any recommendations to improve this course?
- **Accepted Presentations outside the curriculum**

CONCLUSIONS:

Even during a pandemic, a structured QI curriculum that employs a flipped classroom and engages fellows on prioritized departmental QI projects was proven an effective method for teaching quality improvement skills to fellows.

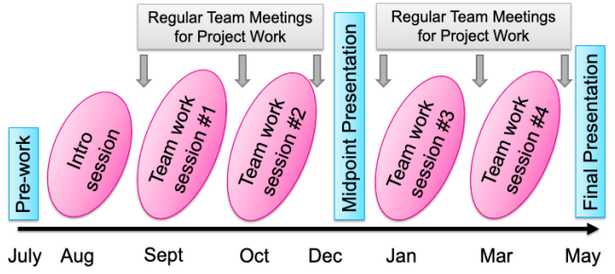
RESULTS :

Faculty-fellow "co-learning" curriculum

8/8/19	**Refresher on QI Methods and Applications Part I & II**	(Steps 1 & 2)	2-4 PM
9/5/19	**Team work session 1** *Peer Feedback approach	(Steps 3-4,5--8)	2-4 PM
10/31/19	**Team work session 2**	(Step 9-12)	2-3 PM
	Midpoint presentations may occur btw team work sessions 2 and 3		
1/16/20	**Team work session 3**	(Steps 12)	2-3 PM
3/5/20	**Team work session 4**	(Steps 12-13)	2-3 PM
5/21/20	**All fellow's QI presentation**		1-5 PM

***Team leader** can assign additional weekly huddle times on clinic days to work on project

***Midpoint presentation** to Coffee at Coffey/Clinical council or a Palliative workflow/admin mtg



Year 7	Pre QIKAT	Post QIKAT	IHI
1st years (n=25)	92% (23)	84% (21)	56% (14)
2nd years (n=10)	90% (9)	70% (7)	100% (10)
Attendings (n=15)	93% (14)	87% (13)	67% (10)

2019-2020 Final QI Team projects with Mentors and fellows: 35 fellows and 16 faculty mentors at 4 sites

1. **Reducing SEPSIS at the New Jewish Home. Mentors:** Ruth Spinner, Stephanie Le. Shivani Chopra, Katerina Oikonomou, Daniel Gaballa, Zaib Khan, Maysoon Agarib
2. **Improving ACP documentation in OP practice at Beth Israel-MSCL downtown Mentors:** Joyce Fogel, Beth Popp Zachary Wikerd, Misa Hyakutake, Natasha Mehta, Alaina Garrie
3. **Improving No shows for NEW patients at MSCL-uptown outpatient practice. Mentors:** Veronica Rivera, Nisha Rughwani, Debora Afezolli, Angela Condo, Harriet Mather, Julia Burns
4. **Decreasing unnecessary ER utilization for MSCL-uptown outpatient practice. Mentors:** Stephanie Chow, Eileen Callahan, Kelly Cummings, Jose DeLeon, Erika Diaz Narvaez, Phillip Solomon, Kavya Sreevalsan
5. **Improving MOLST use on MSCL-uptown patients admitted to MACE Mentors:** Christine Chang, Martine Sanon, Amy Reyes Arnaldy, Laura Belland, Gerard Casale, Renata Scalabrin Reis
6. **Increasing Substance Use Disorder Screening and Initiation of Risk Reduction Strategies in Outpatient PC Clinic. Mentors:** Vanessa Rodriguez, Samantha Lau. Mitch Wice, Megha Patel, Carl-Phillipe Rousseau, Ciera Sears
7. **Decreasing late Palliative Care consults for DT-LVAD patients Mentors**: Anup Bharani, Karen Hiensch, Natasha Pirach, Dina Khateeb, Devin Gilhuly, Michael Nalepa
8. **Improving documentation of patient medical preferences/goals of care in patients hospitalized for > 30 days. Mentors:** Priya Krishnasamy, Ankita Mehta, Eugene Choi. Cristian Serna-Tamayo, Julia Frydman, Jyoti Sharma, Caityln Kuwata, Kasey Sinha

- But during the **pandemic surge, all projects were halted** due to learner stress, redeployment and time management issues.
- **FINAL PRESENTATIONS were CANCELED**
- Despite these significant barriers,
  - 100% of QI teams submitted abstract proposals with
  - 75% (6) acceptance for national and regional presentations.
- **Course evaluations** were positive with recommendations to include:
  - More protected work time with QI concept refreshers
  - Education on data collection and analysis
  - Stronger faculty facilitation
  - Advice to improve equitable group participation

3 points for the AIM. The AIM …	
A1	is focused on the system-level of the problem presented.
A2	includes direction of change (increase or decrease).
A3	includes at least one specific characteristic such as magnitude (% change) or time frame.
3 points for the MEASURE. The MEASURE…	
M1	is relevant to the aim.
M2	is readily available so data can be analyzed over time.
M3	captures a key process or outcome.
3 points for the CHANGE. The CHANGE…	
C1	is linked directly with the aim.
C2	proposes to use existing resources.
C3	provides sufficient details to initiate a test of change.

Post curriculum, 1st year fellows demonstrated **improved comfort** with utilizing the **5 QI concept/tools** ($p<0.05$)

Yr 7 Comfort level	Likert 1-5	P	Likert 1-5	P	Likert 1-5	P
	Yr 1 fellow		Yr 2 fellow		All Fellows Y1+ Y2	
How essential is QI in your profession?	4.7-->4.7	0.75	4.71-->4.71	1	4.71-->4.68	0.79
Confidence to make local improvement	3.9-->4.0	0.50	3.9-->4.1	0.36	3.89-->4.07	0.31
Constructing a Process map	3.1-->4.2	<0.01	4.43-->4.43	1	3.46-->4.25	<0.01
Constructing a Fishbone Diagram	3.4-->4.5	<0.01	4.71-->4.9	0.6	3.75-->4.61	<0.01
Set SMART Aims	3-->3.9	<0.01	4.14-->4.14	1	3.32-->3.96	<0.01
Identifying Measures to Assess a Change	3.3-->4	<0.01	3.71-->4.14	0.36	3.39-->4.07	<0.01
PDSA Model for Improvement	3.1-->4.3	<0.01	4.3-->4.4	0.69	3.43-->4.36	<0.01

Post curriculum, first year fellows demonstrated **improved QI knowledge** via QIKAT (PRE 20.7; POST 23 Paired T test $p < 0.01$)

Yr	QIKAT	AIM	p	Measure	p	Change	p	Total avg/27	p
1st yr	PRE	1.56		2.73		2.62		20.71	
	POST	1.94	0.05	2.83	0.30	2.89	0.03	22.95	0.01
2nd yr	PRE	2.14		2.86		2.90		23.71	
	POST	2.62	0.02	2.95	0.46	2.95	0.36	25.57	0.01
All Fellows	PRE	1.7		2.76		2.69		21.46	
	POST	2.11	0.01	2.86	0.20	2.90	0.02	23.61	<0.01

A Model to Increase Faculty Competency in teaching QI to Geriatric and Palliative Medicine Fellows

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INTRODUCTION:

- A **major barrier** to the expansion of Quality Improvement (QI) and Patient Safety (PS) in medical education has been the **lack of faculty development** (FD) in quality and safety.
- Our geriatric and palliative medicine fellows participate in a 9-month **project-based QI curriculum coached by volunteer faculty.**
- **Year 6 survey of faculty coaches** revealed:
  - 43% never completed formal QI curriculum
  - only 43% felt very comfortable being a QI mentor
  - 86% would welcome further QI FD.

OBJECTIVE:

- Our project aims to **improve faculty QI knowledge** and **teaching skills to increase trainees' engagement in QI/PS.**

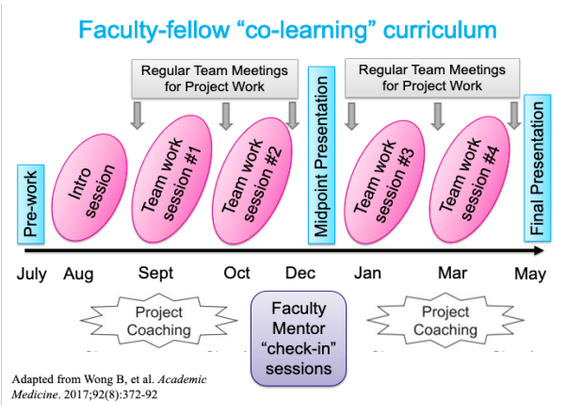
METHODS :

- **8 QI projects with 16 coaches were offered to 35 fellows** to rank.
- All faculty coaches participated in the **FD curriculum in QI** that included:
  - A **web-based training** to teach QI principles
  - **Train-the-Trainer Model** to coach faculty on teaching and facilitating QI team projects during **faculty-fellow "co-learning" QI curriculum.**
  - A **mid-year "check-in"** with faculty explored team project challenges.
- **Evaluation** consisted of a **prospective pre-post survey** with
  - **Demographics**
  - **6-item questionnaire on comfort** with QI concepts on a Likert Scale (5= Very Comfortable, 1= Very Uncomfortable)
  - 3 cases from the Quality Improvement Knowledge Application Tool **(QIKAT)**
  - 2 question open-ended **course evaluation** for faculty and fellows.

CONCLUSIONS:

Use of asynchronous web-based training with the Train-the-Trainer Model to coach faculty on how to teach and facilitate the QI team projects is an effective method to improve faculty comfort and competency in teaching QI skills to fellows.

RESULTS:



Adapted from Wong B, et al. *Academic Medicine*. 2017;92(8):372-92

3 Faculty only education session

- **Faculty QI development Session 1: Call for Fellow's QI project proposals Objectives: Develop appropriate Fellow QI projects** based on quality metrics that matter for the Department
- **Faculty QI development Session 2:** The purpose of this meeting is to review **group facilitation** techniques to address some of the **barriers identified by the 2018-19 Y6 faculty QI coaches.**
- **Faculty QI development session 3:** The purpose of this meeting is to **monitor team projects** and to **refresh on QI concepts as well as review group facilitation techniques** discussed above. This will occur between **Team work session 2 (10/31/19) and session 3 (1/16/20)**

16 coaches participated in the QI FD curriculum

- 56% were 1st time coaches.
- 43% had no prior QI training.
- Only 8% felt very comfortable while 46% felt neutral or uncomfortable being a QI mentor.

Year 7	Pre QIKAT	Post QIKAT	IHI
Attendings (n=15)	93% (14)	87% (13)	67% (10)

Post curriculum, **coaches** demonstrated **improved comfort in being a mentor** and **utilizing the 3 key QI concept/tools** ($p<0.05$) as well as improved QI knowledge (pre 22.6; post 24.5 $p<0.16$).

Attending Comfort level	Likert 1-5 NOT comfortable to Very comfortable	p	Likert 1-5 NOT comfortable to Very comfortable	p	Likert 1-5 NOT comfortable to Very comfortable	p
	1st yr (n=8) mentor		2+ yrs (n=5) mentor		All mentors	
Being a QI Coach/Mentor	2.875-->3.875	0.02	4-->4.2	0.70	3.3-->4	0.03
Constructing a Process map	3.75-->4.125	0.08	4.2-->4.6	0.18	3.9-->4.3	0.03
Constructing a Fishbone Diagram	3.5-->4.25	0.02	4.4-->4.6	0.62	3.9-->4.4	0.03
Set SMART Aims	3.125-->3.875	0.05	4.2-->4.2	1	3.5-->4	0.08
Identifying Measures to Assess a Change	3.375-->3.75	0.20	4-->4.4	0.18	3.6-->4	0.05
PDSA Model for Improvement	4.125-->4.125	1	4.4-->4.4	1	4.2-->4.2	1

Similarly, **all fellows** demonstrated **improved comfort with utilizing the 5 key** QI **concept/tools** ($p<0.05$) and improved **QI knowledge** (pre 20.7; post 23.0 $p< 0.01$).

Yr 7 Comfort level	Likert 1-5	P	Likert 1-5	P	Likert 1-5	P
	Yr 1 fellow		Yr 2 fellow		All Fellows Y1+ Y2	
How essential is QI in your profession?	4.7-->4.7	0.75	4.71-->4.71	1	4.71-->4.68	0.79
Confidence to make local improvement	3.9-->4.0	0.50	3.9-->4.1	0.36	3.89-->4.07	0.31
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Set SMART Aims	3-->3.9	<0.01	4.14-->4.14	1	3.32-->3.96	<0.01
Identifying Measures to Assess a Change	3.3-->4	<0.01	3.71-->4.14	0.36	3.39-->4.07	<0.01
PDSA Model for Improvement	3.1-->4.3	<0.01	4.3-->4.4	0.69	3.43-->4.36	<0.01

Course evaluations by fellows were positive with recommendations to include

- More protected time, frequent short meetings/check-ins q3weeks
- Stronger faculty facilitation
- Improved equitable group participation.
- Allow fellows to propose their own QI projects
- Focus on a smaller slice of the problem

NEXT STEPS:

- Address feedback from Course eval
- How to develop projects that both faculty and fellows want to work on?
  - Interesting to attending and fellow, important for patient, do-able within 8 months
  - Addresses racial inequity/bias/access in the practice that affects health outcomes?
  - Improve new workflow given COVID (translators, ipads, telehealth, Patch 24)
  - Priorities for our dept and health system
  - Have data that we are already (or can easily) monitor in an ongoing way

Development and Validation of a Quality Improvement Tool for Documentation and Clinical Care

Eric Legome, Heidi Baer, Joshua McHugh, Daniel Satnick

Icahn School of Medicine at Mount Sinai

Purpose:

Poor documentation, such as provider discrepancies, missing medical decision making, lack of progress notes and unprofessional observations, as well as inappropriate care, can negatively impact medical malpractice claims. Formal processes of quality documentation in emergency medicine are not well studied. We introduced a new quality improvement (QI) process use focused on improved clinical charting and reduced deviations from standards of care in the Emergency Department. We hypothesized that an explicit simple QI scoring rubric, consistently applied, would demonstrate inter-rater reliability among attending physicians and provide a standardized tool for departmental review.

METHODS :

We modified a previously developed template that demonstrated high inter-rater reliability, but had a complex and extensive process, for more streamlined and widespread applicability. We developed a new system using two discrete templates, documentation and clinical care, and limited choices to 5 options focusing on whether the chart was defensible if there was a poor outcome and if the medical care and resource utilization fit accepted standards. Each sheet had a companion sheet with basic examples of the scoring. A ten-minute group orientation was provided prior to individuals performing the reviews. Eight emergency physicians with quality improvement experience evaluated the same 10 pre-selected charts, with a mix of previously noted charting appropriateness, using our predefined scoring rubrics and recorded the results in an online secure database. Consistency among raters was assessed using the Shrout-Fleiss relative: fixed set mean kappa scores.

Original Scoring Tool :

- Errors made by ED team
- Adverse events occurred
- Adequate documentation
- Appropriate resource utilization
- Procedural competence
- Adequate medical judgment
- Appropriate coordination of care

Modified Scoring Tools :

CLINICAL CARE SCORING SHEET

Evaluator: ***MRN:*** ***Score (1-5):***

Score	Description and Potential Reasons (check all that apply)
1	• **Fully appropriate for presenting complaint.** ☐ Appropriate work up. ☐ Appropriate follow up plan. ☐ Easily inferred plan.
2	• **Minor Issues but within standard of care.** ☐ Potential issues that may have improved care. ☐ Minor study missing. Most attendings would have done based on chief complaint. ☐ Excessive testing most attendings would not have done based on chief complaint. ☐ Discharge plan questionable, unclear if patient could complete follow up.
3	• **Most attendings would have managed case differently.** ☐ Moderate judgment errors that likely compromised care in some way. ☐ Important test almost all attendings would have done. ☐ Study, treatment or care that clearly does not benefit the patient with good clinical evidence/guidelines supporting that they should not have been performed, (unless reasonable documentation why it was done or low cost/risk study and rationale expectation of patient preference). ☐ Reassessment should have been done and documented based on complaint. ☐ Error that should be reviewed with practitioner.
4	• **Below standard of care and not defensible based on information in chart** ☐ A serious error in judgment, either by omission or commission that does not meet standard of care. ☐ Multiple studies, consults, procedures or treatments that were clearly unnecessary, added costs, delays, to care but potentially were within the standard of care. ☐ Critical test missing. ☐ If there was a poor outcome, care is indefensible.
5	• **Indefensible for poor outcome.** ☐ Inadequate judgment or comprise in care that any emergency physician would consider a marked violation in standard of care. ☐ Studies, consults, procedures or treatments that harmed patient through excessive delays or unnecessary complications. ☐ Disregard for proper procedures, basic expectations of care or grossly inadequate management.

DOCUMENTATION SCORING SHEET

Evaluator: ***MRN:*** ***Score (1-5):***

Score	Description (check all that apply)
1	• **Charting is complete for all major elements.** ❑ Plan is clear and MDM supports plan. ❑ ROS and PE are appropriate in quantity and context for complaint. ❑ Appropriate reassessments (post intervention or observation) are documented, critical or significant abnormal values are addressed. ❑ If AMA or elopement, discussion of competency. ❑ Acknowledge consultant's recommendations. ❑ Reason for admission or discharge with explicit follow up plan. ❑ May rely on resident or PA note with attestation for simple/low risk concern ❑ *If adverse outcome, chart is fully and easily defensible.*
2	• **Chart is adequate for complaint.** May be minimalist (or excessive) charting, missing some information, but the clinical concerns and plan is readily understandable. ❑ Areas where plan may have to be inferred (pt. given ABX for PNA, CXR shows PNA but no note of infectious etiology), but easy to understand. ❑ Complex interventions or high risk diagnosis without attending documentation (excluding attestation). ❑ A clinically significant abnormality not addressed or significant physical examination not documented appropriately. (e.g. dizziness in young patient without any neuro examination) but unlikely to affect patient, or MDM supports it was done. ❑ *If adverse outcome, chart is clearly defensible but may have some concerns.*
3	• **Chart is inadequate for complaint** ❑ Most attendings would chart differently. ❑ Missing key pieces of information or medical decision making when differential is broad and high risk. (e.g. vertigo in elderly patient with no or minimal neuro examination) and MDM does not clearly support it was done. ❑ Other clinicians would have difficulty understanding plan or decision making. ❑ Clinically significant collateral information not addressed (Ex: pt states "worst HA of life" in triage. Clinician does not acknowledge. At best a level 3 chart. ❑ AMA w/o express consideration of competency. ❑ *Defensible, but may be difficult to support medico-legally.*
4	• **Inadequate charting and significantly below standard.** ❑ Confusing history or examination or overall lack of coherence. Plan not supported. ❑ Excessive copy pasting of similar notes. ❑ *Indefensible if there was a bad outcome.*
5	• **Marked deviation from standard or minimal expected documentation.** ❑ Grossly inadequate documentation. ❑ Misrepresentation of the clinical picture. ❑ *Indefensible if there was a bad outcome.*

RESULTS:

The Shrout-Fleiss relative: fixed set mean kappa scores indicated excellent consistency among raters for both the documentation (k = 0.910) and clinical care (k = 0.836) scoring tools.

- Documentation • k = 0.910
- Clinical Care •k = 0.836

CONCLUSIONS:

A modified, simplified QI scoring rubric demonstrates inter-rater reliability among experienced attending physicians and may be used as a standardized tool for QI chart review. Next steps will focus on improving both charting and clinical care by integrating all attendings in standardized peer review using this tool. By requiring all the attending staff to review a peers' charts using this template we believe they will have a better understanding of the elements of a "good" chart as well as opportunities for improved care and resource utilization.

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Use of Simulation as an Orientation for Off-Service Residents in the Emergency Department

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Purpose:

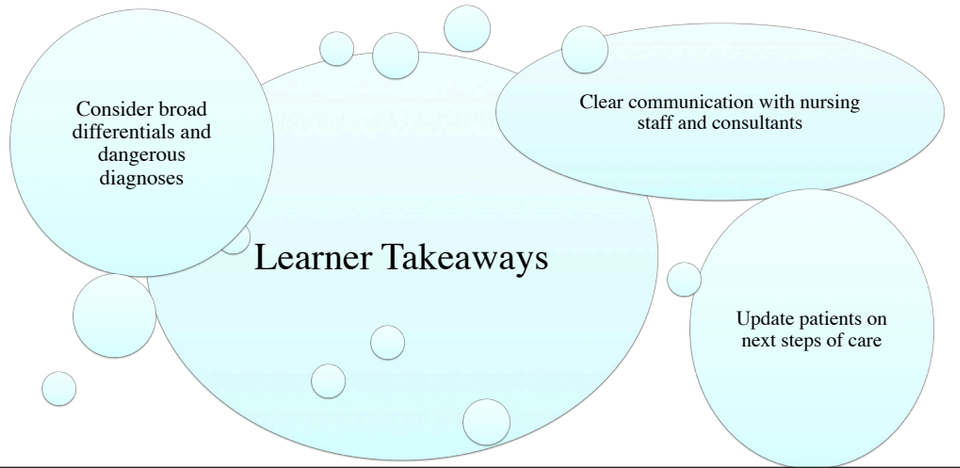
The Emergency Department can be a difficult practice environment for new providers. We developed two simulation cases for rotating off-service residents as part of their orientation to the Emergency Department. These residents normally work the fields of Internal Medicine, Anesthesia, and Obstetrics & Gynecology. The broad goals of the curriculum were to empower residents to feel comfortable in a new and potentially confusing clinical space. Specific goals of the simulation were consistent with core goals of Emergency Medicine practice.

METHODS :

The simulation department developed and executed two simulations that take place each month during the orientation time for off-service residents. To begin the simulation, off-service residents are instructed to go interview and examine a simulated patient, played by a live actor. Off-service residents are then instructed to present the case to a senior Emergency Medicine Resident, discuss the case with them and develop a plan. They are subsequently asked to interpret clinical information and disposition the patient. After each case there is a debrief with the off-service residents.

Learning Objectives for Simulations :

- Understand how to work within a team using best practices such as a clear team leader and closed loop communication.
- Identify critical situations and escalating therapies as needed.
- Create a broad differential diagnosis, with “worst first.”
- Conduct thorough physical exam to uncover source of concerning findings during history taking.
- Discuss best strategies of communicating with consultants.
- Appropriately work up and disposition a life-threatening disease process.



RESULTS:

The off-service residents stated that they found the simulations very helpful in reinforcing general principles and practice in the Emergency Department. Repeated learning points that were cited included considering a broad differential and dangerous diagnoses, communicating with nursing staff, effectively communicating with consultants, and updating the patient on next steps in their care.

CONCLUSIONS:

Simulation is an effective orientation tool to teach off-service residents general principles of Emergency Medicine Practice. Moving forward we plan to implement a pre and post survey for learners to obtain more concrete feedback and enhance the learning experience.

COVID-19 Resurgence Mass Casualty Incident Simulation

Steven Bolger, Daniel Weinick, Yasamin Soltanianzadeh, Heidi Baer, Joshua McHugh, Daniel Satnick, Edmund Hsu

Mount Sinai Morningside and West

PURPOSE:

As part of orientation for the incoming emergency medicine interns, the Divisions of Simulation and EMS and Disaster Preparedness collaborated to teach basic principles of emergency preparedness through an in-situ simulation of a mass casualty incident (MCI) related to COVID-19 resurgence in New York City. The objective of this MCI simulation was to provide an opportunity for the interns to learn the principles of disaster preparedness through a simulated MCI case using the resources available in the Emergency Department at Mount Sinai West.

METHODS:

The incoming emergency medicine interns were introduced to MCI operations through a morning didactic session hosted by the EMS and Disaster Preparedness Division. This session included a discussion of the varying MCI levels and principles of adapting to a new triage system and delegating tasks. The interns then participated in two focused in-situ MCI simulation sessions in the context of a resurgence of patients with respiratory distress secondary to COVID-19. The scenarios involved a nursing home alerting the emergency department to a large number of residents with signs of respiratory distress.

An anonymous 10-question survey was then distributed to the interns to collect data regarding performance during the first and second simulation sessions. We used a Likert scale from 1 (needs improvement) to 5 (exceeds expectation) to assess communication between providers, how appropriately patients were triaged and dispositioned, and how appropriately patients with respiratory distress were acutely managed.

RESULTS:

We found an increase in the numeric rating of communication between providers comparing the first and second simulation sessions from 3.3 to 4.3. We similarly found an increase in the numeric scale regarding how appropriately patients were triaged between low acuity non-isolation, high acuity non-isolation, low acuity isolation, and high acuity isolation between the first and second simulation sessions from 3.6 to 4.0.

We also found an increase regarding how appropriately patients were dispositioned between the first and second cases from 3.6 to 4.1. We did not find a numeric difference in how appropriately the patients with respiratory distress were intervened upon with critical actions.

We also found that 12 patients were triaged in the first simulation session compared to 14 in the second simulation session which is likely due to a more organized and systematic MCI response.

CONCLUSIONS:

We created a brief learning session followed by an in-situ simulation of an MCI involving COVID-19 resurgence with an objective of allowing interns to understand basic MCI principles and use their newfound knowledge to implement existing MCI protocols and develop an organized response. Overall, we found that in-situ simulation is an effective method of allowing interns to improve communication skills and appropriately triage and disposition patients during an MCI.

Virtual Mass-Casualty Incident Simulation

Steven Bolger[1], *Yasamin Soltanianzadeh*,[1] *Heidi Baer*,[1] *Joshua McHugh*,[1] *Daniel Satnick*,[1] *Sage Wexner*,[2] *Julie Sayegh*,[3] *Nubaha Elahi*[4]

Mount Sinai Morningside and West,[1] Kern Medical,[2] Los Alamitos Medical Center,[3] University of Central Florida[4]

BACKGROUND:

Adapting simulation-based curriculum for medical education to the virtual realm presents a unique challenge for educators. We created a virtual simulation of a mass-casualty incident (MCI) in which learners navigate through multiple cases using a track board which they control.

METHODS:

We created a novel virtual MCI simulation in which patients are displayed on a track board allowing the learners to simultaneously manage multiple patients. The scenario involved a local fire and a bus crash in which 6 patients are transported by EMS and 3 patients walk into the hospital. The learners had 8 minutes to simultaneously manage the 9 patients with access to unlimited nursing support and any consultant. The track board provided the patients' age, gender, chief complaint, vital signs, and a picture of any pertinent injury or physical examination finding. The learners were provided with history and physical examination information by asking questions to the examiners following the ABEM Oral Certification Examination format. We provided the learners with prompts including any significant changes in vital signs or changes in respiratory status for the patients.

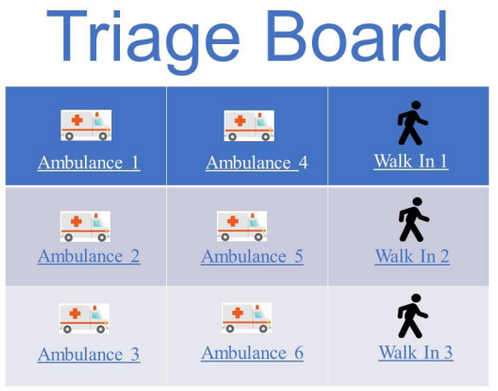


Figure 1. Track board which the learners use to navigate between patients

Figure 2. Example of information provided to learners after selecting one of the icons on the track board

RESULTS:

We had multiple groups of 4-5 emergency medicine resident physicians complete the virtual MCI simulation. We observed variation in the approach of different groups of learners ranging from rapidly evaluating all 9 patients and appropriately triaging care to sequentially navigating between patients. Some teams prioritized dispositioning patients quickly while other teams prioritized resource allocation.

CONCLUSIONS:

We created a novel model for simulating a MCI virtually using a track board which learners can use to navigate through multiple cases. We have applied this model to multiple groups of emergency medicine resident physicians for medical education.

Brachial Plexus Forces Generated During Resident Simulations of Operative Vaginal Deliveries

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ABSTRACT:

Introduction: Due to the declining usage of forceps and vacuums in assisting vaginal deliveries, many centers have resorted to simulations to train their house staff. We previously described the success of a didactic program for simulating operative vaginal deliveries. We now report on the recorded pressures on the brachial plexus during forceps-assisted vaginal deliveries (FAVDs) as compared to vacuum-assisted vaginal deliveries (VAVDs) using a mannequin.

Method: This study was approved by the Mount Sinai Institutional Review Board with a waiver of consent. The residents in an academic Obstetrics and Gynecology program were recruited for participation. Baseline survey data including year of training, demographics, and prior experience with operative vaginal deliveries (OVDs). Following an educational session reviewing appropriate usage and techniques, a hands-on practical was conducted using a pelvic model whose matching baby contained a force monitor in its neck. Forces generated during the simulated deliveries were recorded.

Result: A total of 22 residents completed the study. During this study, 20 of the 22 residents exerted more force on the baby mannequin's neck during VAVDs as compared to FAVDs (P<.001). Whether evaluated by year of residency training or reported experience, there appeared to be greater forces exerted during VAVDs than with FAVDs.

Conclusion: During this educational study, the forces exerted on a baby mannequin's neck were greater during VAVDs than they were during FAVDs. Whether this is an artifact of the study or similar to in vivo results was not tested. Additional studies are currently underway.

INTRODUCTION:

The frequency of operative vaginal deliveries has been declining throughout the United States. According to the CDCs National Vital Statistics report on births, the frequency of OVDs decreased from 9.4% to 4.8% from 1995 to 2018. Several efforts are underway to reverse this trend and to support residents with sufficient training of a highly technical, but low frequency, procedure. OVDs are beneficial as they can, in the appropriate clinical context, reduce the rate of cesarean sections and improve outcomes. One of these methods to improve training is simulation, and we previously described a successful didactic program for simulating operative vaginal deliveries.

For this study, we report the recorded pressures on the brachial plexus during forceps-assisted vaginal deliveries (FAVDs) as compared to vacuum-assisted vaginal deliveries (VAVDs) in a simulated delivery using a mannequin. The force exerted on a neonate's brachial plexus during delivery is of great importance, as excessive force can result in permanent neurological sequela such as Erb palsy. Operative vaginal deliveries have been associated with increased risk of such injuries.

METHODS :

Mount Sinai OB/GYN residents were recruited to participate in the simulation study during the 2019-2020 academic year, a total of 22 residents participated. The study was approved by the Mount Sinai IRB with a waiver for consent.

The simulation study began with a baseline survey to obtain demographics, assess resident knowledge and experience with OVDs. After this the residents underwent an educational session which was in lecture format. Two operative vaginal delivery (Figure 1). Finally, a post simulation survey was administered.

Our previous study demonstrated success in improving resident's knowledge and skill with OVDs. They also found the session to be worthwhile and enjoyable. For this project we focused on the force generated on the brachial plexus of the neonate during the simulation. This was recorded in Newtons using the PROMPT force monitor. The force generated was recorded throughout the resident's delivery using both the forceps and the vacuum, and this data was documented for analysis.

Figure 1. Residents performing simulated OVD using forceps (top) and vacuum (bottom)

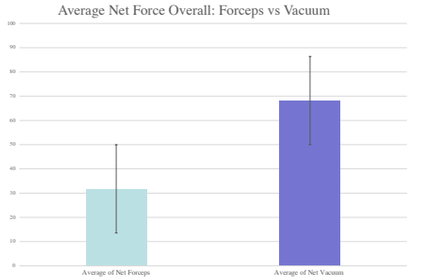

Figure 2. Overall average net force of simulated forceps vs vacuum delivery

RESULTS:

Of the residents recruited, 22 in total participated; 20 of the 22 residents (91%) exerted more force on the neonate mannequin's neck during VAVDs as compared to FAVDs (P<.001). The force exerted was measured in Newtons. An average of 32 N was noted when residents used forceps and an average of 68 N was noted when residents used a vacuum during the simulated operative vaginal deliveries (Figure 2). This was seen regardless of reported experience or year of residency training.

CONCLUSIONS:

This simulation study involving OB/GYN residents at The Mount Sinai Hospital demonstrated that the force exerted on a neonate mannequin's neck was greater during VAVDs than they were during FAVDs. Whether this is an artifact of the study itself or is also similar to live vaginal births was not tested in this study. Additional studies attempting to answer this would be beneficial for clinical management.

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A Cost-Effective, Reusable Pericardiocentesis Simulation Model with an Interchangeable Model Heart and Chest Wall

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Icahn School of Medicine at Mount Sinai

ABSTRACT:

Purpose: Given the exorbitant cost of pericardiocentesis task trainers, there has been a push to develop "Do It Yourself" models. Currently a cost effective, gelatin model exists but is limited in its reusability. We propose a novel "removable lid" ultrasound guided pericardiocentesis model that remains cost effective, sustainable, and educational.

Methods: 43 emergency medicine residents from Mount Sinai Morningside and West in New York City participated in the study. Residents were randomly divided into either the control group (Group A) that used the EMDAILY model or the interventional group (Group B) that used our novel removable lid model. Each group consisted of 4-5 residents that rotated through the station for 30 minutes at a time. The study began with a 10 minute didactic session led by a faculty member. They were then given 20 minutes to practice their pericardiocentesis skills on either the original model or the interventional model. The residents were given a pre and post-session survey to assess their knowledge on pericardiocentesis. The day after the practice session, a second survey was sent to assess if the residents had enough time with the model. This was to ensure the changing of the lids and balloons did not take away a significant time from the training. In addition, the faculty team leaders of each group recorded the number of models, number of balloons, number of lids used for their respective groups to evaluate the sustainability of the different models. Descriptive statistics were used to report the data.

Results: Group A, had 3 control models that became unusable after a single needle insertion. They switched to the novel model in order to still have the opportunity to learn and practice the pericardiocentesis techniques. They used a total of 4 removal balloons and 2 removable lids. Group B used a total of 3 balloons and 2 lids. 13 residents responded to the post-survey question asking if they felt they had enough time with the models. 92% responded yes they had enough time. The cost for the EMDAILY model and the novel model were $20. Each model took two hours to make. From the educational assessment pre and post survey, we found there was an increase in number of correctly answered questions about pericardiocentesis.

Conclusion: The study demonstrates that our novel low-cost, time efficient, durable pericardiocentesis model may serve as an effective training tool for ultrasound-guided pericardiocentesis.

INTRODUCTION:

Given the exorbitant cost of pericardiocentesis task trainers, there has been a push to develop "Do It Yourself" models. Currently a cost effective, gelatin model exists but is limited in its reusability. We propose a novel "removable lid" ultrasound guided pericardiocentesis model that remains cost effective, sustainable, and educational.

METHODS:

43 emergency medicine residents from Mount Sinai Morningside and West in New York City participated in the study. Residents were randomly divided into either the control group (Group A) that used the EMDAILY model or the interventional group (Group B) that used our novel removable lid model. Each group consisted of 4-5 residents that rotated through the station for 30 minutes at a time. The study began with a 10 minute didactic session led by a faculty member. They were then given 20 minutes to practice their pericardiocentesis skills on either the original model or the interventional model. The residents were given a pre and post-session survey to assess their knowledge on pericardiocentesis. The day after the practice session, a second survey was sent to assess if the residents had enough time with the model. This was to ensure the changing of the lids and balloons did not take away a significant time from the training. In addition, the faculty team leaders of each group recorded the number of models, number of balloons, number of lids used for their respective groups to evaluate the sustainability of the different models. Descriptive statistics were used to report the data.

Figure 1. Double balloon model hearts filled with red and yellow dye.

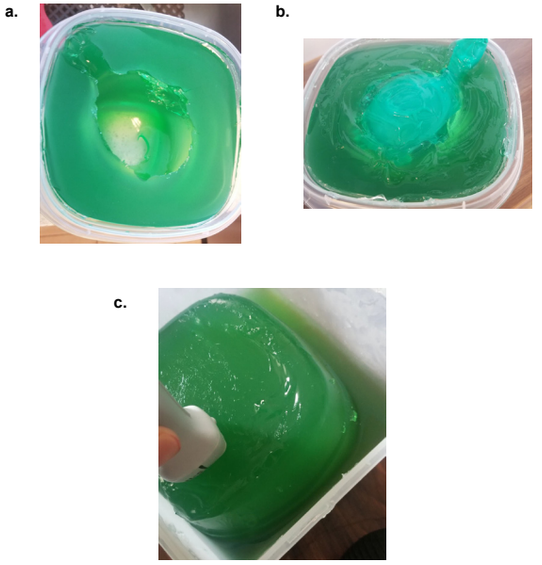

Figure 2. **a.** Hollowed out gelatin base. **b.** Base with a model heart and ultrasound gel surrounding it. **c.** A complete model with the removable lid on top.

Figure 3. An ultrasound image of the novel pericardiocentesis task trainer

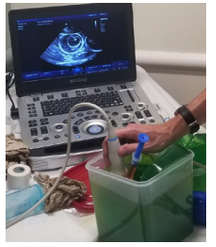

Figure 4. A learner practicing with the novel pericardiocentesis task trainer.

RESULTS:

Group A, had 3 control models that became unusable after a single needle insertion. They switched to the novel model in order to still have the opportunity to learn and practice the pericardiocentesis techniques. They used a total of 4 removal balloons and 2 removable lids. Group B used a total of 3 balloons and 2 lids. 13 residents responded to the post-survey question asking if they felt they had enough time with the models. 92% responded yes they had enough time. The cost for the EMDAILY model and the novel model were $20. Each model took two hours to make. From the educational assessment pre and post survey, we found there was an increase in number of correctly answered questions about pericardiocentesis.

CONCLUSIONS:

The study demonstrates that our novel low-cost, time efficient, durable pericardiocentesis model may serve as an effective training tool for ultrasound-guided pericardiocentesis.

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Stroke Code from EMS to Thrombectomy: An Interdisciplinary In Situ Simulation for Prompt Management of Acute Ischemic Stroke

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ABSTRACT:

Introduction: The treatment of acute ischemic stroke is challenging because it requires prompt management, interdisciplinary collaboration, and knowledge of and adherence to specific guidelines. We seek to address these challenges using simulation, which has been shown to be an effective educational technique that enhances patient outcomes, including by improving clinical team performance and allowing for systems testing.

Methods: An in situ simulation of a stroke code was designed and conducted at unannounced times. Simulations occurred in the real clinical environment, using real hospital equipment and involving the actual on-shift clinicians who would respond. To begin the simulation, an ED team was presented with a 55-year-old female simulated patient brought in by Emergency Medical Services with chief complaint of speech difficulty and right-sided weakness. The team needed to assess her efficiently and appropriately, including activating the Stroke Team via the live hospital paging system. The Stroke Team responded to further coordinate evaluation, obtain appropriate imaging in the radiology suite, and ultimately administer thrombolytic therapy and recognize the need for thrombectomy. Upon simulation completion, debriefing was utilized to review the case, team performance, and critical action completion and timing, as well as to identify areas of success and areas of opportunity. Additionally, latent safety threats were recorded, if present. Finally, participants completed an evaluation to gauge the simulation's effectiveness.

Results: Six stroke code simulations were conducted and debriefed at a variety of hospitals across New York City Health+Hospitals. Debriefings demonstrated robust discussion and learner reinforcement of the importance of timeliness; critical stroke code actions; and the need for collaboration, teamwork, and communication in the management of acute stroke patients. Evaluations indicated that 100% of learners found the simulation to be an effective clinical, teamwork, and communication teaching tool, and all believed it would change their future performance on the stroke team. Additionally, debriefing captured several latent safety threats, which were rectified by collaboration between the simulation, stroke, and hospital leadership teams.

Conclusion: Impromptu, in situ simulation helps develop interdisciplinary teamwork and clinical knowledge and is useful for reviewing crucial times and processes required for best-practice patient care. This is particularly valuable when timely management is essential, such as in acute ischemic stroke in this case.

INTRODUCTION:

Patients presenting with signs and symptoms of stroke are common in the emergency department (ED) and clinicians face several challenges in managing these patients appropriately. For one, it has been established that a shorter time to treatment of acute ischemic stroke is associated with reduced mortality and improved outcomes,[1] mandating rapid assessment and intervention. In addition, a multidisciplinary approach can help improve care,[2] making effective collaboration among various teams and personnel essential.

Simulation has been shown to be an effective technique to improve team performance and patient outcomes.[3] In particular, in situ simulation takes place in the actual clinical environment, using real hospital equipment and involving the real on-duty members of the healthcare team. This allows for the development of effective teamwork behaviors[4,5] in the environment in which those behaviors will occur. In situ simulation increases simulation fidelity, which has been defined as the degree to which the simulation replicates reality.[6]

In situ simulation also allows for systems testing, potentially identifying existing issues with processes, workflows, and staff response times.[7] In a situation such as acute stroke, such obstacles, even if seemingly minor, can become critically important because timely treatment is so essential. The necessity of prompt treatment is underscored by the American Heart Association (AHA) Target: Stroke Phase III goals, which include treatment with intravenous thrombolytics within 60 minutes of arrival in the ED for 85% or more of eligible patients.[8] Institutions also have specific guidelines outlining target times for various other critical stages of acute stroke management and treatment.

This in situ simulation was developed in response to the challenges inherent in acute stroke management, including the target timeframes for various aspects of care, as well as the interdisciplinary and interprofessional collaboration required for optimal patient care. Target learners comprise all who would participate in caring for a real acute stroke patient, including ED, neurology, and radiology teams composed of physicians, midlevel providers, nurses, radiology technologists, and more. Our simulation allows for not only clarification of appropriate management of acute ischemic stroke, but also improvement of the interdisciplinary and interprofessional collaboration necessary in caring for stroke patients. Moreover, interrogation of the times required for critical management actions, with the ultimate goal of aligning these with institutionally or nationally specified target times, are key to improvement of patient care.

METHODS :

Prior to the simulation, participants received an email explaining that in situ stroke team simulations would be occurring and providing background information on simulation. However, the times and locations of simulations were not announced to participants ahead of time. In addition, strict No-Go criteria were utilized in conducting these simulations and were drafted and signed off on by ED, neurology, and radiology leadership. As with all simulation No-Go criteria, these were established to ensure simulations were not disruptive to patient care or safety at any time and provided set, pre-established reasons for not conducting a simulation, based on current conditions in the hospital.

Simulations began in the ED with an embedded participant calling in an EMS pre-notification of a patient with right-sided facial numbness, right-sided weakness, and speech difficulty. Learners had to assess the patient efficiently and appropriately upon arrival, activate the Stroke Team, and ultimately decide on appropriate treatment with t-PA followed by thrombectomy via performing the following critical actions:

- Assess patient, including neurological assessment, upon arrival
- Activate stroke team
- Establish time last known well
- Order stat head CT and CTA
- Request that radiology technologist hold CT scanner for patient
- Draw and send appropriate labs, including point-of-care glucose
- Bring patient to radiology and transfer to CT scanner
- Discuss absolute and relative contraindications for t-PA
- Identify absence of intracerebral hemorrhage on CT
- Order t-PA, including correct dosage based on patient weight
- Gather materials necessary for t-PA administration and prepare and administer t-PA
- Repeat neurological assessments as appropriate
- Identify presence of large vessel occlusion on CTA
- Activate interventional radiology (if thrombectomy capable in-house) or transfer to thrombectomy center

All actions occurred in the real hospital environment, including physically transporting the simulated patient to the CT scanner suite and obtaining equipment from their actual hospital locations. In addition, real imaging (Figs. 1-3) from a patient with positive pathology was utilized, and learners were expected to read this imaging in real time to decide on next steps in management. Facilitators were present to record the times at which critical actions occurred, and participants filled out a post-simulation evaluation survey to gauge the simulation's effectiveness.

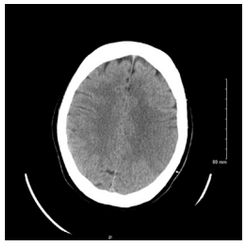

Figure 1. Non-contrast CT.

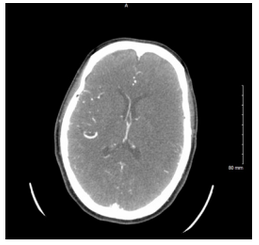

Figure 2. CTA.

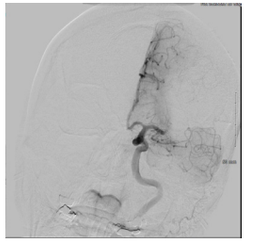

Figure 3. Cerebral angiogram showing left middle cerebral artery.

RESULTS:

Of the teams that participated in the simulation, 100% correctly recognized the signs and symptoms of acute ischemic stroke and activated the stroke team. 100% of teams addressed the relevant considerations in deciding whether it was safe to administer t-PA, including ordering and reading a head CT, establishing time last known well, discussing the elevated blood pressure, and obtaining the patient's weight. In addition, 100% of teams correctly assessed the need for endovascular therapy with a CTA and activated the interventional team. Effective teamwork was applied in the pursuit of these objectives, as evidenced by completion of critical actions within the times specified by both AHA and institutional guidelines; the times required for selected critical actions in two of our initial implementations are shown in Table 1 as examples and compared to the AHA and institutional target times.

Critical Action	Time (Minutes after ED arrival)			
	Implementation A	Implementation B	AHA Target Time	Institutional Target Time
ED provider evaluation	1	0	--	< 10
Arrival at CT	16	7	--	< 25
CT read	37	19	--	< 45
t-PA administration	38	27	< 60 for 85% of patients < 45 for 75% of patients < 30 for 50% of patients	< 60
Thrombectomy team activation	49	39	--	< 90

In addition, results from our post-simulation evaluation demonstrate the effectiveness of the simulation as perceived by learners. To date, 40 participants have completed this survey. On a scale from 1 (very unlikely) to 3 (neutral) to 5 (very likely), 100% of respondents indicated a 4 or 5 for the statements "Today's session was an effective clinical teaching tool" and "Today's session was an effective teamwork + communication teaching tool." In addition, 100% of respondents chose 4 or 5 for the statement "Today's session will change my future work on the stroke team," and 97.5% indicated a 4 or 5 for the statement "Today's session will change my future communication with my teammates."

CONCLUSIONS:

This educational activity utilizes impromptu, in situ simulation to educate clinicians and work to maximize and improve patient care in the area of acute ischemic stroke. The case is designed to be conducted in situ (in the actual clinical environment), facilitating actions that are impossible in a simulation lab but essential to perform quickly during a real stroke code, such as activating the stroke/neurology team currently on shift and transporting the patient to the CT scanner. Practicing and streamlining such actions allows for smoother performance in a real stroke code, facilitating quicker treatment and therefore potentially improving patient outcomes. The in situ nature of the simulation also allows this intervention to reach a wide variety of learners, including physicians, nurses, and technologists across the ED, neurology, and radiology teams, during their real work day and in their real team compositions.

The simulation has been very well received, with participants unanimously indicating that they believed it was likely or very likely an effective teaching tool for clinical, teamwork, and communication skills. All participants also believed that the simulation would likely or very likely change their performance in a real stroke code, suggesting that this activity facilitated the development of valuable clinical and/or communication strategies. In addition, during debriefing, facilitators were successfully able to expand on the themes mentioned by learners to address key learning points, such as clarifying target times for t-PA administration and illustrating strategies for effective communication among team members.

An additional benefit of the in situ format is the ability to perform systems testing, allowing for identification of latent safety threats that may normally stay hidden in the clinical environment. For example, our participants identified difficulties with accurately measuring patient weight during one simulation, given the varying weights of hospital stretchers and the likelihood of additional items being attached to the railing or on the bed with the patient. Such concerns could then be brought to hospital leadership and addressed systematically to improve patient safety; additionally, identifying these issues allows learners to evaluate and adjust their actions by giving them the knowledge necessary to provide more appropriate care in the future.

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New York Urology Resident Exposure and Experience with Robotic Surgery and Simulation

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ABSTRACT:

Introduction: Robotic surgery recently became widely integrated in urological surgery, but resident training in its use is likely heterogenous. We sought to survey residents in training to gauge what teaching instruments were available to them.

Methods: A 26 question survey was distributed to residents training at programs affiliated with the New York Section of the American Urological Association, querying information regarding availability and usage of training tools such as simulators and wet labs. In addition, a robotics education day was held at Mount Sinai for current urology residents during which residents trained with virtual and live tissue simulations. A pre and post educational day survey was administered and responses were tabulated.

Result: Nearly all residents of the New York Section of the American Urological Association reported availability of a simulator, however only 11.5% reported use once a month or more. Meanwhile 50% of residents felt that further training in robotic surgery beyond residency is necessary in order to perform robotic procedures after post-graduate training.

Conclusion: While virtual robotic simulators are widely available to residents, use is sporadic. A dedicated educational day to robotic simulation improves resident comfort with robotic surgery

INTRODUCTION:

Robotic Assisted Laparoscopic Surgery has increased dramatically in the field of Urology since its inception in the early 2000s. As its use has expanded and is now incorporated into a variety of Urologic procedures, new questions and opinions have arisen on how to best teach this new tool to residents in their training. The initial typical approach was a gradual introduction to is use by first observing robotic surgeries performed by an experienced attending, followed by bed-side assisting on cases and then finally experience on the console under close supervision of the attending physician. Alongside these opportunities, dry and wet lab sessions with the robotic instruments have also aided to educate residents while not in a patient-care setting. More recently, simulators have become available that can also help aid in both education of residents and also evaluation of robotic skills by attendings.

Although loose guidelines and opinions exist on how to best perform a robotics training curriculum in a residency program, experience varies widely from residency to residency. In an effort to understand these differences, a survey was sent to residents in New York Section of the American Urologic Association. Additionally, an evaluation of a robotics education day performed in the Mount Sinai Residency Program was performed to assess its aid in robotic education.

METHODS :

A 26 question survey was sent to residents training in all of the New York Section of the American Urological Association Programs. The survey contained questions relating to robotic surgery both inside and outside of the operating room, including simulator, wet and dry lab experience, as well as perceived comfort in robotics skills. The Mount Sinai Urology Department had a Robotics Education Day that included but simulator session and wet lab session. A four question pre-survey and seven question post-survey was completed by the participating Mount Sinai Urology Residents.

RESULTS:

The survey was sent to 188 residents, and 26 surveys across 10 training programs were returned. Only 10 respondents (38.5%) reported knowledge of a robotics curriculum at their program. All respondents reported access to a simulator. Simulator use varied, but appeared infrequent (14/26 reported use “multiple times per year”); only three respondents reported use once a month (11.5%). Wet labs were available to 7/26 respondents (26.9%), but only one reported multiple wet labs per year. Lastly, 12/24 of respondents felt that further training beyond residency is necessary to perform robotic surgery after post-graduate training.

a. Robotic training in residency survey responses

b. Subjective comfort with console and bed-siding skill before and after simulator and wet lab training.

In regards to the benefits of the Mount Sinai Urology Robotics Education Day, the pre-survey found that on a scale of 1-100, comfortability on the robotic console was an average of 38.5, and on the same scale comfortability with bed-siding was 57.52. After the education day, average comfortability on the robotic console increased to 58.67, and average comfortability with bed-siding increased to 67.11. Residents found both the robotic simulator and wet lab useful for their education, and open ended responses indicated the request for more sessions throughout the year.

CONCLUSIONS:

While simulators are available, use is sporadic; wet labs events are uncommon. A robotics education day increased perceived comfort with robotic technique. Increase of exposure and training with wet labs and simulators have the potential to increase satisfaction with and confidence in robotic training.

	Responses n=26/188 (13.8)
Post-graduate training year	
1	3 (11.5)
2	2 (7.7)
3	5 (19.2)
4	6 (23.1)
5	10 (38.5)
Formal robotics curriculum present	11 (42.3)
Simulator available	26 (100)
Simulator use frequency	
Once a year	4 (15.4)
Multiple times per year	14 (53.8)
Once a month	3 (11.5)
Every other week	3 (11.5)
Once a week	2 (7.7)
Wet lab available	7 (26.9)
Wet lab frequency	
Once a year	5 (19.2)
Multiple times per year	2 (7.7)
Video review session frequency	
Multiple times per year	14 (53.8)
Once a month	1 (3.8)
Once a week	1 (3.8)
More than once per week	1 (3.8)
Endorsed need for further training to perform robotic surgery	12/24 (50)

Table 1. Robotic training in residency survey responses

	Responses n=24
Comfort with console skills	
Pre-survey (0-100 scale)	38.5
Post-survey (0-100 scale)	57.5
Comfort with bed-siding skills	
Pre-survey (0-100 scale)	58.7
Post-survey (0-100 scale)	67.1

Table 2. Subjective comfort with console and bed-siding skill before and after simulator and wet lab training.

Enhancing Intubation Efficacy of Contaminated Airway Using the Suction Assisted Laryngoscopy Assisted Decontamination (SALAD) Technique

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ABSTRACT:

Introduction: SALAD (Suction Assisted-Laryngoscopy Assisted Decontamination) is a proposed method for improving endotracheal intubation (ETI) success in a difficult airway contaminated with blood or vomitus. The purpose of this study is to evaluate the impact of SALAD on intubating a vomitus contaminated airway by measuring (1) time to successful ETI (2) number of intubation attempts and (3) comfort with intubating a difficult airway.

Method: PGY 1, 2,3, EM residents were randomly divided into two groups, the intervention (SALAD) and control group. The SALAD group was briefed with a educational session while the control group was instructed to intubate.

Result: Time to intubation, number of attempts, successful intubation were significantly better in the SALAD group compared to the control group. Also providers demonstrated an improvement in confidence in approaching a difficult airways after learning the SALAD Simulation Model.

Conclusion: SALAD technique improves intubation efficacy in a contaminated airway. Providers also have increased confidence in approach a difficult airway contaminated with blood or vomitus after learning the SALAD technique.

INTRODUCTION:

Intubation of an airway contaminated with vomitus or blood is a challenge for Emergency Medicine (EM) Physicians. Minimizing time to intubation can be crucial to maximizing patient outcome. The SALAD technique is a proposed method for improving endotracheal intubation (ETI) success in a difficult airway. The purpose of this study is to evaluate the impact of utilizing the SALAD technique to intubate a difficult airway contaminated with vomitus by measuring (1) time to successful ETI (2) number of attempts of intubation and (3) comfort with intubating a difficult airway.

METHODS:

A simulation model was created by transforming an adult airway mannequin head with artificial vomitus. A total of 38 EM residents were randomly divided into two groups. The control group was provided routine equipment to attempt ETI (direct laryngoscopy, video laryngoscopy, bougie, Yankauer suction, 7.0 Endotracheal tube (ETT) or 7.5 ETT). The intervention group received a 5 minute pre-intubation instructional session regarding the SALAD technique, starting with an oral discussion of the technique and its advantages, followed by a live demonstration(Figure 2, 3). Both groups were given an opportunity to intubate the same airway simulation mannequin with the same equipment. The study measured the time to ETI and number of attempts. A pre and post-survey assessed the confidence of intubating the difficult airway with the SALAD technique. A Likert scale from 1-10 was used.

Figure 2. Didactic session teaching and discussing SALAD technique.

Figure 3. SALAD Airway Mannequin Simulation Model. A live demonstration utilizing the SALAD technique was completed.

Figure 4. Learners practicing the SALAD technique on Airway mannequin contaminated with vomitus.

RESULTS:

Post Graduate Years 1, 2, and 3 EM residents who were present at the residency conference were included in the study. Medical students and attendings were excluded. The mean time to successful intubation was significantly shorter in the SALAD (42.9 seconds) vs control (109 seconds) groups (p =0.001). Successful intubation on first attempt was achieved significantly more often in the SALAD (20/21, 95%) vs. control (8/18, 44%) groups (p = 0.001). The number of attempts was significantly less with SALAD (1.05) vs control (1.89) groups (p=0.01). The Likert survey highlighted three concepts. First, increased comfort with intubating a difficult contaminated airway after learning SALAD (pre-survey 3.72 ± 2.19, post-survey 6.45 ± 1.70). Second, a preference to use video laryngoscopy as primary management (pre-survey 3.24 ± 1.90, post-survey 5.90 ± 1.82). Lastly, the simulation was an effective educational model to learn SALAD (mean 9.40 ± 0.96).

CONCLUSIONS:

Utilizing the SALAD method can enhance intubation efficacy in patients with vomitus contaminated airways and improve confidence in providers presented with a difficult airway.

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Precipitous Delivery With Shoulder Dystocia and Postpartum Hemorrhage Simulation

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BACKGROUND

Emergency medicine (EM) residents have minimal exposure and formal hands on training in the independent management of imminent obstetrical deliveries complicated by shoulder dystocia and postpartum hemorrhage (PPH).

OBJECTIVE:

The purpose of this study was to develop a simulation curriculum with our Obstetric (OB) colleagues to train EM residents in low frequency, high stakes obstetrical emergencies. We hypothesize that simulation will have an impact on addressing the learning gaps in the management of complicated deliveries.

METHODS :

35 Mount Sinai Morningside West EM Post Graduate Years 1-3 residents participated in the study. An online anonymous pre and post survey was distributed to the residents that had three fill in the blank questions. 34 residents completed the Pre Survey the morning of the conference before starting the simulation case. 32 residents completed the post survey within 24 hours of completing the case. The simulation case was developed by EM and OB simulation trained faculty that focused on managing an imminent vaginal delivery complicated by shoulder dystocia and postpartum hemorrhage. The survey evaluated 1) maneuvers used for shoulder dystocia 2) history and physical exam findings to assess for imminent delivery and 3) treatments for PPH.

Pre Survey		Post Survey	
PGY-1	11	PGY-1	8
PGY-2	14	PGY-2	12
PGY-3	12	PGY-3	8
Total	37	Total	28

Table 1. Number of residents by PGY year who participated in the pre survery and post survey

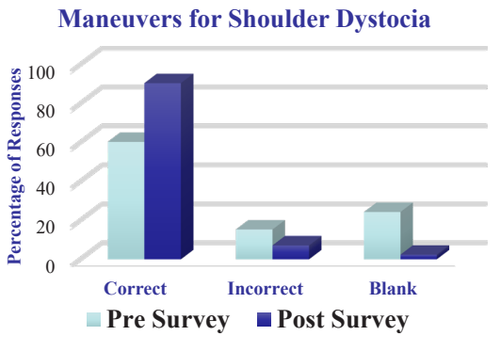

Figure 1. Percentages of correct, incorrect, and blank responses to survey on maneuvers for shoulder dystocia

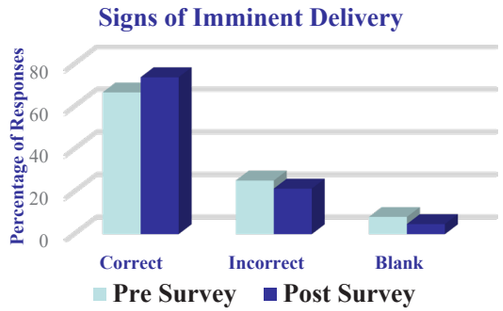

Figure 2. Percentages of correct, incorrect, and blank responses to survey on signs of imminent delivery

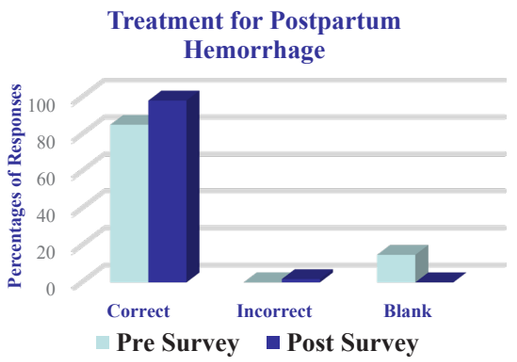

Figure 3. Percentages of correct, incorrect, and blank responses to survey on treatment for postpartum hemorrhage

RESULTS:

PGY 1-3 residents that were present that day for residency simulation conference were included in the study. Medical students and attendings were excluded to help limit the learning level and population focus. In the pre survey, for the shoulder dystocia maneuver there were 27% blank answers and 18% incorrect responses. For assessment of imminent delivery, there were 10% blank answers and 22% and incorrect responses. For treatment of PPH there were 16% blank answers and 1% incorrect responses. In the post survey, there were 2.4% blank answers and 7.2% incorrect responses for maneuvers for shoulder dystocia, 4.5% blank answers and 21.4% incorrect responses for signs of imminent delivery, and 0% blank answers and 1.8% incorrect responses for treatment for postpartum hemorrhage.

CONCLUSIONS:

1. Our study demonstrates the usefulness simulation as a teaching tool for a low frequency, high stakes obstetrical emergency.
2. It additionally demonstrates that simulation-based curriculum that can be used to inform educators of potential learning deficits and additional areas of focus for future educational models.

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