Learning by drawing: Improved learning of brainstem anatomy after facilitated illustration exercise

The University of Vermont
LARNER COLLEGE OF MEDICINE

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ABSTRACT

Drawing has been demonstrated as an effective method of teaching anatomy, most frequently limited by time and resource availability. We propose a simple method of video-based instruction to teach drawing of brainstem anatomy to first year medical students.

INTRODUCTION

Uses of drawing relevant to medicine:

- Learning, retention of information
- Communication
- Combat burnout
- Facilitate fine motor skills
- Facilitate observational skills
- Formative assessment

Primary noted flaw: feasibility in practice

METHODS

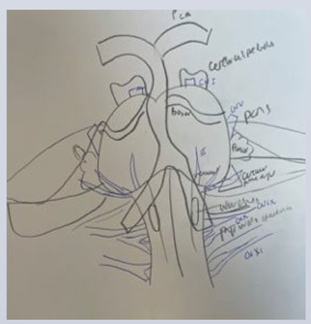
- 37 first year medical students, Neurology course
- Optional session
- Two groups: active drawing alongside video v passive watching of video
- Pretest and post test
- Simple anatomy v novel/flexible application (pathophysiology, surgical approach, radiology)
- Two tailed T-test, repeated measures

RESULTS

Table 1	Pre test Mean % (SD) Median (range)	Post test mean % (SD)	Improvement	P value pre to post
Overall (n=31)	56.3(24.1) 54.55(9-100)	71.0(19.3) 72.7(27-100)	14.7(20.7) 9.1(-18-55)	p=.0004**
Passive learning (no draw) (n=6)	65.2(19.4) 59.1(45-100)	69.7(23.5) 77.3(36-91)	4.5(22.1) -4.5(-18-36)	p=.64
Active learning (draw) (n= 22)	55.4(24.4) 59.1(9-91)	73.1(18.3) 72.7(28-100)	17.8(17.8) 9.1(-9-55)	p=.0001 **

P value pre to post by repeated measures t-test

Of note, no significant difference between amount of improvement between passive and active learning groups



CONCLUSION & DISCUSSION

- Students who drew the brainstem alongside the video significantly improved
- Scored 18% higher on post-test
- Students who just watched the video did not improve

LIMITATIONS

- Only 6 students in the "passive" group
- Practical applicability
- Unclear durability

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Orientation to Family-Centered Rounding for Clerkship Students

A Resident-Led Intervention

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THE University of Vermont Children's Hospital

Introduction

- Family-centered rounding (FCR) is a widespread practice in pediatrics, but there is no standard curriculum to teach this skill.
- Residents at University of Vermont Children's Hospital noticed clerkship medical students were not prepared for FCR when starting the inpatient pediatrics rotation.
- Prior studies show that students feel more prepared to lead FCR when directly taught by residents, and they also desire more support in rounding education in general.
- Disparities have historically been seen in rounding assessments of students underrepresented in medicine (URiM). A standardized curriculum and method for assessment may mitigate this.
- We introduced a resident-led student orientation session with multiple components focused on FCR education.

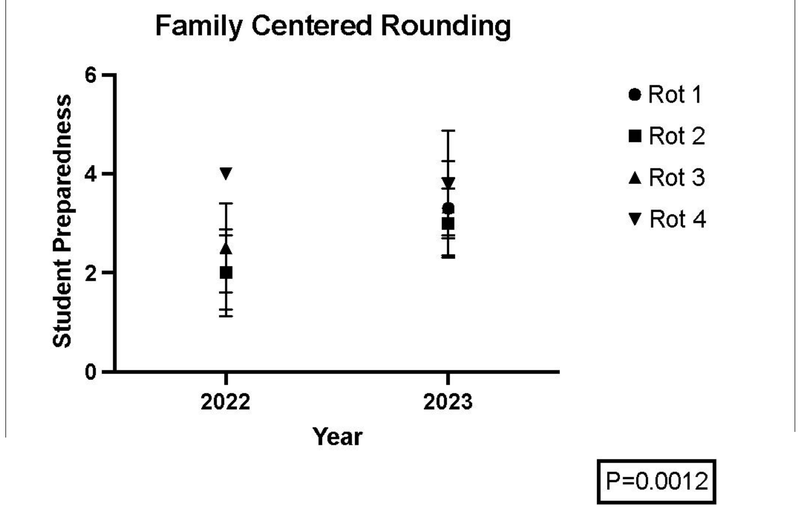
Methods

- We collected surveys regarding self-reported preparedness from each cohort of students during their pediatric clerkship rotation in 2022-23 and from the first four cohorts in 2023-2024.
- The first 4 cohorts of 2022-2023 were considered the pre-intervention group. The first 4 cohorts of 2023-2024 were considered the post-intervention group.
- A resident-led in-person 90-minute session involving introduction to pre-rounding and simulation of FCR was introduced during the 5th cohort orientation.
- Data for the pre- and post-intervention groups were compared using a 2-way ANOVA test.

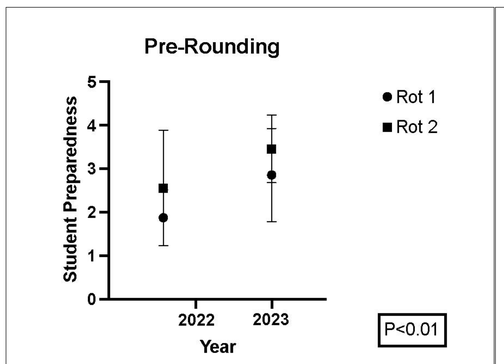
Excerpt from FCR training video used during orientation session

Results

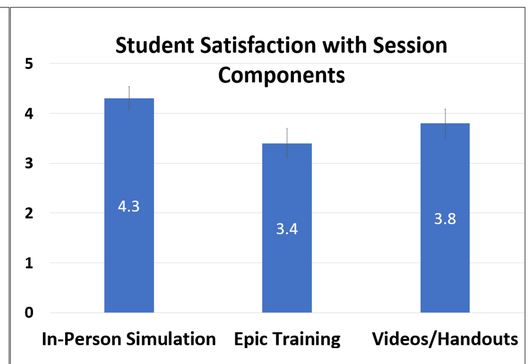
- The post-intervention group reported a significant improvement in preparedness for FCR compared with the pre-intervention group ($p<0.01$).
- The first 2 cohorts of the post-intervention group also reported a significant increase in preparedness for pre-rounding ($p<0.01$).



Primary outcome: y-axis data from survey. Likert Scale with 1 = not prepared at all, 3= neutral, 5 = very prepared; students reported significantly increased feeling of preparedness for FCR post-intervention. *Rot = rotation



Based on Likert Scale: 1 = not helpful at all, 3 = neutral, 5 = very helpful.



Based on Likert Scale: 1 = not helpful at all, 3 = neutral, 5 = very helpful

Conclusion & Discussion

- A resident-led simulation-based teaching session was an effective intervention to increase students' perceived preparedness for FCR.
- Pre-rounding education seems to be most beneficial during the beginning of the academic year, presumably since students gain cumulative experience with each rotation.
- Students reported high levels of satisfaction particularly with the in-person simulation intervention.
- Areas for further study include objective assessment by residents and faculty on student FCR skills with a focus on mitigation of disparities in URiM student evaluations.

Inpatient pediatric team participating in FCR on UVMs pediatric inpatient unit, Baird 5

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Assessing medical student experiences with distressing patient cases and debriefing during third-year clerkships

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BACKGROUND

- Medical students often encounter unexpected patient complications or deaths for the first time during third-year clerkships.
- Research has shown that debriefing after distressing patient encounters facilitates reflection, provides space for emotional processing, and improves clinical performance. However, opportunities to debrief can be highly variable.
- Prior studies have indicated that obstacles to holding debriefs include time constraints due to patient care demands and perceived discomfort with facilitating debriefs from lack of formal training.
- While there have been multiple studies on residents' experience with debriefing, few studies focus on medical students.
- Developing positive coping mechanisms to process challenging patient cases is important early on in one's career.

OBJECTIVES

- To develop a better understanding of how often medical students experience events they feel require debriefs, and the frequency and content of debriefs
- To assess utilization and perceived helpfulness of existing support resources
- To gauge desire for support groups outside the clinical setting

METHODS

- We distributed a REDCap survey to 233 total third (M3) and fourth-year (M4) medical students at the University of Vermont Larner College of Medicine. Surveys were open for M4 students after completion of clerkship year from September to November 2023, and for M3 students from October to November 2023, during rotation 4 of 7.
- Survey questions assessed students' experiences with processing distressing patient cases in the clinical environment, experiences with debriefing, and current knowledge and use of existing support resources.
- For this survey, we defined debriefing as a conversational process after a critical event that:
  (1) promotes a shared-mental model of an event
  (2) may identify areas for team improvement or success
  (3) provides space to processes emotions around an event
  (4) seeks to support participant wellbeing and professional identity formation
- We calculated the percentage of students who 1) experienced distressing events, 2) had debriefs with their team, 3) believed additional support was needed

RESULTS

	Class Year	
Campus	M3 (Class of 2025)	M4 (Class of 2024)
Connecticut	5/32	13/27
Vermont	18/89	26/85
Total	23/121	39/112

Table 1: Demographic data for 62 total respondents, 27% overall response rate (1 VT M3 student was excluded for an 'incomplete' response status). Respondents/total students from each class year by campus

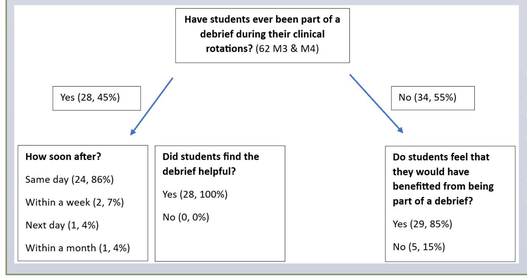
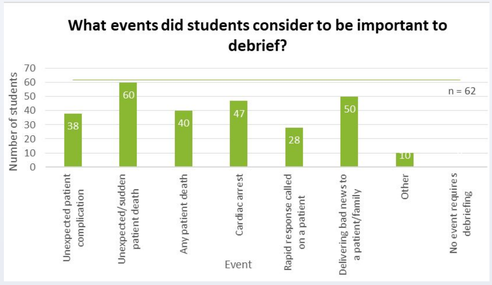


Figure 1: Number of students who have been part of a debrief during clerkships
All of the 28 medical students who experienced a debrief during clerkships found the sessions helpful. 34 students (55%) did not experience a debrief during clerkships, but 29 of these students (85%) believe they would have benefitted from being part of one.

RESULTS

Figure 2: Events that students felt would be important to debrief
All respondents felt at least one of these events necessitated a debrief, with 60/62 (97%) considering an unexpected/sudden patient death as important. 'Other' responses included behavioral codes leading to patient restraint, witnessing or experiencing professional misconduct/mistreatment, provider abuse by a patient, and events that could be personally distressing for providers.



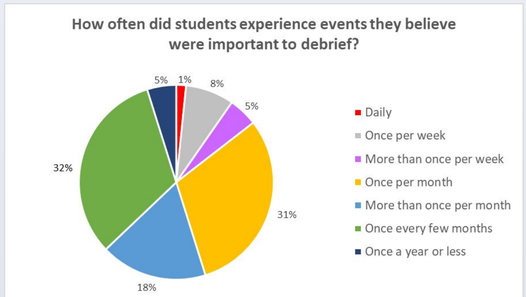


Figure 3: Frequency of events that students believe would be important to debrief
39 students (63%) experience distressing events that they believe should prompt a debrief once per month (19, 31%) or once every few months (20, 32%). No differences exist in event frequency between M3 and M4 students.

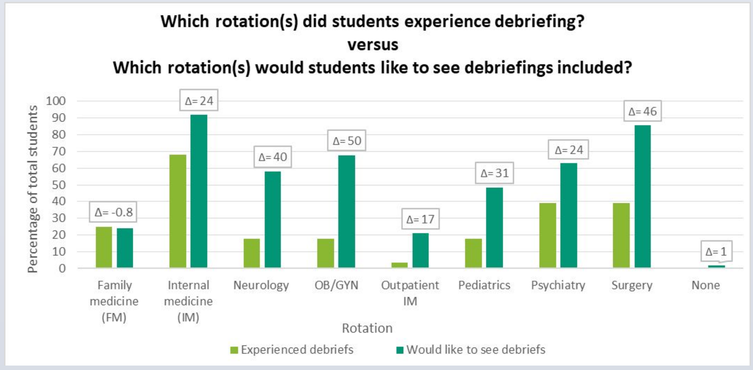


Figure 4: Rotations where students experienced debriefs versus rotations where students would like to see debriefs implemented
28 (45%) of respondents experienced debriefing during their clinical rotations with the top 3 rotations where debriefs occurred being IM, psychiatry, and surgery. The top 3 rotations students would like to see debriefs to be included are IM, OBGYN, surgery. Δ = percentage of students who wished they could have been part of debrief - percentage of students who experienced debrief for each rotation.

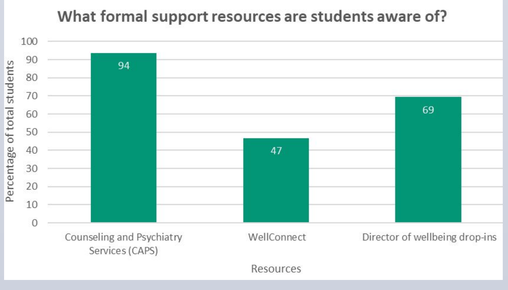


Figure 5: Awareness of existing formal support resources
All respondents were aware of at least 1 formal resource offered through the institution, with the majority 58/62 (94%) aware of CAPS. 32/62 (52%) utilized at least one of these resources, with 27/32 (84%) finding it useful.

CONCLUSION & DISCUSSION

- Debriefing in medical education is an unmet need. 85% of students who did not experience a debrief during clerkships believe they would have benefitted from one.
- 'Unexpected/sudden patient deaths' was the leading event respondents felt required a debrief. How unexpected an event is perceived may change throughout training and impact what someone regards as an event requiring a debrief. Attendings and residents could consider this when determining what events should be debriefed.
- Our survey notably showed students' desire to also debrief events that directly impact providers. There seems to be a need to create outlets to discuss these events to ensure the well-being of providers and patients.
- In all clerkships besides FM, students would like to see more debriefs included than what they experienced, with greatest discrepancies seen in OB/GYN, surgery and neurology. Interestingly, outpatient IM and FM have similar practice settings and structures, yet they differ in providing debriefs. Further understanding of specialty environments and/or cultures may provide insight into these differences.
- There is a difference in awareness of formal support resources. Support resources are possibly presented to students before they encounter events necessitating their use. Reintroducing these resources to students and faculty during clerkship orientation may be useful.
- Students' debrief experiences vary, possibly due to the multiple clinical sites offered in the clerkship curriculum, lack of standardized debrief protocol and different team structures. Variable experiences may be attributable to differences in interactions with residents and attendings, who were cited as the ones most frequently leading debriefs.

LIMITATIONS & FUTURE DIRECTIONS

- Limitations include 1) small sample size with a low response rate - respondents may disproportionately represent people who may feel debriefing is important, 2) use of a non-validated, novel survey given the lack of current validated surveys, and 3) M3 students had not completed their clerkship year at the time of survey distribution (they were on rotation #4 of 7) and thus may not yet have encountered events they felt required a debrief
- Future directions include 1) determining if data is significantly different between clinical campuses, 2) exploring support group formats for students outside of clinical settings, 3) surveying residents, fellows, and attendings about their experiences leading debriefs and whether they received prior training, 4) surveying medical students at our future residency programs to better understand the role of debriefing in medical education

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Assessment of a Novel Pediatric Global Health Curriculum

Using the Intercultural Development Inventory® (IDI®)

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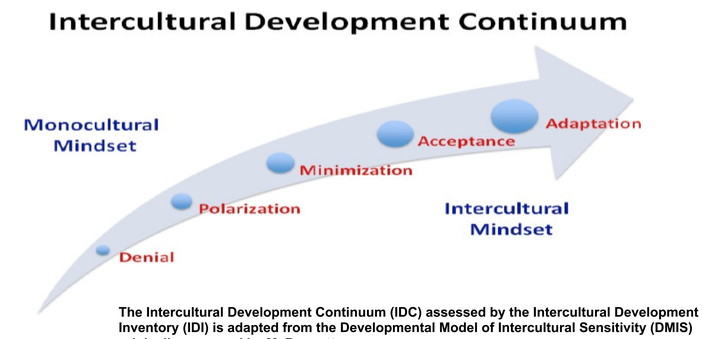
Background

The Accreditation Council for Graduate Medical Education recommends that global health (GH) education be part of resident training. Survey methods used to evaluate GH curriculum are not validated tools. The Intercultural Development Inventory (IDI) is a short, cross-culturally valid, generalizable measurement instrument of intercultural competence along a continuum with a high predictive validity. It creates customized profile report called an individualized intercultural development plan (IDP) for each learner for self-directed learning. Our goal is to use the IDI/IDP as an evaluation tool for our pediatric GH curriculum. Our aim is to demonstrate a positive change in resident intercultural competence as measured by the IDI from intern year to resident graduation.

Methods

Our GH curriculum was implemented in July 2023 at a small Pediatric residency program. Annually, IDI assessment occurs at the beginning and end of residency to assess growth in intercultural competence for each resident and the resident year cohort. Individual debriefs are completed by qualified IDI administrators. Debriefs provide pediatric residents with customized IDI results and personal IDPs. The GH curriculum is taught through clinical interactions, didactic lectures and simulation sessions and through use of the IDP during their advocacy month . Evaluation of the GH curriculum with the IDI was determined to be IRB exempt.



The Intercultural Development Continuum (IDC) assessed by the Intercultural Development Inventory (IDI) is adapted from the Developmental Model of Intercultural Sensitivity (DMIS) originally proposed by M. Bennett.

PGY-1 Class: first to participate using the IDI®

Results

PGY-1 resident scores fell in the polarization, minimization and acceptance domains on their developmental orientation (DO) and in the acceptance and adaptation domains on their perceived orientation (PO). (Table 1) The orientation gap is the difference in the PO score minus the DO score and ranged from 34.43 to 7.14 points. (Table 2) Awareness of this difference in perceived versus actual developmental orientation is provided through the IDI debrief.

Table 1. Number of residents in each mindset.

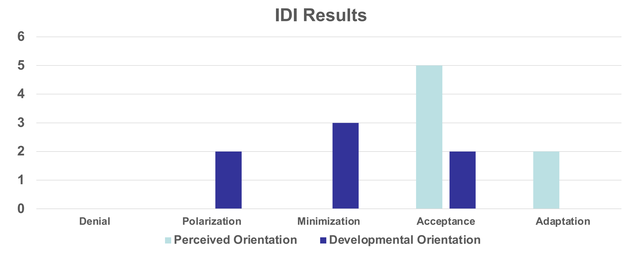
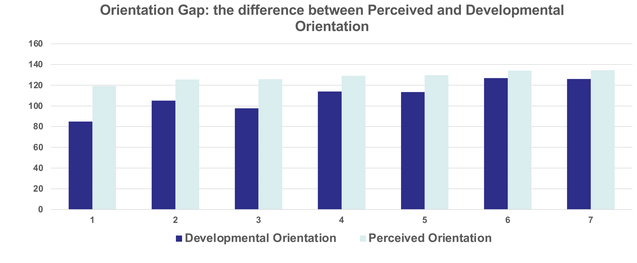


Table 2. Orientation Gap



Discussion

The IDI tools provide residents with a quantifiable method for assessing their intercultural development as well as a roadmap to develop future competencies. As expected, our PGY-1's rated their PO at a higher level that their DO. Awareness of their initial intercultural mindset, their IDP, and our rotating GH curriculum may allow for intercultural growth over their residency as measured by the IDI.

As an innovation, the IDI assessment may be used as a tool to measure the effectiveness of a GH curriculum as well as a needs assessment. If successful, other training programs could use this IDI tool to assess the effectiveness of their GH curriculum to create change. Furthermore, the IDI could be used as a collaborative tool to measure the impact of a shared GH curriculum across institutions for the creation of best practices.

Building Strong Families Clinic, Burlington, VT
Primary care for children in immigrant families

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THE ALBERT SCHWEITZER FELLOWSHIP

Lessons Learned About Gender-Affirming Healthcare in Vermont

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INTRODUCTION and BACKGROUND

- **Gender-affirming care (GAC) is medically necessary healthcare for transgender people with evidence-based guidelines for treatment.[1]**
- **Gender-affirming care greatly improves mental health outcomes compared to those who desire but do not receive care.[2]**
- **University of Vermont Medical Center identified '*Cultural Humility and Inclusive Health Care*' as one of its top three community health needs to address in its Community Health Improvement Plan from 2022-2025.[3]**

PROJECT OVERVIEW and METHODS

Project Mission:

Identify and strengthen the network of clinics and providers that offer gender-affirming care throughout Vermont.

Create guides to ease the process of seeking and receiving care, and support providers in recognizing and overcoming barriers to delivering high-quality healthcare.

- Schweitzer Fellowship began April 2023 and will last until April 2024
- 200-hour commitment to work alongside Pride Center of Vermont, our community partner, to support improvement of community health
- Phases of project are outlined below:

Early Phase

- Met with several local leaders in gender-affirming care.
- Developed an understanding of current standards and options for patient care, which are outlined in Figure 1.
- Utilized gathered information to assess gaps in care needs and build out plan with community partner.

Later Phase

- Reinforced available resources for care navigation, including Vermont Diversity Health Project.
- Created deliverables to help people identify safer and affirming providers.
- Continued to identify ways to better connect clinicians to further education and mentorship regarding GAC.

RESULTS

Vermont Diversity Health Project (VDHP)

- **Run by the Pride Center of Vermont to connect "safe, affirming, supportive, and effective providers of healthcare with 2SLGBTQIA+ people."**
- **Includes a searchable database of providers and the resources they offer.**

Project ECHO

- **A recurring primary-care education series that offers training and education from specialists to improve patient care.**
- **2023 program on "Gender-Affirming Care in the Medical Home" explored best-practice guidelines on gender-affirming care within primary care clinics.**

UVM Transgender Youth Clinic

- **A multidisciplinary clinic which supports patients and their families as they navigate care.**

Figure 1

Our research identified aspects of care which may be confusing and hinder patient access, including:

- **People seeking gender-affirming care are looking for ways to identify "green flags" in potential providers to reduce chances of encountering harm.**
- **Clinicians and patients alike have different understandings of where care can be received. For example:**
  - **Hormone replacement is sometimes manageable in primary care, but some patients may be managed in endocrinology.**
  - **Preoperative surgical requirements and insurance requirements vary widely for patients seeking gender-affirming surgery.**

DISCUSSION

Several specific action items were identified to improve the navigation and provision of gender-affirming care alongside our community partner, Pride Center of Vermont.

- **VDHP:**
  - **Ensure continuation beyond current grant cycle.**
  - **Optimize process for provider enrollment into VDHP as well as internal site maintenance.**
  - **Expand opportunities for participating providers to connect and engage through the database.**
- **Project ECHO:**
  - **Support awareness of series offerings.**
  - **Expand access of this series to health professionals in training.**
- **Provider interviews:**
  - **Create introductory videos of known providers of gender-affirming care.**
  - **Build up awareness of providers in the community.**
  - **Reduce uncertainty of establishing care with a provider.**
- **Internal:**
  - **Network and inform providers about ongoing opportunities to further education and mentorship for provision, including listening sessions and socials.**

LIMITATIONS

- **Missing Sexual Orientation, Gender Identity (SOGI) information within large patient databases.**
  - **Cannot quantify patients receiving gender-affirming care.**
  - **Cannot correlate patient experience surveys with SOGI data.**

CONCLUSIONS

- **While Gender-affirming care has been identified as an area of focus, there continues to be a strong need for equitable and accessible health care.**
- **Cross-organization initiatives between community-facing organizations such as Pride Center of Vermont, and healthcare facilities can help build trust and provide information and services that are needed and desired.**

ACKNOWLEDGEMENTS and REFERENCES

PRIDE CENTER of VT

We owe our progress to the numerous people and efforts which have paved the way in this work already. Many key players, including community members and especially those with lived experience, are not mentioned on this poster, but we acknowledge them with immense gratitude.

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Exercise as Medicine (EaM): A hands-on introduction to physiology and foundational movement patterns

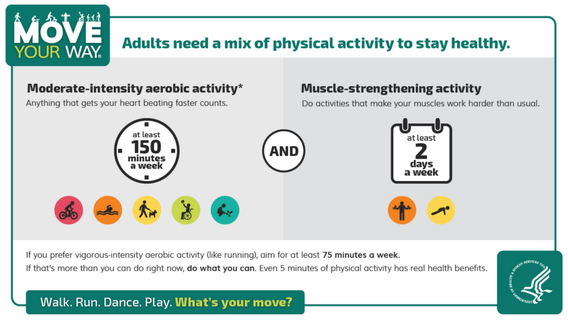
Alex Jenkins, MS4, Marc Hickok, CSCS, FMS, Lee-Anna Burgess, MD

Curriculum development for first year medical students, Larner College of Medicine at the University of Vermont

The University of Vermont
LARNER COLLEGE OF MEDICINE

Introduction

- CDC recommends physical activity to improve brain health, weight management, reduce disease, and strengthen bones and muscles[1]
- Obesity and inactivity have direct and indirect costs for patients and the healthcare system[2]. Within a year, obesity related medical costs could rise by $48 to $66 billion in the US[3]
- Importance of exercise is highlighted by the Academy of Sports Medicine through an Exercise is Medicine® (EIM) Global Health Initiative: goal to make physical activity assessment and promotion a standard in clinical care, connecting health care with evidence-based physical activity resources for people everywhere and of all abilities[4]
- Curriculum has been developed to teach nutrition counseling, and lifestyle medicine in medical schools5, 6. But to our knowledge, we found no evidence of curriculum that combined teaching of exercise physiology with practical movement review and appropriate coaching of movement



Goals

- Hands on practical teaching of the foundational movement patterns and how these show up in everyday life
- Demonstration of how foundational movements can be scaled or progressed as appropriate
- Enhance language to discuss exercise with patients through motivational interviewing
- Establish physical activity as a vital sign
- Enhance collaboration with peers
- Promotion of physical health through supervised group exercise
- Interprofessional collaboration between medicine, strength and conditioning and physical therapy
- Break down stigma that exercise is “scary”

Course Structure

- 4-week optional course, 1 session per week, taught in a 2-hour session:
  Didactics: 45min of teaching on exercise physiology
  Practical: 45min of hands-on movement-based practical teaching on the foundational movement patterns
  Workout: 15-30min of group workout
- 3 sessions at University of Vermont Varsity Weight room
- 1 session at CrossFit Burlington

SESSION	TOPIC
1	Strength
2	Aerobic capacity and endurance
3	Motivational interviewing
4	Mobility and injury prevention

Outlines and Objectives

Strength
- Structure and function of neuromuscular system
- Fundamentals of training process – adaptation to training, timing and progressive overload
- Muscular adaptation to training – size, strength and power

Aerobic capacity and endurance
- Biochemistry of aerobic exercise: metabolic and physiologic effects
- Cardiopulmonary response to exercise
- VO2 max, anaerobic threshold
- Wearables and achieving aerobic fitness through exercise
- Recommended guidelines ACSM

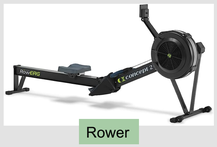
Motivational interviewing
- Standardized patient practice
- Physical activity as a vital sign
- Stages of change action steps
- Community resources and engagement

Mobility and injury prevention
- Balance and proprioception
- Unilateral training
- Joint by joint approach
- Detriments of immobilization in hospitalized patients

Practical

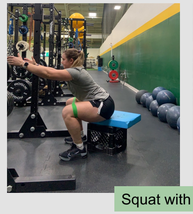
Foundational movement patterns

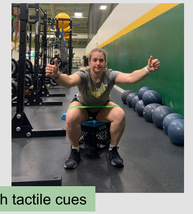
- Squat
- Hinge
- Explosive power production
- Vertical pull
- Vertical push
- Horizontal pull
- Horizontal push
- Core: rotation, anti-rotation, flexion, extension, carries
- Aerobic: rower, bike, ski erg, jump rope
- Unilateral movements

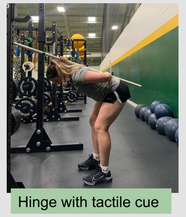

Rower


Horizontal pull

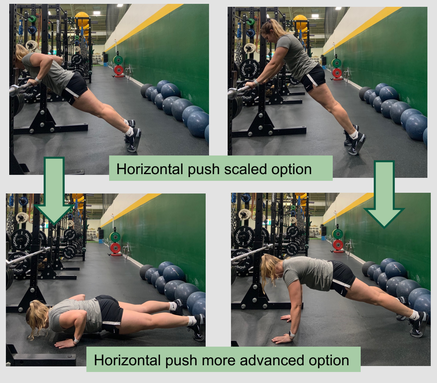

Single leg squat (lunge)




Squat with tactile cues


Hinge with tactile cue

Each teaching used hands on instruction with tactile, visual and verbal cues to teach basic movement patterns. Scaling options given from basic to more advanced movement patterns and load schemes:


Horizontal push scaled option

Horizontal push more advanced option

Discussed practical applications of movement patterns in activities of daily living, such as squatting to sit on the toilet, or getting up from a fall

Discussion

- Served as pilot study of a longitudinal project focused on interprofessional collaboration
- Educated proper mechanics of foundational movement patterns
- Provided appropriate coaching of movement, and enhanced knowledge needed to better discuss movement with patients
- Enhanced comradery between first year medical students by giving a space outside of the classroom to collaborate
- Improved mental and physical health of medical students through structured and supervised coaching and group fitness sessions
- Early introduction into the medical school curriculum could help to serve as a foundation for lifelong wellness by introducing positive fitness habits, and help mitigate professional burnout, which is more prevalent among medical students and residents/fellows[7]
- Data also suggests that the physical activity habits of physicians influence their counseling practices in clinic[8], therefore allowing for better care of patients in the long term

Looking ahead

- Expand sessions to include: mindfulness, mental health and special populations (elderly, pregnant women)
- Develop fourth year elective to delve deeper into programming
- Second EaM course to run Spring 2024
- Continued interprofessional collaboration, including outreach to PT students
- Extension of education to residents and fellows

Acknowledgements

- This course was made possible by the donation of funds by Larner College of Medicine’s Office of Medical Student Education
- Special thanks to our faculty guest lecturers: David Kaminsky MD, Internal Medicine, Critical Care, Pulmonary Medicine; Richard Pinckney MD, Internal Medicine, Primary Care; Matthew Lunser DO, Family Medicine, Sports Medicine, Team Physician for UVM Athletics
- Special thanks to UVM Athletics, Athletic Performance, and Athletic Medicine, as well as Molly Purvis, owner of CrossFit Burlington, who allowed us to use their space and resources to host this course

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Living with Diabetes: A hands-on workshop

Alex Jenkins, MS4, Jennifer Todd, MD

Education session for pediatric residents and medical students, Larner College of Medicine at the University of Vermont

The University of Vermont
LARNER COLLEGE OF MEDICINE

Introduction

- Diabetes affects 38.4 million people, with a total estimated cost of $412.9 billion in the United States[1]
- Diabetes is a common cause of hospitalization, death, and disability
- Studies have shown significant knowledge gaps in resident education regarding diabetes management, resulting in medical errors and inappropriate care[2,3]
- Although studies show that hands-on diabetes education is beneficial, most are delivered as online, self-paced, or case-based learning[4, 5, 6] without insight into the day-to-day management of diabetes

Description

- Using personal experience of living with diabetes as a unique educational tool, we created an education session to share the patient experience of daily diabetes tasks, teach diabetes management skills, and foster peer teaching.
- Hour-long interactive session included an introduction about the presenter's experience with diabetes and diabetes camps, and three 15-minute hands-on sessions:
  - → counting carbohydrates and insulin dosing for a meal
  - → testing blood sugars and/or trying on a Dexcom G7 sensor
  - → putting on an insulin pump site

Camp Surefire

MISS HOPE FOR A WEEK · MISS CAMP FOR A YEAR · FLORIDA DIABETES CAMP

SAM FULD'S ★★ T1D SPORTS CAMP ★★

THE BartonCenter FOR DIABETES EDUCATION, INC. *Inspiring Children. Empowering Families.*

Methods

We presented the session to pediatric residents and clerkship students, and surveyed participants on their understanding of diabetes care before and after the session and their overall rating of the session.

Materials used

The following written materials were used during the sessions

Diabetes Presentation
Prepared by Alex Jenkins, MS4 UVM Larner College of Medicine

Group 2: Carbohydrate counting

Although nutritionists and diabetes educators play a big role in this aspect, doctors should know what it is like to do the things we ask our patients to do (i.e. count carbohydrates). So let's get to counting!

1. Using your tablet, create a meal that you would eat for dinner tonight – you have full range of what you want to eat!
   a. When creating your meal, take into consideration portion sizes – I have included some measuring tools as well as a quick guide to using your hands as portion sizing.
2. After you have finished creating your masterpiece, use the following website to determine how many carbohydrates are in the meal you just created: https://www.calorieking.com/us/en/
3. After you have counted your carbs, use the following ratio to figure out how many units to take, as well as to correct for the slightly high blood sugar I have made you have before your meal – use **BG: 258mg/dL**: (Fun Fact: when people take short acting insulin for a meal, you will hear them call it a "bolus", when they take the short acting insulin via an injection, you will hear them call it a "shot")

Diabetes Presentation
Prepared by Alex Jenkins, MS4 UVM Larner College of Medicine

Carb RATIO : 1 unit : 8g carbs CORRECTION FACTOR : 1 unit : 50mg/dL goal BG: 120

Things to consider:
- All of this is supposed to be done ~15 minutes before you take your first bite of food to allow for the insulin to kick in when the food is going to kick in. However, life happens and many factors (forgetting, not knowing how much food you are going to be eating, taking too much food and being too full to finish it, etc) cause people with diabetes to delay their bolus to during or after they finish eating. This is where it is important to know how challenging this might be before you judge a patient for their "forgetting".
- Certain foods affect your blood sugar differently based on their glycemic index, and might require someone with a pump to use an "extended" bolus, where you take some insulin now and extend some over a certain period of time to account for this (for example, I have to do this with bagels, muffins, maple syrup and pancakes/waffles, and cereal… I know, all the best types of breakfast foods)

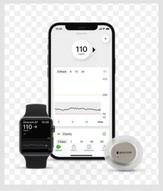
Any questions that come up? List them here and I can try to answer them at the end!

Diabetes Presentation
Prepared by Alex Jenkins, MS4 UVM Larner College of Medicine

Group 3: Blood Glucose Testing

You are going to tell your patients to test their blood sugar levels, but do you know what that might look like?

How does it feel? Does it hurt? *I usually tell people it feels like getting pricked by a thorn in the woods, and that after you do it a while you don't really notice it anymore!*
How often do you test? *Most people will test at least 3x a day: in the morning when you wake up, before breakfast, before lunch, before dinner, and before bedtime. (Fun Fact: when I was playing D1 soccer, I was testing upwards of 10-15x per day)*



Now try testing your own blood sugar!
1. Take the pricker and swap out the lancet (Fun Fact: "they" tell you to change your lancet every time you prick your finger, but most people I know can't remember the last time they changed their lancet!)
   a. If there isn't a lancet, grab the lancer from the hospital and remove the top
2. Take a test strip out and insert it into the mouth of the machine (Fun Fact: test strips are pretty pricy and can cost up to $1.50 per test strip!)
3. Take an alcohol swap and wipe down the surface of the pricker, then wipe down your finger
4. Pull the plunger back on the pricker, place pricker on finger with a slight bit of pressure and push the button.
5. Using your opposite hand, "milk" the blood to the tip of your finger and squeeze out about a pinhead size drop (Side note: think about how difficult this is with parents of children with T1D!).
6. Hold the drop of blood up to the test strip and let it fill the test strip.
7. Wait ~5 seconds and there's your blood sugar!

As you can see, it might get pretty frustrating doing this 5x a day every day of your life. Which is why continuous glucose monitoring systems like Dexcom or the Freestyle Libre are great alternatives for people!

If you want to look around, you can see Alex's Dexcom Clarity account, and create graphs of the past few months to see what adjustments in treatment can be made. Try to come up with reasons why my blood sugars might change over the course of a few months (HINT: I just transitioned from sitting and Step studying 10-12 hours a day to moving around more- how would this affect blood sugars?) and how we could make adjustments to my basal rates or carb ratios.

If you have any questions that you come up with, please list them here! I can try to answer them at the end.

Diabetes Presentation
Prepared by Alex Jenkins, MS4 UVM Larner College of Medicine

Group 1: Pump Site Injection

Pumps are an amazing technological advancement in the management of diabetes and are a way to allow for continuous dosing of insulin while giving individuals the freedom to make small adjustments as needed to tailor their day-to-day activity changes.

There are two types of pumps: tubed pumps (like what Alex is wearing) and non-tubed pumps. Below are example pictures of the most commonly used pump systems:

[INSERT PICTURES HERE]

However, pumps are not for everyone: some don't like having a machine attached to their body 24/7, some don't like how public it makes having diabetes, and others really don't like putting sites on. This is where insulin injections come in!

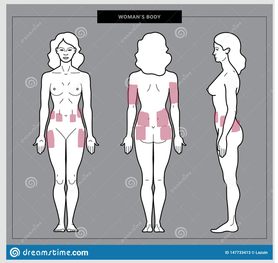
Here is your opportunity to put on a site for yourself (or a classmate) and see what it's like!

Site insertion:
1. Open up the packaging and remove the round site.
2. Pick a location to insert (I recommend your stomach for ease of insertion) and clean the area with an alcohol swap. If you are going to be inserting on a classmate (best type of trust exercise!), I would recommend trying the back of the arm. See the image below of places and locations sites are usually placed.
3. Remove the blue safety cap to the needle
4. You want to use your fingers to create a 45 degree angle for the insertion into the skin. Place one to two fingers underneath where the needle inserts, place the fingers on your skin and insert into skin until the needle is fully under the skin
5. Remove the first smaller while plastic and press the sticky part onto the skin
6. Remove the needle by placing fingers on both sides of the needle press fingers together and gently pull out needle.
7. Remove the larger white plastic and press the sticky part to the skin, taking care to ensure a good stick.
8. Safely dispose of needle in sharps container.
9. Try wearing the site around for the next couple of hours to see how it feels (Fun fact: you are supposed to change your site every 2-3 days, but it's really easy to forget and leave it on for a day or two extra, which is why we recommend changing your site and insulin cartridge together and draw up enough insulin for 3 days worth so you have to change your site at the same time. During soccer in summer months, sometimes I went through 2 sites a day because of being sweaty or having my site ripped off in games!)

Remember this site is just one piece of equipment people with diabetes have to wear. Can you notice where else Alex may have a piece of equipment attached today? What do you think they're used for? Can you think of downsides to wearing a pump site 24/7/365?

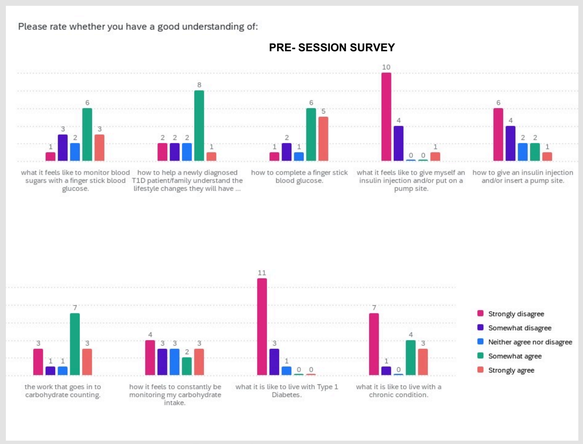
Any questions?? Please list them here and I can try to answer them at the end!

Diabetes Presentation
Prepared by Alex Jenkins, MS4 UVM Larner College of Medicine



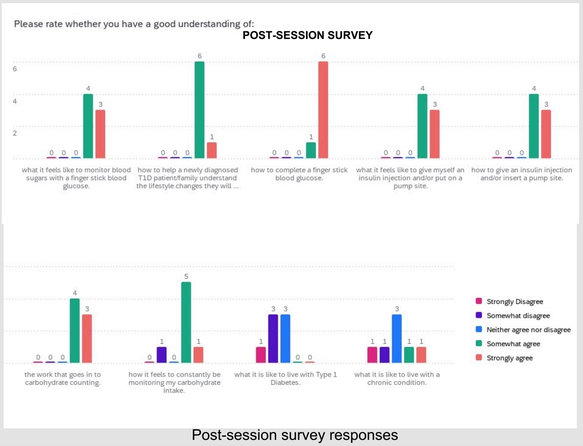
This image shows the location that you can place pump sites on your body – different sites have different angles of injection under the skin, but you need to make sure that the site is in a place that has good absorption (Side note: the worst is when you put a site on and then your blood sugar is 400 two hours later because it isn't working).

Results



Pre-session survey responses

- A total of 17 participants answered the pre-session survey and 7 answered the post-session survey
- Prior to the session, the proportion of participants indicating they somewhat or strongly agreed they knew what it felt like to check a blood glucose, give an insulin injection or pump insertion, or to perform the work of carbohydrate counting was 53%, 18%, and 29%
- Post-session these proportions increased to 100%, 100%, and 86% respectively.
- All the post-session respondents somewhat or strongly agreed they found the session valuable and would recommend to other residents.



Post-session survey responses

Discussion

- The survey demonstrated that the session increased participants' understanding of daily tasks of diabetes management for pediatric residents
- By giving residents hands-on exposure to daily diabetes management, it allowed for further understanding of the complexity of diabetes care, and made them more comfortable discussing these intricacies
- This will hopefully allow residents to have a better understanding of chronic disease management when working with their patients in clinic

Limitations

- The study was limited in the number of responses completed to assess the effectiveness. Data was also not collected from medical students
- Not every participant was able to wear an insulin pump or a Dexcom sensor

Future Directions

- Expanding to internal medicine and family practice residents, who also have numerous interaction with patients who deal with daily diabetes management
- Surveying medical students before the session and after their first year of clinical exposure to determine the effectiveness of hands-on teaching for improving patient care
- Although some wore a non-functioning pump for the day, it would be beneficial to include a saline-based practice pump for residents to wear, or acquire more Dexcom sensors as a donation for participants to wear for 10 days

Acknowledgements

Thank you to the Jenkins family for their generous donation of supplies, and the UVMMC Pediatric Endocrinology department for their support.

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Building Diagnostic Schemas Improves Resident Confidence in Managing AKI

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Internal medicine interns felt more confident diagnosing and managing AKI as well as discussing it with their patients and medical students after building and practicing with a diagnostic schema.

Background

- The complexity of nephrology has been identified as a major contributing factor as to why fewer resident physicians are pursuing it as a career[1].
- Improving resident comfort and knowledge about nephrology topics, particularly acute kidney injury (AKI), is imperative to decreasing resident perception of their difficulty.
- There is a paucity of data on effective teaching methods for AKI for resident physicians.
- We designed and tested a workshop where interns build an AKI diagnostic schema to see if that improved their comfort with the topic.

What is an effective teaching method to improve intern physician knowledge and comfort with AKI?

Methods

- The workshop took place during dedicated didactic time for interns at an academic hospital's internal medicine residency.
- They received a pre-workshop survey that explored their perceived knowledge of AKI etiology, diagnosis, and management as well as their comfort level with explaining AKIs to patients and medical students.
- Interns were briefed on how to use diagnostic schemas and together constructed one for AKI (pre-renal, intrinsic, and post-renal causes).
- They then underwent didactics on pathophysiology, clinical manifestations, diagnostic work up, and management of AKI using this schema.
- The group used the schema to map out a general approach for a patient presenting with an AKI and answered practice questions. Interns were encouraged to take a photo of the schema and approach for use on the wards.
- The interns took a post-workshop survey with the same questions as the pre-survey.

Results

- Results from the pre-survey and the post-survey are listed in graph 1.
- The interns' knowledge and self-reported confidence with AKI improved following the session.
- Prior to the workshop,
  - 8% of participants "agreed" or "strongly agreed" they felt comfortable explaining AKIs to patients
  - 16% of participants "agreed" or "strongly agreed" they felt comfortable teaching about AKIs to medical students
  - 25% of participants "agreed" or "strongly agreed" they felt comfortable evaluating a patient with an AKI
  - 16% of participants "agreed" or "strongly agreed" they have a diagnostic schema for evaluating an AKI
  - 0% of participants could name at least 1 of the 3 KDIGO criteria for an AKI
- Following the workshop,
  - 73%% of participants "agreed" or "strongly agreed" they felt comfortable explaining AKIs to patients
  - 53% of participants "agreed" or "strongly agreed" they felt comfortable teaching about AKIs to medical students
  - 80% of participants "agreed" or "strongly agreed" they felt comfortable evaluating a patient with an AKI
  - 80% of participants "agreed" or "strongly agreed" they have a diagnostic schema for evaluating an AKI
  - 93% of participants could name at least 1 of the 3 KDIGO criteria for an AKI (27% could list all 3)

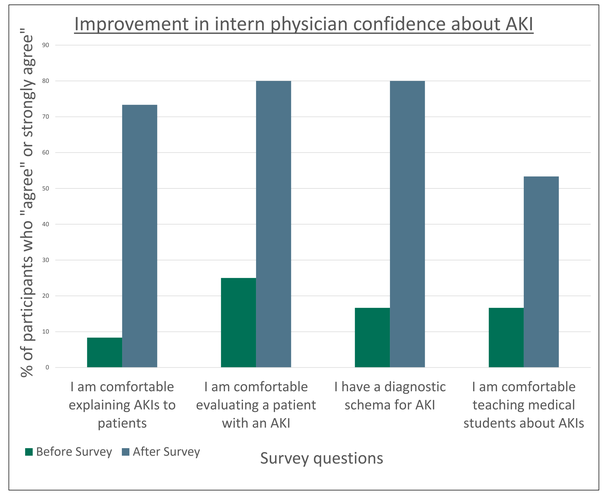
Discussion

- Participants' confidence about AKI was poor prior to the session and greatly improved following the session.
- Participants could not list any KDIGO criteria for an AKI, but there was marked improvement following the session (many interns could list 2 of 3).

Limitations

- There was not a control group
- Small sample size of interns
- Single institution study

Graph 1: Intern responses to the questions on the survey before and after the workshop



Conclusions and Next Steps

- Internal medicine interns felt more confident diagnosing and managing AKI as well as discussing it with their patients and medical students after building and practicing with a diagnostic schema.
- Next steps include:
  - Surveying participants about their confidence in diagnosing and managing AKI and their knowledge of it one year following the workshop
  - Surveying participants how often they use the diagnostic schema in practice and for teaching
  - Investigating the approach with a control group and an intervention group
  - Conducting the workshop at other institutions

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Introduction to Medical Imaging (COMU 1020A): A Novel Undergraduate Course

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ABSTRACT

There have been limited but mixed reports about radiologist involvement in education at the undergraduate level. Here we present our model for a radiologist-driven undergraduate course at UVM with the goal of empowering students to understand the role of medical imaging within the healthcare system, in the community, and in their personal lives through a course entitled "Introduction to Medical Imaging". The course content includes overviews of different imaging modalities and their scientific principles, basic image interpretation, radiation safety, and the role of medical imaging within the broader healthcare system. Confidential surveys completed prior to and following course completion demonstrate a successful model for an intro level undergraduate medical imaging course with few, if any, counterparts in academic radiology departments. This unique approach to undergraduate education is amenable to adaptation in other medical subspecialties.

METHODS

Expose | Supplement | Empower

Curriculum:

1. Introduction and Overview
2. Imaging with X-rays: Radiography
3. Applications of X-ray Imaging: Chest
4. Applications of X-ray Imaging: Fluoroscopy
5. Computed Tomography (CT/CAT scans): 3D imaging with X-rays
6. Applications of CT: Neurological
7. Applications of CT: Body
8. Imaging with Radioactive Materials: Nuclear Medicine
9. Applications of Nuclear Medicine
10. Risks and Radiation
11. Ultrasound: Imaging with Sound
12. Applications of Ultrasound 1: Abdominal, Doppler
13. Applications of Ultrasound 2: Obstetrics
14. Population screening: Breast cancer screening with mammography
15. Magnetic Resonance Imaging (MRI): Imaging with radio waves Part I
16. Magnetic Resonance Imaging (MRI): Imaging with radio waves Part II
17. Applications of MRI: Neurological
18. Special topic: Musculoskeletal Imaging
19. Special topic: Cardiac Imaging
20. Special topic: Breast Imaging
21. Applications of X-ray Imaging: Angiography
22. Special topic: Interventional Radiology
23. Healthcare Finance
24. Imaging the World Case Study
25. Careers in Radiology

Figure 1: Spring 2023 COMU 1020A Lecture Schedule

Course enrollment is open to all undergraduate students without prerequisite. Lectures are given in didactic and interactive formats on site at UVMMC in the Radiology Education Center by staff radiologists and medical physicists from the department, spanning the breadth of radiology subspecialty areas of expertise.

METHODS

Three primary pillars comprise the main goals of the course; to EXPOSE pre-health students to potential careers in medicine and radiology, SUPPLEMENT educational and career goals in related fields such as engineering, pre-med and physics, and to EMPOWER students to become informed consumers and self- advocates with regards to medical imaging in their own lives.

The core didactic curriculum is supplemented by tours of the radiology department, hands-on opportunities with ultrasound machines, and a "Careers in Radiology" discussion panel in which students have a formal opportunity for Q & A with a variety of working professionals in the UVMMC radiology department including radiologists, physicists, technologists, sonographers, advanced practice providers, administrators, and IT specialists.

Student performance is evaluated through a combination of exams, and two formative projects. For the first project, students are assigned a clinical scenario and are tasked to formulate an imaging plan for the theoretical patient. For the end of semester project, students select a disease process of interest and describe in detail how radiology contributes to the diagnosis and management of the disease.

RESULTS

Confidential pre- and post- course surveys are utilized to assess efficacy of the course. Results consistently demonstrate increased confidence with radiology concepts, improved objective knowledge of medical imaging, and a general satisfaction with the course.

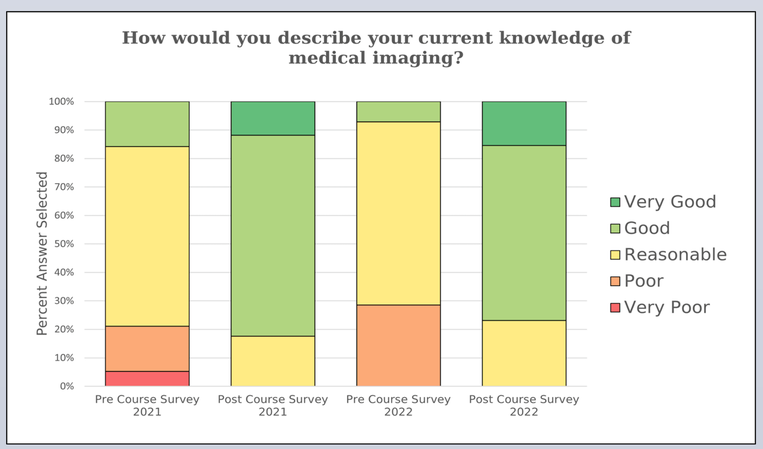

Figure 2: Student self-reported survey results (2021-2022)

RESULTS

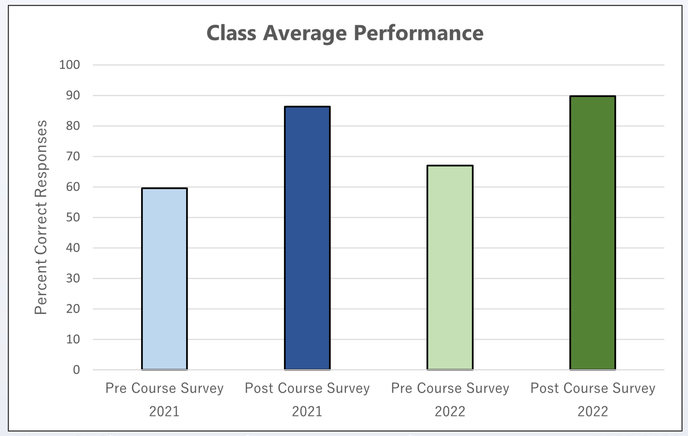

Figure 3: Class average performance on pre and post course surveys, 2022/2023

What was the most valuable thing learned from the course?

"…this course…was very interesting and unique from my other courses. I think it applies to the real world more than a lot of classes you are able to take in college and I enjoyed it a lot!"

"…after taking this course, I have a better understanding of what kind of career in radiology I want to work towards."

"I learned the importance of what each imaging modality serves to do. This will be helpful later in life simply because if I need to get imaging work done I have some insight..."

CONCLUSION & DISCUSSION

An undergraduate course focused on radiology under the instruction of practicing professionals in the field provides a unique and valuable opportunity to encourage careers in radiology and medicine, spark interest in collaboration across other fields, and produce more informed consumers of medical imaging, as each student will undoubtedly encounter medical imaging in their own lives. The course presented here provides a tested and successful framework that can be applied in other academic radiology departments or generalized to other medical specialties.

Future improvements for the course specifically for 2024 include the addition of small-group sessions in the Simulation Lab to enhance student engagement, and new lectures to address current and emerging topics in the field such as Environmental Impact of Radiology and Disaster Preparedness.

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Alvarez, D., Gunderman, R. B. (2017). Should We Teach Radiology to Undergraduates? *Academic radiology*, *24*(11)

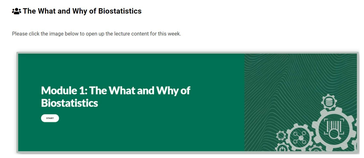
Teaching Biostatistics Online

Articulate Rise and Video Recorded Lectures

Innovation & Research in Teaching Biostatistics in Master of Public Health (MPH) Curriculum

Authors: Khan, S., Carney J., de Jager, E., Delaney, T., Griffin, T., Frey, A., Siccama, C.

The University of Vermont
LARNER COLLEGE OF MEDICINE



Introduction

Teaching an online, quantitative course provides the opportunity to explore new tools for presenting course content. Previous research has shown that AR improved students' confidence in specific biostatistical tests.[1] Two modalities: Articulate Rise (AR) & Video Recorded Lectures (VRLs) were used to present an online course. A research project was pursued to understand the integration of AR further.

The three objectives of this research project were:

I. Describe Articulate Rise (AR)

II. Explain how AR can be integrated and evaluated to teach quantitative sciences

III. Evaluate students' attitudes, opinions, and perceptions of the effectiveness of an asynchronous, online course content presentation: AR & VRLs

Methods

- A literature review (Medline search) was conducted using three key words, "Articulate AND Rise AND Online" (quotation marks not inserted in the search bar)
- An online, asynchronous introductory Biostatistics course (Biostatistics I) was presented in two modalities: AR & VRLs
  - Biostatistics I consisted of 14 weekly modules
  - Course content in modules 1 to 7 were delivered through AR (AR replaced short, recorded video lectures (VRLs))
  - Course elements in modules 8 to 14 were delivered through VRLs
- Students enrolled in Biostatistics I in Fall 2023 were surveyed
- The 18-item online questionnaire included demographic questions, reasons for enrolling into the course, prior experience with similar courses, and questions about students' attitudes, opinions, and perceptions toward the two modalities: AR & VRLs (measured by a 5-point Likert-type scale: Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree)

Results

Objective I:

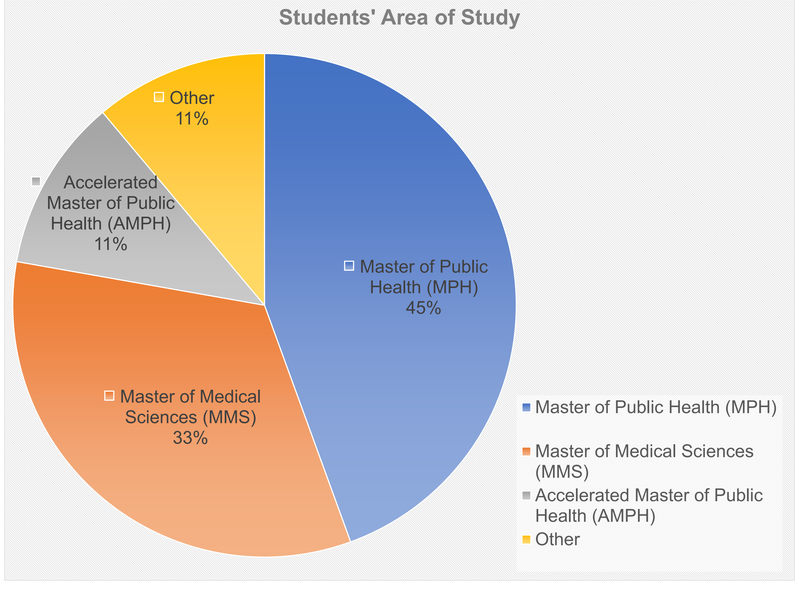
- Medline search generated 30 articles, of which only one described AR 360® as a tool:
  - With user friendly interface, an interactive, cost-effective, self-paced module platform
  - Determined to be effective in students' knowledge acquisition
  - Improved health profession students' confidence in specific biostatistical tests[1]

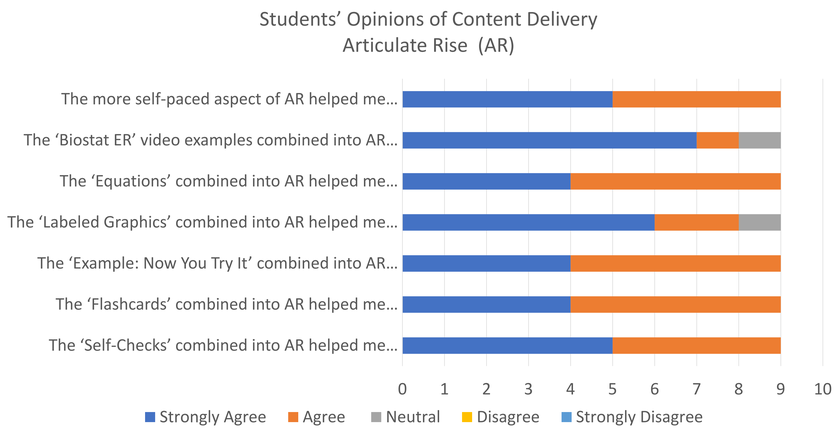
Objective II:

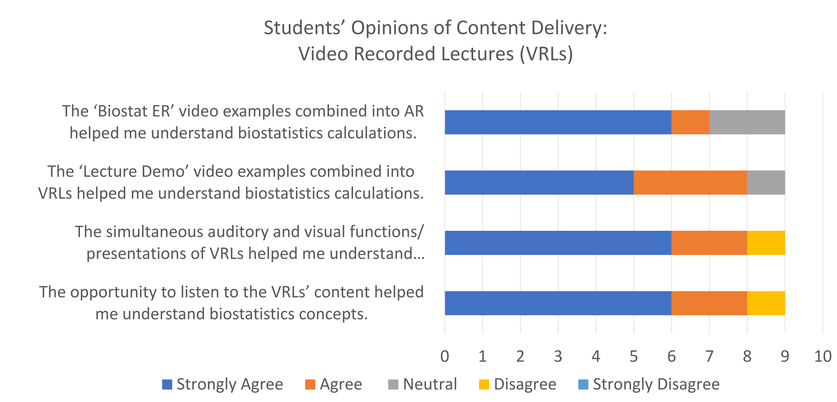
- AR benefits included elements of interactivity for students such as, integrated knowledge checks, flash cards, labeled graphics and equations
- AR allowed integration of short videos, such as a "Biostatistics ER," which is a video series created to enable students to watch the instructor work through specific biostatistics problem sets

Objective III:

- Of the 23 students enrolled in Biostatistics I, 10 responded, but 9 surveys were completed (response rate: 43.5%)
- Majority (44%) were enrolled in MPH program followed by MMS program (33%)
- Eight (8) students indicated that course was required for the area of study
- Students' attitudes, opinions, and perceptions for the two modalities appeared to be very similar, possibly due to similarities between content delivery methods. For example, AR allowed use of VRLs as well







Conclusions

- Information regarding the use of AR is limited. More research is needed to address this void
- AR appeared to be a valuable tool to teach an asynchronous, online quantitative course
- Interactive features of AR enabled an all-inclusive delivery of the course
- Students' attitudes, opinions and perceptions of AR were overwhelmingly positive
- Students' preferences overall favored both modalities: AR & VRLs

Reference:

1. **Hayes PM, Cherney A, Papanagnou D. An Interactive Module to Teach Common Biostatistical Tests to Learners in the Health Professions. Cureus. 2023 Mar 14;15(3):e36125.**

Primary Care Provider Perspectives on APSO Note Templates at the University of Vermont Health Network

Christensen HJ, Landis AR, Jacobs A, McEntee R, Sandoval M, and Maloney S

Background

•**Effective documentation** of patient encounters stands as a cornerstone of medicine. However, burdens of charting contribute to provider burnout and dissatisfaction.

•The SOAP (Subjective, Objective, Assessment, Plan) note template is considered the historical standard for capturing clinical information, but recently the **APSO (Assessment, Plan Subjective, Objective) note has emerged as a novel approach to organize patient data.**

•This study strives to **investigate Primary Care providers' experiences with the newly-introduced UVMHN APSO note template,** as well as examine redundancies, satisfaction, and the potential impact of the template on job satisfaction.

Methods

• Data was anonymously collected from **UVMHN Departments of General Internal Medicine, Family Medicine, and Pediatrics** providers utilizing a REDCap Survey, with questions co-opted from Lin, et al [1], and analyzed utilizing Excel and SPSS. Additional qualitative data was collected, specific to a **Pre-operative APSO Note Template during a focus group** held at UVMHN Colchester Family Medicine and coded for themes and their frequencies through a meeting recording and transcript.

• **45 / 241 (18.6%)** providers responded to the survey, and 5 providers participated in the focus group.

Survey Results

Question	Easy	Neutral	Difficult
Changing to writing in APSO format was:	**80.00%**	**16.67%**	**3.33%**
Writing in APSO Format is:	**90.00%**	**10.00%**	**0.00%**

Table 1: Respondent answers by percent for difficulty of switching to and writing in APSO format among respondents who write APSO notes (n=30)

Question	Easier (or) Faster with APSO	Neutral	Easier (or) Faster with SOAP
Finding clinically relevant data is:	***78.05%***	***17.07%***	***4.88%***
Browsing through notes is:	***78.57%***	***14.29%***	***7.14%***
The time it takes to write notes is:	***23.33%***	***73.33%***	***3.33%***

Table 2: Respondent answers by percent for ease of finding clinical data when browsing APSO notes compared to SOAP (Row 1), speed of browsing notes in APSO format compared to SOAP (Row 2), and time spent charting (Row 3) in APSO format compared to SOAP.

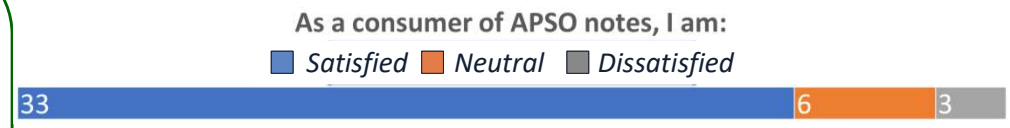
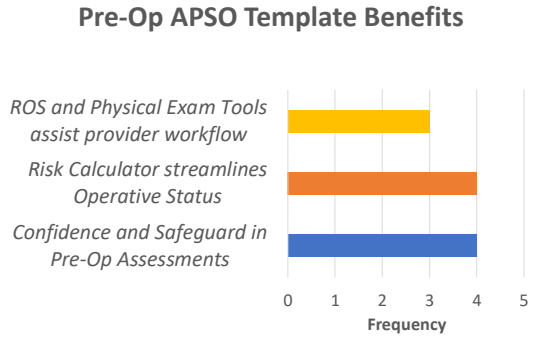


Figure 1: Proportion of consumers (n=39) of APSO note templates who express satisfaction, neutrality, or dissatisfaction with the template

Figure 2: Proportion of authors (n=30) of APSO note templates who express satisfaction, neutrality, or dissatisfaction with the template

Focus Group Results



Discussion

• Those surveyed are **very satisfied with APSO notes**. Users find writing and switching to APSO format very easy, and consumers remarked on the speed and ease of finding clinical data, while focus group data display the ability of APSO templates to streamline visit and instill providers with confidence.

• **However, subjective evaluation of time spent charting indicated little improvement with APSO**. APSO note templates may provide an opportunity to streamline both charting and reading notes, which are both sources of provider dissatisfaction[2], but more study to this end is required.

• Limitations of this study include a low response rate (18.6%) and lack of quantitative information (i.e., time spent physically writing notes) to confirm subjective responses.

References

1.Lin CT et al. Health care provider satisfaction with a new electronic progress note format: SOAP vs APSO format. JAMA Intern Med. 2013 Jan 28;173(2):160-2.

2.Hultman GM et al. Challenges and Opportunities to Improve the Clinician Experience Reviewing Electronic Progress Notes. Appl Clin Inform. 2019 May;10(3):446-453.

Supported by HRSA U77 HP03624 and the VT AHEC Scholars Program, focus area Medical Practice Transformation

Producing New High-Resolution Anatomy Education Videos for FoCS

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The University of Vermont LARNER COLLEGE OF MEDICINE

THE TEACHING ACADEMY UVM LARNER COLLEGE OF MEDICINE

UVM ANATOMICAL GIFT PROGRAM

2020 Videos for Anatomy Courses

COVID-19 created an opportunity to approach the anatomy curriculum through video-based remote learning

- Faculty created 36 educational videos, each 15-40 min, on different anatomical regions of an expertly dissected cadaveric donor.
- Atlas images, diagrams, and arrows were added in post-production to enhance understanding (Fig. 1)
- Videos allowed masters of medical science, physical therapy, and medical students to view anatomical structures they would have learned in a traditional cadaver[1] dissection in a format that the current generation often prefers and has become accustomed to.[2]

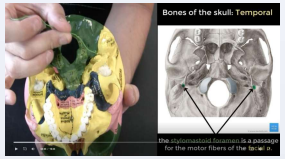


Figure 1: Still from the 2020 video series.

After returning to in person (pre-pandemic) style learning, videos have been an optional tool

- Videos were well-received and continue to be a frequently used resource to prep for dissections and review for practical exams (Fig. 2)
- Meta analysis supports usage of videos along with dissection and active learning as effective for long term retention.[3]

Figure 2. Student responses regarding their use of anatomy dissection videos from 2020-2023. Most students report using the videos frequently

Why Create New Videos?

Reason 1: Video Quality Improvement

- Original videos were produced on a short timetable during the COVID-19 pandemic with limited experience and resources (Table 1)
- New Videos- scripted narrations, improved camera equipment (Fig. 3, Fig. 6), comprehensive review of tested material will improve learning efficacy

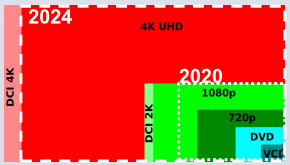


Figure 3: Comparison of image resolution. Previous videos were shot at 1080p with a 4:3 aspect ratio (1440 x 1080 pixels, dotted lines). Our new equipment is capable of shooting 4k (3840x2160 pixels, dashed lines) in the 16:9 aspect ratio used by newer displays.

Reason 2: Original videos were intended only for ANNB 300

- 6-week class for physical therapy and masters of medical science
- Majority of Medical students utilize these videos frequently for their anatomy course (Fig. 2), and videos do not align with their anatomical curriculum which causes confusion.

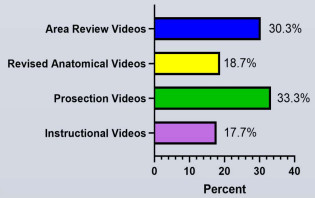


Figure 4: Videos describing lab prosections and videos reviewing content for exams are the most requested videos by the Class of 2027, based on FoCS Course Evaluations.

- Four dissections are also no longer completed by students due to scheduling and space constraints
- New videos can reproduce these dissections as video tours of pre-dissected specimens (prosections) – the most frequently requested type of video among medical students in 2023 (Fig. 4)

Improved Approach to Video Production

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

$**5,628.64** in new equipment and resources

Goals: 1. Produce guided tour videos of prosected donor anatomy
2. Revise and update past videos
3. Film an instructional dissection guide for all anatomy classes

Production of Pelvis and Perineum Prosection Tour Videos

- New equipment was obtained from B+H Photo (Table 1)
- Scripts were prepared to address pertinent anatomical details including pelvic viscera, neurovasculature and ligaments; structures that students would be tested on during their anatomy exams and in that way are uniquely specific to the UVM Larner College of Medicine anatomy curriculum.
  - Students reviewed current videos and noted structures identified in each video and areas that videos could be improved.
  - Students also began to transcribe previous videos featuring dissection instructions, in preparation for filming a new video series

	2020 Video Series	2024 Video Series
Camera	Canon CMOS-HD, Hand-held HD camcorder, 1080p resolution	NIKON Z6 ii- Full frame mirrorless camera, 4k resolution
Lenses	Built-in 5-56 mm F1.8 lens	• 24-70 mm F2.8 lens • 105 mm macro lens
Lighting	Incandescent supplemental lab lighting	Two Dracast X Series LED500, Daylight LED Panel lights
Mic	Camcorder microphone	• Camera microphone • Blue Yeti microphone for narrations
Narration	Largely improved based on structure lists and prior instruction	Collaborative effort by course director, instructors, and students to develop and proofread scripts
Video Editing	Camtasia 2020, hosted locally on UVM Streaming	Camtasia 2023, hosted locally on UVM Streaming, while exploring platforms for wider audience

Table 1: Comparison of methods used to develop 2020 video series for ANNB 300 Human Gross Anatomy compared to methods used to develop new videos in 2024.

Figure 5: Filming set up to produce new high resolution anatomy videos. One team member demonstrates structures on a dissected specimen or model while the other operates the camera. Other team members help reposition specimens and organize filming. iPads and whiteboards are used for notes and cue cards.

Discussion

Enhancing Video Based Pre-learning at Larner College of Medicine

- We aim focus our efforts on the production of prosection videos as well as area review videos, based on FoCS course evaluations (Fig. 3). Dissection instructional videos will also be made as time permits.
- Video resources are increasingly favored over other learning modalities, and often expected by this generation of medical students[2]
- Videos are a valuable study aid for practical exams, familiarizing students with cadaveric structures that may be tested and effective for retention.[3]

Pelvic Anatomy Guided Tour Videos for LCOM Anatomy Course

- **Goal:** *To provide a self-guided tour of the gross pelvic anatomy on the prosected donors*
- Current focus: orientation, major viscera, and ligaments in the male and female pelvic cavities

Improving resolution of UVM's in-house videos

Figure 6: Stills from videos by UVM's anatomy educators throughout the years. Improvements in cameras and lighting increase the utility of the videos.

Future Directions

Current Filming Goals

1. Prosection Tour Videos for FoCS (LCOM)
   a. Additional materials will be recorded for the neurovasculature and muscles of the male and female pelvic cavities.
2. The videos will be narrated and edited
3. Filming continues for additional Tours (*see right*)

Videos Tours to Film:

1. Pelvis and Perineum
2. Spinal Cord
3. Foot
4. Pterygopalatine fossa

Areas to Expand

- Given the workload, it is essential to grow a community of faculty and students involved in video production
- Continue collecting empirical data to determine the most effective content creation to supplement anatomy curriculums
- Connect with media production groups at UVM
- Collaborate with anatomy departments at other medical schools to grow and improve future media creation efforts

References

1. Ghosh, S.K. (2017). Cadaveric dissection as an educational tool for anatomical sciences in the 21st century. American Association of Anatomists. 10: 286-299
2. Barry DS, Marzouk F, Chulak-Oglu K, Bennett D, Tierney P, O'Keeffe GW. Anatomy education for the YouTube generation. Anat Sci Educ. 2016 Jan-Feb;9(1):90-6. doi: 10.1002/ase.1550. Epub 2015 Jun 9. PMID: 26061143.
3. Wilson AB, Brown KM, Misch J, Miller CH, Klein BA, Taylor MA, Goodwin M, Boyle EK, Hoppe C, Lazarus MD. Breaking with Tradition: A Scoping Meta-Analysis Analyzing the Effects of Student-Centered Learning and Computer-Aided Instruction on Student Performance in Anatomy. Anat Sci Educ. 2019 Jan;12(1):61-73. doi: 10.1002/ase.1789. Epub 2018 Apr 16. PMID: 29659155.
4. Video links available to UVM faculty and students for screening upon request (NJ- njebbett@uvm.edu)

We graciously acknowledge the many donors whose anatomical gifts made our medical education possible through the UVM Anatomical gift program

Preparing for Boards and Beyond: Focused Anatomy Workshops

Ian C. Minearo, MS1[1]; Abigail Hielscher, PhD[1,2]; Anna Ricci, PhD[1,2]
The Robert Larner College of Medicine[1], Department of Neurological Sciences[2]

Introduction

- At UVM Larner College of Medicine (UVM LCOM), medical students do not receive additional formal anatomical instruction after their first five-month course upon matriculation.
- Students generally remarked on wishing they had more anatomy study, and surveys of UVM LCOM medical student body showed broad support of regular optional anatomy review sessions.
- Goal of this study:
  - Provide medical students with a resource to regularly review high-yield anatomical content to improve retention for classes and to prepare for Step 1 and clerkships.

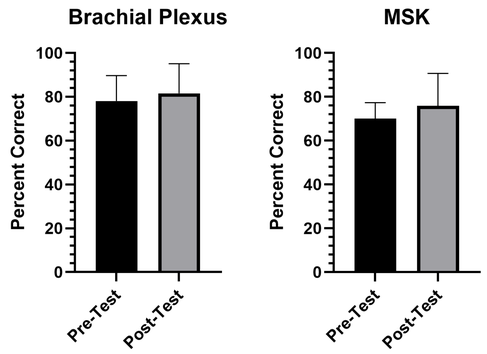
Methods

- Anatomy review sessions targeted 2nd-year medical students. There were three 1-hour sessions delivered by anatomy faculty as workshops or integrative reviews.
- Qualtrics was used to administer pre- and post-tests quizzes which assessed students' content knowledge, and a post-session survey which assessed satisfaction with session delivery.
- Results from the pre and posttests for the first two sessions (n=9 and n=16, respectively) were analyzed with GraphPad Prism v9 using a paired t-test. The third session was excluded due to small sample size (n=2).
- Qualtrics was used to survey 124 1st-year medical students. Questions inquired about the format, frequency, and perceived helpfulness of sessions.
- The Institutional Review Board reviewed all test and survey questions and determined these exempt from full review.

Conclusion and Future Directions

- While the results reflect immediate benefit of the sessions, long-term advantage for board prep is still to be determined by surveying medical students post-board exam.
- We plan to provide monthly workshops with Step style questions on content corresponding with current courses.
- We anticipate these sessions will provide a resource for students when studying for board exams as well as improve retention of critical anatomy concepts.

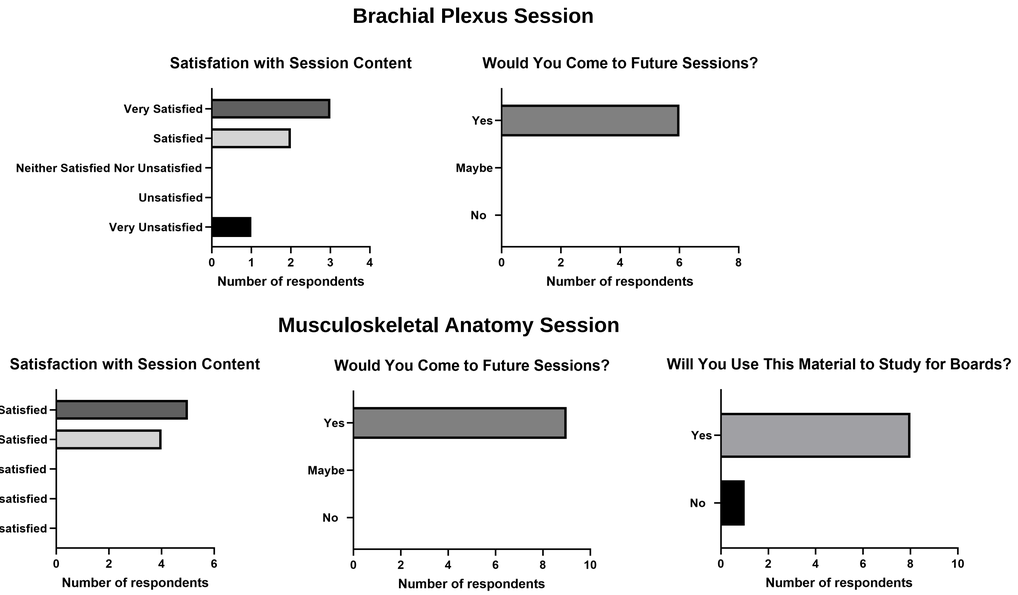
Pre- and Post-Quiz Results



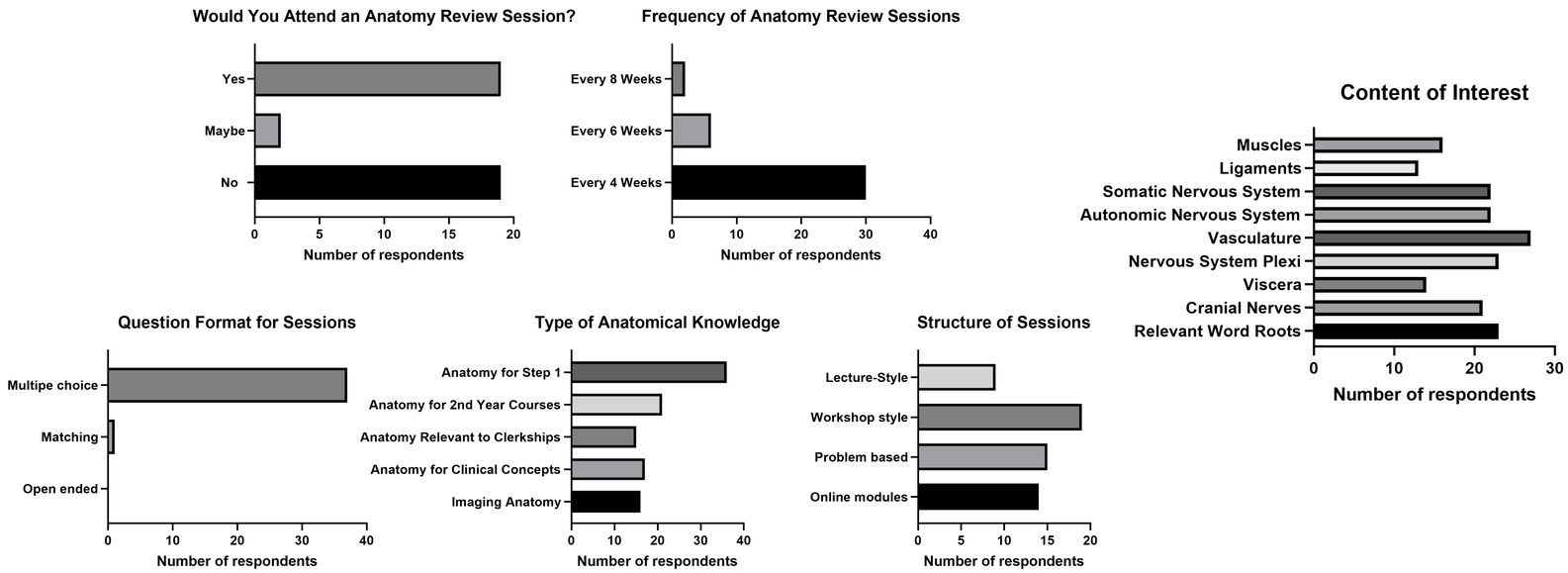
Brachial plexus session had a pretest average of 78.1 and posttest of 81.6 (p=0.3). MSK session had a pretest average of 70.0 and posttest of 75.9 (p=0.58).

Overall, while students performed better on the post-test quizzes, there were no statistical differences between pre-test and post-test scores.

Post Session Survey Results



Survey Results of Current First-Year Medical Students



M1 students (class of 2027) were given the opportunity to respond to a questionnaire requesting information on the structure and content of future anatomy review questions. A total of 38/122 students responded to the questionnaire for a response rate of 31%.

The majority of respondents indicated that anatomy review sessions should occur on a monthly basis and should ideally be taught as a workshop where content is introduced and students have the opportunity to test their knowledge using multiple choice questions. The majority of respondents also indicated that review sessions focusing on anatomy for Step 1 would be most desirable. In some cases, respondents could select multiple components in the questionnaire (content of interest, structure of sessions and type of anatomical knowledge).

Assessing the impact on medical students of identifying and recognizing faculty exemplars of professionalism

The University of Vermont
LARNER COLLEGE OF MEDICINE

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1) Larner College of Medicine at the University of Vermont

Background

- Role models play an integral role in shaping medical students' professional development, and the influence of role models (both positive and negative) often manifests as part of the hidden curriculum (1).
- To increase awareness of the impact of positive role models, the Larner College of Medicine (LCOM) has implemented a professionalism recognition program through which students can identify faculty, staff, and peers who best exemplify the values of the profession.
- Prior qualitative analyses of accolade narratives at LCOM have identified common themes, and data have been collected on the impact on faculty recipients of professionalism accolades (2).
- In this study, we investigated students' feelings associated with submitting a professionalism accolade.
- We hypothesize that students will be positively impacted by engaging in the process of recognizing professionalism role models and that this action will in turn contribute to students' awareness and integration of the values of professionalism.

Description of Project

Primary objective: To determine the impact on students' feelings immediately following the submission of a professionalism accolade.

Methods

- Three questions were added to LCOM's existing Learning Environment Reporting Form, a form through which students can submit either concerns of unprofessional behaviors or professionalism accolades. These questions gauged students' feelings after writing a professionalism accolade.

> Compared to how you were feeling when you first started filling out this form, did writing a professionalism accolade change your feelings at all?
> - Yes
> - No
>
> If you answered yes above, how did your feelings change?
> - I felt better
> - I felt worse
>
> Please list 2-3 emotions that best describe how you feel after having just submitted a professionalism accolade.

- Initial responses from students submitted between 12/7/23 and 1/9/24 were collected and analyzed.

Results

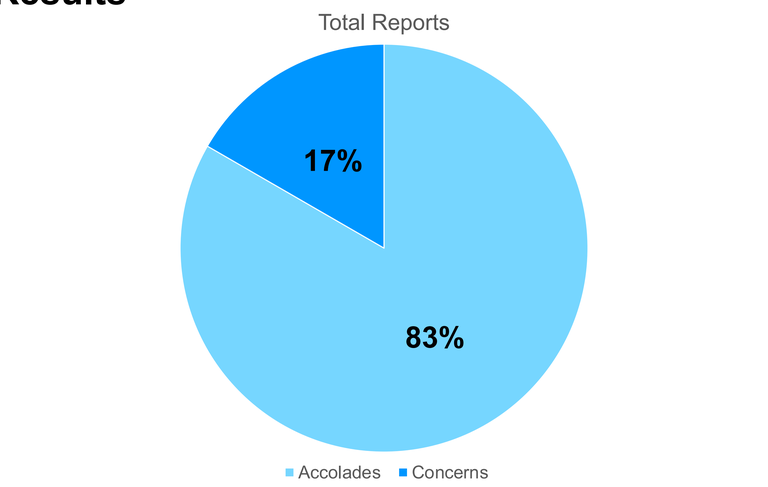

Fig. 1. Ratio of total number of accolades submitted to total number of concerns submitted during the data collection period. Every respondent who submitted an accolade completed our survey questions.

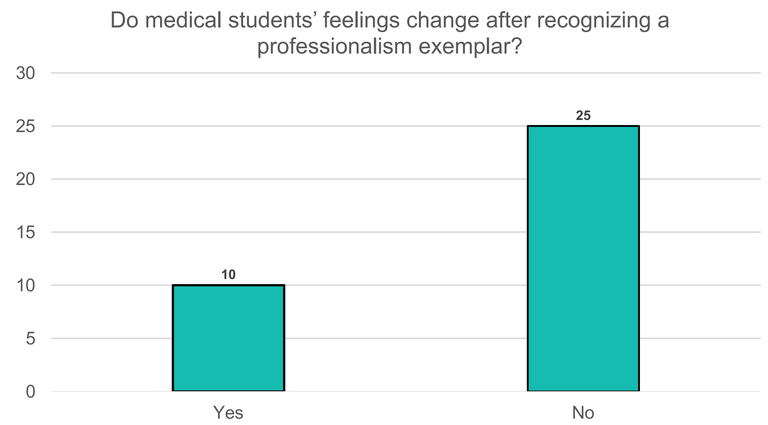

Fig. 2. Student responses on if their feelings changed after submitting a professionalism accolade.

Fig. 3. Word cloud created from open-ended student responses about their emotions after submitting a professionalism accolade.

Discussion and Conclusions

- 28.6% of respondents reported that their feelings changed after writing a professionalism accolade (Fig. 2). The majority of respondents reported no change.
- 100% of the respondents who experienced a change reported feeling better after submitting a professionalism accolade. Open-ended responses were also overwhelmingly positive (Fig. 3).
- The positive shift in feelings appears to indicate that engaging in the process of recognizing professionalism role models can have a beneficial impact on medical students and may help foster a positive learning environment.
- During the data collection period, five times the number of professionalism accolades were submitted compared to concerns (Fig. 1).
- One limitation of our data is the fact that certain responses may be overrepresented, as medical students surveyed in our collection period may have submitted more than one accolade and therefore more than one survey.
- Future directions of this project include:
  1) Continued data collection over a longer time period to assess the effect of recognizing professionalism exemplars in a larger group of students
  2) Analysis of feelings after writing a professionalism concern (data collection ongoing)

Citations

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"Where Does My Feedback Go?": Increasing transparency of how medical student-provided feedback is addressed

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Background

- Feedback provided by medical students is an integral part of the continual development and improvement of the curriculum at the Larner College of Medicine (LCOM).
- The process of how student-given feedback is analyzed and considered at LCOM is often unclear to students, which has multiple implications (e.g., lack of confidence among students that their feedback is being reviewed, lack of student engagement in the process, poor-quality feedback).
- There is a paucity of published literature on the impact of feedback transparency on the quality of student feedback. Instead, most studies focus on feedback given to, not by, medical students.
- This project aims to address an area of medical education until now unexplored in detail.

Description of Project

Objective 1: Determine what happens with feedback submitted by Foundations (preclinical) and Clerkship level medical students at LCOM.

Objective 2: Compile information on the feedback review process and summarize it into an easily accessible format to clarify how student feedback is considered and addressed, and to increase transparency around the review process.

Methods

- Information about the Foundations level student feedback review process was gathered through conversation with the Director of Foundations and the Associate Dean for Faculty Affairs.
- Information about the Clerkship level student feedback review processes were gathered by surveying the Clerkship directors using the Qualtrics platform. Questions pertained to identifying the feedback reviewers, the timing of such reviews, the process for making changes based on feedback, and the distribution of faculty and resident feedback.

Results: Foundations Level Feedback

- There is a standardized approach for the evaluation and integration of feedback in the Foundations level (Fig. 1).
- Course and faculty evaluations are reviewed by multiple groups (Fig. 1) and contribute to changes for the next academic year.

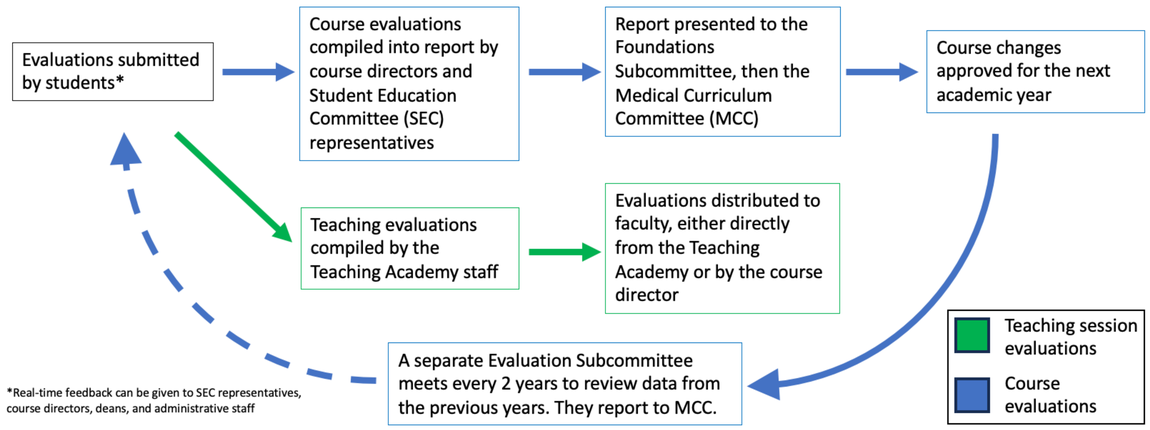

Fig. 1. Flow chart demonstrating how course evaluations (in blue) and teaching session evaluations (in green) are analyzed and considered in the Foundations level.

Results: Clerkship Level Feedback

- All clerkship evaluations are, at a minimum, reviewed by the clerkship directors but may be reviewed by additional administrators and faculty. The timing of feedback review (Fig. 2) and distribution (Fig. 3) is variable across clerkships.
- Small changes based on feedback can be integrated in real time if possible. Otherwise, large changes are made for the subsequent years pending approval by the Clerkship Committee.

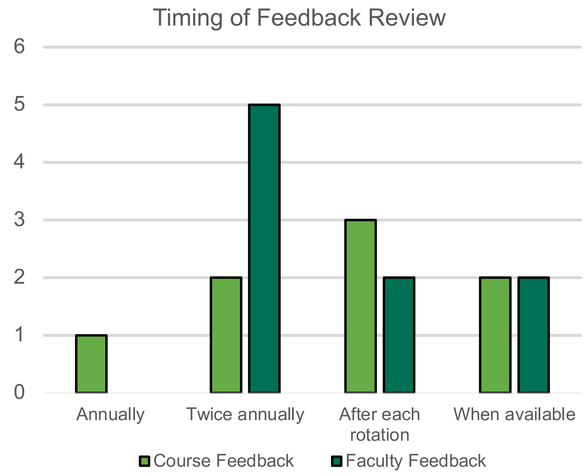

Fig. 2. Responses from the clerkship director survey regarding the timing of course feedback review (n=8) and faculty feedback review (n=9).

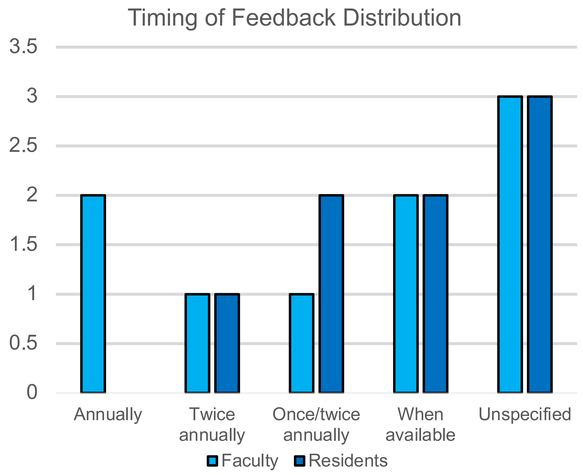

Fig. 3. Responses from the clerkship director survey regarding the timing of distribution of feedback to faculty (n=9) and to residents (n=8).

Conclusions

- The process of analyzing and considering feedback in the Foundations level at LCOM is standardized across courses. At the Clerkship level, there is much variability in the way in which student feedback is analyzed and considered across clerkships.
- This variability stems from the fact that feedback is handled independently by each clerkship department.
- Standardization of this process across departments at the clerkship level would likely improve transparency of the process and allow for more consistent implementation of changes and delivery of feedback to faculty and residents.
- Future directions include assessing student knowledge about the purpose and importance of providing quality feedback to faculty and ultimately evaluating whether greater transparency impacts the quality and validity of student evaluations.

A Student-driven Model For Quality Assurance and Innovation in Medical Education

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PROJECT GOALS

1. Illustrate the structure of the Student Education Committee (SEC) and its role in medical education at the UVM Larner College of Medicine.
2. Demonstrate how the implementation of the SEC has impacted preclinical courses.
3. Provide examples of SEC-member-led projects in various levels and areas of the curriculum.

ABSTRACT

- The Student Education Committee (SEC) is a student leadership group comprised of five elected students from each class with oversight from the Senior Associate Dean for Medical Education and staff support from the Curriculum Manager.
- The committee serves as a liaison between the student body and faculty to provide a unified perspective on the student experience with the Vermont Integrated Curriculum (VIC).
- The group brings pertinent educational issues to the attention of faculty and course directors. SEC representatives are encouraged to identify opportunities for curricular enhancement and lead initiatives that improve the quality of medical education for medical students.
- According to the AAMC 2022 YQ2 survey, 83.0% of 2nd-year medical students agree or strongly agree to be satisfied with their medical education. While 69.8% reported satisfaction with academic counseling, 75.0% with student tutoring support, and 73.3% with faculty mentoring.[1]
- The discrepancy between overall medical education satisfaction and opportunities for improvement in the education experience highlights the benefit of student-led medical education committees.
- SEC implements student-driven initiatives to close the gap between overall medical education satisfaction and student identified areas of improvement within the LCOM curriculum and the education experience for students.

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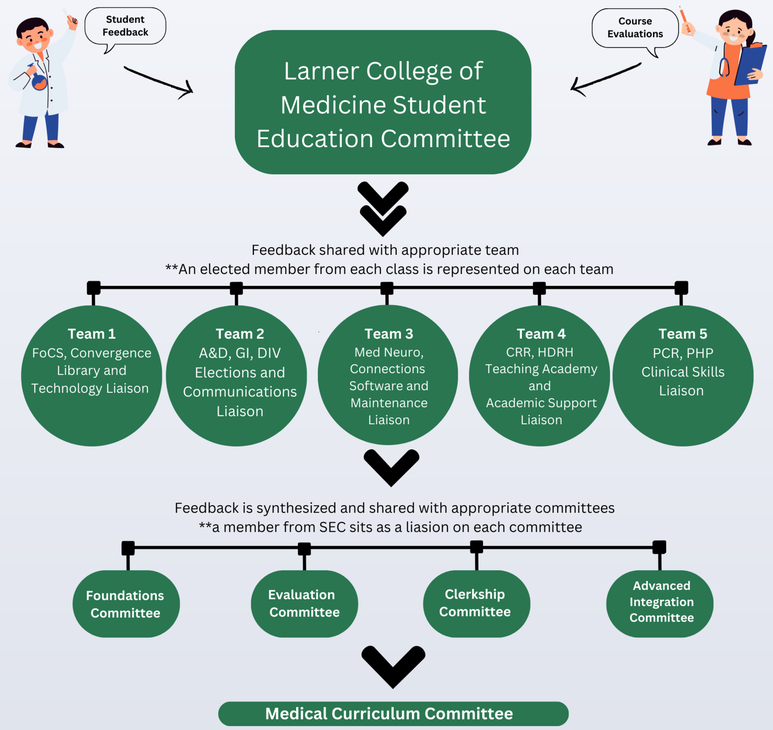

Figure 1. Feedback collection and integration at the Larner College of Medicine.

STUDENT-LED PROJECTS

IMPACT

CURRICULA (Medical Neuroscience)

- The implementation of SEC has paved the way for improvement in course delivery and student satisfaction.
- SEC involvement in the Medical Neuroscience course allowed for the course director to gain student feedback in real-time, adjust goals from previous years, and implement necessary changes noted from SEC in the Quality Assurance Report (Figure 2).
- This collaboration led to an increase in the overall assessment of the course, and clarity and effectiveness of course objectives.

Parameter (0 to 5)	2023 (112)	2022 (108)	2021 (123)	2020 (121)	2019 (96)
Overall Assessment	4.3 ± 0.9	3.6 ± 0.9	3.5 ± 1.0	2.35 ± 1.05	3.1 ± 1.11
Clarity of Course Objectives	4.5 ± 0.8	3.9 ± 0.8	3.9 ± 0.9	2.63 ± 1.14	3.68 ± 0.85
Course activities were effective in meeting objectives	4.5 ± 0.7	3.9 ± 0.7	3.8 ± 0.9	2.94 ± 0.2	3.58 ± 0.93
Faculty showed respectful interactions	4.8 ± 0.5	4.9 ± 0.3	4.8 ± 0.5	4.57 ± 0.77	4.65 ± 0.58
Examination questions were effective in assessing knowledge of objectives	N/A	4.0 ± 0.8	4.0 ± 0.9	3.46 ± 0.89	3.22 ± 1.09
RQs/IRQTs/FQs were effective	N/A	4.0 ± 0.8	3.9 ± 0.9	3.51 ± 0.98	3.74 ± 0.96
Course increased understanding of how diversity, equity and inclusion relate to the practice of medicine	4.06 ± 0.9	3.6 ± 1	3.6 ± 0.9	N/A	N/A

Figure 2. Improvement in medical neuroscience student evaluations from 2019-2023.

STUDENT-LED PROJECTS (Anatomy-Radiology)

- SEC-developed project leading to early exposure and increased experience with imaging modalities, increasing student familiarity with radiologic studies prior to entering clerkship year.
- Through the Anatomy-Radiology integration project, six case-based active learning sessions were implemented into the M1 curriculum. Increased practice with radiology was perceived to be helpful in strengthening retention of anatomy material.

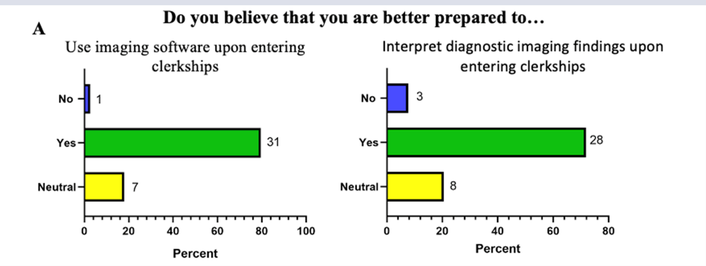

Figure 3. Poll results from class of 2026 students after implementation of radiology curriculum in anatomy.

FUTURE DIRECTIONS

- Increase involvement within the clerkship and fourth year curriculum to improve the curricular experience beyond the pre-clinical level
- Continue participating at regional and national conferences to connect with similar groups at other institutions
- Provide a template for the creation of student-led leadership groups focused on curricular enhancement and their integration within medical school education committees

Sorting Games in Graduate and Undergraduate Medical Education

Zoe Nicozisin[1] & John Wax[1,2]

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Introduction

Game-based learning in medical education can enhance learner collaboration, engagement, and analytic and clinical decision-making capacity (Xu et al., 2023). Gamification in medical education incorporates elements of risk-taking, value assignment, or competition into interactive sessions that explore learning objectives through collaborative decision making – sorting tasks are one example.

Significantly improved knowledge acquisition has been attributed to interactive game-based education (Lynch et al., 2023) in addition to stimulating students' personal motivations to learn (Xu et al., 2023).

The UVM palliative care fellowship's academic half-day and the Professionalism, Communication & Reflection (PCR) course within Larner College of Medicine are both appropriate educational environments for sorting games. Specifically, workshops in both programs are process-oriented, involve facilitated small group discussion, and have assigned prework. We present several examples of sorting-games that have been implemented within these courses over the last two years. Further, we explore advantages and disadvantages of game-based learning at the University of Vermont with a survey of palliative care fellows.

Methods

Elements that contribute to an engaging sorting game:

- Identify an area of medical decision making that requires categorization or value-assignment (e.g. triaging consults, patient selection for medical interventions, comparing pharmacologic properties of medications)
- Small groups that promote active participation (2-4 participants per group)
- Sufficient prework or "just-in-time" information to resolve sorting challenges
- Physical cards or game pieces
- Embracing randomness or surprise: for example, drawing from a shuffled deck or participant-generated prompts
- Scoring or low-stakes competition
- Quick turn-taking followed by discussion (agree/disagree, point stealing, betting, confidence rating)
- Scaling difficulty or adding complexity. For example: "what if this patient also had end-stage renal disease?"
- Timely, expert feedback

Survey Methods:

- Current palliative care fellows and recent graduates were surveyed via email regarding the value of sorting-games as an educational modality. Fellows were were asked to describe advantages & disadvantages of sorting games and rate their level of engagement with a sorting game compared to a didactic lecture on a five-point scale.

Examples of Sorting Games

Title & Participants	Selected Learning Objective	Tools	Sorting Bins or Strategy
Clinical use of Methadone PC Fellows	Identify Patients who are appropriate or inappropriate candidates for pain management with methadone	Deck of cards containing brief patient vignettes; ex. "multiple myeloma and a prognosis of less than two weeks" or "comorbid, active substance use disorder"	Organize drawn cards into "indicated", "neutral", "inappropriate/caution", "absolute contraindication" (ver 2)
Opioid Pharmacology Review, Game 1 PC Fellows	Recall differences between methadone and fentanyl pharmacology	Deck of cards containing pharmacologic properties; ex. "highly lipophilic", "OK in End-stage renal disease", "induces its own liver metabolism"	Organize drawn cards into either "methadone only", "both", or "fentanyl only"
Opioid Pharmacology Review, Game 2 PC Fellows	Practice opioid conversions and calculations	Deck of cards containing quiz questions or opioid conversions; ex. "Convert a stable 20mg OxyContin BID to a TD fentanyl patch" or "why can buprenorphine films be cut but TD fentanyl cannot?"	Participants draw 3 cards into their hand, take turns answering the question they feel most confident resolving and can replenish their hand by "stealing" a card from their neighbor or draw from the deck
Triaging Palliative Care Consults PC Fellows, Regional Retreat	Apply a triaging system to prioritize clinical cases; effectively utilize an interdisciplinary team	Deck of cards containing "consult requests". For example: "67 yo woman with history of pulmonary fibrosis, stroke 2 months ago leading to significant cognitive and functional decline. She is re-hospitalized with pneumonia and now actively dying. Team feels symptoms are controlled yet her wife is requesting a palliative care consult."	Each group ordinally sorts three vignettes based on consult priority. They would then draw a new card and incorporate it into their established triage list (simulating the experience of receiving additional consult-requests over the course of the day); Next, they matched or "deploy" a limited number of interdisciplinary team members to address the most urgent consults
Financing Medical Care MSII Students, PCR	Explore how social determinants of health impact medical care	Patient vignette pairs and paper "money": Each pair of vignettes contains an identical medical decision; however, each has different social determinants of health and different amounts of "money" to spend.	Each student receives a patient vignette and a "savings account" represented with paper money. The vignette contains a social and medical history followed by a list of monthly expenses and costs of a new medical care diagnosis. Students are asked to decide, with their "savings", which expenses to pay for. After individual sorting, students find their vignette pair, and discuss the learning objectives.
Icebreaker for "Careers in Medicine" MSII Students, PCR	Start discussion about choosing a career in medicine	Students generate cards with two opposing statements in a game of "would you rather": e.g. "would you rather see 20 patients in 4 hours or see 2 patients for 4 hours?"	After placing a card from the deck on the table, students place a game token on the side that best describes their preferences – this creates a rapid-fire poll and stimulates discussion

Survey Results

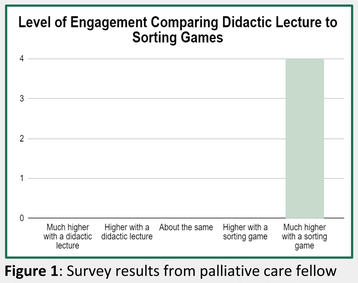

Figure 1: Survey results from palliative care fellow physicians comparing engagement levels with didactic lectures compared to nominal sorting games

Reported advantages to sorting games: interactivity, high engagement, collaboration opportunity, and helps the facilitator effectively assess and address knowledge gaps.

Reported weaknesses to sorting games: requires preparatory material to be effective, need for sufficiently narrow learning objectives, may introduce inefficiency, and participants may experience of performance anxiety.

What are the advantages to using a sorting-game during an educational workshop?

"The biggest advantages were my engagement with material, allowing me to work collaboratively, and forcing me to grapple with the material itself."

"Having something hands on to work with was incredibly helpful and kept my attention focused."

"Allows educator to tailor her talking points to knowledge gaps."

"Allowed us to bounce ideas off each other, learn from the other's experience."

Discussion and Limitations

Game-based education is an exciting teaching strategy that can enhance medical learning at various training levels; however, it may be underutilized. Within our survey, palliative care fellows found sorting games to be an engaging approach to supplement other types of workshops. Within the survey, they reported that disadvantages were generally outweighed by the benefits of this teaching modality.

For sorting-games to be effective, learning groups need to be an appropriate size, and adaptable to last minute attendance changes; learners need to have some prior exposure or just-in-time education on a subject matter; and there must be sufficient time to explain game rules and resolve disagreement within teams.

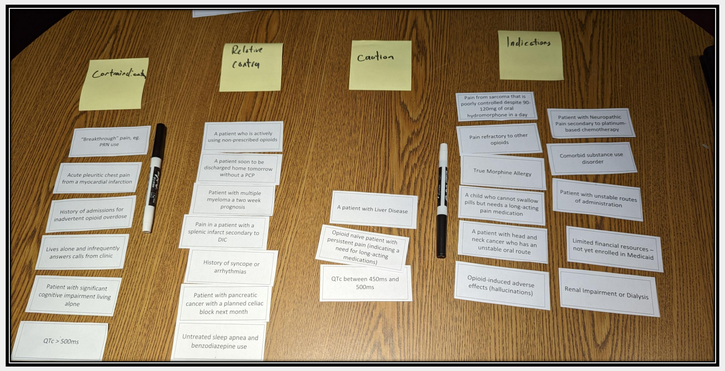

Image 1: Abbreviated patient descriptors sorted by palliative care fellows and a rotating internal medicine resident. Organization is based on relative benefit and risk of using methadone as a long-acting pain medication. Each card was placed by a fellow who then sought agreement/disagreement from the group. Cards were finally sorted once consensus was reached and with input from faculty.

Our survey may not be generalizable: limitations include focus on GME students in a single fellowship and a small sample size which compared an active-learning to a passive-learning approach. Next steps could involve piloting sorting games for other fellowship or residency programs, refining & disseminating PCR games to other PCR small groups, measuring retention of core concepts, or comparing levels of engagement between sorting games and other active-learning modalities such as problem-based learning.

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Trauma-Informed Care as a Universal Precaution: An Educational Intervention for Pre-Clinical Medical Students

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BACKGROUND

Trauma-informed care (TIC) is a universal framework that hinges on patient autonomy, safety, and trust designed to deliver respectful care while avoiding trauma or re-traumatization. The negative health impacts of trauma, particularly adverse childhood events (ACEs), are well-researched and widely taught. Many patients will not disclose their trauma due to lack of opportunity or rapport with the provider. As such, providing medical providers with the tools to treat every patient with trauma-informed care improves patient care overall. The goal of this education session was to create a curriculum to improve understanding and utilization of TIC as a universal precaution.

METHODS

An educational session on TIC was developed for and taught to third-year medical students the week before beginning their clinical rotations. It began with a lecture to describe the background and basic principles of TIC, followed by group learning to practice skills. At the end of the session, the instructor modeled trauma-informed responses to real life patient scenarios. The session was taught by a clinical psychologist with expertise in TIC. Effectiveness of the session was evaluated with a survey that was distributed before and after the session to gauge student comfort with the TIC patient interaction. The survey used a 5-point Likert scale measuring comfort in 6 domains:

- Defining basic principles of TIC
- Recognizing common stress reactions and symptoms
- Collecting pertinent history without asking re-traumatizing questions
- Responding to trauma disclosures
- TIC patient interaction overall

To improve the session further, students were given the option to provide open-ended feedback in the post-course survey.

RESULTS

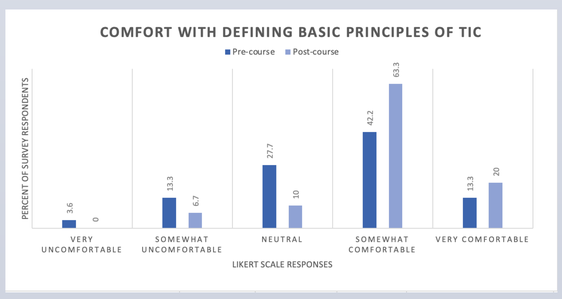

Figure 1. Comfort with Defining Basic Principles of TIC

RESULTS

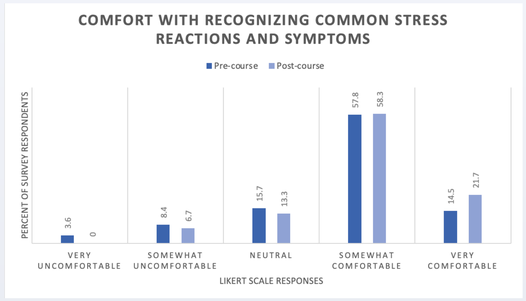

Figure 2. Comfort with Recognizing Common Stress Reactions and Symptoms

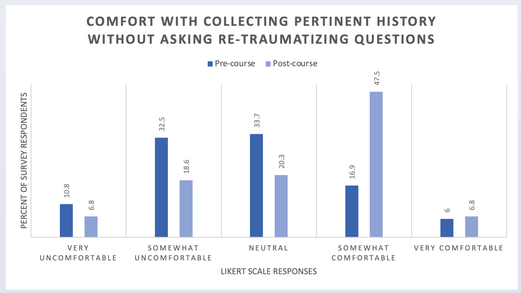

Figure 3. Comfort with Collecting Pertinent History without Asking Re-traumatizing Questions

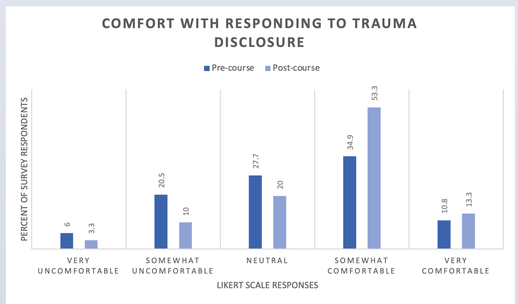

Figure 4. Comfort with Responding to Trauma Disclosures

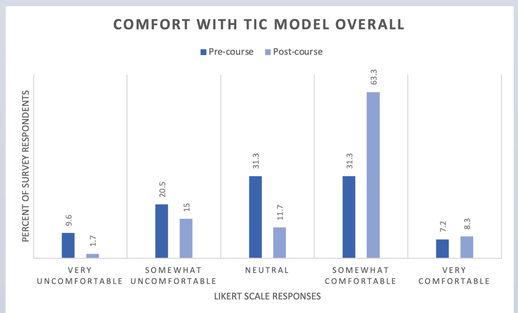

Figure 5. Comfort with the Trauma-Informed Care Model Overall

RESULTS

Students entered the session relatively comfortable with defining basic principles of TIC (Fig 1) and with recognizing common stress reactions and symptoms (Fig 2). The session increased student comfort with TIC across all domains. The greatest increase in comfort level was with the TIC patient interaction overall (Fig 5). Student comfort with asking pertinent history questions and responding to trauma disclosure were relatively low prior to the TIC session (Fig 3 and Fig 4). In open-ended feedback, students commented they felt the session was important for their education and requested more practice with simulation or case-based learning.

STUDENT QUOTES

"This was one of the best sessions of my medical school career. The speaker was extremely effective. Her engagement of the class was impressive…I would love to learn and work with this person more in the future."

"I think that the session was very important for our clinical skill building, however I think [it] would be improved with more time to practice and ask questions."

"…[it would be helpful to have] an in-person lecture and then a doctoring skills formative round in conducting a patient interview, practicing comfort with trauma-informed patient interactions."

CONCLUSION & FUTURE DIRECTION

Student responses encourage continued TIC education and provide constructive feedback for tangible course improvements for future medical student classes. In future sessions, we plan to shift focus away from areas in which students were initially comfortable (defining TIC, recognizing common stress reactions and ACEs). Instead, we plan to increase the time spent in small groups practicing TIC techniques with examples of trauma-informed responses guided by the facilitator.

RESOURCES

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Finding Affinity and Mentorship (F.A.M.): Development of an Interprofessional Mentorship Program for BIPOC Health Professions Students

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The University of Vermont LARNER COLLEGE OF MEDICINE
THE UNIVERSITY OF VERMONT COLLEGE OF NURSING AND HEALTH SCIENCES

Background

- An important strategy to address health inequities is to establish a more diverse healthcare workforce
- Programs that seek to retain and support healthcare trainees and faculty from underrepresented in medicine (UIM) groups are critical
- In the "cluster mentorship" model, a small group of mentors is formally assigned to a larger group of mentees to form a pod or “cluster”

Objectives

1. Promote a sense of belonging for BIPOC mentees and mentors
2. Improve mentorship skills for BIPOC mentors

Methods

Program Development

- Informal needs assessment survey sent to BIPOC student affinity groups to inform program structure
- Baseline "Sense of Belonging" survey distributed to 1st year medical students and 3rd year nursing students; see Table 1
- Mentors and mentees recruited and assigned to different "clusters" (Figure 1)
- Baseline "Sense of Belonging" survey and Mentor Competency Assessment completed by BIPOC mentors
- Program launched in Fall 2023

Interventions

- *Meetings*: Monthly meetings for each cluster covering different topics (i.e. culture shock, professional identity, interprofessional relationships)
- *Social events:* Quarterly social/community building events drawing on existing BIPOC community-building infrastructure
- *Mentorship skills development:* Two-part mentoring workshop, content including fostering well-being, promoting professional development, addressing equity and inclusion

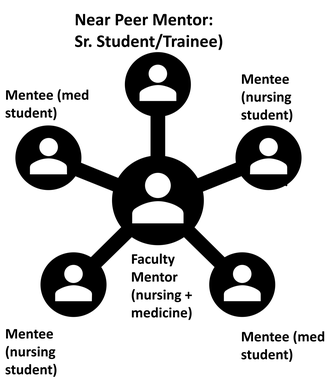


Figure 1: Example of "Cluster"

F.A.M. participants at Thanksgiving Potluck

Program Evaluation

Objective 1: Promote a sense of belonging for BIPOC mentees and mentors

- "Sense of Belonging" survey to be administered to first year medical and 3rd year nursing students in May 2024 (comparison data between program participants and non-participants in addition to historical control)
- "Sense of Belonging" survey for BIPOC mentor participants to be administered in May 2024
- Semi-structured interviews to be completed in February 2024 to a stratified random sampling of mentors and mentees to explore change in sense of belonging and contributing factors

Objective 2: Improve mentorship skills for BIPOC mentors

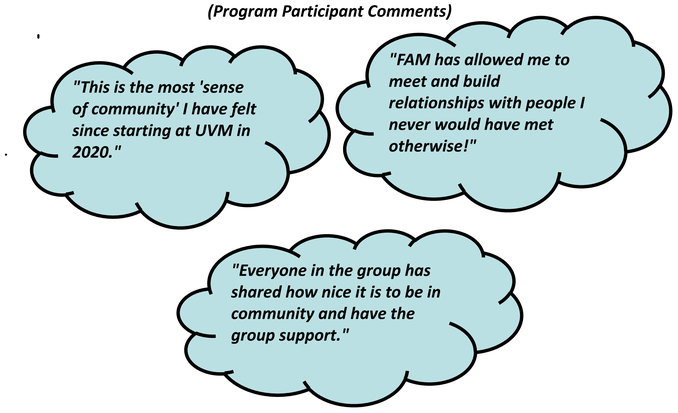
- Mentorship Competency Assessment to be administered in May 2024 and compared with baseline data

Table 1: Baseline "Sense of Belonging" Survey (n=55)

Questions: (Likert Scale 1-5)	White Students (Mean)	BIPOC Students (Mean)
I feel connected to other students at UVM	3.7	3
People at UVM understand me as a person.	3.7	2.8
I matter to others at UVM.	4	3.6
I feel 'at home' at UVM.	3.8	2.7
I feel I 'belong' at UVM.	4	2.9

Figure 2: F.A.M. Logo

Figure 3: Preliminary Qualitative Data
(Program Participant Comments)



Discussion

- On baseline "Sense of Belonging" survey, BIPOC medical and nursing students had lower ratings than white students for almost every question.
- Preliminary feedback from program participants has been positive, including comments suggesting an increased sense of community and support.
- Data collection is ongoing, including follow-up "Sense of Belonging" survey, follow-up Mentoring Competency Assessment, and semi-structured interviews.

F.A.M. Participants at Clemmons Family Farm

Future Directions

- This study will provide essential data to inform strategic planning, funding, and support for future work in retention of BIPOC students, faculty, trainees.
- In the future, we plan to expand the program to include graduate students in other health profession fields
- This framework could be applied for use at other institutions, particularly other rural predominantly white institutions

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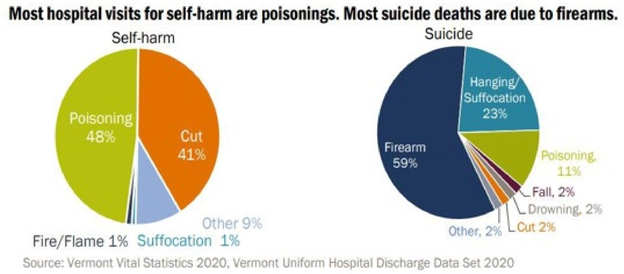
Suicide Screening and Intervention Workshop for Residents

A small group training for internal medicine residents focused on evidence-based suicide prevention strategies

Sara Roberts, MD, UVMMC Internal Medicine; Mark Margolis, Psychologist-MA, Howard Center; Tom Delaney, PhD, Dept. of Pediatrics, LCOM

Background & Description of Project

Vermont's rate of death by suicide is higher than the national average and trending up. Every year, about 120 Vermonters – 2 per week – die by suicide, with the highest death rates in men aged 25 and older.[1] Our rural population and high rate of gun ownership are likely factors that increase risk. Data from the US and elsewhere show about half of people who die by suicide and 75% of older men who die by suicide saw their PCP in the 30 days prior to death, suggesting an opportunity to use contact with PCPs to boost prevention[2]. Among common lethal means for suicide, firearms have the highest lethality.



We created an educational workshop for internal medicine residents to help strengthen their knowledge and use of evidence-based tools in primary care such as screening for suicidal ideation, risk stratification and safety planning.

Methods

- Training developed collaboratively with suicide prevention subject matter experts and medical educators
- Two-hour session, repeated five times for different groups of IM residents (~7 per group)
- Sessions co-facilitated by an Internal Medicine Physician (SR) and the Suicide Prevention Coordinator (MM) for a mental health agency. The training used brief didactic presentations, role plays, video demonstrations, and group discussion.

Key Training Contents

Overview of suicide epidemiology

Columbia Suicide Severity Rating Scale (C-SSRS)

Stanley Brown Safety Plan Intervention

Counseling on Lethal Means (CALM)

Pocket card for the outpatient UVMHN Suicide Care Pathway

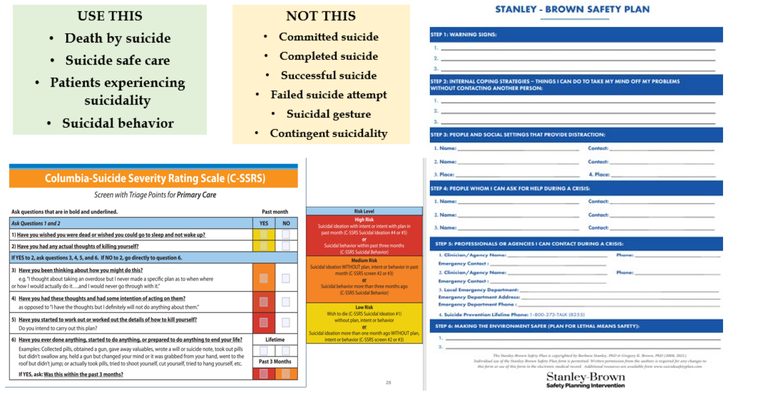
Data Collection

Pre- and post-session assessments (5-point agreement scale and open-ended items)

Descriptive statistics for overall sample and paired t-tests for matched pre-post cases (α=.05, 2 tailed)

Epic data on the use of C-SSRS and Stanley Brown Safety Planning Inventory will be collected for 6 months prior to following the trainings, which were held in October 2023.

Figure 1: Example training slides, clockwise from upper left. "Vocabulary of Suicide Care," Stanley Brown Safety Planning Inventory, and Columbia Suicide Severity Rating



Results

- 75% of training participants reported previously engaging patients about suicide prevention
- 36 pre and 23 post surveys (11 matched as pre-post pairs)

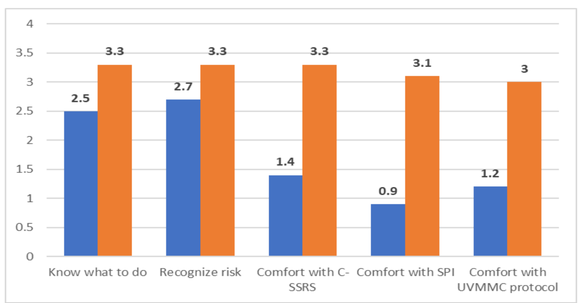


Figure 2 (top) shows overall pre-post average change.

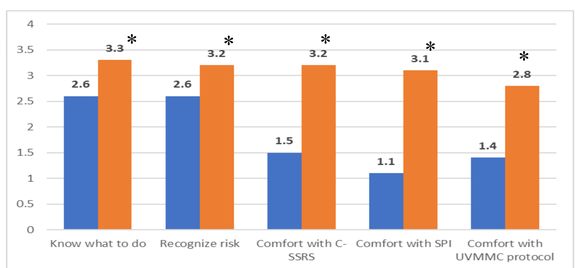


Figure 3 (bottom) shows pre-post changes for 11 matched pairs.

* $P < .01$

Having completed the suicide prevention workshop, what do you consider the largest barrier to using what you learned in clinical settings?

- Lack of time/high number of patients (n = 12)
- "Remembering what tools are available"
- Need to focus on acute and sub-acute suicidality
- "Knowing in which scenarios to utilize the different resources we've learned about"
- Patient complexity
- Patients not answering the questions openly
- Continuity of care in resident clinic format

Discussion

The US National Strategy for Suicide Prevention identified strengthening suicide prevention services in primary care settings as a key public health approach for reducing suicide deaths.[3]

Current approaches to education on suicidology and evidence-based treatment of patients experiencing suicidality is not adequate, based on pre survey low confidence and comfort with the tools we presented the residents within our training. There is a clear opportunity to increase PCPs' knowledge and skills relating to suicide prevention and treatment, particularly around the use of evidence-based tools.

The pre and post survey data suggests that a two-hour small group training utilizing discussion, video demonstration, and role play is effective in achieving short-term improvements in Residents' confidence and comfort in providing suicide prevention-related care.

Follow up surveys of residents, planned for the three-month mark (January 2024) and Epic data of uptake of the CSSRS and Stanley Brown Safety Plan utilization in Epic will help us understand if confidence translates to update in actual practice.

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Implementing the American Academy of Neurology (AAN) Anti-Racism Education Program into the Neurology Residency Curriculum

Kaley Kinnamon MD, Ryan Beal DO, Alissa Thomas MD
The University of Vermont Department of Neurological Sciences

INTRODUCTION:

- AAN online modular curriculum launched in 2022
- Objective: "Recognizing anti-racism as a professional competency for neurologists"
- Aligns with program and departmental mission: Becoming advocates for eliminating bias and discrimination in patient care, education, and research

DESCRIPTION:

16 Neurology Residency Programs piloted this curriculum in the 2022-2023 academic year
4 Online Modules:
1. Race and Identity
2. History of Racism in Neurology
3. Patient Care Stories
4. Institutional Structures Contributing to Racism

METHODS:

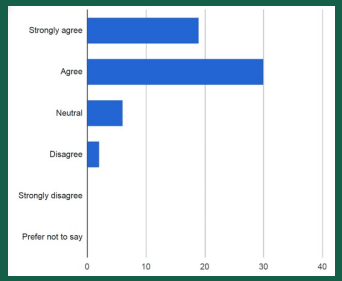
- Resident and Faculty lead from the program met with AAN DEI Chair and resident-faculty pairs monthly via zoom
- 16 Residency Program Nationally
- UVM IRB Approval for Education Research to survey all participants at the end of curriculum implementation pilot
- Programs designed their own implementation plan
  - Protected time to complete the modules
  - Planned discussion sessions for each module
  - Feedback survey

RESULTS:

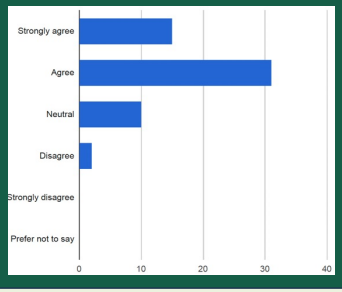
16 Residency Programs participated in the pilot
Surveys sent to all residents and program directors, 58 people responded to the survey

Survey Question	Response (n=58)
Residency programs should include education about racism	91%
Would recommend the AAN Anti-Racism Program to other residencies	84.5%
Completed some/all of the modules	86%
Program protected time to complete modules	34.5%
Discussion sessions were offered	41.4%
Program protected time for discussions	50%
Discussion led by residents, faculty, both	27.6%, 17%, 50%

I can better understand how race impacts medical care and health outcomes



If I witness racism, I am more confident I would react or intervene to promote anti-racism



I started residency in the midst of the COVID-19 pandemic, two months after the murder of George Floyd. With these historic catalysts for change at the start of my medical career, I expected to witness a shift in the landscape of healthcare…Unfortunately, I was disheartened by the ongoing inequity in healthcare….we need dedicated anti-racism education in neurology residency programs."
Gitangali Das, MD, PGY3
Neurology Blogs

RESULTS:

UVM Resident Qualitative Feedback
Positive experience, important use of education time, can better support each other, found common language, inspired new initiatives; would support repeating annually

For future iterations of the curriculum:
- Dedicated time to do modules as a group
- Chief Resident facilitation
- Incorporate an expert discussant

DISCUSSION:

- Implementation was feasible
- AAN modules enriched discussion about diversity and inclusion in our program and in the field of neurology.
- Protecting time for this curriculum remains a high priority for residency training.

CONCLUSION:

- The AAN anti-racism curriculum was a valuable learning tool across residency programs piloting the online curriculum.
- An overwhelming majority of residents polled believe that anti-racism training should be a mandate in neurology training programs.
- Most residents polled agreed that the training modules achieved their objective of providing neurologists with the tools to understand and apply a racial equity framework to their own clinical practice.

REFERENCES:

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Discrimination-Based Trauma as a Risk Factor for Burnout Among Women Trainees in Medicine

Vall Vinaithirthan, MD, Tyra Fainstad, MD, Alexander Heilman, MD, Pari Shah, MSW, LCSW, Christine D. Jones, MD, MS, Adrienne Mann, MD, Kerri Thurmon, MD

BACKGROUND

- Burnout, referring to feelings of exhaustion, negativism, and reduced personal efficacy at work, affects 25% to 30% of individuals in the US and 44% to 80% of medical trainees and physicians.
- Physician burnout starts early in training, disproportionately impacts women and those URM, and is detrimental personally and professionally.
- The COVID-19 pandemic has precipitated growing physician burnout across the nation, with trainees, females, and those from marginalized backgrounds being hit the hardest.
- Recent data suggests burnout continues to be a growing problem in graduate medical education (GME), but these studies are mainly specialty or institution specific.
- Our purpose is to describe the current prevalence and risk factors for burnout amongst female physician trainees across multiple institutions and specialties.

METHODS

- A multi-institutional RCT involving 26 GME training programs across the United States began in September 2022 to investigate the effectiveness of a professional physician coaching program, Better Together, in improving burnout.

1,017 female trainee participants from

26 GME training programs across

19 states enrolled in the program

- Baseline demographics were collected and all participants completed baseline surveys.
- The Maslach Burnout Inventory (MBI) and the Trauma Symptoms of Discrimination Scale (TSDS) were used as survey methods.

Trauma Symptoms of Discrimination Scale (TSDS)

- A 21-item self-report measure focusing on trauma-related symptoms, including avoidance, negative cognitions, social fears, and worries about the future.
- Items are rated from 1 (never) to 4 (often), where ratings are based on the amount of distress caused specifically by discriminatory acts
- We used the TSDS to measure experiences of discrimination based on a variety of identities the trainees hold.

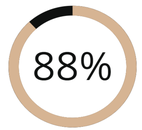
Maslach Burnout Inventory (MBI)

- The MBI uses summative scores from each dimension of burnout: emotional exhaustion, depersonalization, and reduced personal accomplishment.
- Each item is scored on a 7-point Likert scale ranging from 0 (never/daily) to 6 (daily/never). The scores for each dimension are calculated by summing the responses to the items in that dimension.
- Burnout was defined as scoring ≥27 for EE, scoring ≤33 for PA, and/or ≥10 for DP.

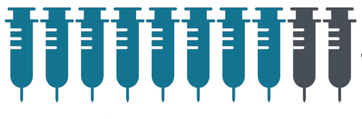
RESULTS

Baseline Demographics

59.9% of trainees identified as white.



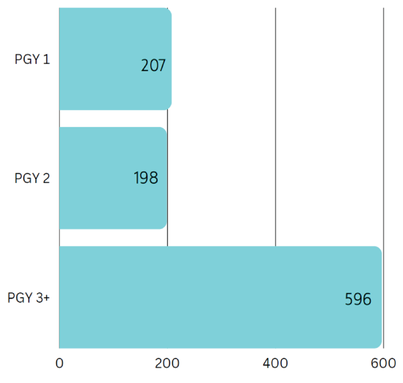
88% of trainees identified as heterosexual.



81.4% of trainees were in non-surgical specialties

The average age of trainees was 31.

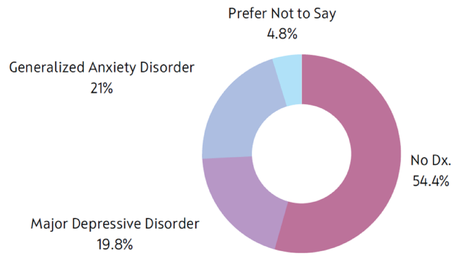
Post-Graduate Year (n=1,001)



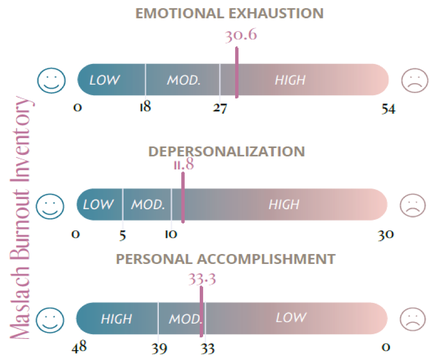
Race (n=957) & Sexual Orientation (n=958)

Demographics		
	n	%
Race (n = 957)		
White	573	59.90%
African American/Black	58	6.10%
American Indian and Alaskan Native	7	0.70%
Asian	257	26.90%
Native Hawaiian and Other Pacific Islander	2	0.20%
Hispanic/Latino	83	8.70%
Not Listed	28	2.90%
Prefer Not to Say	19	2.00%
Sexual Orientation (n = 958)		
Heterosexual	843	88%
Homosexual	21	2.20%
Bisexual	68	7.10%
Not Listed	6	0.60%
Prefer Not to Say	20	2.10%

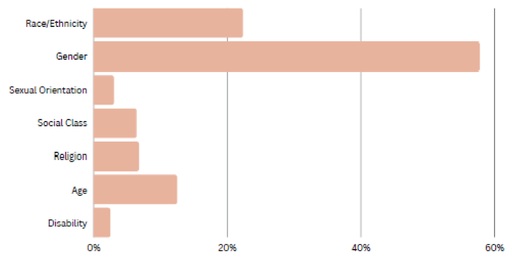
Mental Health Diagnosis (n=951)



RESULTS CONT.



Participants on average had high emotional exhaustion and high depersonalization. Emotional exhaustion peaks at PGY-2. Depersonalization was more often present in higher PGYs (PGY2: OR 2.61, 95% Confidence Interval [CI] 1.52-4.52, p<0.001; >=PGY3: OR 2.33, 95% CI 1.45-3.78, p<0.001).



Higher scores on the TSDS positively correlated with overall burnout (Odds Ratio [OR] 1.30 for 10 units of change, 95% CI 1.11-1.53, p=0.001), EE (OR 1.26 for 10 units of change, 95% CI 1.11-1.43, p<0.001), and DP (OR 1.12 for 10 units of change, 95% CI 1.00-1.26, p=0.058)

DISCUSSION

- Results from this large, multi-institutional cohort show ongoing and progressive burnout prevalence throughout medical training.
- There is also an association between discrimination-based trauma and burnout in trainees. When trainees experienced discrimination, 57% was gender discrimination and 22% was race-based.
- Interestingly, we found that emotional exhaustion seems to peak in PGY2 year, while depersonalization increases with PGY level. Smaller studies have shown PGY-2 as a burnout peak as well and may highlight a dark point in the GME training hierarchy, with more junior trainees being responsible for tedious tasks whilst taking more call and documentation burden.
- Future studies should explore interventions in trainee burnout, specifically in those who have experienced trauma from discrimination.