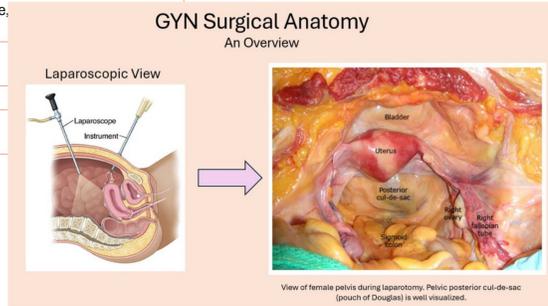


## RUQ pain in pregnancy

Liver diseases (elevated LFTs)

Disease	Key finding(s)	Treatment
Acute fatty liver of pregnancy	Sudden jaundice, hypoglycemia	
Intrahepatic cholestasis of pregnancy	Itching	
HELLP	HELLP	
Preeclampsia	Hypertension + Proteinuria	



## Background

Minimal research has explored how medical students use learning tools to prepare for NBME Shelf Exams, and thus the relationship between resource use and exam scores remains unclear. Social media is another poorly understood learning resource that is increasingly utilized by medical students.

## Aims

- Collect medical student preferences for shelf review resources
- Create and deliver Ob/Gyn Shelf Review presentation
- Collect medical student feedback on perceived effectiveness of teaching techniques (i.e. lecture review, case-based questions, rapid fill-in-the-blank, and image-based review) for shelf exam preparation
- Collect medical student feedback on the time-effectiveness and perceived utility of the APGO uWise resource
- Assess students' self-reported social media screentime during clerkship while simultaneously piloting and promoting an OBGYN Shelf Review Instagram account (@lcomobgynshelfreview) to engage medical students in high-yield content review

## Methods

### Educational Innovations

#### Near-Peer (MS4) Ob/Gyn NBME Exam Review Session

MS4 students reviewed all available NBME practice forms for the OBGYN Shelf Exam, aligning questions with the NBME Shelf Examination Outline. NBME practice questions from each form were grouped into four key topics (Neoplasms, Obstetric Complications, Puerperium, and Infectious & Immunological conditions) based on highest frequency of topics tested on the NBME OBGYN Subject Exam Content Outline.<sup>1</sup>

A review PowerPoint was created for highest yield concepts with a list of relevant UWorld questions for each key topic.

A review session was presented via Zoom to each cohort of 3rd-year medical students during their OBGYN clerkship.

The PowerPoint was published on Scholar Works.<sup>2</sup>

#### Instagram Shelf Review Account

MS4 students created an Instagram account to assist 3rd-year students in preparing for the OBGYN Shelf Exam.

The account posts high-yield content to support self-directed learning and foster student interaction throughout the clerkship.<sup>3</sup>

### Student Feedback

Pre- and post-surveys were administered to clerkship students to gather feedback on the educational innovations.

The pre-survey, distributed before the shelf-review, included 4 questions, asking about social media screentime, platform preferences, and percentage (%) of time spent on each shelf review resource.

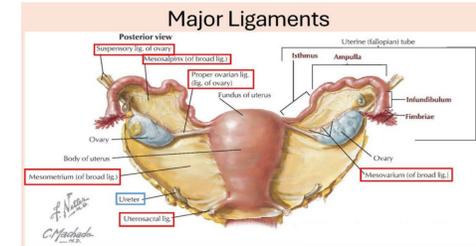
The post-survey, distributed after the review session, included 8 questions, including most helpful teaching methods, suggestions for improvement, choice to follow Instagram account, percentage (%) of time spent on each resource, and usefulness and time spent with APGO uWise.

Both surveys were anonymous, voluntary, and administered via Qualtrics.

# Filling The Virtual Gap

## Peer-led Innovations in Medical Student Shelf Preparation

Arif Ahsan BA, Em Battle BS, Jasmine Bazinet-Phillips MS ed, Jennifer Toner BS, and Erin Morris, MD



## Student Feedback & Survey Results

Resource	Mean	Responses
UWorld	65.06	18
NBME Voucher	35.07	15
Anki	26.55	11
APGO uWise quizzes	16.13	8
APGO videos and cases	7.00	3
Other	52.50	2
Boards & Beyond	76.00	2
Osmosis	5.00	1
Online MedEd	0.00	0

Table 1. Mean percentage of shelf study preparation time spent on popular study resources and total number of respondents reporting use. Data collected in response to "What resources do you plan to use to prepare for the upcoming OBGYN Shelf exam? Estimate what percentage (%) of your time will be spent on each resource." Other resources included First Aid OBGYN, Amboss, "Podcasts," and "Youtube videos."

### Selected Student Responses to "Do you have suggestions for improvement of the Shelf Review session?":

"I really like the custom questions at the end...the presentation of material helps to sort out the confusing details."

"We can do UWorld on our own so I would recommend more image and rapid question-based review."



Figure 1. Frequency of Shelf Review teaching techniques ranked by student preference from 1 (most helpful) to 4 (least helpful).

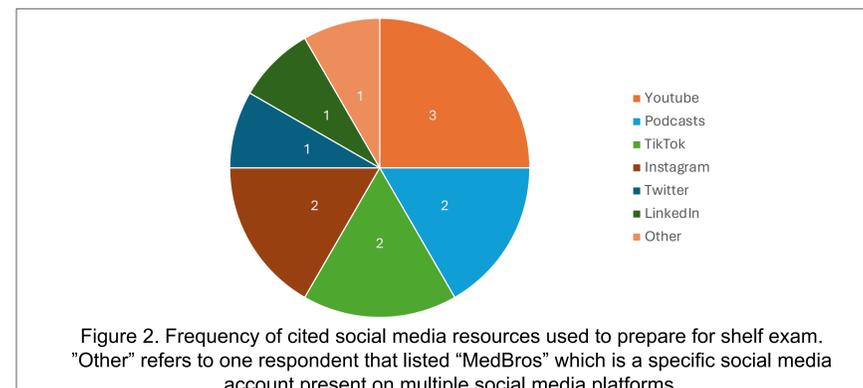


Figure 2. Frequency of cited social media resources used to prepare for shelf exam. "Other" refers to one respondent that listed "MedBros" which is a specific social media account present on multiple social media platforms.

## Results

- Students most commonly (48%) reported spending 3-5 hours per week on social media
- Instagram was the most used social media site (23 out of 39 students).
- Students used a variety of social media resources to prepare for shelf exams.
- 59% of students followed the LCOM OBGYN Instagram shelf review account after their shelf review session.
- 11 of 14 students said they would not use APGO quizzes if not required. The most frequently cited reason was a preference for other resources, of which UWorld was cited most frequently.

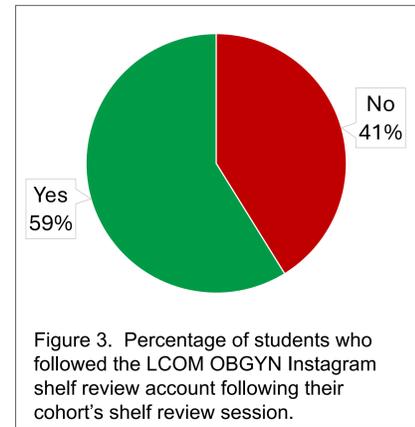


Figure 3. Percentage of students who followed the LCOM OBGYN Instagram shelf review account following their cohort's shelf review session.

## Discussion

- This project delivers novel educational innovations to medical students during their 3rd-year OBGYN clerkship, including a high yield peer-led review session and Instagram account.
- The Instagram and review session provided a scaffolding to solicit feedback on how to adjust educational materials to meet student needs and thus "fill the virtual gap" in their shelf exam preparation.
- Respondents most frequently cited UWorld question bank as their preferred resource for shelf exam preparation.
- While case-based questions were most frequently ranked as most helpful and lecture review as least helpful, student preferences were overall highly variable.
- As APGO uWise quizzes are also case-based, students would likely prefer resources with alternative teaching techniques.
- A possible confounding variable is the changing needs and preferences of students as they progress through clerkship year.

## Future Directions

- Stratify teaching technique preference for each cohort of 3<sup>rd</sup>-year MS to see if there are significant differences as students progress through the 3<sup>rd</sup>-year curriculum
- Tailor content on the OBGYN Shelf Review Instagram account to align with student preferences and analyze if that increases student engagement
- Evaluate whether there is a significant difference in OBGYN Shelf exam performance based on resources utilized by students
- Assess whether students utilized content from the OBGYN Shelf review session or the LCOM OBGYN Instagram account to prepare for USMLE STEP 2

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# PROFESSIONAL IDENTITY FORMATION IN A LONGITUDINAL PEDIATRIC CONCENTRATION FOR FOURTH-YEAR MEDICAL STUDENTS

Hillary Anderson, MD, MPH<sup>1</sup>; Lisa Grefe, MS<sup>2</sup>; Molly Rideout, MD<sup>1</sup>

<sup>1</sup>Department of Pediatrics, <sup>2</sup>Teaching Academy

## Background

- Many institutions have general or specialty-specific transition to residency (TTR) courses toward the end of medical school.
- TTR courses are very popular, although there is limited data showing improved performance during early internship among participants
- The Larner College of Medicine Pediatric Concentration is an innovative longitudinal course extending throughout the fourth year
- Authors explored how participation in the Pediatric Concentration influenced aspects of professional identity formation



## Results

- Eleven former students participated and completed interviews.
- Following initial independent coding, interrater reliability for three sample questions was 80%.
- Six major categories included almost all of the codes.

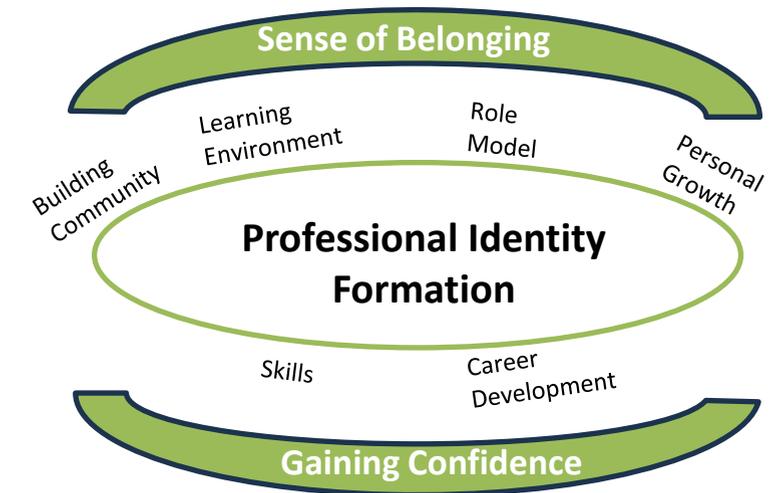
Categories and Subcategories					
Building Community	Personal Growth	Learning Environment	Role Model	Skills	Career Development
peer network	identity formation	supportive	faculty/resident/peer	clinical	advising
faculty engagement	build confidence	welcoming	teaching	procedural	mentoring
longitudinal	opportunity for reflection	safe	work/life balance	communication	peer advice
		informality	advocacy	teaching	
		peer support	communication style	team-based	

***“The biggest strength of the pediatric concentration was that sense of community.”***

***“(the) discussions allowed me to think critically about who I want to be in the room, with a patient, on a non-clinical level”***

***“The low pressure set up was really beneficial for me and let me fail in a safe way.”***

Major themes:  
**Creating a Sense of Belonging**  
**Gaining Confidence**



## Conclusions

- A longitudinal pediatric concentration program for fourth-year medical students created a sense of belonging among participants and helped them to gain confidence leading into internship.
- Similar programs may support students in developing aspects of professional identity that aren't typically measured, but could potentially help with the transition to residency
- Area for future study includes whether participation in a longitudinal specialty-specific fourth-year program is associated with improved intern performance

## References

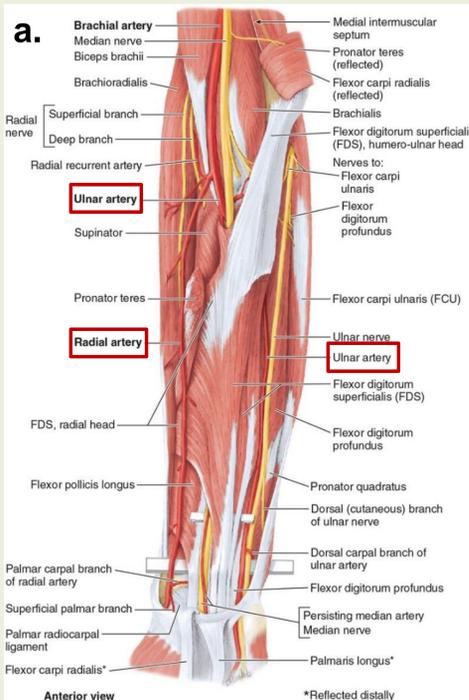
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# Anatomical Variation of High Brachial Artery Bifurcation with Crossover of the Ulnar and Radial Arteries: A Case Report

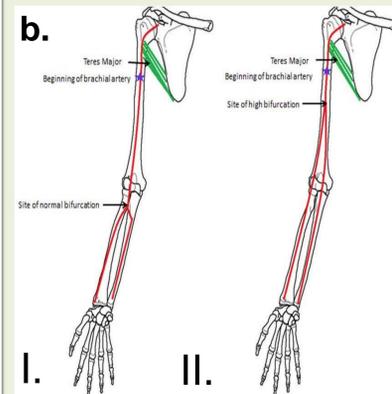
Kyle Bergeron\*, MS1<sup>1</sup>, Madeline Cohen\*, MS1<sup>1</sup>, Mirella A. Fernandez\*, MS1<sup>1</sup>, R. Henry Powell\*, MS1<sup>1</sup>, Abigail C. Hielscher, PhD<sup>2</sup>  
<sup>1</sup>Larner College of Medicine, <sup>2</sup>Department of Neurological Sciences University of Vermont Larner College of Medicine, Burlington, VT

## Background

- The brachial artery branches from the axillary artery at the lower border of the teres minor muscle to supply the upper arm
- Normally the brachial artery branches into the radial and ulnar arteries at the cubital fossa (e.g., elbow) with the ulnar artery coursing medially to supply the anterior and posterior aspects of the medial forearm, the fifth digit, and the palm and dorsum of the hand
- The radial artery courses laterally down the forearm toward the thumb, supply the anterior muscles of the forearm along with those in the palm and dorsum of the hand



**Abbreviations:**  
 BiB: Biceps brachii muscle  
 MN: Median nerve  
 BA: Brachial artery  
 UA: Ulnar artery  
 RA: Radial artery  
 TM: Teres major muscle



**Figure 1a. Arteries of the forearm.** The image shows the typical arterial distribution of the forearm. This shows the typical brachial artery bifurcation that occurs at the cubital fossa.

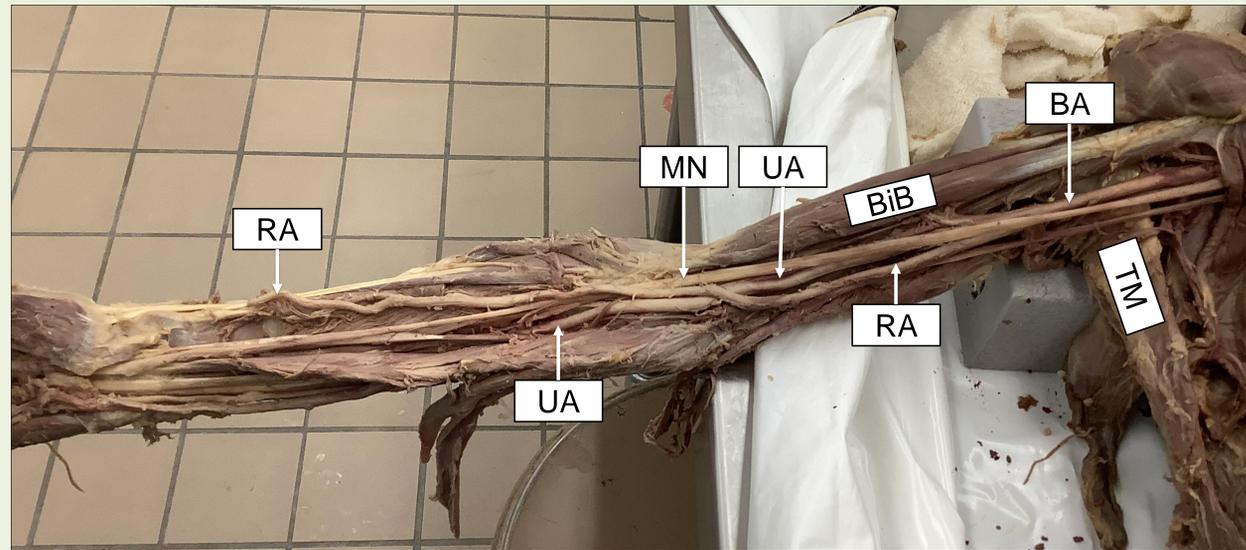
**Figure 1b. Brachial Artery Bifurcation.** This image shows the site of normal bifurcation compared to the site of a high bifurcation.

## Methods

To reveal the anatomical structures of the arm, gross dissection was done following instructions in the Grants Dissector (17<sup>th</sup> ed). During routine dissection of the left arm of an 84-year-old male donor, a vascular variation was observed

Written consent to report these findings was given by the donor's next of kin.

## Findings



**Figure 2: Overview of arm with anatomical landmarks.** The axillary artery becomes the brachial artery once it crosses the inferior border of the teres major. The brachial artery is the main blood source for the arm, splitting into the radial and ulnar arteries which supply the forearm.

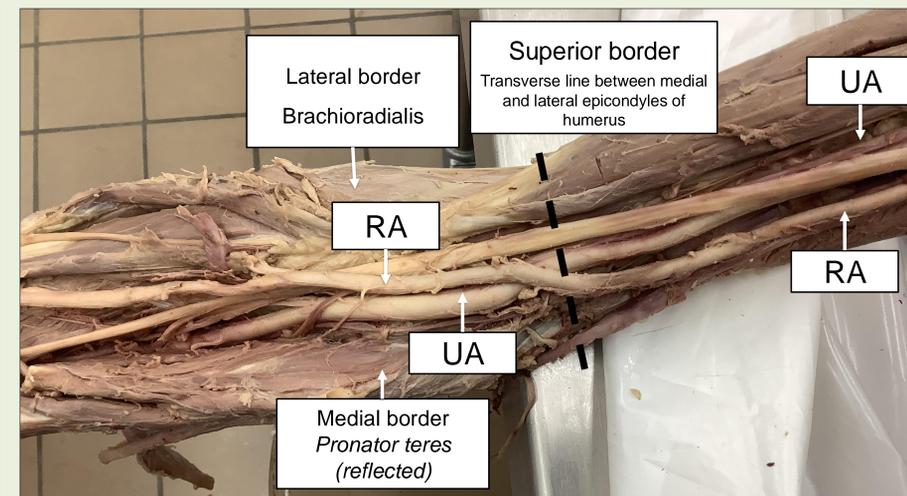


**Figure 4: Abnormal splitting and course of brachial artery in the proximal arm.** Normally, the brachial artery splits into the radial and ulnar arteries within the cubital fossa at the elbow. In this case, the split occurs more proximally, just after the teres major muscle. Additionally, there was a crossing of the branches more distally in the cubital fossa. Due to this crossing, the radial artery begins as the medial branch and the ulnar artery as the lateral branch.

## Acknowledgements & References

The authors would like to thank Lynn Bateman, Anatomical Gift Program, who assisted with identification of the donor's next of kin.

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**Figure 3: Course correcting crossing of radial and ulnar arteries in the cubital fossa.** Within the cubital fossa, the radial and ulnar arteries cross paths again, returning to their expected anatomical courses distally through the forearm.

## Clinical Implications

- Radial artery (RA) is a common choice now for coronary artery bypass grafting (CABG) procedures due to its
  - Ease of harvest
  - Improved postoperative outcomes (4)
- Approximately 400,000 CABG procedures are performed annually in the United States
- One similar case was reported by Singh, et al., in 2017 and it's important to continue to raise awareness of these abnormalities

## Conclusions

- This case study identifies the anatomical anomaly of a high branch point of the axillary artery into the brachial and ulnar arteries with an additional crossing of the brachial and ulnar arteries in the cubital fossa.
- Identification of anomalies such as this are particularly important for reducing complications in related surgical procedures such as coronary artery bypass surgery using the radial artery, vascular reconstructive surgery, and any other surgery of the upper arm

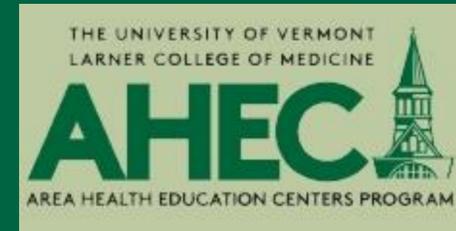


University of Vermont  
 Larner College of Medicine

# EXPLORING GROUP MENTORSHIP AS AN EFFECTIVE AND SUSTAINABLE MODEL FOR SCHOLARSHIP

Michelle Cangiano, MD, Alicia Jacobs, MD

University of Vermont Health Network Department of Family Medicine, Larner College of Medicine at the University of Vermont



## Background

Traditionally mentorship is defined as a more experienced colleague providing guidance and support for a more junior colleague. Mentoring of medical students has been described as a pillar of medical education (Farkas et al.). However, mentoring any number of students can be burdensome in several ways: time, expertise, connections, and consistency. The changing medical landscape has called for new and innovative mentoring models. The objective of our study was to evaluate mentor and mentee perception on mentoring, as well as preferences on mentoring model.

**Dyad:** one on one mentoring (traditionally a senior mentor with a junior mentee)

**Multiple:** multiple mentors for one mentee, mentors working independently

**Team:** multiple mentors for one mentee, mentors communicate and work together

**Peer:** mentor and mentee at the same level of training

**Reverse:** both parties take turns being mentor and mentee

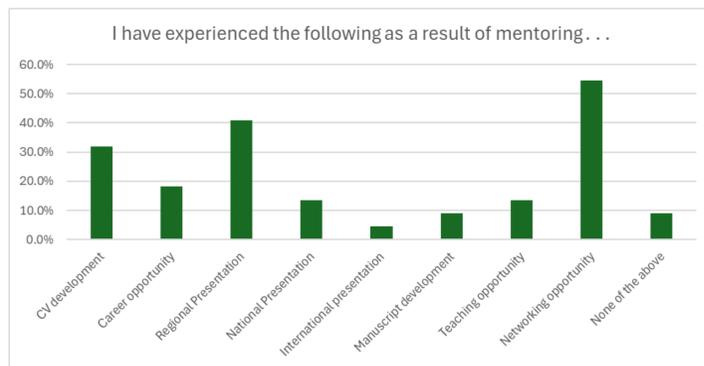
**Group:** multiple mentors and mentees, sometimes a rotation of mentors, allows for peer mentoring as well

## Methods

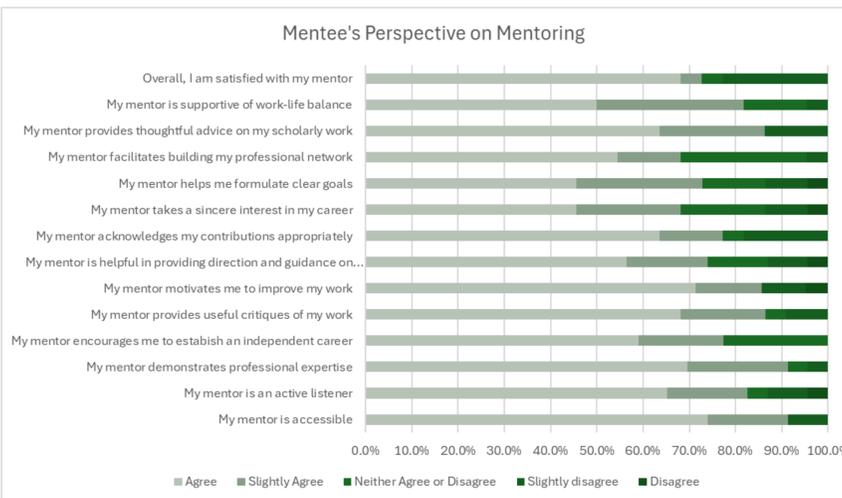
A study was designed and approved by UVM IRB using the exempt procedures set forth under 45 CFR 46.104. Study number STUDY00003152.

The surveys were distributed to students and mentors participating the AHEC Scholars Summer Research projects.

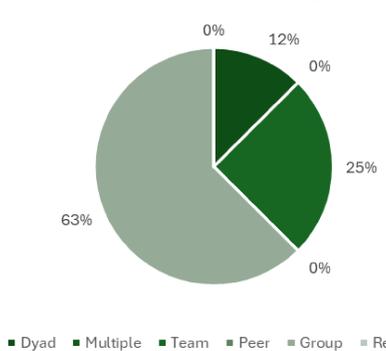
Study data was collected and managed using REDCap electronic data capture tools hosted at The University of Vermont.



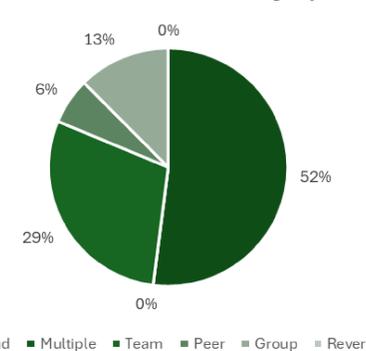
## Results



Mentor Favorite Mentoring Style



Mentee Favorite Mentoring Style



## Discussion

The study showed that group mentors appreciated the flexibility and work life balance.

- Mentors felt personal fulfillment: may help with burnout.
- This may be a way to increase mentors in our system.

Students felt the need for more support

- Appreciated dyad mentoring and mentoring styles that were more one on one focused
- We question if this is due to students having more experience with a dyad model and therefore are more likely to state they prefer it.

We also question the effect that the COVID-19 pandemic had on the preferred mentoring style on both mentors and mentees.

## Next Steps

Goal would be to survey a broader range of mentors and mentees. This would include past years students in AHEC as well as students throughout the institution.

We also plan to validate the tool, so it can be used more broadly to evaluate effectiveness of mentorship.

## Acknowledgements

The University of Vermont Larner College of Medicine AHEC Charles Maclean, Rachel McEntee, Sean Maloney, Yao Li, Marie Sandoval

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# Supporting the Development of Mentoring Skills in a Team-Based Online Graduate Public Health Course

Tom Delaney PhD, Elzerie de Jager MBBS, PhD, Shamima Khan MBA, PhD, Erika Ziller PhD, Jan Carney MD, MPH



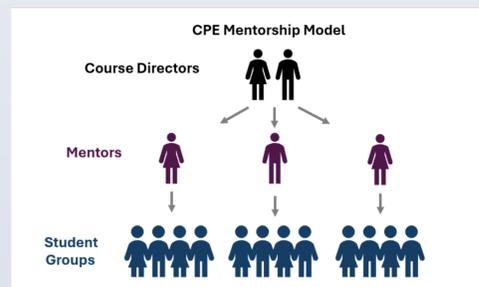
University of Vermont  
Larner College of Medicine

## BACKGROUND

Mentoring by faculty is an essential aspect of graduate learners' development of professional competencies and promotes students' satisfaction with their education.<sup>1</sup> However, mentoring skills and frameworks are often not actively taught and support for faculty development as mentors is lacking in many academic settings.<sup>2</sup>

## INTRODUCTION

PH6920 *Culminating Project Experience* (CPE) is a five credit fully online course in which mentors are matched with a small team of Master of Public Health (MPH) students who design, implement and report on an original research project.



Previous mentors felt unprepared for this role and asked for additional support for working with their teams. Starting in fall 2023 we added educational supports and aimed to determine the extent to which mentors' skills and confidence related to mentoring changed.

## METHODS

Changes for the 2023-2024 cohort of mentors included:

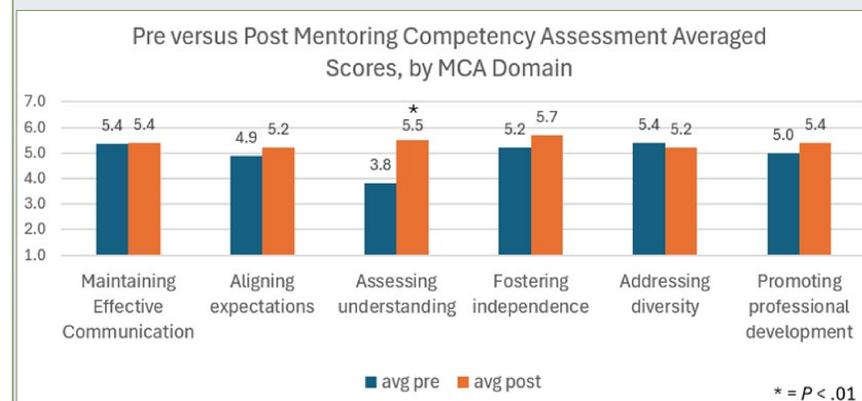
- Additional orientation material provided at the start of the course
- Early and late semester meetings with the course co-directors at which mentoring challenges and solutions were shared and reflected upon
- Brief pre-readings discussed during the meetings
- Providing increased guidance around supporting students as they complete their assignments
- Encouraging mentors to engage the course co-directors with concerns and challenges

## METHODS

The Mentoring Competency Assessment (MCA) was completed by the mentors prior to the course and at its conclusion. The MCA has 26 items that map onto six domains.<sup>3</sup> Each item uses a seven-point self-rating of skills scale. Analyses used descriptive statistics and paired sample *t*-tests ( $\alpha=.05$ , two-tailed).

## RESULTS

Eight out of nine mentors completed the pre- and post-MCA. Averaged domain scores are displayed below.



An increase was seen in the Assessing Understanding MCA domain, which reflects items on setting research goals, developing strategies to meet goals, and assessing mentee knowledge. Among the specific items in this domain average increases were seen for estimating mentees' ability to conduct research (3.0 to 5.4,  $P < .01$ ) and accurately estimating mentees' level of scientific knowledge (3.9 to 5.7,  $P < .01$ ). All other domains showed no significant changes.

Examining pre- versus post-course changes for individual MCA items showed increases for negotiating a path to professional independence with mentees (4.3 to 6.2,  $P < .01$ ) and working with mentees to set research goals (3.3. to 5.0,  $P < .01$ ). There were no significant decreases in averaged MCA item-level scores.

## CONCLUSION & DISCUSSION

This study shows evidence for increased self-ratings of mentor effectiveness in the context of mentoring a small group of MPH students on a research project. Improvement was primarily in the area of assessing students' understanding related to the course. Mentors appear to have benefitted from active engagement around their mentoring practices and the support from experienced instructors (the course co-directors).

Consistent with the recent literature on mentoring effectiveness in higher education, the findings suggest that mentoring can be actively taught and supported.

As data from additional cohorts of mentors and students is collected, we expect to use the findings to further fine-tune the mentoring supports provided during the CPE course.

## LIMITATIONS AND FUTURE DIRECTIONS

- Inability to directly attribute improved MCA scores to increased mentoring supports, given the lack of a comparison group and random assignment
- Small *n* and low statistical power

Additional MCA data will be collected from the 2024-2025 mentoring cohort. Following the spring 2025 semester we will host a discussion group with mentors to "unpack" and reflect on their experiences during the course and assess the mentoring supports.

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# Advancing Abortion Education for Widespread Health Impact

## Background

- Abortion is a critical topic in medicine, public health, and human rights. Historically protected in the United States by *Roe v. Wade*, the 2022 reversal in *Dobbs v. Jackson Women's Health* has shifted abortion access to a state-level legal question rather than solely a medical decision between a physician and patient.
- This variability has led to growing gaps in care coverage and increased moral distress for providers, highlighting the importance of abortion education in medical training.
- Comprehensive abortion education is essential for all physicians not only to improve counseling and care but also to empower advocacy and address disparities in access.

## Goal

- This project assesses medical students' attitudes, knowledge, and comfort regarding abortion topics before and after a dedicated educational session during the OB/Gyn clerkship, aiming to inform the development of well-rounded family planning curricula.

## Methods

### Participants:

- Intervention: 86 third-year medical students (attended the educational session)
- Comparison: 123 fourth-year medical students (did not attend the educational session)

### Session content:

- Early pregnancy counseling
- Medical and surgical abortion options and associated risks

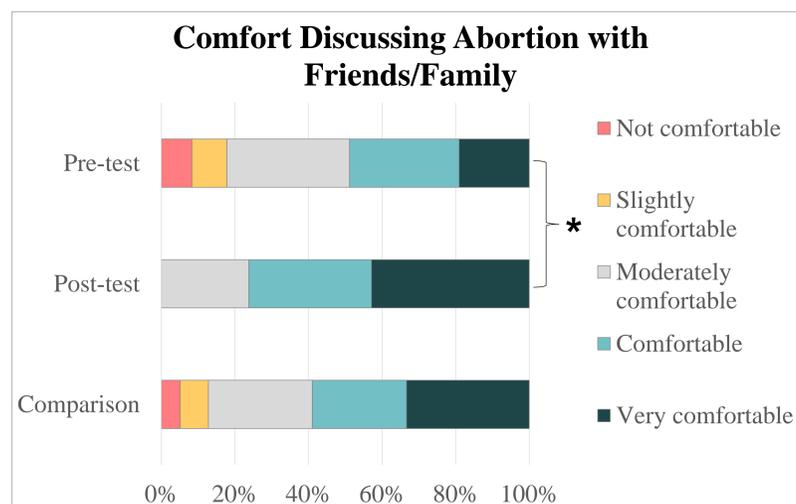
### Survey design and distribution:

- An electronic survey was distributed to assess knowledge, comfort, and attitudes about abortion care and education
- The intervention group completed a follow-up survey 6-12 weeks later

### Statistical analysis:

- Group differences were analyzed using Kruskal-Wallis H and one-way ANOVA tests, with post-hoc tests conducted for significant findings

## Results

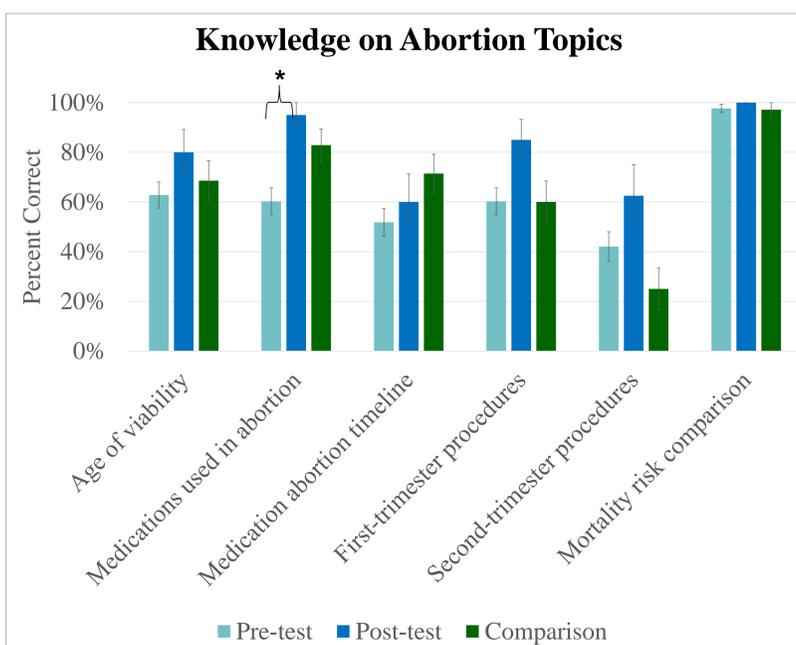


### Participant Feedback

"I'm looking forward to being more comfortable talking to patients about this and being able to dispel myths about abortion."

"I really appreciate getting education during school, and I'd really like a Standardized Patient session where we could practice counseling on abortion."

"[It would also be helpful to] discuss assistance programs for pregnant people that are offered if they opt to continue the pregnancy."



## Discussion

- Most participants identified as pro-choice (97.5%) and rated abortion education as important to their medical training (96.9%).
  - This underscores the importance of bolstering abortion education, particularly in states where abortion is legally protected, to ensure that future physicians are equipped to provide comprehensive care and advocate for equitable access to reproductive health services.
- Participants performed well on topics like age of viability, medication abortion, and first-trimester surgical procedures, but knowledge gaps remain in areas such as the medication abortion timeline and second-trimester procedures, highlighting the need for further education in these areas.

## Future Directions

- Expansion of family planning curricula to include counseling about alternatives (e.g., adoption).
- Incorporation of more interactive or experiential learning opportunities to reinforce knowledge and improve comfort in discussing abortion care.
- Barriers may include challenges in implementation, finding the right balance in curriculum content, and the need for continual reflection on the changing political climate to assess current needs.

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# Preparing for the Unthinkable: A Collaborative Biothreat Assessment Exercise Provides Deeper Understanding of Epidemiological Principles

PRESENTER:  
 **Rebecca Guy, MLS (ASCP)<sup>CM</sup>, PhD**

## THREAT ASSESSMENT EXERCISE

- Description:**
- Using the ECDC MCDA approach, rank infectious disease threats for prioritization and resource allocation
  - Develop disease-specific ranking recommendations
  - As a group, establish consensus on a ranking recommendation for each threat
  - Summarize findings and reflections in written assessment

- Prior work:**
- Students have covered the selected biothreat agents (dissemination, clinical features, diagnosis, and treatment)
  - Students have biothreat agent fact sheets (provided or student-generated)
  - Students are familiar with the ECDC MCDA approach

- Learning Objectives:**
- Practice public health threat assessment using the ECDC framework based on a Multi-criteria Decision Analysis approach
  - Prioritize a given list of infectious diseases to form the basis of preparedness resource allocation recommendations to public health policy makers
  - Reflect on group dynamics, challenges of individual disease assessment, and usefulness of MCDA approach

- Grading:**
- Class Participation (5 points)
  - Written report on exercise (15 points)
    - Justify the level you selected for each ECDC assessment criterion for your assigned pathogen/disease. Support your assessment with data and cite your sources (8 points)
    - What type of epidemic pattern would you expect your disease to have in an outbreak and why? (Select from point source, continuing source, propagated or mixed pattern) (2 points)
  - Provide your reflections on the discussion/debrief questions (5 points)

# Students gain a deeper understanding of epidemiology through a hands-on biothreat assessment exercise.

**Table 2. The six epidemiological criteria with their level, range, scaled values and description**

Criterion	Description	Range	Level	Scaled value
E1. Probability of introduction of a pathogen with the potential for onward transmission in humans into the study jurisdiction in the next five years	Probability that a pathogen enters the study jurisdiction in the next five years, either through import of products, animals or humans carrying the pathogen or vectors that harbour the pathogen. When a pathogen is already present or likely to be introduced, this is represented by the "high" level. This criterion excludes consideration of pathogens in laboratories.	<1%	Very low	0.005
		1 – 10%	Low	0.05
		10 – 99%	Medium	0.5
E2. Peak annual estimated incidence in the study population over the next five years	Peak annual estimated incidence of infection among the population per 100 000 inhabitants. It depends on the proportion of the population that is at risk for infection, the possible pathogen reservoirs, the exposure to the pathogen through the possible transmission routes, the infectivity of the pathogen, and public health prevention measures.	<1	Very low	0.001
		1 – 100	Low	0.01
		100 – 1 000	Medium	0.1
E3. Case fatality proportion at peak incidence levels	Proportion of cases that are fatal from the disease under consideration, during the year of peak incidence (from E2). It depends on the pathogen causing the disease under consideration and the health state of the patients and public health capacity. The availability of medical interventions is included.	<0.1%	Very low	0.001
		0.1 – 1%	Low	0.01
		1 – 10%	Medium	0.1
E4. Probability that the risk increases in the next five years in the study jurisdiction	Worsening of the threat can occur through various mechanisms, including the evolution of new pathogen traits (e.g. virulence, enhanced transmissibility in humans, antimicrobial resistance), changing vector habitats (e.g. due to climate change), changes in animal reservoirs, changes in global trade and travel or changes in public health capacity.	<1%	Very low	0.005
		1 – 10%	Low	0.05
		10 – 99%	Medium	0.5
E5. Discomfort of a disease episode at the individual level	The impact of a disease on the individuals' quality of life is partly determined by the associated discomfort. It can range from mild diarrhoea for a day to irreversible blindness or kidney failure. A measure to express this discomfort due to disease is the Years Lived with Disabilities (YLD) per 100 cases. It depends on the duration and severity of symptoms	<1 YLD	Very low	0.001
		1 – 10 YLD	Low	0.01
		10 – 100 YLD	Medium	0.1
E6. Economic impact of the disease	Total impact in monetary terms of an infectious disease threat from a societal perspective (i.e. costs for the society as a whole). These costs include direct cost to the healthcare system and to preparedness and response; and indirect costs related to productivity losses, tourism losses and trade losses. The costs are expressed as total estimated costs per 100 cases per year, reflecting the distribution of health outcomes and associated costs per 100 cases of a given infection.	<1 million euros	Very low	0.001
		1 – 10 million euros	Low	0.01
		10 – 100 million euros	Medium	0.1
		>100 million euros	High	1.00

## Threat Assessment Class Results - 2023

Disease/ Antigen	Metric	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7
1. Ebola	Score	0.158	0.158	0.0	0.108	0.108	0.165	0.058
	Rank	3	3	7	4	4	4	4
2. Cholera	Score	0.050	NA	0.115	0.158	0.058	0.050	NA
	Rank	6	NA	3	5	7	6	NA
3. Measles	Score	0.230	0.215	0.288	0.288	0.230	0.230	0.230
	Rank	2	1	1	1	2	1	1
4. Ricin	Score	0.108	0.058	0.058	0.165	0.108	0.050	NA
	Rank	4	6	5	3	5	7	NA
5. Rabies	Score	NA	NA	0.115	0.0	0.108	0.058	0.049
	Rank	NA	NA	4	7	6	5	6
6. Anthrax	Score	0.1	0.108	0.058	0.049	0.158	0.173	NA
	Rank	5	4	6	6	3	3	NA
7. Unidentified	Score	0.230	0.215	0.215	0.215	0.230	0.215	0.165
	Rank	1	1	2	2	1	2	2



ECDC tool for the prioritization of infectious disease threats – Handbook and manual. Stockholm: ECDC; 2017. [https://www.ecdc.europa.eu/sites/default/files/documents/Tool-for-disease-priority-ranking\\_handbook\\_0\\_0.pdf](https://www.ecdc.europa.eu/sites/default/files/documents/Tool-for-disease-priority-ranking_handbook_0_0.pdf)

- MMG3350 Course Learning Objectives:**
- Describe the historical use of biological agents in warfare
  - Discuss the nature and extent of the threat of biological terrorism
  - Describe the CDC categories for biothreat agents/diseases
  - Compare and contrast select category A and B agents: dissemination, clinical features, diagnosis, and treatment
  - Evaluate pathogens/biothreat agents from the perspective of a public health expert
  - Assess biothreat preparedness and the interplay at various levels of government

- Learning Objective 5: Evaluate pathogens/biothreat agents from the perspective of a public health expert**
- How is student achievement of the goal demonstrated/assessed?
    - Threat Assessment Exercise (x3 during semester), plus modification for final project
  - How do students practice so they can achieve proficiency?
    - 1st time: Instructor presents on all 6 pathogens, provides fact sheets
    - 2nd and 3rd times: students provide their own fact sheets
  - When is progress evaluated and how is feedback given?
    - Following each of 3 during the semester
  - How are students made aware of the relationship between the coursework and their achievement of the goal?
    - Stated as part of the assignment

- Classroom Delivery:**
- Prior to class, students are each assigned 1 of 6 pathogens
  - Using the ECDC MCDA approach, rank infectious disease threat for prioritization and resource allocation
  - Breakout groups (6 students): goal is to reach consensus on a ranking recommendation for each threat
  - End class with discussion of the ranking from each group

- Final Project: Develop Response Plan for Novel Pathogen**
- Part 1: Create a fact sheet for the novel pathogen/biothreat agent created in the midterm paper
  - Part 2: Rank novel pathogen/biothreat agent. Report and justify the level you selected for each ECDC assessment criterion for your novel pathogen/disease.
  - Part 3: Create case definition for the condition caused by your novel pathogen
  - Part 4: Develop a response plan for the novel pathogen/biothreat. Briefly discuss your approach to controlling/mitigating an outbreak of this novel pathogen/biothreat.
  - with discussion of the ranking from each group

# M4 Student Chiefs: Professional Identity Growth, Near-Peer Mentorship, and Preparation for Residency

Justin Henningsen, PhD; Merima Ruhotina, MD; Erin Morris, MD

Larner College of Medicine & University of Vermont Medical Center

## BACKGROUND

In the 2023-2024 academic year, a "Student Chiefs" program was created in the department of Ob/Gyn.

This program provided 4<sup>th</sup> year students with the opportunity to:

- Gain additional educational experience in the field of ob/gyn
- Lead clerkship orientation sessions
- Lead shelf review sessions for clerkship students
- Create a near-peer mentorship program with 3<sup>rd</sup> year students rotating in the ob/gyn clerkship

In other medical schools that have adopted similar programs, clerkship students reported beneficial aspects of M4 Student Chiefs. Our objective was to assess the impact of the Ob/Gyn Chiefs Program.

## METHODS

Surveys were sent to the following individuals:

- 3<sup>rd</sup> year students in Flight groups 4 and 5 (M3 survey; N=26). These students had most recently completed the clerkship
- 4<sup>th</sup> year Student Chief (the author of the poster JH was excluded) (M4 survey; N=9)

In each survey, we asked respondents to rate their agreement with statements regarding the impact of the Ob/Gyn Student Chiefs Program on a five-point Likert scale.

## REFERENCES

Brittany Cureton, Sophia McFarlane, Madeline Thornton, Emma Reynolds, and Amy Bryant. 2024. Leading with Clarity: Cultivating Ob-Gyn Medical Student Chiefs as Leaders and Advocates. Association of Professors of Gynecology and Obstetrics Faculty Development Workshop.

Victoria Johnson, Sarah Craven, Lindsey Beard Pohren, Nicholas Braukmann, Joslyn Hoburg, Emily Leyden, and John Schmidt. 2024. Novel Pediatrics Chief Program Utilizing Near-peer Teaching and Mentoring to Enhance Clerkship Curricula. PREPRINT (Version 1) available at Research Square



University of Vermont  
Larner College of Medicine

The M4 Ob/Gyn Student Chiefs program was beneficial for both clerkship student and fourth-year chiefs.

*"It was a great addition to the clerkship". "I really enjoyed the shelf review."* –Ob/Gyn clerkship students

*"I really enjoyed being an M4 chief and helping prepare M3s for their Ob/Gyn clerkship."* - M4 Student Chief

## RESULTS

- A total of 20 responses were collected.
  - M3 survey received 14 responses (Figure 1)
  - M4 survey received 6 responses (Figure 2)
- A large majority of clerkship students agreed that the student chief's involvement was beneficial for their:
  - Overall clerkship experience
  - Shelf review exam session
  - Orientation sessions
- All surveyed M4 Student Chief respondents agreed that being a Student Chief was a meaningful experience.

## DISCUSSION

The Student Chiefs program was viewed favorably by both clerkship and fourth-year students.

The program benefits the clerkship student via involvement in orientation activities, review sessions, and near-peer mentorship.

The Student Chiefs report a meaningful experience that increased their knowledge of the field and improved their residency application.

This program provides a model that could be implemented in other departments to improve training for clerkship students and for students applying for residency in that field.

FIGURE 1: M3 SURVEY

### Survey Question Legend

- My OBGYN clerkship experience was improved by the involvement of M4 Education Chiefs
- Having M4 Education Chiefs at my OBGYN clerkship orientation was helpful
- Having M4 Education Chiefs run a shelf exam review was helpful

Strongly disagree      Somewhat disagree      Neither agree nor disagree      Somewhat agree      Strongly agree

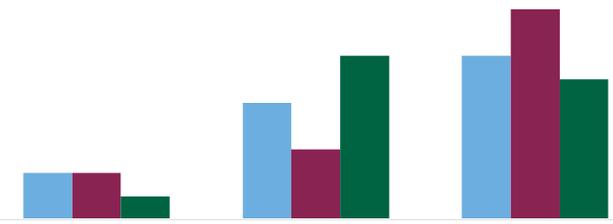
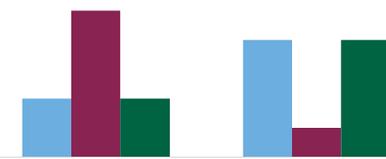


FIGURE 2: CHIEFS SURVEY

### Survey Question Legend

- Being an M4 Chief was a meaningful experience for me
- Being an M4 Chief increased my knowledge of the field of OBGYN
- Being an M4 Chief improved my residency application

Strongly disagree      Somewhat disagree      Neither agree nor disagree      Somewhat agree      Strongly agree

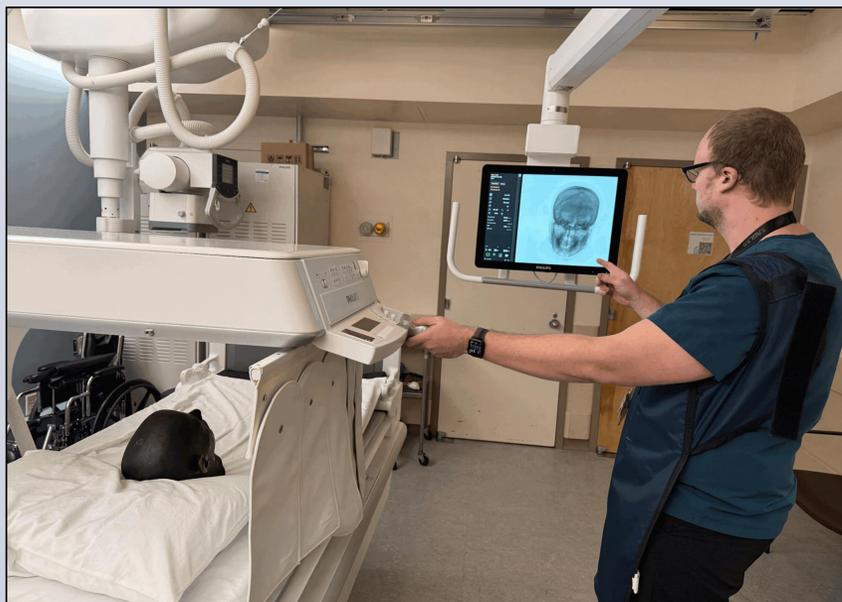


## Introduction

Research into educational methods has shown that interactive and hands-on learning opportunities can provide a more robust educational experience than didactics alone<sup>1,2</sup>, particularly in ultrasound<sup>3</sup>. With this in mind, the curriculum design team for the UVM undergraduate course entitled “Introduction to Medical Imaging” operated by the UVM Radiology Department implemented a new hands-on laboratory course component to supplement the existing curriculum, first incorporated into the Spring Semester 2024 class. In addition to the existing format of twice weekly lectures given by subspecialty-trained radiologists providing an overview of medical imaging, new sessions were added focusing on first-hand exposure to ultrasound and fluoroscopy imaging modalities. For the ultrasound component, students engaged in faculty- and resident-supervised scanning sessions in the UVM Simulation Center using standardized patients with demonstrations, feedback and interactive teaching. For fluoroscopy, students donned lead aprons and attended live demonstrations in the UVM Radiology department fluoroscopy suite, learning how real-time x-ray imaging can be used to elucidate anatomy and pathology. In addition to enhancing the undergraduate students’ experience with these sessions, the new lab components also create an opportunity for UVM Radiology Residents to hone their teaching skills, thereby creating a multi-faceted cross-level collaboration to benefit trainees at multiple levels.

## Methods

The Intro to Medical Imaging (COMU 1020A) class was split into two groups of ~12 students each. Labs occurred over two 75-min. periods with the groups alternating between Fluoro and Ultrasound modules



Radiology resident demonstrating fluoroscopy technique using an X-ray phantom of a head.

## Methods

### FLUOROSCOPY CURRICULUM

- Students gathered in the fluoroscopy suite in UVMCC’s radiology department with two radiology residents employed as session TAs
- Basic principles of radiation safety, contrast agents, and applications of fluoroscopy in medical diagnostics were reviewed
- TAs demonstrated basic x-ray anatomy on phantom models
- TAs demonstrated how contrast material such as barium can provide a means to highlight pathology in real time
- Students were given a supervised opportunity to operate a fluoroscopy C-arm system with various X-ray phantoms to gain understanding of techniques in skeletal and gastrointestinal imaging

### ULTRASOUND CURRICULUM



Radiology resident demonstrating ultrasound technique to evaluate the RUQ.

- The ultrasound lab was held in the UVM Clinical Simulation Center using three “standardized patients”
- Students rotated through three stations, each focused on one common exam (Shoulder, Thyroid, and RUQ Abdomen)
- Basic principles of scanning, Doppler, and applications reviewed
- TAs demonstrated scanning techniques and relevant anatomy at each station
- Students were given a supervised opportunity to practice ultrasound probe positioning, “knobology”, and identification of key anatomical structures.

## Results

### Student Feedback

Feedback was obtained from the undergraduate students through anonymized surveys following the lab sessions. Survey responses were overwhelmingly positive, though also with some constructive criticism provided which will guide future optimization of the lab curriculum.

### Sample Feedback

- *“Using real patients in ultrasound was really cool and makes it easier to understand.”*
- *“I think it showed what a career in fluoroscopy or ultrasound would be like much better than we can understand from solely learning about them.”*
- *“Being able to look into an abdomen and try to find the different organs was very interesting.”*
- *“It’s clear why it is important to understand the machine and autonomy of the patient.”*
- *“The residents were exciting and engaging and it was my favorite part of the class so far!”*

### Constructive Criticism

- *“My group didn’t get through all of the stations in ultrasound because of time, but that was the only downfall.”*
- *“...I wish some of the content was expanded on more.”*
- *“I wish there was more time to do this throughout the semester.”*

## Future Directions

- Establish formal merit-based Teaching Assistant positions for continued radiology resident engagement in the course (starting Spring ‘25)
- Optimize and expand the simulated lab course components to provide the most robust educational experience possible
- Implement pre- and post-lab quizzes to assess efficacy of teaching methods
- Move labs earlier in the semester to better coincide with corresponding lecture material
- Publish the course curriculum in national educational literature in order to disseminate course strategies, which could be applied across many institutions and medical specialties

## References

1. Chernikova et al. Simulation-Based learning in higher education: A meta-analysis. Review of Educational Research (2020) Vol 90, No 4, pp 499-541
2. Diaz-Navarro et al. Global consensus statement on simulation-based practice in healthcare. Advances in Simulation (2024) 9:19
3. Lucius et al. The use of simulation in medical ultrasound: Current perspectives on applications and practical implementation. Endoscopic Ultrasound (2023) 12:3

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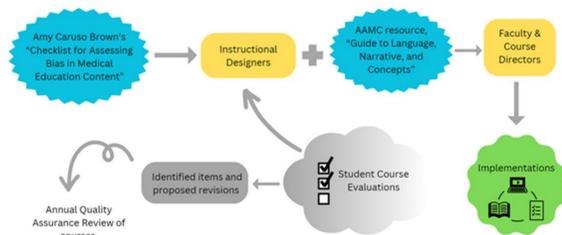
Office of Medical Education, Larner College of Medicine at the University of Vermont

## Background

- ❖ Medical education often lacks diversity in the representation of skin tones, especially in the dermatology-related curriculum, where visual examples are essential for diagnostic accuracy and promoting inclusivity and diversity in the medical field.
- ❖ Lack of diversity in dermatology materials has contributed to disparities in diagnosis and treatment, particularly for patients with darker skin tones.
- ❖ As part of a larger effort by the Larner College of Medicine, a review and revision process was developed to improve representation and to reduce bias in the medical curriculum materials.
- ❖ This study assessed specific progress in skin tone representation and student satisfaction relative to pre-clinical dermatology-related materials in the 2<sup>nd</sup> year Connections course.

## Methods

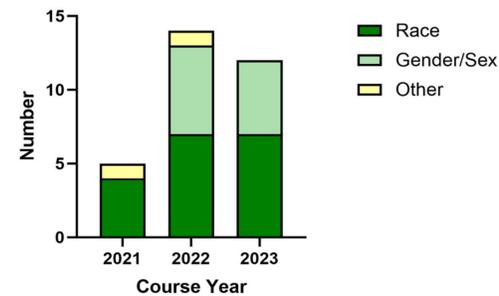
### Process Flow



1. Curriculum materials from Connections sessions were reviewed over academic years 2020-2023.
2. Suggested revisions were shared with course directors, who reviewed, adjusted, and approved changes.
3. Post-course student feedback was gathered through evaluative Likert scale responses and open-ended comments. The narrative responses were coded, very negative to very positive using a weighted scale.
4. Progress in the total number and percent of dermatology images reflecting darker skin tones was quantified, and student evaluations of curriculum inclusiveness provided additional quantitative (Likert) and qualitative (narrative) feedback.

## Results

- ❖ Purposeful review and revision resulted in an increase in the presentation of diverse skin tones in the Connections course (Figs. 1,2,3). Images depicting darker skin tones increased from 17% to 30% and the total number of images increased from 640 to 1,018, suggesting that diversification was through additional images rather than replacement.
- ❖ Student evaluations indicated appreciation for inclusive representation within the Connections course (Figs. 4,5). Satisfaction remained consistent as reflected by Likert score (4.0 to 4.1 of 5) and by percent positive/very positive narratives (63% to 62%). Calls for further improvements were notable, with seven comments each year requesting greater diversity (Table 1).



**Figure 1:** Categories identified in the anti-bias review of the Connections course. Session materials in the Connections course contained bias items primarily related to race and gender/sex; examples of "Other" include disability and age. While race was the predominant identification in 2021, gender/sex-related items increased in 2022 and 2023.

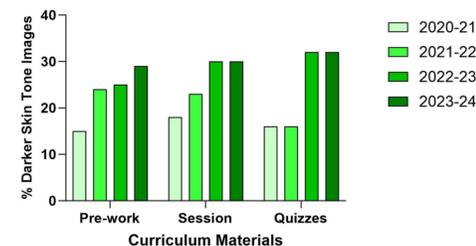


**Figure 3:** Example images showing the different presentation for psoriasis based on skin tones.

"I appreciated that, specifically in the dermatology section, that examples on darker skin were provided. The same condition looked very different on different skin tones, and I am glad that we are getting this exposure this early on in our training."

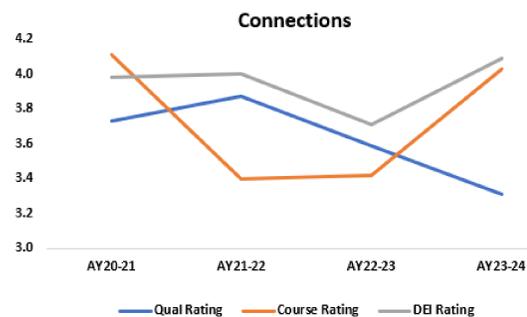
"The learning materials were clearly updated this year to include people of darker skin tones. This was helpful, but the course otherwise did not address how "diversity" plays out in the medical field, nor did it include topics related to sexuality, religion, disability, etc."

**Figure 5:** Exemplary student comments about skin tone diversity from student evaluation narratives.



	Total Images			
	2020	2021	2022	2023
Pre-work	275	447	445	446
Session	365	451	451	572
Quizzes	8	8	8	11

**Figure 2:** Increased % darker skin tone representation across dermatology-related materials from 2020-2024. Data table shows total number of images within types of materials.



**Figure 4:** Comparison of qualitative and quantitative responses to survey items on student evaluations demonstrating increased DEI rating in most recent years.

	Number and Percent of Qualitative Comments related to Skin Tone Diversity			
	Skin Tone Diversity Accolade		Skin Tone Diversity Critique	
	Comments	% Total Comments	Comments	% Total Comments
2021	82	12.6%	9	1.4%
2022	69	11.1%	7	1.1%
2023	41	9.7%	7	1.7%

**Table 1:** Qualitative student comments regarding skin tone diversity have decreased in total number between 2021 and 2023, but skin tone diversity remains an area that students identify as an area to improve.

## Discussion

- ❖ The iterative review of dermatology materials highlighted significant improvements in skin tone diversity, positively impacting student perception of inclusivity in their medical education and training.
- ❖ Recommendations were made to include a broader range of skin tones, particularly in conditions that manifest differently across skin types.
- ❖ The integration of diverse skin tone representation in dermatology-based educational materials is not just a matter of inclusivity but also one of clinical efficacy.
- ❖ Interpretation of student evaluations was limited by changes in student demographics, other course content, and student perceptions across academic years.
- ❖ Continuous enhancement of educational content with diverse representations is essential for preparing culturally competent physicians. This approach serves as a model for other areas in medical education seeking to address representation in educational resources.

## Future Directions

- ❖ Develop a longitudinal study assessing medical student clinical evaluations as a proxy for the impacts of exposure to diverse skin types in the curriculum and cultural competency.
- ❖ Collaborate and engage with dermatologists, educators, and patients from diverse communities to ensure materials reflect real-world clinical diversity and relevancy.
- ❖ Increase student engagement with virtual dermatology platforms, such as VisualDx, to enhance and tailor educational experiences that represent diverse populations.

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# Cardiac POCUS education in Underserved Service Learning: A Systematic Review

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2. Department of Cardiology, University of Vermont Medical Center

## Introduction and Purpose

Underserved cardiology service fills a much-needed gap for low resource areas while providing incredible learning opportunities. When advanced imaging may not be available, skills such as cardiac point-of-care ultrasound (POCUS) are especially valuable to provide an affordable and efficient means to rapidly diagnose routine and life-threatening conditions. Although there has been increased emphasis on POCUS training, there remains no standardized curriculum. This study aims to explore current practices and research in POCUS education and propose potential methods to improve training and access in underserved areas.

## Methods

- Literature search in PubMed, Cochrane, ERIC, Embase, Web of Science, and Science Direct
- Search terms: combinations of “POCUS”, “Cardiology”, and “Education”.
- Initials search generated 283 articles
- Eliminated articles irrelevant to education or Cardiac POCUS – resulted in 60 articles

## Barriers to Knowledge Acquisition and Retention

- Major Challenges to practicing POCUS**
  - No structured curriculum for POCUS education
  - Lack of sufficient time to dedicate to POCUS learning
  - Lack of time to retrieve and operate the machine
  - Equipment and funding issues
  - Difficulty to incorporate real-time image acquisition with interpretation
  - Skill Attrition over time

## Prerequisites and lengths of Training for Proficiency

- Existing guidelines**
  - American Society of Echocardiography (ASE) guidelines
  - European Association of Cardiovascular Imaging (EACVI) guidelines
  - Both established a list of topics to be taught in programs
  - No consensus on the number of hours of training or number of studies for acquisition and interpretation
- Research Recommendations for teaching**
  - Knowledge of cardiology anatomy and pathology highly recommended prior to Cardiac POCUS learning
  - Curriculum length required varies greatly across studies
  - In general, shorter courses offering 1.5 - 3 hours showed limitations in detecting pathologies
  - Longer courses (> 5 hours) and longitudinal courses demonstrate significant improvements
    - U. of South Carolina study: integrating POCUS vertically over 4 years of curriculum
    - Queens University study: 16 hours of study over 8 wks with combinations of lecture, web-based modules, hands-on training and simulator
  - Number of studies: Millington et al. recommended 20 studies acquired to develop RACE scale

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## Utilization of Technology in Cardiac POCUS Teaching

- E-learning**
  - Fuchs et al: self-learning course using combination of e-learning and self-practice was as effective as traditional course with clinical rotation
  - Bustam et al: web-based learning modules were shown to be effective in teaching Cardiac POCUS skills
- Simulation**
  - Cawthorn et al: students randomized to train on a high-fidelity simulator achieved similar interpretation but lower image quality scores
  - Steinmetz et al: medical learners demonstrated competency on cardiac POCUS after focused training with simulation
- Artificial Intelligence**
  - Dadon et al: AI based assessment tools on a hand-held ultrasound were found to significantly increase student performance in POCUS after training

## Conclusion

Cardiac POCUS in the context of service learning involves complex learning tasks that integrate diagnostic knowledge, imaging skills, and humanism. Cognitive load theory suggests such tasks impose a high intrinsic load, and as such, we propose two potential solutions. The first is to integrate technology, such as e-learning, to facilitate self-regulated pre-learning, and utilize artificial intelligence-based tools to improve image acquisition and interpretation. The second is to construct a curriculum that gradually increases task fidelity from didactic lecture to simulation, hands-on training, and direct patient care, to decrease intrinsic cognitive complexity.



# Organizational Partnerships to Improve Student Wellbeing and Meet Accreditation Standards

Harsimran Multani, Elise Everett MD, Garth Garrison MD, Christa Zehle MD

## PROJECT GOALS



Address student dissatisfaction with available study and relaxation spaces.



Address citation from the Liaison Committee on Medical Education (LCME) for Element 5.11 related to adequate study and relaxation space.

## Background

- The LCME is responsible for accrediting medical schools in the United States and Canada that confer M.D. degrees. The LCME ensures that schools meet established standards for quality in areas such as curriculum, faculty qualifications, student support and resources.

- Accreditation by LCME is necessary for M.D. candidates to be eligible for medical licensure and residency training programs.

- The accreditation process occurs on an eight-year cycle for medical schools during which LCME evaluates if schools meet expectations. Interim reviews and progress reports may be required within this period if concerns or areas of improvement are identified.

## Problem Identified

- The medical school student lounge for medical and graduate students has not been renovated in 20 years.

- Student satisfaction with study and relaxation space on the AAMC Graduation Questionnaire (GQ) has been declining.

- Study Space Satisfaction (c/o 2024)

Dissatisfaction: 22.8%

Satisfaction: 62.8%

- Relaxation Space Satisfaction (c/o 2024)

Dissatisfaction: 22.8%

Satisfaction: 62.8%

- Unable to identify resolution within existing university facilities.

## Methods



Collaboration was essential in addressing student concerns regarding space in support of their wellbeing and their role in patient care.

## Key Developments

**1,600 square feet of additional space identified to meet the needs of students:**

- Expanded Student Lounge in LCOM Building**

- New Facilities:**

- **Student Wellness and Fitness Center:** promoting health and well-being

- **Prayer, Meditation, and Relaxation Space:** Supporting mindfulness and spiritual needs

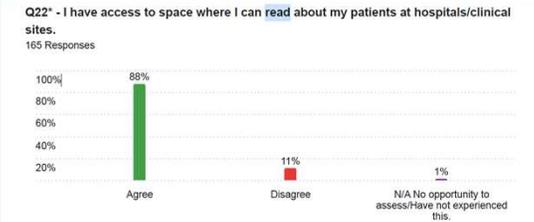
- Educational Workspaces:**

- **Dedicated workroom in Medical Center for Medical Students and OB/GYN residents**

Insert image of new facility

## RESULTS

Preliminary data from the Larner Student Analysis survey conducted in the Fall of 2024 indicate that 88% of students agree that they have access to space where they can read about their patients at hospitals/clinical sites.



## CONCLUSIONS

- Our evaluation plan incorporates both **quantitative methods** (AAMC Graduation Questionnaire and internal surveys) and **qualitative methods** (focus groups) to measure the impact of the newly renovated student spaces. This approach will help us assess their effectiveness and identify opportunities for future improvements.

- Collaboration among stakeholders is crucial, as identifying additional student spaces within existing facilities remains a significant challenge.

We anticipate that these new and renovated spaces will:

- **Address students' functional and well-being needs**
- **Facilitate discussions on supporting students throughout their medical journey**
- **Enhance culture, promote a sense of belonging, and improve patient care and workforce development.**

Ultimately, these improvements aim to create a more supportive, inclusive, and productive environment for the next generation of medical professionals.

## Feasibility and Transferability

Collaboration is essential among partnering institutions to address complex problems by finding value to all parties involved.



Sense of Belonging



Workforce Development



Collaborative Culture



Improving Patient Care



# Assessing The Impact of Updated Video Resources for Teaching Gross Anatomy

Nicki Nikkhoy, Abigail Mercer, Abigail Hielscher PhD, Nate Jebbett PhD  
Larner College of Medicine at the University of Vermont • Burlington, VT



## Replacing Traditional Anatomy Resources

**In response to the COVID-19 pandemic, the University of Vermont Anatomy faculty created a series of educational videos for gross anatomy, which have since become a core educational tool for medical and physical therapy students.**

- In 2020, UVM Anatomy faculty created a series of 36 educational videos for ANNB 6000 Human Gross Anatomy, each 15-40 min in length, that focused on different regions of an expertly dissected cadaveric donor, obtained through the UVM Anatomical gift program.
- In **post-production**, atlas images, arrows, diagrams, brief descriptions, and text labels were added to enhance understanding
- These allowed students to prepare for their dissections in lab and served as a resource to review in preparation for exams.

**These updated videos replaced older videos, which were produced with less advanced equipment and minimal editing**

- The new videos continue to be available as an optional resources for students learning human gross anatomy
- **Surveys** were conducted between 2020- 2024 to obtain and assess student feedback.
- Information of these surveys summarized here is being incorporated in future updates to the anatomy program's video catalog.

## Video Production, Use, and Surveys

### Human Body Donations via UVM Anatomical gift Program

- Potential donors are informed of the use of images for such purposes in their registration form, and we are extremely grateful to the donors and their families for making this learning possible

### Production of The Human Gross Anatomy Video Series (2020)

- 6 faculty created videos with largely improvised scripts based on prior teaching, and supplemented these videos with images obtained from Grant's Dissector, Complete Anatomy, and Netter's Images
- Filming was with a hand-held Canon HD CMOS camcorder w/ microphone, 1080:960 HD resolution with two 4"x6" LED panel lights
- Videos were edited in Camtasia 2020, and are hosted securely and privately on UVM Streaming (links available upon request)

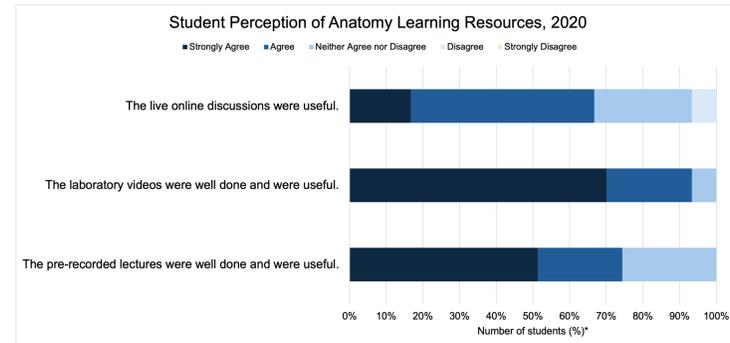
### Classes Adopting Videos as Supplemental Material

Class	# of students	Program and Year	Course Length
Foundations of Clinical Sciences (FoCS)	~124	First Year Medical students (Classes of 2024, 2025, 2026, 2027)	15 weeks
Human Gross Anatomy (ANNB 6000)	55-65	1 <sup>st</sup> /2 <sup>nd</sup> Year Doctorate of Physical Therapy and Medical Science Masters students	6 weeks

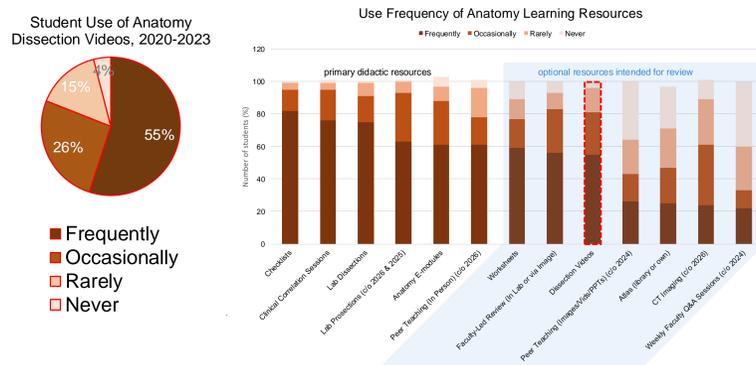
### Post Course Surveys Assessed Student Utility and Satisfaction

- To determine the utility of the videos and their elements, we reviewed student post-course surveys following 3 years of their deployment in 2 classes, ANNB 300 Human Gross Anatomy and MD 557 Foundations of Clinical Sciences

## Videos were popular learning tools



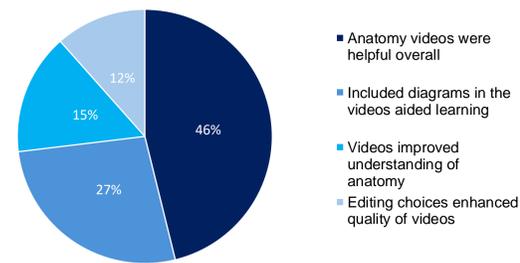
**Fig 1. Summary of ANNB 300 Feedback.** Post-course feedback was solicited following initial deployment of the videos. Most students in ANNB 6000 (70%, n = 50) strongly agreed that the videos were useful, as well as found that they were done well.



**Fig 2. Summary of FoCS Feedback:** Self-reported use of different anatomy resources taken from course evaluations for medical students over three years (n= 372). Students frequent use of the updated anatomy videos to aid their learning compared to other optional resources. Optional resources were not graded nor assigned a specific class time for their completion or use.

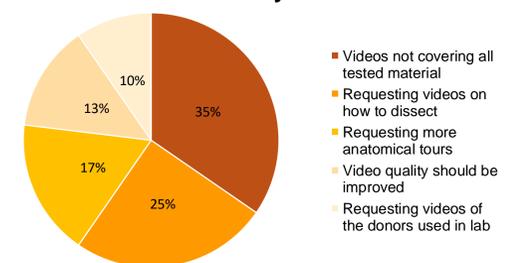
## Breakdown of Comments on Videos

### Breakdown of Key Positive Comments



**Fig 3.** Summary of key positive comments on updated anatomy videos

### Breakdown of Key Critical Comments



**Fig 4.** Summary of areas for improvement on updated anatomy videos

Analysis of survey comments revealed distinct patterns in both positive and critical feedback (Fig. 3, 4)

### Notable student responses:

*"I think the videos in anatomy are the most helpful tool for learning anatomy for me, so any additional videos would be extremely welcome."*

*"I believe revised videos accompanying the labs... would be appreciated. With a model emphasizing independent learning and peer teaching, strong videos to study and prepare for lab would empower our learning."*

## Discussion

**Our observations support regularly updating medical education materials, as students' concept of an effective academic experience has come to include high-quality digital resources<sup>1</sup>.**

- As **medical knowledge constantly improves**, the emphasis on which topics are most clinically relevant and will best prepare students for standardized exams also changes<sup>2</sup>
- **Videos were favored** over other passive learning modalities, such as traditional atlases (Netter's, Grey's), and unstructured review sessions
- There was not a significant difference in response type between clinical student type (physical therapy vs. medical students)

**Faculty have observed videos being used in adaptive and creative ways by students**

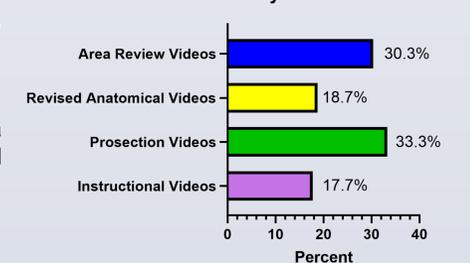
- Watching at different playback **speeds 0.5-2x**
- Listening as a podcast, or using captions to watch silently in lab
- Screen capturing still frames used to **make quizzes**
- Allows students to **pause and clarify** points before proceeding
- Teaches **pronunciation**
- Camera movement enhances **3D perspective**

## Future Directions

**Analysis of student feedback provides hypotheses for determining what elements of videos promote long-term learning**

- **Future studies** will aim to take a more rigorous and **standardized** approach to **survey design** and include statistical analyses
- **Upcoming videos** will seek to address **changing educational needs**, such as filming dissections students no longer perform independently

### Anatomy Video Preferences



**Figure 5:** Videos describing lab prosections and videos reviewing content for exams are the most requested videos by the Class of 2027 (n = 124).

**UVM's Teaching Academy and the Department of Neurological Sciences are funding production of new videos through the 2023 Teaching Academy Curriculum Development and Educational Scholarship Award**

- Provided \$5628.64 in purchases of new equipment
- Goals include continued **revising of old videos**, shooting an **additional instructional series**, and shooting **detailed tour videos** for dissections that the students no longer complete on their own
- Wider dissemination of videos to the academic community is also a possibility in the future

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# Using the “Open Book” Approach to Achieve Continuous Quality Improvement (CQI)

Authors: Lejla Pasic • Jan Carney, MD, MPH • Kathryn Huggett, PhD

The CQI Committee | Robert Larner, M.D. College of Medicine at the University of Vermont | Burlington, VT

## ABSTRACT

“*Transforming data into actionable information to drive effective accreditation systems*”<sup>1</sup> is the **ultimate goal** of the CQI process. Various tools are used to assess progress and set priorities for improvement:

- national and internal surveys
- external/internal data.

Those tools combined with the *Liaison Committee on Medical Education (LCME) Self Study Guide (Open Book)*<sup>4</sup> allow us to:

- **identify potential gaps** in meeting the LCME Accreditation Requirements and
- **reassess progress** of reaching the strategic goals for the organization.

## INTRODUCTION

LCME’s focus is on actionable info that helps

- “*gauge effectiveness of those actions/interventions*”
- *redesign (if ineffective) or*
- *repeat (to document sustainability)*” for “*the targeted data collected in the next cycle.*”<sup>2</sup>

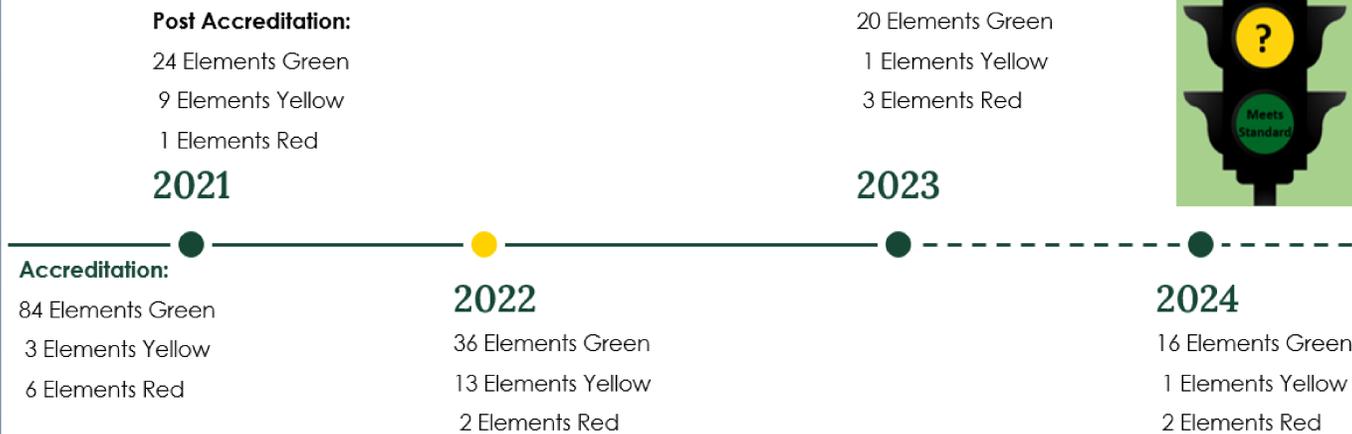
Visiting Survey Team & LCME use the Open Book as a guide to:

- assess progress
- realign priorities

to meet the accreditation requirements across LCME Standards & Elements.

## METHODS

### Stoplight Assessment Framework



The CQI Committee reviews materials and makes recommendations for each Element guided by a **stoplight assessment framework**.

- Green – Satisfies the LCME Accreditation Requirements.
- Yellow – The CQI Committee has follow-up/clarifying question(s)
- Red (PDSA) – Element did not satisfy LCME accreditation requirements; a PDSA (Improvement Plan) is necessary.

The **Plan Do Study Act (PDSA)** approach “*provides a simple model for communicating expectations to faculty and other stakeholders.*”<sup>3</sup>

## RESULTS

In using the **Open Book** and **PDSA cycle** post-2021 accreditation, the college was able to:

- **Test the need and priorities** for improvement before committing to permanent changes and updates
- **Gain unparalleled insight** into the status of each Standard/Element and allow the CQI Committee to provide **guidance and feedback** to identified stakeholders toward achieving a higher level of learning in Medical Education.
- Use surveys, data, and campaigns like “**You Said/We Did**” as a part of this toolkit to bring a **level of reflection** where we learn how to improve and approach those questions and make changes in an integrative way.

## DISCUSSION & CONCLUSION

Response to the Open Book questions and tables reflect:

- **deep commitment** of the LCOM to the CQI process
- **results** achieved through the involvement of faculty, students, and identified stakeholders in the Institutional Self-Study and iterative improvements.
- the **quality** of change and progress reflective of the level and quality of response to those questions/tables
- **significance** of *INSUFFICIENT* vs. *APPROPRIATE DETAILS*<sup>4</sup> to narrow down where we have exceeded and more importantly where we have opportunities to assess progress and priorities for improvement.

## REFERENCES

1. *Element 1.1: Strategic Planning and Continuous Quality Improvement.* [https://lcme.org/wp-content/uploads/2023/04/Frequently-Cited-Elements-1.1\\_3.3\\_3.5\\_3.6.pdf](https://lcme.org/wp-content/uploads/2023/04/Frequently-Cited-Elements-1.1_3.3_3.5_3.6.pdf)
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# Positive Psychiatry Resident Seminar Series

Andrew Rosenfeld • Dhruv Shah • Kristina Foreman  
Lianna Karp • Mari Kurahashi • Alan Schlechter

University of Vermont  
Larner College of Medicine

## ABSTRACT

Positive psychiatry remains in its early stages of development and implementation.<sup>1</sup>

- To offer training in these emerging evidence-based practices, we developed an inter-institutional 5-session seminar series for 2<sup>nd</sup> and 3<sup>rd</sup> year general psychiatry residents.
- The teaching combined didactic content with active learning to introduce concepts, skills, and practices in selected domains.
- A pre-/post-survey demonstrated a 72% increase in understanding of positive psychiatry concepts overall, a 71% increase in residents' comfort utilizing positive psychiatry skills clinically, and an 81% increase in residents' confidence to put positive psychiatry skills into practice.

This improvement suggests that teaching positive psychiatry skills in this format is feasible and acceptable.

## INTRODUCTION

Positive psychiatry is a sub-field that distinguishes itself from psychiatry-as-usual by emphasizing the cultivation of positive psychosocial factors.<sup>1</sup>

- While this approach remains in its early stages of development and implementation, positive psychiatry capitalizes on the existing science and practices developed in the related fields of positive psychology, social psychiatry, and humanistic psychology.
- Evidence-based practices established in these connected disciplines can be adapted to the psychiatric setting.
- In clinical work, social supports and character strengths are leveraged alongside traditional medication and psychotherapy treatments.
- Treatment targets widen to include resilience and well-being alongside traditional measures of symptom reduction or illness remission.

Yet little specific guidance or training materials are available for this purpose. This gap between evidence and practice inspired the creation of a brief positive psychiatry curriculum for residents.

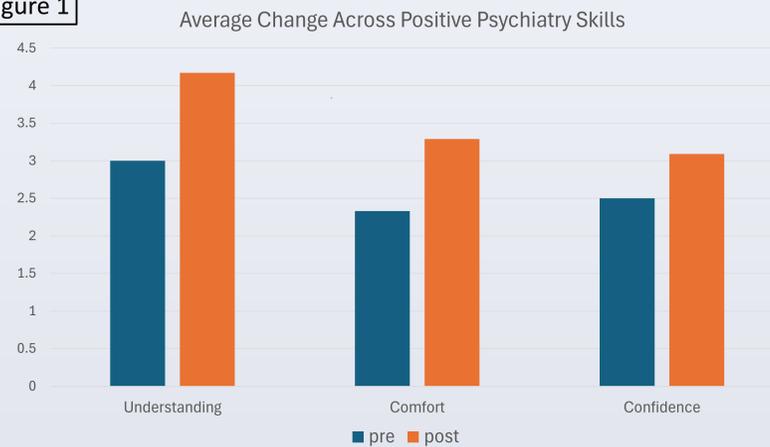
## METHODS

- The project was IRB-exempt and co-instructors had no conflicts of interest to disclose. An anonymous pre-/post-survey allowed tracking whether course objectives were met.
- The topical foci in the curriculum included:
  - Compassion
  - Mindfulness
  - Self-Care in Supervision
  - The Positive Approach to Clinical Interviewing
  - Building from Character Strengths.
- Each session contained information about a positive psychiatry idea in addition to an activity to exemplify the concept in practice.

Session 1 Example: Began by describing the framework of the Positive Approach to clinical interviewing and the 2 axes of Active-Constructive Responding, a response technique designed to increase reciprocal positive emotions when receiving positive news.<sup>2</sup> Learners then practiced a Positive Approach interview question as "real play" with a colleague followed by real-time feedback and encouragement from peers and the instructor.

## RESULTS

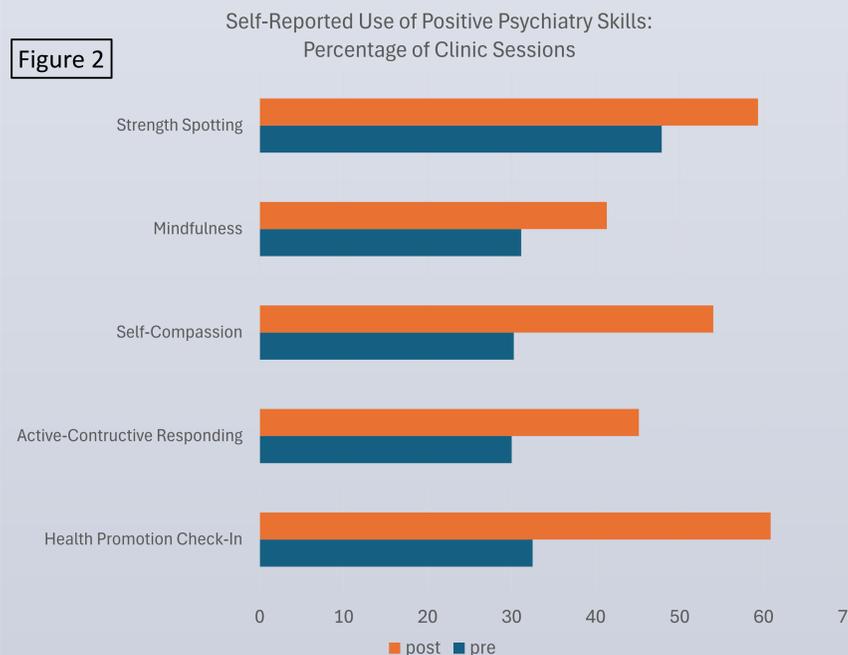
Figure 1



A pre-/post-survey allowed tracking whether goals were met. We found a 72% increase in understanding of positive psychiatry concepts, a 71% increase in residents' comfort utilizing positive psychiatry skills clinically, and an 81% increase in residents' confidence to put positive psychiatry skills into practice [Figure 1].

Self-reported use of positive psychiatry skills in clinical sessions increased across all domains, with the largest incremental increase for the Health Promotion Check-In and Self-Compassion categories [Figure 2].

Figure 2



Additionally, residents reported increases in their likelihood of practicing each positive psychiatry skill in their own lives. For example, the largest change in this realm was an increase in predicted utilization of Active-Constructive Responding by 96% [Figure 3].

Figure 3



## CONCLUSION & DISCUSSION

We found learners initially had a good degree of familiarity with most of the relevant concepts though were less comfortable operationalizing these in clinical practice. This improved after the seminar series in line with the learning objectives.

- Improvements in this small pilot were substantial across all domains of building knowledge, comfort and confidence.
- Residents reported being more likely to practice each skill in their own lives, a potential buffer against burnout.
- Residents demonstrated a 72% increase in how energizing they found didactic sessions to be after this seminar series.

Overall this suggests that teaching positive psychiatry through a mixture of didactic and experiential learning is feasible in small groups, both via Zoom and in-person. There may be benefits for patients as well as providers by enlivening clinical sessions with positive psychiatry practices.

Next steps include opportunities for reinforcing this learning, observation in clinical settings and/or with standardized patients, faculty training, and research utilizing a control group of trainees to deconstruct mechanisms and barriers.

## REFERENCES

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# Is Racial Bias Present Amongst Medical Students Caring for a Simulated Cardiac Arrest?

Claudia Tarrant, MS; Hannah E. Miller, MD; Miles Lamberson; Cate Nicholas, EdD, MS, PA, FSSH; Katie Dolbec, MD

<sup>1</sup> Department of Medicine, Robert Larner, MD College of Medicine, University of Vermont, Burlington, VT

## Introduction

- Racial bias remains pervasive in both society and medicine, influencing clinical decision-making processes.
- The impact of skin tone on medical students' differential diagnoses, particularly regarding substance use disorder (SUD), has not been well studied.
- This study aims to assess whether skin tone affects the inclusion of SUD in differential diagnoses during a simulated cardiac arrest scenario.
- Specifically, we compared the rates of SUD inclusion between dark-skinned and light-skinned manikins to determine if there is a pattern of overdiagnosis in dark-skinned manikins or underdiagnosis in light-skinned manikins.

## Methods

- This was an observational study.
- All medical students enrolled in an Emergency Medicine (EM) Course participated in a simulated manikin cardiac arrest case.
- After the first shock was delivered in the simulated case, there was a time out and students individually wrote down their differential diagnoses on deidentified research forms.
- Two equally-equipped, life-sized manikins, one dark-skinned and one light-skinned, were alternated each course section.
- Forms were excluded if they were left blank, filled out by a non-medical student, or could not be associated with the manikin skin tone.
- Rates of inclusion of SUD in the differential diagnosis were compared using Pearson's Chi Square.

Table 1. Comparing Differential Diagnoses in Simulated Cardiac Arrest

	Total	Light Skinned Manikin	Dark Skinned Manikin	P value
N value	N=196	N=96	N=100	
Primary diagnosis related to Overdose, Opioids or Toxicology	1% (1)	0% (0)	1% (1)	1.00
Any one of differential diagnoses related to Overdose, Opioids or Toxicology	20% (39)	20% (19)	20% (20)	1.00
Overdose Opioids or Toxicology absent from differential	80% (157)	80% (77)	80% (80)	1.00

## Results

- 271 surveys were returned, of which 75 were excluded.
- Of the remaining 196 surveys, 96 were associated with the light-skinned manikin and 100 with the dark-skinned manikin.
- One survey respondent participating in a simulation using the dark-skinned manikin listed SUD as the leading diagnosis.
- 20% of students in each group listed SUD somewhere on the differential diagnosis (p = 1.00).
- There was no statistical difference between the groups who participated in the simulation with a dark skinned manikin as opposed to a light skinned manikin

## Discussion

- Among 4th-year medical students participating in a simulated cardiac arrest, the **data suggests no significant difference in the rate of inclusion of SUD in the differential diagnosis based on manikin skin tone.**
- The overall consideration of SUD as a potential diagnosis remains low, regardless of the manikin's skin tone.
- These findings highlight the need for improved medical education and awareness regarding SUD as a critical and potentially overlooked cause of cardiac arrest.

## References



## INTRODUCTION

Medical student education in imaging is lacking. A recent survey of medical students across the U.S. revealed that most students believe they received too little instruction in imaging<sup>1</sup>. Additionally, residency directors in various fields including internal medicine, OB/GYN, pediatrics, and surgery have indicated that variability in imaging acumen amongst trainees is a hindrance to their progress within the program<sup>2</sup>. Despite the need for more imaging instruction, numerous cost and personnel barriers exist that hinder progress in this space<sup>3,4</sup>. Recent work at the Larner College of Medicine has sought to find a solution to this challenge through an interdisciplinary approach<sup>5</sup>.

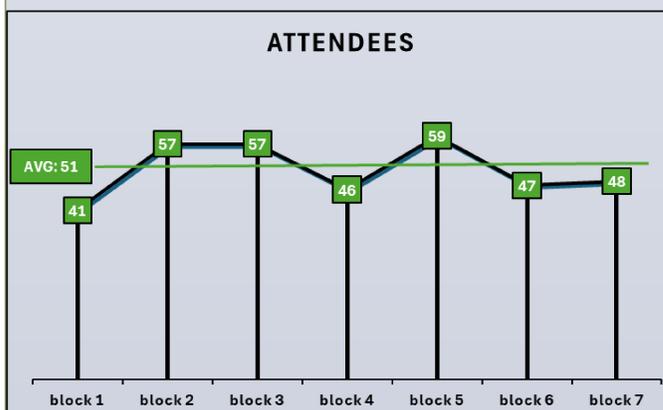
This project reports the findings of an ongoing near-peer teaching program with the goal of increasing medical student exposure to and engagement with medical imaging. Teaching sessions were designed by M2 students and presented as fully optional review lectures a few days prior to each M1 anatomy exam block. The near-peer teaching style allowed M2 students to draw on previous experience learning the material as well as current experience studying for USMLE® Step 1. Sessions emphasized high-yield USMLE material to bolster student participation.

## METHODS

- Teaching sessions were made by M2 students to incorporate anatomy and imaging concepts, clinical correlations, and high-yield USMLE Step 1 style questions
  - Structured in parallel with the 7 blocks of M1 anatomy curriculum
- Pre- and post-session quizzes of ~8 multiple choice questions used to gauge student knowledge
  - Improvement in student knowledge following sessions analyzed within each block and across all blocks using an unpaired t-test
- Post-session surveys administered to get student feedback and inform the design of future sessions
- Student perception of preparedness for quizzes rated on a Likert scale from 1-5 representing “not ready at all” to “completely ready”, respectively
  - Student perception analyzed using paired t-test
- All quizzes and surveys were anonymous
- Session attendance was recorded using sign in sheets or post-quiz submissions

## ATTENDANCE

### ATTENDEES



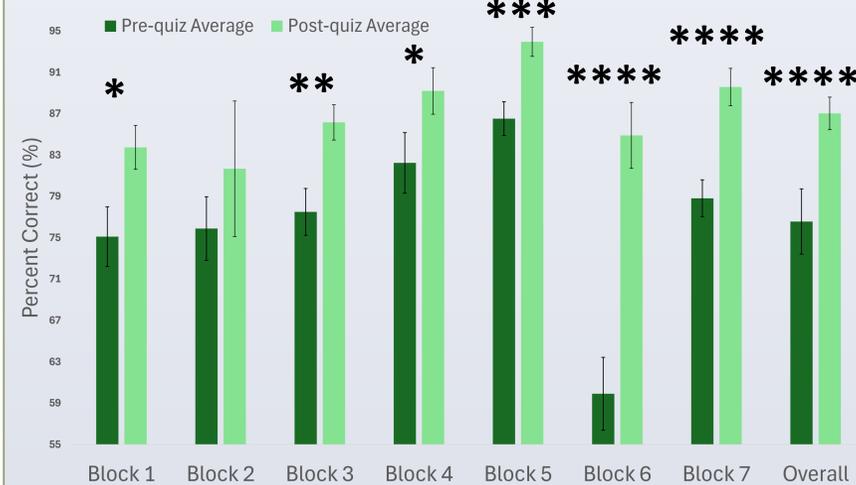
Block 1:	Back and Shoulder Upper Extremity
Block 2:	Abdomen
Block 3:	Thorax
Block 4:	Head and Neck
Block 5:	Pelvis
Block 6:	Lower Extremity
Block 7:	Lower Extremity

51 students (41, 57, 57, 46, 59, 47, 48) per session

Block 1 session estimated by responses to post-session quiz

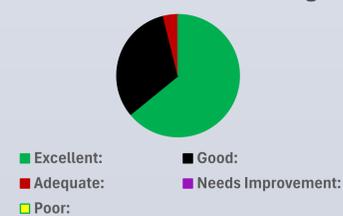
## RESULTS

- Average of 11 post-session survey responses (Bb block:11, 3, 27, 7, 9, 11, 10)
  - 78 total responses
- Pre/post quiz performance significantly improved after each session
- 64% of students indicated that teaching was “excellent”, 32% indicated “good”
- 72% of students were either “mostly ready” or “completely ready” to answer anatomy and radiology test questions following the sessions
- 95% of students indicated that sessions helped clarify what material is important
- Student perception of preparedness for quizzes increased overall following sessions

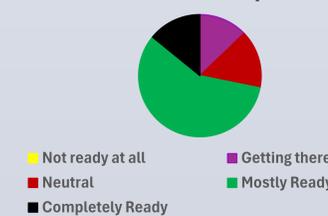


Block	Pre-quiz Average	Post-quiz Average	Pre-Quiz N	Post Quiz N	p (unpaired t-test)
Block 1	75.11	83.74	25	41	0.0100261
Block 2	75.89	81.67	28	15	0.2172242
Block 3	77.5	86.16	45	56	0.0015144
Block 4	82.24	89.2	38	44	0.0316198
Block 5	86.520	93.95	51	31	0.0004557
Block 6	59.91	84.9	29	24	0.0000015
Block 7	78.82	89.58	36	30	0.0000370
Overall	76.57	87.02857143	36	34.42857143	0.008042978

### Effectiveness of Teaching



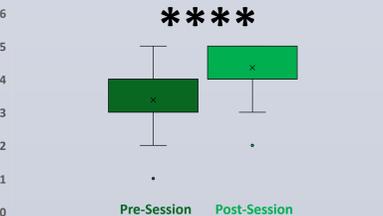
### Readiness for test questions



### Clarified Important Material



### Perceived Preparedness for Quiz



“REALLY appreciated these sessions. 1000% recommend”

“Please Hold Longer Sessions”

“Practice questions are excellent, as well as advice/tips for test taking.”

“I liked that the session was earlier before the exam so we have more time to study it!”

“I liked the idea of pre and post quizzes”

“showing screenshots of the slides in order from superior to inferior helped me visualize... will also be helpful when studying later to see those stills labeled”

## DISCUSSION & NEXT STEPS

These sessions received strong and consistent attendance throughout the semester averaging 51 students per session. Session content was constructed by M2’s using class material and delivered with the purpose of aiding student learning and focus on the most important concepts. Students performed better on post-session quizzes than on pre-session quizzes indicating a benefit to short-term learning. Students also reported that they felt either “completely ready” or “mostly ready” to answer test questions on anatomy and radiology topics after the session.

### Next Steps:

We have shown here the near-peer led sessions provided a short-term benefit to learning. To analyze the effect of these sessions on longer-term retention of material we are sending an optional survey to M1’s which includes questions from each Pre/Post quiz to assess retention of key concepts. Within this survey there will also be ample room for student feedback and opportunities to rank the effectiveness of the sessions. These semester-end surveys will be completely optional. We also plan to continue these sessions next year.

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## Purpose

- Develop, implement, and evaluate the impact of an educational intervention on urinalysis (UA) with reflex or “cascade” to urine culture (UC) ordering practices among Internal Medicine (IM) and Family Medicine (FM) residents, attendings, and advanced practice providers (APPs) on the adult hospital medicine service at the University of Vermont Medical Center (UVMCC).

## Background

- The misuse of diagnostic studies such as UA with reflex to UC is a significant upstream contributor to asymptomatic bacteriuria and subsequent antibiotic overuse.<sup>1</sup>
- Chart review of 56 randomly sampled patients admitted to the Adult Hospital Medicine Service at UVMCC between September 2022 and February 2023 revealed that UA with reflex to UC was ordered inappropriately in 39% of the cases, indicating a significant knowledge gap.

## Methods

- We developed educational content, as below:
  - Five cases highlighting five educational pearls.
  - Interactive hour-long hybrid virtual and in-person sessions over a six-month period.
  - Attendance was recorded.
- Participants completed a pre-survey at the beginning of the session and post-survey three months after the session to track changes in knowledge (Figure 1).
- Authors performed manual chart review of 195 patients admitted to the UVMCC adult hospital medicine service over thirteen consecutive months (May 2023 through August 2024) to capture changes in ordering practices among providers during and after the delivery of the educational sessions.

## References

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### UA Appropriateness QI Project Post-Survey

Please complete the survey below.

Thank you!

1) Please enter the first letter of your birth month and last three digits of your M number (e.g., J511)

2) What year of training are you in?  
 PGY-1  
 PGY-2  
 PGY-3  
 Attending/APP

3) What specialty are you in?  
 Internal Medicine, Preliminary  
 Internal Medicine, Categorical  
 Family Medicine  
 Emergency Medicine

4) A 87-year-old woman comes into the emergency room for a witnessed fall at home. Medical history is notable for type 2 diabetes mellitus and osteoarthritis. Medications are metformin and acetaminophen.  
 On physical examination, she is afebrile and vital signs are normal. She has limited active right hip range of motion, and she is only alert and oriented to name and place, but not year (baseline is AxCx3, but family reports patient has been “out of it” for days leading up to the fall). She does not have suprapubic tenderness, CVA tenderness.  
 Labs remarkable for mild leukocytosis (WBC 12) and a sodium of 125 (baseline 132).  
 Which of the following is the most appropriate next step in management regarding concern for possible UTI?  
 Urinalysis only  
 Start antibiotics to cover for possible UTI  
 Urinalysis with cascade to culture and start empiric antibiotics  
 Urinalysis with cascade to culture only  
 No further management warranted

5) A 50-year-old male with an in-dwelling foley is being seen in the ED for shortness of breath. He has a 15 pack-year smoking history and does not see a PCP regularly. He tells you that he changes his catheter regularly but has noticed a worsening smell and cloudiness to his urine.  
 On physical exam, vitals are stable except for new hypoxia (on 2L NC) and physical exam findings notable for wheezing. No suprapubic or flank pain or tenderness.  
 What is the best next step in management of his malodorous urine?  
 Start empiric antibiotics for UTI  
 Urinalysis with cascade to culture  
 Urinalysis only  
 No further urine testing at this time

6) An 62-year-old man is evaluated in the emergency department in July for a 36-hour history of back pain. He has no other symptoms. Medical history is significant for type 2 diabetes mellitus and hypertension. Medications are metformin and hydrochlorothiazide. He began taking over-the-counter Fiorone last week for symptoms related to seasonal allergies. He works in construction.  
 On physical examination, he is afebrile. BMI is 32. Blood pressure is 158/64 mm Hg, and pulse rate is 78/min. He has paraspinal muscle tenderness on exam. No suprapubic or CVA tenderness.  
 Laboratory studies show a blood urea nitrogen level of 50 mg/dL (17.9 mmol/L) and serum creatinine of 2.4 mg/dL. All other labs are unremarkable.  
 What is the most appropriate next step in management?  
 Start empiric antibiotics  
 Urinalysis with cascade to culture  
 Urinalysis only  
 Urine electrolytes, osmolality

7) An 83-year-old woman is admitted to your service from the ED for weakness and failure to thrive. Her family reports a progressively decline over the last few weeks. She is eating less with noticeable weight loss and “isn’t herself” per family. Medical history is significant for hypertension, for which she has been on lisinopril and amlodipine for years. She lives alone on a 30-acre farm and closest family lives over an hour away.  
 On physical examination, vitals are within normal limits, but her BMI is 18 (previously 22 at last visit with PCP 1 year prior). Laboratory studies notable for mild leukocytosis of 11k. There is mild bruising on the right knee.  
 What is the most appropriate next step in management?  
 Urinalysis only  
 Start antibiotics to cover for possible UTI  
 Urinalysis with cascade to culture and start empiric broad-spectrum antibiotics  
 Urinalysis with cascade to culture only  
 No further management warranted

8) An 84-year-old man who lives independently is admitted for recent onset of unresponsiveness and fever after being found down by a neighbor. He has a history of hypertension and mild cognitive decline but does not visit the doctor regularly.  
 On physical examination, patient appears unkempt. Temperature is 39.3 °C (102.7 °F), blood pressure is 100/60 mm Hg, pulse rate is 110/min, and respiration rate is 18/min. Oxygen saturation is 95% with the patient breathing ambient air. The patient is responsive only to physical stimuli. Cardiopulmonary examination reveals normal heart and lung sounds. Abdominal examination is normal and there is no CVA tenderness. Urine draining into foley is dark.  
 CBC and CMP are pending.  
 Regarding further urine testing, which of the following is the most appropriate next step in management?  
 Urinalysis only  
 Start antibiotics to cover for possible UTI  
 Urinalysis with cascade to culture and start empiric broad-spectrum antibiotics  
 Urinalysis with cascade to culture only  
 No further management warranted

Figure 1: Copy of survey provided to participants prior to (pre-survey) and three months after (post-survey) the educational intervention. Pre- and post-survey questions were identical (black circles denote correct answers).

## Discussion

- Case-based educational interventions can favorably influence clinician behavior in favor of diagnostic stewardship.
- Lack of improvement in correct responses for Question 8 reflects the complexity of the case (unclear septic source) and/or lack of clarity in the relevant teaching point.
- Overall, improvement was not sustained, which reflects the need for ongoing education as new providers enter the system.

## Future Directions

- Incorporate yearly teaching sessions for incoming providers to sustain knowledge gains.
- Revise Question 8 to clarify teaching around ordering UA for undifferentiated sepsis.
- Expand education to emergency medicine providers to improve ordering practices in the emergency room.

## Results

- A majority of participants completed the in-person educational sessions - 54 residents as well as 13 attendings and APPs.
- 70 participants completed the pre-survey and 31 participants completed the post-survey.
- The percentage of correct responses increased for four of the five questions post-educational intervention (29% to 58%, 66% to 74%, 54% to 61%, and 70% to 81%) (Figure 2) with a p-value of 0.005 for Question 4.
- Overall, the number of correct responses increased between pre- and post-surveys (75% vs. 80%, respectively).
- There was an initial decrease in the percentage of inappropriate UA with reflex to UC orders for 5 months after our education intervention followed by an increase starting in July 2024 (Figure 3).

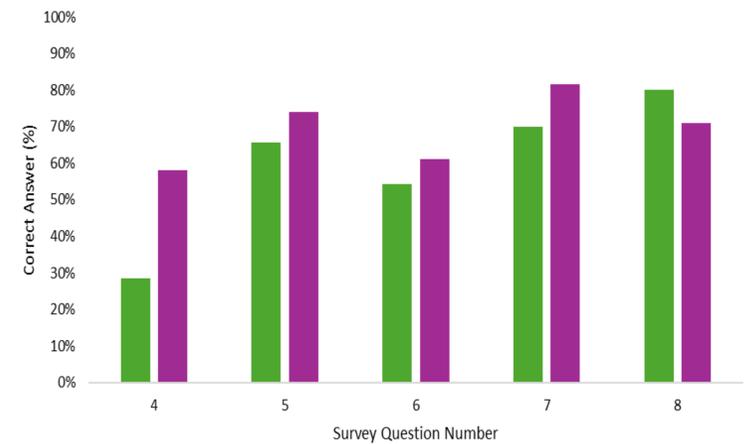


Figure 2: Comparison of pre-(green bar) and post-survey (purple bar) correct answers.

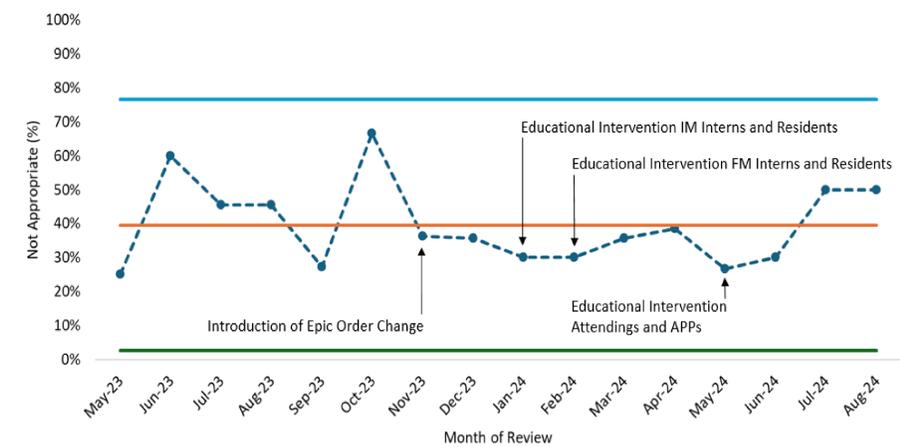


Figure 3: Percent of inappropriate UA with reflex to UC orders over time (green line = lower limit (3 standard deviations), orange line = average percent not appropriate across all review, blue line = upper limit (3 standard deviations)).

# From Simulation to Reality: A Resuscitation Leadership Curriculum for Emergency Medicine Residents

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## Background

Effective leadership skills are crucial in the field of Emergency Medicine (EM), as EM physicians frequently lead multidisciplinary teams in high acuity situations. The University of Vermont (UVM) EM Residency Program does not currently have a structured leadership development curriculum for the management of critically ill patients. A Resuscitation Leadership Curriculum will allow residents to apply skills learned in the simulation lab to leading real-life patient critical care cases.

## Description of Innovation

The Resuscitation Leadership Curriculum consists of an initial didactic training on leadership principles, communication skills and crisis resource management (CRM). Residents will apply these skills during high-fidelity simulation scenarios, taking turns serving as team leader in critical care cases. Trained faculty will observe residents leading simulation cases and then assist in debriefing, giving feedback on residents' resuscitation leadership skills.

## Methods

Pre-curriculum implementation, EM residents will be observed by faculty while leading real-life resuscitations on-shift in the Emergency Department. Their team leadership skills will be evaluated using the Ottawa CRM Global Rating Scale (Ottawa GRS). This is an evaluation tool that has been previously used to measure the CRM skills of EM residents in the simulation setting.

The Resuscitation Leadership Curriculum will be integrated into the existing conferences of the UVM EM residency program; it will be spaced out between two separate dates in late January and early February 2025. Target learners will be EM residents of all years. Post-curriculum implementation, EM residents will again be observed leading resuscitations in the Emergency Department and assessed using the Ottawa GRS. Average Ottawa GRS scores pre- and post- curriculum implementation will be compared.

## Ottawa Global Rating Scale Categories

### Overall Performance

### Subcategories

#### Leadership Skills

Stays calm and in control during crisis  
Prompt and firm decision-making  
Maintains global perspective ("Big picture")

#### Problem Solving Skills

Organized and efficient problem solving approach (ABC's)  
Quick in implementation (Concurrent management)  
Considers alternatives during crisis

#### Resource Utilization Skills

Calls for help appropriately  
Utilizes resources at hand appropriately  
Prioritizes tasks appropriately

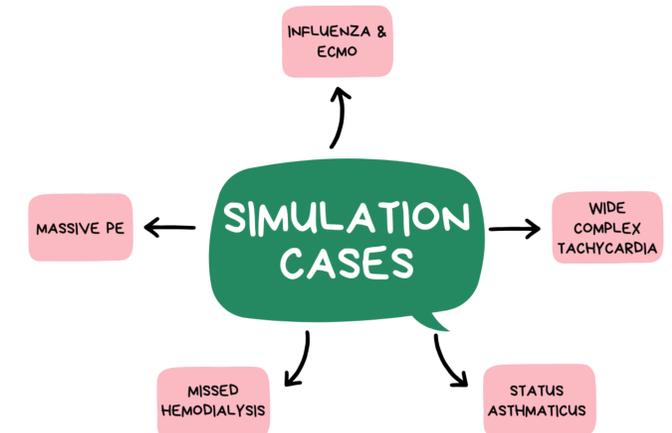
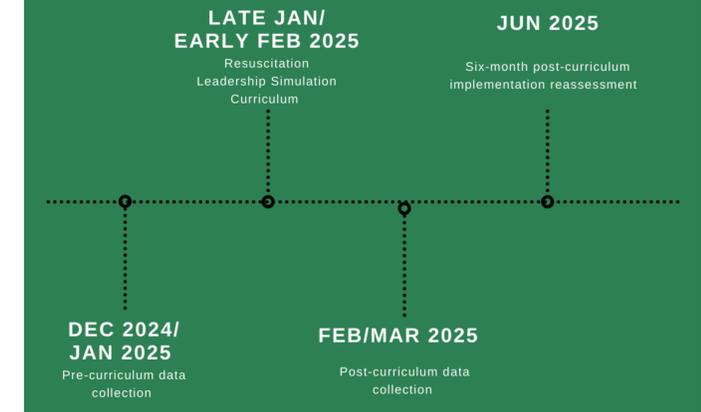
#### Situational Awareness Skills

Avoids fixation error  
Reassesses and re-evaluates situation constantly  
Anticipates likely events

#### Communication Skills

Communicates clearly and concisely  
Uses directed verbal/ non-verbal communication  
Listens to team input

## Study Timeline



## Results

Data collection is currently in process for the pre-curriculum implementation phase of the study.

## Discussion & Conclusion

The Resuscitation Leadership Curriculum represents an innovative approach to developing leadership skills for EM residents. This targeted, experiential approach is anticipated to enhance residents' team leadership capabilities in high-stakes clinical settings.