

Health Education Professions Day Abstracts 2018

Archieved in Deep Blue
Compiled by Carena Townsend

Health Professions Education Day was held on April 3, 2018 at the Michigan League. This annual event aims to spark interprofessional collaboration, networking, and inspiration for future research and practice for educational efforts across the health professions schools at University of Michigan.

Learning Objectives:

1. Understand the innovative health professions educational efforts at the University of Michigan campuses, including their successes and challenges.
2. Learn about best practices in interprofessional education from around the State of Michigan.
3. Engage in an iterative process with students within the interprofessional educational experiences for further curriculum development and refinement.
4. Identify partners for future advancement of innovations in interprofessional education and collaborative care.
5. Strengthen community bonds among educators within the health science schools across all of the University of Michigan.

100: Interprofessional Collaboration (IPC) Confidence Assessment of Doctor of Physical Therapist Students and Doctor of Nursing Practice Students Following an Interprofessional Phone Call Experience

Authors: Karen Berg, Erica Sherman, Megan Keiser, Denise Cooper

Background: After recognizing the lack of interprofessional communication education within their academic programs, several educators/researchers developed an intervention-focused research study to improve DNP (doctor of nursing practice) and DPT (doctor of physical therapy) students' interprofessional communication knowledge and confidence, specifically using simulation and the Situation, Background, Assessment, Recommendation (SBAR) tool.

Actions, Methods or Interventions: The convenience sample of 23 second-year DNP students and 59 first-year DPT students completed the SBAR communication and IPE modules along with a pre-survey prior to the intervention. The virtual simulation experience used a recorded audio conferencing tool within the Blackboard platform. The students were presented with a patient case with details specific to their profession involving a post-surgical total knee arthroplasty patient presenting for their first out-patient physical therapy visit experiencing hypertension despite taking their hypertension medications. The Doctor of Physical Therapist Student completed a simulated phone call to the Doctor of Nursing Practice Student to report the findings using the SBAR tool and develop a treatment plan. After the simulation, all students completed a post-survey and reflective writing assignment.

Results: A Wilcoxon signed-rank test was used to analyze pre-post differences for each student type and the aggregate group in student's knowledge of the SBAR tool, their attitudes towards using the SBAR tool, and their confidence about engaging in interprofessional communication. While statistical significance was found with all 17 questions for DPT students, only four questions had significance for DNP students. Analysis of the qualitative reflective writing data uncovered a large variation between groups' prior SBAR exposure. In the post-analysis, high percentages (91% for one question and 88% for the other) of all students agreed or strongly agreed that using the SBAR tool improved their confidence in interprofessional collaboration and communication.

Lessons Learned: This simulated interprofessional telecommunication activity was beneficial for both DPT and DNP students to improve their confidence and comfort in communicating in their professional roles.

The SBAR is an effective communication method for patient care scenarios during interprofessional simulation activities.

Future Applications and Next Steps: Future directions for research include conducting a qualitative review by coding all the audio recordings to uncover specific behaviors and themes. The researchers also plan to replicate this study, replacing audio with video-conferencing to compare the effectiveness of each method.



Interprofessional Collaboration (IPC) Confidence Assessment of Doctor of Physical Therapy (DPT) Students and Doctor of Nursing Practice (DNP) Students Following an Interprofessional Phone Call Experience

Karen Berg, PT, DPT, OCS; Erica Sherman, PT, DPT, MBA;
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Doctor of Nursing Practice Program, University of Michigan-Flint School of Nursing



Introduction

Communication failures have been the leading root cause of sentinel events reported to The Joint Commission Accreditation HealthCare Organization (JCAHO) ¹

Student confidence and information exchange has been found to improve when simulations mimic a clinical scenario appropriate for the education level of the students.² The SBAR communication tool reports relevant situation and background information and provides an assessment along with recommendations for action.³⁻⁵ The SBAR was identified as an appropriate tool for interprofessional communication in the rehabilitation setting and improves the content and consistency of patient information exchanged.³

The purpose of this study is to assess DNP and DPT students' knowledge of SBAR and confidence in interprofessional communication following a simulated phone call utilizing the SBAR communication tool.

Methodology

First year DPT (n= 44) and second year DNP (n=16) students are paired and identify a mutual time for phone call completion.

All students receive information related to SBAR via a computer based module and complete the "Self Assessment: SBAR Communication Technique Knowledge Survey"

Student pairs complete synchronous phone call based on a provided case study using Blackboard Collaborate.

Students complete the "Self Assessment: SBAR Communication Technique Knowledge Survey" along with 2 additional questions and a reflective writing assignment.

Results



| | Doctor of Physical Therapy Students | Doctor of Nursing Practice Students |
|--|-------------------------------------|-------------------------------------|
| My ability to report clearly about the patient's situation | <.0001 | 0.083 |
| My ability to report the background of the situation clearly | <.0001 | 0.021 |
| My ability to report current assessment of situation clearly | <.0001 | 0.132 |
| My ability to report the recommendation or request clearly | <.0001 | 0.132 |
| Using SBAR will help me to improve communication skills in interactions with other healthcare providers. | 0.003 | 0.157 |
| Using SBAR will help me to improve communication skills with physicians and other primary care providers. | 0.002 | 0.157 |
| Using SBAR will increase my critical thinking skills during patient encounters. | 0.028 | 0.132 |
| Using SBAR will increase the quality and safety of patient care. | 0.034 | 0.653 |
| Using SBAR to communicate is an efficient use of my time. | 0.007 | 0.102 |
| SBAR is applicable to my clinical practice. | 0.004 | 0.317 |
| SBAR is easy to practice. | <.0001 | 0.007 |
| I will use SBAR during my clinical practice. | 0.001 | 0.096 |
| I am confident in my interprofessional healthcare communication ability. | <.0001 | 0.002 |
| I am confident in my ability to report pertinent information in an interprofessional healthcare phone call. | <.0001 | 0.001 |
| I would benefit from additional interprofessional education experiences to improve my confidence in my ability to effectively communicate with other healthcare professionals. | 0.71 | 0.71 |

| Qualitative Analysis | Individual areas of improvement | Joint areas of improvement |
|----------------------|--|---|
| DPT students | Critically analyze and efficiently communicate | Improved confidence in communications skills and increased interest to learn more about the other disciplines scope of practice |
| DNP students | Improved ability to act in the role of a receiver of information | Improved confidence in communications skills and increased interest to learn more about the other disciplines scope of practice |

Discussion

In DPT students, there was a significant overall change in student's knowledge of the SBAR tool, their attitudes towards using the SBAR tool, and their confidence about engaging in interprofessional communication.

In DNP students, there were less areas with statistically significant findings which may be attributable to a difference in prior training, exposure and use of the SBAR tool. SBAR is a common tool used by RNs.

The discrepancy in statistical significance between student groups is explained when looking at both the qualitative and quantitative data. Since student pairs consisted of an entry level practitioner student and an advanced practice student, there was a large variation in baseline professional experience and confidence. This variation in prior exposure explains the large difference in statistically significant changes reported between the two groups since portions of the survey center around basic SBAR knowledge and students perceptions towards using the SBAR, both of which were relatively fixed in the advanced practice student group.

On the pre and post communication survey both DPT and DNP students agreed or strongly agreed that they would benefit from additional interprofessional education experiences, therefore no significant differences were identified in this area.

Conclusion

This interprofessional telecommunication activity was beneficial for both DPT and DNP students to improve their confidence and comfort in communicating in their professional roles.

The SBAR is an effective communication method for patient care scenarios during interprofessional simulation activities.

References

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6. Veji, K., Baker, G. R., Fancott, C., Andreoli, A., Boaro, N., Tansif, G., & Sinclair, L. (2008). Effectiveness of an adapted SBAR communication tool for a rehabilitation setting. Healthcare Quarterly, 11(Sp).

101: Introduction to Interprofessional Education and Practice at the University of Michigan

Authors: Laura Smith, Morgan Perry, Mary Ruffolo

Background: This online asynchronous IPE module is innovative in both educational knowledge and the method of delivery. Specifically, the aim of this module is to deliver a consistent message to all health professions students and faculty creating an equal ground of IPE knowledge. Additionally, this type of curricular innovation is the first of its kind at UM because it serves as a universal educational module that can be used across all health professions programs and all campuses of the University of Michigan. Furthermore, the module is creatively designed to meet the needs of individual programs through authentic wrapping activities that instructors can implement in their pre-existing courses. This type of innovative design affords instructors the opportunity to deliver a consistent message through the video portion of the module and have pre-established assessments, but can individualize to suit their own program needs, thereby making this introductory module a standardized yet program specific learning experience.

Actions, Methods or Interventions: An asynchronous online module was implemented across 2 university campuses with 4 sequential activities including: 1) a 6-word learning activity about one's own profession, 2) reading posts/messages of colleagues from other professions, 3) watching a video, and 4) writing a reflection. An assessment was conducted at the end of the module to assess student reported value of the activities.

Results: Over 1000 students (n=1012) representing 8 different academic units, on two of the three University of Michigan campuses participated in this innovative IPE educational initiative. Nearly 80% of participants reported the reading posts/messages from colleagues of other professions useful to their learning. Watching the video (70.4%), completing the self-reflection (67%) and creating the 6 word message (~59.5%) were also reported as useful/very useful by the majority of participants.

Lessons Learned: A need exists for initial IPE experiences for all levels of learners at the exposure level that faculty can easily implement with flexibility to their teaching schedule.

Future Applications and Next Steps: Refine current IPE module and create additional online foundational IPE experiences for students at the University of Michigan.

Explore appropriate assessments and participation tracking methods that can be used in asynchronous online IPE education.



Online Asynchronous Interprofessional Education Experience



Laura J. Smith, PT, DPT, PhD¹; Mary C. Ruffolo, PhD, LMSW²; Morgan Perry, BS³

Background & Purpose

Interprofessional education (IPE) is a teaching approach involving education and practice between students of two or more professions.¹ Development and implementation of IPE events for students comes with many challenges, such as lack of resources and space,^{2,3,4} and difficulty scheduling.^{3,5,6} Online asynchronous learning is an evidence-based and effective instructional method^{7,8,9} and may be helpful in alleviating some of the barriers in implementing IPE. A potential way to combat lack of space and difficulty scheduling is an online asynchronous IPE experience that promotes reflection and critical thinking among students in a flexible format.

The purpose of this study was to:

- 1) Describe a flexible online, asynchronous IPE experience.
- 2) Explore the associations between IPE activities and students reported level of usefulness.

Methods

An asynchronous IPE module was implemented across 2 university campuses with 4 sequential activities. Frequencies of profession, age, and gender were reported. An assessment was conducted at the end of the module to assess student reported value of the activities.



Results

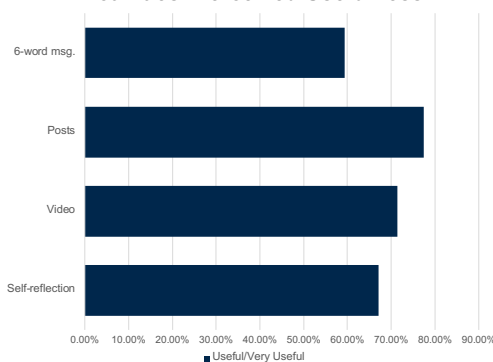
Mean Scores Pre and Post Module Completion for Each Profession by Item

1=Strongly Agree, 2=Agree, 3= Neither Agree or Disagree, 4= Disagree, 5=Strongly Disagree

| Professional School Identification | Dentistry n=215 | | Kinesiology n=92 | | Medicine n=135 | | Nursing n=135 | | Pharmacy n=127 | | Physical Therapy n=111 | | Public Health n=125 | | Social Work n=77 | |
|--|--------------------|--------|---------------------|-------|-------------------|-------|------------------|-------|-------------------|--------|---------------------------|--------|------------------------|--------|---------------------|-------|
| | Pre | Post | Pre | Post | Pre | Post | Pre | Post | Pre | Post | Pre | Post | Pre | Post | Pre | Post |
| Participating in IPE activities outside of work or class is a priority of mine | 2.50** | 2.37** | 2.51* | 1.95* | 2.33* | 2.22* | 2.67* | 2.46* | 2.35* | 1.98* | 2.70* | 2.19* | 2.09* | 1.89* | 2.47* | 2.16* |
| IPE Promotes a Culture of Practice Excellence | 2.29* | 2.03* | 2.26* | 1.51* | 1.92* | 1.59* | 2.02* | 1.61* | 1.92* | 1.39* | 2.07* | 1.43* | 1.93* | 1.42* | 1.96* | 1.45* |
| IPE Learning Experiences Enhance Quality of Care | 2.17* | 1.88* | 2.03* | 1.45* | 1.80* | 1.55* | 1.73* | 1.49* | 1.58* | 1.34* | 1.76* | 1.33* | 1.57* | 1.19* | 1.58* | 1.23* |
| IPE education creates a Culture of Professional Comradery between faculty & students | 2.27* | 2.05* | 2.23* | 1.59* | 1.92* | 1.73* | 1.95* | 1.65* | 1.82* | 1.53* | 2.06* | 1.51* | 1.91* | 1.57* | 2.11* | 1.66* |
| IPE occurs only in the Classroom | 3.57 | 3.68 | 3.50* | 4.03* | 3.10* | 3.72* | 3.32 | 3.38 | 3.68** | 4.21** | 3.56** | 3.96** | 2.86** | 3.48** | 3.43 | 3.76 |
| IPE is an opportunity to collaborate with students & faculty from other professions | 2.29* | 1.90* | 2.10* | 1.48* | 1.92* | 1.67* | 1.91* | 1.56* | 1.69* | 1.39* | 1.88* | 1.54* | 1.78* | 1.35* | 1.63* | 1.29* |
| Committed to IPE excellence | 2.47* | 2.21* | 2.47* | 1.83* | 2.09* | 1.83* | 2.17* | 1.84* | 2.19* | 1.73* | 2.47* | 1.79* | 2.79* | 2.19* | 2.58* | 2.05* |
| Easily find IPE events @ UM | 3.03* | 2.81* | 2.89 | 2.75 | 2.86 | 2.75 | 2.90 | 2.89 | 2.88** | 2.67** | 3.24* | 2.79* | 3.03 | 2.87 | 3.11 | 2.92 |

*Significant difference at the .001 level was noted between the pre and post scores
**Significant difference at the .05 level was noted between the pre and post scores

Activities: Perceived Usefulness



Demographics

n=1,017

| Age | n (%) |
|-------------------------------------|------------|
| 21 or under | 289 (25.9) |
| 22 to 25 | 476 (51.7) |
| 26 or over | 252 (22.4) |
| Gender Identity | n (%) |
| Female | 664 (59.6) |
| Male | 323 (29) |
| Genderqueer/Androgynous/Transgender | 30 (11.4) |
| Year in Program | n (%) |
| 1 st Year | 718 (71.9) |
| 2 nd Year | 212 (21.2) |
| 3 rd Year | 49 (4.9) |
| Part time | 19 (1.9) |

Conclusion

This online asynchronous module reduced some of the barriers to implementing interprofessional education (IPE) such as scheduling and resources. This module and its activities were perceived positively overall. Significant differences post-test indicate better understanding and perceptions of IPE. Future studies should investigate how online asynchronous modules impact interprofessional development over time, including post-education professional settings.

References

Available upon request

102: Roles and Responsibilities, and Learning About Another Health Professional Increased After an Interprofessional Education Intervention

Authors: Amber Dallwig, Joseph House, Karen Farris, Leslie Smith, Tazin Daniels

Background: Interprofessional Education should help prepare health professional student's ability to improve their understanding of each other. The publication of the WHO Framework (2010) for action on interprofessional education (IPE) and interprofessional collaboration (IPC) along with the addition of IPE accreditation standards have increased the emphasis in the education of healthcare professionals. Healthcare educators must create opportunities for students to work together during courses to model both IPE and IPC. Collaborations between professional schools within a university and the creation of IPE opportunities may involve modifying existing courses.

Actions, Methods or Interventions: The College of Pharmacy had an established IPE course that involved eight learning sessions and 20 hours of community service. All students participated in the IPE classroom sessions. A group of Interprofessional faculty modified the existing community service site Ypsilanti Meals on Wheels (YMOW) intentionally, to create IPC teams. All students in the course submitted written reflection on several questions. A comparison of reflections from students who participated in the intentionally created IPC with a random sample of all other sites was completed, and themes in the reflections were identified, quantified, and compared.

Results: There were 72 students enrolled in the Service Learning Course and 13 students assigned to YMOW. The YMOW students completed six nutritional assessments with students of their same profession and six assessments as part of the intentional IPC teams. Twelve themes were identified in the reflections. Comparing reflections from the 13 intentional IPC students and the 12 non-intentional IPC students showed some differences: roles and responsibilities were included by 100% of the intentional IPC versus 42% of the non-intentional IPC students; learning about another health professional was included in 70% of the intentional IPC and 8% of the non-intentional IPC students. There were no other significantly different themes between the two groups. Intentionally creating IPC teams in an IPE course showed a statistical difference in how students learned about each other and their understanding of the roles and responsibilities of other health

Lessons Learned: Starting with a course that already exists helps to produce a sustainable IPE activity or clinical experience, and even with a small sample, statistically significant results can be shown. It is recognized that it is vital to extend beyond attitudes and examine if behaviors and skills that can be enhanced with IPC.

Future Applications and Next Steps: The results from this pilot program can be replicated in other service learning or clinical courses.

Background

- ❖ Interprofessional Education should help prepare health professional student's ability to improve their understanding of each other.
- ❖ The publication of the WHO Framework (2010) for action on interprofessional education (IPE) and interprofessional collaboration (IPC) along with the addition of IPE accreditation standards have increased the emphasis in the education of healthcare.¹

Objective

- ❖ To intentionally create IPC teams in an IPE course and study how students learn about each other and their understanding of the roles and responsibilities of other health.

IPE Course/Activity

- ❖ Service Learning for Health Professionals was expanded to include Medicine and Nursing - beyond Pharmacy, Public Health, Social Work and Kinesiology.
- ❖ The course was a 2-credit course for both undergraduate and professional students. 72 students were enrolled in the course.
- ❖ 12-13 students had their service learning at Meals on Wheels (MOW).

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2 Credits

8 Interactive class sessions

20 Hours of direct community service



- Credit for community service
- Meaningful dialogue
- Interprofessional perspectives

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pharmacy.umich.edu/service

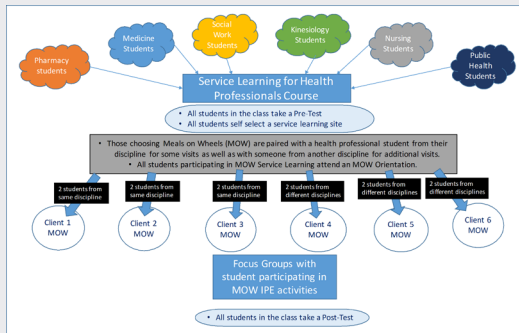
References

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Roles and Responsibilities, and Learning About Another Health Professional Increased After an Interprofessional Education Intervention

Amber Dallwig MSN¹, Joseph House MD², Karen Farris PhD³, Leslie Smith DPT⁴, Tazin Daniels PhD⁵

1 School of Nursing, 2 Medical School, 3 College of Pharmacy, 4 School of Health Professional and Studies (Flint), 5 Center for Research on Learning and Teaching; University of Michigan



Demographic Characteristics
N=47

| Variable | Percent |
|------------------------|---------|
| Age (years) | |
| 20-22 | 36.2 |
| 23-25 | 42.6 |
| >25 | 14.9 |
| Gender | |
| Female | 70.2 |
| Male | 23.4 |
| Race | |
| White/Caucasian | 57.4 |
| Asian/Pacific Islander | 25.5 |
| Other | 10.6 |
| Program | |
| Pharmacy | 48.9 |
| Kinesiology | 21.3 |
| Nursing | 10.6 |
| Other | 12.8 |
| Years of Education | |
| 1-2 | 19.1 |
| 3-4 | 53.2 |
| 5-7 | 14.9 |

Reflection themes compared between YMOW and Control groups

| Themes | YMOW n=13 | | Control n=12 | | P-value |
|----------------------------------|--------------|----|-----------------|----|---------|
| | Yes | No | Yes | No | |
| Inter-professional Communication | 4 | 9 | 5 | 7 | 0.571 |
| Values/ethics | 5 | 8 | 1 | 11 | 0.078 |
| Teamwork | 11 | 2 | 7 | 5 | 0.144 |
| Roles/responsibilities | 13 | 0 | 5 | 7 | 0.001* |
| Intercultural intelligence | 6 | 7 | 6 | 6 | 0.847 |
| System/health policy | 8 | 5 | 7 | 5 | 0.870 |
| Bias | 8 | 5 | 6 | 6 | 0.561 |
| Learning from | 11 | 2 | 7 | 5 | 0.144 |
| Learning about | 9 | 4 | 1 | 11 | 0.002* |
| Learning with | 4 | 9 | 3 | 9 | 0.748 |
| Patient centeredness | 5 | 8 | 2 | 10 | 0.225 |
| Professional identity | 3 | 10 | 3 | 9 | 0.910 |

* p<0.05

Categories of respondent themes in the post-intervention focus group

| Category | Themes | Number of themes |
|----------|--------------------------|------------------|
| 1 | Meal delivery | 3 |
| 2 | Knowledge/training focus | 8 |
| 3 | Questions | 8 |
| 4 | Patient Perceptions | 2 |
| 5 | Comprehensive care | 6 |
| 6 | Health team approach | 8 |
| 7 | Implications | 5 |
| 8 | Eye opener | 12 |
| 9 | Improvements | 6 |

"One of the conclusions was that community impacts patient's health outcomes to a great degree. Factors such as access to pharmacies and different health care clinics determine the health of many patients. Living in an interactive community, with access to health facilities and information, is a catalyst to maintaining and improving the health care of each community." (Student)

"This course has given me the opportunity to truly see the genuine interest everyone has in the improvement of the patient and how varying views can help this improvement both effective and efficient." (Student)

This material is based upon work supported by the University of Michigan's Center for Interprofessional Education, which was funded through the U-M Transforming Learning for a Third Century (TLTC) grants program. Additional project support was provided by the Center for Research on Learning and Teaching and the Interprofessional Leadership Fellows program.

Method

- ❖ **Design.** Two approaches were used. A focus group with 13 intentional IPC participants was done. The themes from the reflections of intentional IPC participants (n=13) were compared to a sample of other reflections (n=12).
- ❖ **Participants.** Students providing their service learning at MOW were intentional IPC. All students (n=72) enrolled in the course completed the reflection.
- ❖ **Intervention.** Students assigned to intentional IPC conducted up to 6 intraprofessional nutritional assessments and up to 6 interprofessional nutritional assessments.
- ❖ **Data analysis.** Themes from the focus group were identified using grounded theory approach. Qualitative analysis of the selected reflections was done by the investigators and consensus was achieved. The number of identified themes in the intentional IPC vs other reflections were compared.

- ❖ **IRB was exempt status.**

Results

- ❖ Comparing reflections from intentional IPC students and non-intentional IPC students showed some differences: roles and responsibilities were included by 100% of the intentional IPC versus 42% of the non-intentional IPC students; learning about another health professional was included in 70% of the intentional IPC and 8% of the non-intentional IPC students. There were no other significantly different themes between the two groups.
- ❖ Twelve themes were identified in the reflections, where "eye opener" and "questions" were the most common.

Conclusion

- ❖ Intentional IPC in service learning led to greater understanding of other health professionals.

104: Using SBAR (Situation Background Assessment Recommendation) to Improve Patient Safety During Handoff

Authors: Stephanie Marcincavage, Laurie Niemer, Phyllis Clements

Background: We noticed that all of our Health and Human services students would be working together in the near future, but did not really understand what each other discipline did or why it was important to work together.

Actions, Methods or Interventions: Last year in 2017 we ran a small interprofessional simulation of 8 students including our OTA, PTA, RN, and RT students introducing them to use SBAR during communicating with other disciplines. This year (we will be running Feb 9th) we are including OTA, RN, and RT students we will have 90 total students participating in the program and round table patient discussions. we will be doing a pre and post evaluation on their experience with interprofessional education and patient safety. Our goal is to take the results from this year and determine how we can create a day long conference for our students to attend in the future to help enhance their understand of interprofessionalism and why it is so important in patient safety.

Results: Our results from the 2017 event showed over 50% of the students were not familiar with SBAR and we wanted to try and incorporate that more in this years event.

Lessons Learned: We need more commitment from the faculty on getting the students to the event, and have more planning sessions.

Future Applications and Next Steps: After the event in feb 2018, we will compile the data to determine if the students felt they had more knowledge and felt more comfortable with the large round table settings. Our goal is to continue to improve the interprofessional event and possibly expand to other disciplines in the college, as well to bring simulation back into the event.

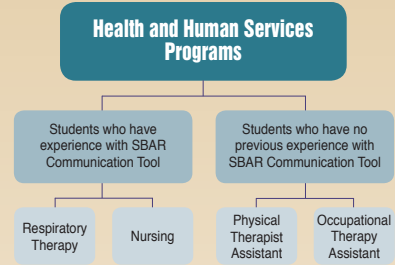
INTERDISCIPLINARY SIMULATION

Using **SBAR** to Improve Patient Safety During Handoff

SITUATION • BACKGROUND • ASSESSMENT • RECOMMENDATION



| SBAR | |
|----------|---|
| S | Situation: What is the patient's current situation? (e.g., patient's name, room number, date of birth, and current condition) |
| B | Background: What is the patient's history? (e.g., medical history, current medications, allergies, and recent tests) |
| A | Assessment: What is your assessment of the patient's condition? (e.g., vital signs, physical exam, and lab results) |
| R | Recommendation: What do you recommend? (e.g., treatment plan, monitoring, and follow-up) |



Facilitator: Stephanie Marcincavage, BS, RCP, HPS Lab Coordinator

Faculty: Phyllis Clements, M.A.Ed.,OTRL, OTA Program Coordinator; Dr. Andrea Knesek, DNP, RN Faculty; Dr. Bob Mele, PT, MSA, PhD, PTA Clinical Coordinator; Laurie Niemer, M.Ed., RRT, RT Clinical Coordinator; Carol Plisner, PT, MA Ed, PTA Program Coordinator

OBJECTIVES ●●●●

- Increase communication inter-professionally
- Further understand the scope of practice of each discipline to increase awareness and understanding of overlaps and gaps in patient care areas
- Orient students to SBAR tool
- Use SBAR for safe & effective communication during patient hand off

METHODS ●●●●

- Students from 4 disciplines participated in a simulation of a patient with sudden onset CVA
- The event took place in our Physical Therapist Assistant lab and Healthcare Simulation Lab.
- 7 students total from OTA, PTA, RN and RT programs
- 8 faculty members participated in the planning and execution.
- The Dean of Health and Human Services and Associate Dean of Health Science Technology participated in our group debrief

RESULTS ●●●●

- The students identified inter-professional interfaces and gaps in patient care
- Students gained an appreciation for the other participating disciplines and for the value of a team approach.
- The students called for expanded briefing about the patient, their history and the scenario.

(As this was our first trial, we did not have a large sample size for data collection.)

CONCLUSION ●●●●

- New pre and post event evaluations have been developed for assessment of student learning since the first experience of simulation a pre/post IPE (spell out) evaluation has been created.
- The Dean has requested that the experience be continued and expanded to include additional students.
- This years event is scheduled for April 27.
- 85 students will be participating in round table simulation experiences utilizing the SBAR tool and our new evaluation tools.

105: Caring for Complex, Underserved Patients: Interprofessional Education and Care Where It Matters Most

Authors: Brent Williams, Daniel Fischer, Erin Khang, Elizabeth Kuzma, Debbie Mattison, Kelly Reid, Heather Rye, Erin Stanley, Amy Thompson

Background: Interprofessional Education (IPE) should be centered in clinical (rather than classroom) settings where there is strong evidence that Interprofessional Patient Care (IPC) improves patient outcomes. UM's Complex Care Management Program (CCMP) is an independent practice unit that includes disseminated care management that occurs whenever and wherever patient care occurs along with a telephonic support program. CCMP's mission centers on providing as well as improving team-based IPCS for complex patients at UM. This report describes the rationale, pedagogical model, and metrics for an IPE immersion program at CCMP launched in February, 2018.

Rationale: Few training models exist for IPE related to longitudinal, multisite, care management; most are site-specific – e.g., on an inpatient, ICU, or office-based practice – and among a stable set of health professionals. This project is testing a model for IPE that: a) centers on a program that is distributed in location and across health professionals and b) includes skills in assessing and improving as well as performing IPC.

Actions, Methods or Interventions: Beginning in February, 2018, 5 to 6 students from 2 to 4 disciplines among medicine, nursing, pharmacy, and social work will spend four half-days over one month at CCMP, in a five-phase intervention:

- Pre-rotation reading assignments on the basics of professional scope of service across professions and conceptual frameworks for effective team functioning and methods to improve team function.
- Faculty-led orientation session linking students' past experience, current attitudes, and future goals to complex and interprofessional care.
- Observation-with-reflection of interprofessional care by accompanying a complex care manager in patient care setting such as hospital discharge, primary care, or community-based care through mental health or social services. Focus is on student skills in structured assessment and designing interventions to improve team function.
- Skills practice in a clinical setting at CCMP or in a clinic with project faculty and other health professionals around the care of a patient, focusing on identifying and practicing behavioral skills that promote team function.
- End-of-rotation session reflection on lessons and Individual Action Plan for implementing IPC in near-term clinical experiences.

Results: Outcome measures will include: a) immediate and six month post-rotation changes in learner attitudes toward interprofessional care, b) qualitative review of learners' behavioral goals related to interprofessional care, and c) successes and challenges at six months in implementing the Individual Action Plan.

Lessons Learned: By combining students' direct engagement with each other, patients, and health care providers; reflection-on-action; and microbehavior skill practice with immediate feedback; we intend to positively impact learners' knowledge, skills, and attitudes towards Interprofessional care for complex patients. Significant challenges were encountered related to melding student schedule; training and developing detailed support materials for faculty from multiple disciplines to deliver standardized, interactive orientation and de-briefing sessions; expanded workload for faculty; attracting students to a non-credit experience outside required courseload; and managing the substantial administrative costs of student and faculty scheduling as well as delivering and collecting course materials. Upcoming challenges will focus on care managers' incorporation of learners in on-the-fly patient care and teaching students in real-world contexts based on a common conceptual framework.

Future Applications and Next Steps: Results of this study will help bring interprofessional education (IPE) into settings where strong evidence exists that effective IPC is essential for enhancing patient experience and producing optimal clinical outcomes for the most vulnerable members of society. Specifically, results will guide the growing number and variety of complex care management programs in the United States in incorporating IPE into the daily, complicated, and messy work of caring for underserved patients in a fragmented health care system and across health and social service providers, and informal caregivers.

Caring for Complex, Underserved Patients:

Interprofessional Education and Care When and Where It Matters Most!

Kelly Reid, Heather Rye, Donna Fox (CCMP); Debbie Mattison, Daniel Fischer, Erin Khang (School of Social Work); Amy Thompson (School of Pharmacy); Elizabeth Kuzma (School of Nursing); Brent Williams (CCMP)

The Complex Care Management Program (CCMP) serves to assist Michigan Medicine patients by facilitating development of care teams including; PCP, specialty care, and community partners to actively engage in providing comprehensive services that promote the individuals total well-being while reducing avoidable healthcare costs.

CCMP patients have high avoidable utilization of the health system, multiple medical complexities and experience multiple Social Determinates of health that impact their ability to successfully and appropriately access health care.

Rationale: Few training models exist for IPE that include a longitudinal, multisite, care management focus. Current models rely on site specific training within inpatient, ICU, or office-based practices with a stable set of health professionals.

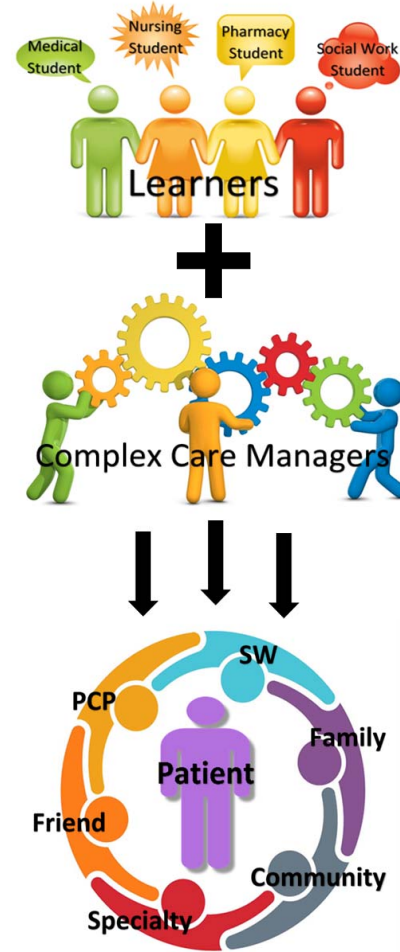
Innovation: This project is testing a model for IPE that:

- a) Centers on a model that is *patient-centered rather than unit-centered* – i.e., varies by site and health professionals
- b) Includes skills in *assessing and improving* as well as *performing* IPC.

| Method |
|---|
| 5 to 6 students from 2 to 4 disciplines: Medicine, Nursing, Pharmacy and Social Work 4 half-days with CCMP over 4 consecutive weeks |
| Five-Phase Intervention |
| Pre-rotation reading assignments and Pre-attitudes survey |
| Faculty-led orientation session |
| Observation-with-reflection |
| Skills practice |
| Outcome Measures |
| A. IPE Attitudes Survey: Pre- and Post-rotation, and after 6-months |
| B. Qualitative Review of learners' behavioral goals |
| C. Successes and challenges at 6-months of implementing the Individual Action Plan |

THE CCMP CLINICAL MISSION IS TO PROVIDE PERSONALIZED, PATIENT-CENTERED CARE; STUDENTS ARE IMMERSED AND ARE

- Engaged to proactively identifies patients' needs across dimensions, including medical conditions, mental and behavioral health issues, and access to health-related resources.
- Foster awareness of patients' capacities to improve their health, centering on effective communication with health care providers who know them.
- Identify Gaps in care within team function and systems of care
- Problem solve Gaps In Care
- Facilitate opportunities within IP teams
- Mobilize Case Conferences



LEARNERS:

DESCRIBE the actual care (non) team in context.

DIAGNOSE real-time team form and (non)function using systematic frameworks:
a) GRPI, b) Stage Formation, c) Micro-Skills

DEMONSTRATE behaviors to facilitate IPC.

DEVELOP individualized plan for future professional development.

DISCUSSION

- Supports care of patients demonstrably benefitted by IPC - high need, high complexity, low resource patients
- Highlights functions and dysfunctions of team work within patients care team
- Allows all members of team to understand obstacles patients face in adhering to plan of care

FUTURE APPLICATIONS AND NEXT STEPS

Create roadmap to implement and measure effectiveness of decentralized, multi-location IPE in other patient groups at MM.

106: RN/Resident Reciprocal Job Shadowing to Improve Interprofessional Communication and Understanding of Roles

Authors: Jennifer Kelley, Heather Burrows MD and Kimberly Monroe MD

Background: 12 West's unit 2016 Employee Engagement Survey identified poor communication between RNs and MDs. There has been little published to date regarding shadowing to improve communication regarding first-year interns and nurses.

Actions, Methods or Interventions: 24 RNs from 12 West shadow first-year interns for one four hour block of the interns' shift. 24 interns shadow RNs for one four hour block of the nurses' shift. Pre-surveys containing the Interprofessional Collaborative Competency Attainment Survey (Archibald, Trumpower, & MacDonald, 2014) and qualitative questions related to experience, empathy, workflow and professional roles were sent to participants via Qualtrics prior to their first shadowing experience to complete in September of 2017. For every survey that is completed throughout the pilot as well as completing the shadow checklist a small gift card will be given. Surveys are anonymous but do identify role. Immediate post-shadow surveys are sent to the RN or intern following their shadow experience, checklists with suggested tasks/topics are provided for the shadow. Then, 6 months from the initial shadow, a post-survey will be sent to the intern or RN to complete. Iterative changes to the project will be determined based upon the feedback received.

Results: 20 Nurses and 12 Residents have completed shadowing so far. The program will extend until June. Preliminary results from the pre-surveys of the interns indicated that 4/24 had worked in a different role within the healthcare setting. Responses stated that nurses are the frontline of patient care and acknowledge gaps and room for improvement regarding communication. Pre-surveys completed from the RNs indicated that 16/24 RNs have worked in a different role within the healthcare setting. Responses mentioned difficulty obtaining orders, being the "middle man" for patients and hope for acknowledgement as part of the inter-professional care team. Preliminary results from the immediate post-shadow experience surveys from both groups are positive. Overall regarding the ICCAS tool, there was an increase in strongly agree statements from both groups. Both groups responses expressed a greater understanding of each others' roles and responsibilities following the shadowing experience.

Lessons Learned: Shadowing each other's respective roles can increase understanding of each other's contributions to the inter-professional team regarding patient care. The surveys were able to identify some barriers to communication which can be addressed moving forward to improve the communication between interns and nurses on the unit.

Future Applications and Next Steps: Moving forward, hopefully this shadowing experience can be incorporated into every first-year intern's and nurse's schedule. The information gleaned can hopefully assist in identifying areas for improving inter-professional communication between MDs and RNs, therefore, improving patient care and keeping patient's safe.

Background

- Poor communication is consistently identified as a top cause of sentinel events in the hospital setting
- A 2016 Employee Engagement Survey conducted on 12 West, a pediatric acute care unit within Mott Children's Hospital, identified communication challenges between physicians and nurses

Objective

- Improve communication between nurses and pediatric interns through shadowing each other's respective roles
- Increase empathy, understanding of each other's roles and responsibilities, and workflow between care providers

Methods

- This quality improvement project was classified as non-regulated by the UM IRB
- 24 nurses were recruited to participate in the shadowing experience, all work on Mott 12W and committed to remaining for 12 months
- All 24 pediatric interns participated in the shadowing experience as part of a required first year rotation
- Nurses and interns were paired based on schedule availability
- Each shadowing experience was for four hours during the busiest part of a shift. Participants were given a checklist of possible activities to observe during the shift
- Pre-surveys were distributed via Qualtrics in August and completed by September 1 of 2017
- Immediate post-shadow surveys were sent to dyads after they completed the two shadowing experiences
- An additional post-shadow survey was sent to participants six months later
- Surveys included the Interprofessional Collaborative Competency Attainment Survey (Archibald, Trumppower, and MacDonald, 2014) and qualitative questions related to the domains of: empathy, understanding roles and responsibilities, and workflow
- Qualitative data was analyzed for themes.
- T- tests assuming equal variances were conducted utilizing pre and post survey data from both groups. The statistical significance was set to 0.05.

Results

Pre-Survey Results

28 Nurses and 24 Interns completed the pre-survey

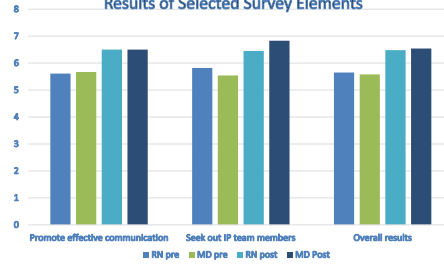
Nurses

- 16/24 (67%) have worked in the healthcare setting in a different role
- "Nurses feel immensely helpless when we are unable to get an order the patient needs."
- "We care a lot. We are professionals. We are members of the treatment team. We work hard to provide the best care."

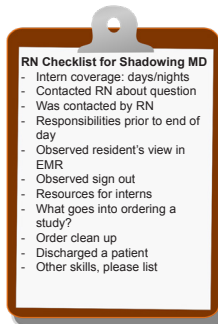
Interns

- 4/24 (17%) have worked in the healthcare setting in a different role.
- "We are overwhelmed at times, we are learning."
- "We recognize that the nurses are the frontline of patient care."
- Regarding current state of communication on 12 West: "Pretty good, but distant. We appreciate each other but don't understand each other's roles."

Results of Selected Survey Elements

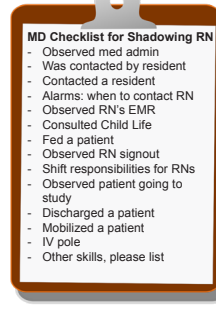


- Statistically significant difference in both RN and MD groups regarding ability to promote effective communication ($p < .002$, $p < .018$)
- Statistically significant difference in both RN and MD groups regarding ability to seek out IP team members ($p < .015$, $p < .002$)
- Statistically significant difference between all pre and post survey responses within each group ($p < .001$ for both)



RN Checklist for Shadowing MD

- Intern coverage: days/nights
- Contacted RN about question
- Was contacted by RN
- Responsibilities prior to end of day
- Observed resident's view in EMR
- Observed sign out
- Resources for interns
- What goes into ordering a study?
- Order clean up
- Discharged a patient
- Other skills, please list



MD Checklist for Shadowing RN

- Observed med admin
- Was contacted by resident
- Contacted a resident
- Alarms: when to contact RN
- Observed RN's EMR
- Consulted Child Life
- Fed a patient
- Observed RN signout
- Shift responsibilities for RNs
- Observed patient going to study
- Discharged a patient
- Mobilized a patient
- IV pole
- Other skills, please list

| Themes | Immediate Post Shadow Interview Excerpts (23 Nurses and 13 Interns completed the survey after shadowing) |
|----------------------------------|--|
| Roles | "The interns work 6 days a week!" "It was nice to see behind the scenes." "Nurses do a lot of education." "Being a nurse is very physically demanding." "(Nurses) Amount of time spent doing patient care is longer than I thought." |
| Workflow | "The interns are very very busy!" "Very busy" (Nurses) "We spent a lot of time responding to pages from patients." |
| Take Away Points | "How busy the inpatient interns are- in the first hour we already had 20 pages." "I feel like I will place myself in the resident's shoes from now on." "They really do value nurses' opinions." "Newfound appreciation for nursing role and responsibilities." "After seeing what they do, I have a lot of trust in my nursing colleagues and respect the hard work they do." "If nursing has concerns about a patient who might be sick, they're probably right!" |
| Barriers to Communication | "Not knowing the policies on the floor (interns)" "The interns do not have phones" "No communication to nurses when placing new orders." "Lack of facetime we get to have with the team." "Physical separation from our patients and nurses." "Communication can be difficult when nursing is not involved in rounds." |



Conclusions

- After shadowing each other for 4 hours, nurses and interns were able to better understand the roles, workflow, and barriers to communication experienced by other interprofessional team members
- This experience led to an increase in interprofessional collaborative behaviors within both groups

References

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107: Intercollegiate Interprofessional Simulation for Occupational Therapy and Physical Therapy Students: A Four-Year Experience

Authors: Amy Yorke, Jean Krueger, Leslie Smith

Background: Collaboration between healthcare professionals is an integral part of providing patient focused care. Interprofessional education (IPE) provides the opportunity for students from different healthcare professions to learn alongside each other. Interprofessional collaboration is essential to providing an efficient and comprehensive plan of care. Universities that educate multiple health professionals have the advantage of proximity when providing IPE opportunities for their students; however, when an institution has a limited number of health programs, challenges such as distance, time, and resources exist in providing and sustaining IPE experiences.

Actions, Methods or Interventions: This case study represents a four year reflection of IPE simulations, completed with cohorts of PT/OT students from two universities located 43 miles apart. Case based simulations were developed with the objective to have both the PT/OT students provide rehabilitation services to improve a patient's overall function and mobility. Since 2014, groups of 6-9 PT/OT students rotated through 3-4 different simulations, and were assigned different roles (PT, OT, patient, family member, observer) for each rotation. At least two faculty, one PT and one OT, would be present at the simulation in order to provide initial instructions, manage time, and facilitate debriefing. Following the final simulation, PT/OT students collaborated on a documentation assignment. All students completed the Interdisciplinary Education Perception Scale (IEPS) on the day of the IPE simulation, at the start and end of the session. Post-simulation, students were required to write a reflection of their individual experience.

Results: IEPS scores post-simulation (n=425, Mean=94.8) have consistently increased as compared to pre-simulation (n=428, Mean=88.7). Year to year comparison did not demonstrate any significant shifts in pre/post IEPS scores. Without prompting on the IPEC competencies, the students reflected on the importance of interprofessional communication, values and ethics, teamwork, and roles and responsibilities. During reflection the students commented less on bias toward the other profession less through the four years. Over the last four years, the IPE experience has been modified to better meet the student needs. The IPE experience has been able to be sustained due to the commitment of four key faculty from the two institutions.

Lessons Learned: Implementing IPE learning opportunities for PT/OT students who attend different universities may demonstrate improvement in perceptions of IPE. Improvements in perceptions over time may improve as institutions add more IPE experiences throughout the curriculum. Health care professional programs who are housed in an institution without other professions may consider collaborating with other universities to provide IPE experiences for their students.

Future Applications and Next Steps: Continuous improvement as identified as well as further faculty development to ensure continued sustainability of the project.

Intercollegiate Interprofessional Simulation for Occupational Therapy and Physical Therapy Students: A Four-Year Experience

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Introduction

- Collaboration between healthcare professionals is an integral part of effective patient focused care.¹
- Interprofessional education (IPE) provides the opportunity for different healthcare professional students to learn about, from, and with each other.¹
- Occupational and physical therapists commonly work together providing rehabilitation services to improve a patient's overall function and mobility.
- When an institution only has one occupational therapy (OT) or physical therapy (PT) program, multiple challenges (distance, scheduling) exist in providing IPE experiences.
- Purpose: Describe a four year IPE simulation experience for OT and PT students attending different universities.

Methodology

- Annual IPE simulation involving students in the 2nd year Doctorate of Physical Therapy (DPT) from UM-Flint and 2nd year Master of Science in Occupational Therapy (MSOT) from SVSU since 2014.
- Event hosted at SVSU (43 miles from UM-Flint).
- IPE simulations were executed at 3 different stations, representing various practice settings: acute care, skilled nursing facility, and home health care.
- One day event with 2 sessions (AM and PM); 3 hours in length/session.
- Pre-briefing executed in a large group prior to simulation (2014-2017). Debriefing executed in a large group following all simulations (2014). Debriefing in smaller groups immediately after simulation at each station (2015-2017).
- Interprofessional Education Perception Scale (IEPS) completed by all students pre and post simulation.
- Post simulation, all students completed reflection paper.

Project Logistics

Table 1: Summary of Four Year IPE Experience

| | 2014 | 2015 | 2016 | 2017 |
|--|--|------|--|----------------------|
| MSOT students (n) | 58 | 62 | 61 | 58 |
| DPT students (n) | 57 | 68 | 57 | 55 |
| Faculty facilitators (n) | 6 | 6 | 8 | 7 |
| Role clarification prior to IPE simulation | 4 OT students provided information to PT students regarding the OT profession. | | 2 OT students and 2 PT students worked collaboratively to create a media presentation. | |
| Groups/session (n) | 12 | 12 | 12 | 15 |
| Cases/stations per setting | 3 cases / 3 stations | | | 3 cases / 4 stations |
| Size of IPE groups (n) | 6-7 | 7-8 | 6-7 | 5-6 |
| Collaborative Documentation | No | | Yes | |



Results

Table 2: IEPS Scores 2014-2017

| | Mean Score |
|-------------------------|------------|
| Pre-simulation (n=428) | 88.7 |
| Post-simulation (n=425) | 94.8 |

- Student reflections provided feedback to the faculty team resulting in modifications to improve the IPE experience over four years (see Table 1)
- Further data analysis of IEPS scores is currently in process.
- Themes reviewed in the reflection papers over four years included misconceptions about the other profession, importance of communication, roles, teamwork, and values.
- Student reflections over the last four years have demonstrated fewer comments related to bias toward the other profession.

Discussion & Conclusion

- Implementing IPE learning opportunities for OT and PT students that attend different universities may improve perceptions of IPE.
- The structure of this IPE simulation allowed for a large number of students and a variety of patient simulated cases to be completed in a short period of time.²
- Future modifications may be to have the PT and OT students groups meet prior to the IPE experience in order to learn about each other's roles and begin developing teamwork skills.
- Health care professional programs who are housed in an institution without other professions may consider collaborating with other universities in order to provide IPE experiences for their students.

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108: Using Situational Awareness in an Interprofessional Educational Activity to Identify Individual Cognitive Bias in Health Care

Authors: Leslie Smith, Carmen Turkelson, Julie Hollenbeck

Background: Situational awareness is having perception or understanding of the environment as well as having the ability to gather and comprehend the right information, correctly analyze it, and make decisions based on that analysis (Stephens, 2017). A cognitive bias can cause an error in a person's rational thought process and subsequently can affect their decisions and/or judgments. There are several types of cognitive biases that occur in health care every day that could lead to ineffective care for patients (Campbell, 2017). Cognitive bias is a normal response in humans and recognition of the biases in both individuals and in teams is essential for critical thinking development. The purpose of this study was to identify if students from different healthcare professions perceive a situation differently based on cognitive bias and if students were able to recognize cognitive bias in clinical situations. (Campbell, 2017).

Actions, Methods or Interventions: This research was determined to be exempt from Institutional Review Board (IRB) oversight by the Health Sciences and Behavioral Sciences Institutional Review Board (IRBHBS) of the University of Michigan in Ann Arbor on January 23, 2017 (#HUM00126049).

Respondents: In February, 62 students from the above mentioned health profession schools plus from the Dental Hygiene Program responded to an end survey after the first three hour workshop and 65 students to an end survey after the second three hour workshop. In November, 34 students responded to a survey at the end of the first three hour workshop and 31 students responded to an end survey at the end of the second three hour workshop.

Procedure: The evaluation surveys at the end of the two parts of the Workshop series in February and November were paper-pencil surveys.

Educational Intervention: The educational intervention offered in February focused strongly on MI content in a setting where students from the different health profession schools learned with each other and from each other. Based on the end survey feedback, efforts were made to revise the IPE-MI offering in November to increase the focus on the IPE approach. This was programmatically achieved by designing the content around the five IPE competencies: (a) values / ethics; (b) roles/responsibilities; (c) interprofessional communication; (d) teams / teamwork and (e) intercultural intelligence. Didactically, two patient cases were developed (Targeted health behavior change: Case 1: Tobacco cessation; Case 2: Patients with diabetes) and utilized throughout the workshops to engage the students in learning about an IPE approach to using MI in these two scenarios. In addition to small and large group discussions, videotaping of role plays were used to engage students from different health professions actively.

Results: The students' evaluation at the end of Part 1 of February Workshop showed strong appreciation of the MI related educational efforts. However, both closed-ended as well as open-ended responses indicated that IPE efforts had not been seen as sufficiently well developed. The students' evaluations after Part 2 of the February Workshop reflected the positive effects of increased efforts to engage students in IPE activities. However, the students still expressed a desire for more IPE content.

The students' evaluation at the end of Part 1 of November Workshop were significantly more positive than the evaluations of Part 1 of the January workshop. On a scale from 1 = "most negative" to 5 = "most positive" response, the students evaluated the faculty efforts (February: 3.93 vs. November 4.71; $p < .001$), the ice breaker activity (3.78 vs. 4.70; $p < .001$), the table discussions with other students (3.78 vs. 4.70; $p < .001$) and the seating arrangement (4.03 vs. 4.71; $p < .001$) more positively.

The students' IPE-related evaluations at the end of Part 2 of November Workshop were significantly more positive than the evaluations of the Part 2 of the January workshop. The students evaluated the students' interactions across disciplines (4.63 vs. 4.96; $p < .05$), the faculty interactions across disciplines (4.16 vs. 4.87; $p < .001$), the degree to which they learned more about interprofessional interactions (4.18 vs. 4.61; $p < .01$) more positively and agreed more strongly that they would like to participate in more IP classes (4.49 vs. 4.87).

Lessons Learned: Several lessons were learned. First, focusing on content such as MI and assuring that students from different disciplines learn with each other and from each other require careful and well-orchestrated didactic efforts. Second, having successful collaborations between faculty members from different backgrounds will be facilitated when the IPE core competencies are accepted as the basis of the didactic

efforts. Third, in a successful IPE effort, faculty and students learn with and from and about each other.

Future Applications and Next Steps: A third workshop series is planned for the Fall term 2018. This workshop will refine the Fall 2017 workshop by trying to gain a better understanding of the unconscious biases that exist concerning different health professions. Developing ways to create a cultural climate in IPE workshop settings that is free of unconscious generalizations and stereotyping of providers from different health profession backgrounds is crucial.

Using Situational Awareness in an Interprofessional Educational Activity to Identify Individual Cognitive Bias in Health Care

Leslie M. Smith, PT, DPT, CCS; Julie Hollenbeck, M.Ed., R.T.(T); Carmen Turkelson, DNP, MSN, RN, CCRN, CHSE
University of Michigan -Flint



Background

- Situational awareness is having perception or understanding of the environment as well as having the ability to gather and comprehend the right information, correctly analyze it, and make decisions based on that analysis (Stephens, 2017).
- A cognitive bias can cause an error in a person's rational thought process and subsequently can effect their decisions and/or judgments.
- There are several types of cognitive biases that are used in health care every day that can lead to ineffective care for patients (Campbell, 2017).
- Cognitive bias is a normal response in humans and recognition of the biases in both individuals and in teams is essential for critical thinking development.

Purpose

The purpose of this study was to identify if students from different healthcare professions perceive a situation differently based on cognitive bias and if students were able to recognize cognitive bias in clinical situations. (Campbell, 2017).

Actions, Methods or Interventions:

- Nursing (n=39), physical therapy (n=57), and radiation therapy students (n=16) participated in a situational awareness interprofessional educational learning experiences (IPELE).
- This IPELE included a pre-briefing, 5 minutes in a House of Horror simulation room, team perception activities, and a debriefing session.
- Each individual student was instructed to identify their top 3 items related to safety in the House of Horror simulation room.
- Each team (12 total teams) was then encouraged to agree on their top 3 patient safety errors for the patient room.
- Following the IPELE event, the students were asked to submit answers to 3 questions related to cognitive bias in healthcare. The questions were as follows:
 - How does cognitive bias and situational awareness apply to your work in a health care setting?
 - Can you give an example of cognitive bias that you have experienced or witness in the clinic?
 - Can you think of a solution to help resolve or make yourself aware of cognitive biases?



Results

- The top three items identified by individual students were: exposed bodily fluids (31.25%); medications not properly secured (28.57%); and a mess on floor and in the room (26.79%).
- The oxygen not connected was the top item agreed upon by the groups which was identified by 58.30% of them. Exposed bodily fluids, bed in high position, and patient identification were tied for second at 50.00% of groups.
- These responses will be used for qualitative analysis of the student's ability to identify individual cognitive bias in health care and results are pending at this time.

| Safety Errors | Top 3 Individual (n=112) | % | Top 3 groups (n=12) | % |
|----------------------------------|--------------------------|--------|---------------------|--------|
| Exposed bodily fluids | 35 | 31.25% | 6 | 50.00% |
| Med not properly secured | 32 | 28.57% | 0 | 0.00% |
| Mess on floor | 30 | 26.79% | 1 | 8.30% |
| Scissors / sharps in bed | 28 | 25.00% | 4 | 33.30% |
| Oxygen not connected | 26 | 23.21% | 7 | 58.30% |
| Bed in high position / fall risk | 24 | 21.42% | 6 | 50.00% |
| IV Lines unsafe / bleeding | 20 | 17.86% | 1 | 8.30% |
| Exposed needles | 19 | 16.96% | 0 | 0.00% |
| Unclear I.D. of patient | 19 | 16.96% | 6 | 50.00% |
| Call button too far | 8 | 7.14% | 0 | 0.00% |
| Patient exposed/uncovered | 7 | 6.25% | 0 | 0.00% |
| Foley above insertion | 6 | 5.36% | 1 | 8.30% |
| Bed pan upside down | 6 | 5.36% | 0 | 0.00% |
| Poop left out next to bed | 6 | 5.36% | 0 | 0.00% |
| Low oxygen saturation | 6 | 5.36% | 0 | 0.00% |
| Restraints tied to bed | 5 | 4.46% | 0 | 0.00% |
| Wound exposed/ dressing off | 5 | 4.46% | 0 | 0.00% |
| NG tube not attached suction | 5 | 4.46% | 0 | 0.00% |
| No brake on the bed | 5 | 4.46% | 0 | 0.00% |
| Head of bed not elevated | 4 | 3.57% | 0 | 0.00% |
| Wrong Meds | 4 | 3.57% | 1 | 8.30% |
| Tourniquet | 3 | 2.68% | 0 | 0.00% |
| ECG leads off / No vitals | 3 | 2.68% | 1 | 8.30% |

Lessons Learned

Using a prior classroom activity that was previously conducted for one profession could be enhanced by adding other health care professional students. Students recognized their professional cognitive bias to the activity as demonstrated by their responses to what they identified in the House of Horrors simulation room.

Future Application and Next Steps:

The research team needs to analyze the student's responses to the post IPELE questions and determine if the students were able to identify individual cognitive bias in health care. In the future it would be helpful to assess the student's knowledge of cognitive bias prior to the IPELE.

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109: An Interprofessional Education Approach to Teaching Motivational Interviewing to Students from Eight Health Profession Schools: A Work in Progress

Authors: Marita Inglehart, David C. Belmonte, Jolene Bostwick, Dan DeSena, Danielle Furgeson, Elizabeth Kuzma, Minal Patel, Amy Yorke

Background: In the Winter term of 2016, the Michigan Center for Interprofessional Education charged an interprofessional group of faculty from the University of Michigan School of Dentistry, Kinesiology, Nursing, Public Health, Social Work, Medical School and College of Pharmacy and from the School of Health Professions and Studies on the Flint campus to consider an interprofessional education (IPE) effort centered on motivational interviewing (MI). Since MI is used by providers in all health professions as a technique for engaging patients in positive health behavior change, it is an ideal subject matter for an IPE workshop. The group developed a pilot IPE - MI series of two three-hour long workshops and offered them in February 2017. Based on student feedback of this first workshop series, a revised second series of two three-hour long workshops were offered in November 2017. The objectives are to assess the students' end evaluations of Part 1 and Part 2 of the February 2017 workshop series with the evaluations of Part 1 and Part 2 of the November 2017 workshop series.

Actions, Methods or Interventions: This research was determined to be exempt from Institutional Review Board (IRB) oversight by the Health Sciences and Behavioral Sciences Institutional Review Board (IRBHSBS) of the University of Michigan in Ann Arbor on January 23, 2017 (#HUM00126049).

Respondents: In February, 62 students from the above mentioned health profession schools plus from the Dental Hygiene Program responded to an end survey after the first three hour workshop and 65 students to an end survey after the second three hour workshop. In November, 34 students responded to a survey at the end of the first three hour workshop and 31 students responded to an end survey at the end of the second three hour workshop.

Procedure: The evaluation surveys at the end of the two parts of the Workshop series in February and November were paper-pencil surveys.

Educational Intervention: The educational intervention offered in February focused strongly on MI content in a setting where students from the different health profession schools learned with each other and from each other. Based on the end survey feedback, efforts were made to revise the IPE-MI offering in November to increase the focus on the IPE approach. This was programmatically achieved by designing the content around the five IPE competencies: (a) values / ethics; (b) roles/responsibilities; (c) interprofessional communication; (d) teams / teamwork and (e) intercultural intelligence. Didactically, two patient cases were developed (Targeted health behavior change: Case 1: Tobacco cessation; Case 2: Patients with diabetes) and utilized throughout the workshops to engage the students in learning about an IPE approach to using MI in these two scenarios. In addition to small and large group discussions, videotaping of role plays were used to engage students from different health professions actively.

Results: The students' evaluation at the end of Part 1 of February Workshop showed strong appreciation of the MI related educational efforts. However, both closed-ended as well as open-ended responses indicated that IPE efforts had not been seen as sufficiently well developed. The students' evaluations after Part 2 of the February Workshop reflected the positive effects of increased efforts to engage students in IPE activities. However, the students still expressed a desire for more IPE content.

The students' evaluation at the end of Part 1 of November Workshop were significantly more positive than the evaluations of Part 1 of the January workshop. On a scale from 1 = "most negative" to 5 = "most positive" response, the students evaluated the faculty efforts (February: 3.93 vs. November 4.71; $p < .001$), the ice breaker activity (3.78 vs. 4.70; $p < .001$), the table discussions with other students (3.78 vs. 4.70; $p < .001$) and the seating arrangement (4.03 vs. 4.71; $p < .001$) more positively.

The students' IPE-related evaluations at the end of Part 2 of November Workshop were significantly more positive than the evaluations of the Part 2 of the January workshop. The students evaluated the students' interactions across disciplines (4.63 vs. 4.96; $p < .05$), the faculty interactions across disciplines (4.16 vs. 4.87; $p < .001$), the degree to which they learned more about interprofessional interactions (4.18 vs. 4.61; $p < .01$) more positively and agreed more strongly that they would like to participate in more IP classes (4.49 vs. 4.87).

Lessons Learned: Several lessons were learned. First, focusing on content such as MI and assuring that students from different disciplines learn with each other and from each other require careful and well-orchestrated didactic efforts. Second, having successful collaborations between faculty members from different backgrounds will be facilitated when the IPE core competencies are accepted as the basis of the didactic efforts. Third, in a successful IPE effort, faculty and students learn with and from and about each other.

Future Applications and Next Steps: A third workshop series is planned for the Fall term 2018. This workshop will refine the Fall 2017 workshop by trying to gain a better understanding of the unconscious biases that exist concerning different health professions. Developing ways to create a cultural climate in IPE workshop settings that is free of unconscious generalizations and stereotyping of providers from different health profession backgrounds is crucial.



An Interprofessional Education Approach to Teaching Motivational Interviewing to Students from 8 Health Profession Schools: A Work in Progress

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Poster # 109

ABSTRACT

Background: Accreditation standards for health profession programs require graduates to be competent in engaging in interprofessional collaboration/care (IPC). Motivational interviewing (MI) is used by providers in all health professions as a technique for engaging patients in positive health behavior change. MI is therefore an ideal subject matter for interprofessional education (IPE) efforts. An educational intervention was offered in February 2017 (Time 1) and in November 2017 (Time 2). The objectives are to assess students' end evaluations of the Time 1 and Time 2 workshop series and to compare the responses at these two points in time.

Methods: At Time 1, data were collected from 62 after the first three hour workshop and 65 students after the second three hour workshop. At Time 2, 34 students responded at the end of the first workshop and 31 students at the end of the second workshop.

Results: At Time 1, students expressed strong appreciation of MI-related educational efforts, but showed less positive responses concerning IPE efforts. At Time 2, students' IPE-related end evaluations were significantly more positive than the Time 1 end evaluations.

Lessons learned: First, focusing on content such as MI and assuring that students from different disciplines learn with each other and from each other requires careful and well-orchestrated didactic efforts. Second, having successful collaborations between faculty members from different backgrounds will be facilitated when the IPE core competencies are accepted as the basis of the didactic efforts.

BACKGROUND

- In the Winter term of 2016, the Michigan Center for Interprofessional Education (IPE) charged a group of faculty from the School of Dentistry, Kinesiology, Nursing, Public Health, Social Work, Medical School and College of Pharmacy and from the School of Health Professions and Studies on the Flint campus to consider an interprofessional education (IPE) effort centered on motivational interviewing (MI).
- Since MI is used by providers in all health professions as a technique for engaging patients in positive health behavior change, it is an ideal subject matter for an IPE workshop.
- An educational intervention was offered in February 2017 (Time 1) and again in November 2017 (Time 2).
- At each time, two 3-hour long workshops were provided.
- End evaluations were collected at the end of each workshop.

AIMS

The objectives were to assess

- the students' end evaluations of Part 1 and Part 2 of the February 2017 (Time 1) workshop series,
- the students' evaluations of Part 1 and Part 2 of the November 2017 (Time 2) workshop series, and
- to compare the evaluations from Time 1 and Time 2.

METHODS

This research was determined to be exempt from Institutional Review Board (IRB) oversight by the Health Sciences and Behavioral Sciences IRB of the University of Michigan (#HUM00126049).

Respondents: In February 2017, 62 students from 8 different health professions responded to an end survey after the first 3-hour workshop and 65 students after the second 3-hour workshop. In November 2017, 34 students responded to a survey at the end of the first 3-hour workshop and 31 students at the end of the second three hour workshop.

Procedure: All surveys were collected with paper-pencil surveys at the end of the workshops.

Materials: The end surveys asked the students to evaluate the different workshop components and the IPE- and MI-related efforts overall.

RESULTS

Objective 1 was to assess students' end evaluations of Part 1 and Part 2 of the February 2017 (Time 1) workshop series. **Table 1** shows that students expressed strong appreciation of MI-related educational efforts, but showed less positive responses concerning IPE efforts.

Table 1: Time 1 program evaluations after workshop 1 and 2

| Program evaluations | Mean | Program evaluations | Mean |
|--|------|--|------|
| Repeated questions | 4.50 | Repeated questions | 4.55 |
| The ice breaker activity was helpful. | 3.70 | The ice breaker activity was helpful. | 4.59 |
| The introduction of the faculty was helpful. | 3.93 | The introduction of the faculty was helpful. | 4.71 |
| The faculty interacted well across disciplines. | 4.24 | The faculty interacted well across disciplines. | 4.87 |
| The seating arrangement was helpful. | 4.03 | The seating arrangement was helpful. | 4.71 |
| Discussions in table groups were interesting. | 3.70 | Discussions in table groups were interesting. | 4.83 |
| The students interacted well across disciplines. | 4.25 | The students interacted well across disciplines. | 4.96 |
| This session was informative. | 4.50 | This session was informative. | 4.68 |
| I learned new things about MI. | 4.45 | I learned new things about MI. | 4.14 |
| I learned more about IPE interactions. | 3.65 | I learned more about IPE interactions. | 4.61 |
| I look forward to next Wednesday. | 4.29 | I look forward to next Wednesday. | n/a |
| I would like to participate in more IPE classes. | n/a | I would like to participate in more IPE classes. | 4.87 |

1 Answers ranged from 1=strongly disagree to 5=strongly agree.

Objective 2 was to assess students' end evaluations of Part 1 and Part 2 of the November 2017 (Time 2) workshop series. **Table 2** shows that the students appreciated the IPE content of the Fall workshops and especially their interactions with students from other disciplines and the IPE.

Table 2: Time 2 program evaluations after workshop 1 and 2

| Program evaluations | Mean | Program evaluations | Mean |
|---|------|---|------|
| Repeated questions | 4.35 | Repeated questions | 4.68 |
| This session was informative. | 4.71 | This session was informative. | 4.67 |
| The seating arrangement was helpful. | 4.71 | The seating arrangement was helpful. | 4.63 |
| Discussions in table groups were interesting. | 4.84 | Discussions in table groups were interesting. | 4.96 |
| The students interacted well across disciplines. | 4.60 | The students interacted well across disciplines. | 4.74 |
| I learned new things about MI. | 4.77 | I learned new things about MI. | 4.61 |
| I learned more about IPE interactions. | 4.53 | I learned more about IPE interactions. | 4.61 |
| The introduction of the faculty was helpful. | 4.71 | The introduction of the faculty was helpful. | 4.39 |
| The ice breaker activity was helpful. | 4.68 | The ice breaker activity was helpful. | 4.39 |
| The "different disciplines case study" was interesting. | 4.52 | The "different disciplines case study" was interesting. | 4.65 |
| The "MI spirit" section was interesting. | 4.13 | The "MI spirit" section was interesting. | 4.70 |
| The "ethics" section was interesting. | 4.26 | The "ethics" section was interesting. | 4.70 |
| The "facilities cessation" section was interesting. | 4.29 | The "facilities cessation" section was interesting. | 4.65 |
| The topic preparation discussion was interesting. | 4.16 | The topic preparation discussion was interesting. | 4.61 |
| The topic was interesting. | 4.16 | The topic was interesting. | 4.87 |
| I look forward to next Wednesday. | 4.65 | I look forward to next Wednesday. | 4.35 |
| I would like to participate in more IPE classes. | n/a | I would like to participate in more IPE classes. | 4.87 |

1 Answers ranged from 1=strongly disagree to 5=strongly agree.

RESULTS

Objective 3 was to compare students' end evaluations of Part 1 and Part 2 of the February (Time 1) and November 2017 (Time 2) workshop series. **Table 3** shows that the students appreciated the IPE content of the Fall workshops and especially their interactions with students from other disciplines and the IPE.

Table 3: Comparisons of Time 1 and Time 2 evaluations

| Program evaluations | February 2017: Time 1 | | November 2017: Time 2 | |
|--|-----------------------|------------|-----------------------|------------|
| | Workshop 1 | Workshop 2 | Workshop 1 | Workshop 2 |
| The ice breaker activity was helpful. | 3.78 | n/a | 4.58 | n/a |
| The introduction of the faculty was helpful. | 3.93 | n/a | 4.71 | n/a |
| The faculty interacted well across disciplines. | 4.24 | 4.16 | 4.71 | 4.87 |
| The seating arrangement was helpful. | 4.03 | 4.61 | 4.71 | 4.61 |
| Discussions in table groups were interesting. | 3.70 | 4.69 | 4.71 | 4.83 |
| The students interacted well across disciplines. | 4.25 | 4.63 | 4.84 | 4.96 |
| This session was informative. | 4.50 | 4.55 | 4.35 | 4.68 |
| I learned new things about MI. | 4.45 | 4.45 | 4.00 | 4.14 |
| I learned more about IPE interactions. | 3.65 | 4.18 | 4.77 | 4.61 |
| I look forward to next Wednesday. | 4.29 | n/a | 4.65 | n/a |
| I would like to participate in more IPE classes. | n/a | 4.49 | n/a | 4.87 |

Legend:

1 Answers ranged from 1=strongly disagree to 5=strongly agree.

DISCUSSION

- The Time 1 / workshop 1 data showed that increased IPE-related educational efforts were needed. Efforts to increase IPE content were therefore made in Time 1 / workshop 2.
- The Time 2 workshops were revised to increase the IPE focus; the student evaluations demonstrate that these efforts were successful.
- Creating a cohesive team among faculty members from 8 different disciplines needed concentrated efforts. These efforts will be intensified for the Time 3 workshop in October 2018.
- IPE focused educational intervention create challenges for faculty members used to merely teaching students from their own discipline.

CONCLUSIONS

- At Time 1, MI-related workshop efforts were very positively evaluated. But IPE-related efforts needed improvement.
- At Time 2, IPE-related efforts were increased and the student evaluations acknowledged these efforts.
- Faculty development efforts to increase interprofessional collaboration need to be increased for the Time 3 workshop.

Acknowledgment

We want to thank the Michigan Center for Interprofessional Education at the University of Michigan for their financial support of the February 2017 workshop series and the Medical School for their financial support of the November 2017 events.

110: Revision of the interprofessional education motivational interviewing workshop series: creating a robust interprofessional experience

Authors: Elizabeth Kuzma, Amy Yorke, David Belmonte, Jolene Bostwick, Dan DeSena, Danielle Furgeson, Marita Inglehart, Minal Patel

Background:

Interprofessional education (IPE) is essential to provide foundational learning experiences for health professions to build on in preparation for a future of interprofessional patient care (Zorek & Raehl, 2013). Motivational interviewing (MI) is a technique used for engaging patients to help them find their own internal motivation for making positive health changes used across the health disciplines in clinical practice. In the Winter of 2017, a group of faculty from the University of Michigan across health disciplines (Dental Hygiene, Dentistry, Kinesiology, Medicine, Nursing, Pharmacy, Physical Therapy, Public Health, and Social Work) developed a pilot IPE MI workshop series. The student baseline data showed the exceptionally high interest of these students to engage in learning about IPE and MI. The students' evaluation at the end of the first workshop showed strong appreciation and interest in MI; however, the IPE efforts were insufficient. Following the first workshop series, faculty utilized student evaluations as a guide for the complete redesign of the workshop series to create a more robust IPE experience for students offered in Fall 2017.

Actions, Methods or Interventions:

The faculty involved in the revision workgroup included faculty members from the original group across the UM health science schools mentioned previously. Throughout the months following the first offering the faculty group worked together to re-envision how MI can be taught in an IPE setting utilizing each faculty's strengths. This then guided the design, planning, and implementation of the workshop series.

Two main goals of the workshop series were identified, (1) be true to the spirit of MI, and (2) create an interactive IPE experience using MI as the frame for which students could learn together. The design included dividing the content and pairing faculty off into smaller interprofessional teams of two to tackle different components of the content, with the understanding that it was essential to have all faculty deeply involved in the planning and the delivery of portions of the content. The main topics, which were based on the Interprofessional Education core principles, included: (1) Roles and Responsibilities, (2) Interprofessional Communication, (3) Motivational Interviewing Spirit and IPE Values & Ethics, (4) Intercultural Intelligence, and (5) Teams/Teamwork. Two patient case scenarios were created and used throughout the workshops as a framework for the different topics.

The revised workshop series was held in two 3-hour blocks one week apart early in the Fall Term, 2017. Student learning objectives for the workshops included: (1) Students will learn about, from, and with each other in the context of motivational interviewing to improve health outcomes for patients and populations, (2) Students will work with individuals of other professions to maintain a climate of mutual respect and shared values, (3) Use the knowledge of one's own role and those of other professions to appropriately assess and address the healthcare needs of patients via simulated interactions, (4) Communicate with patients, families, communities, and professionals in health and other fields that supports a team approach to the promotion and maintenance of health and the prevention and treatment of disease.

Results: Student participants of the revised workshop series participated in a verbal debrief with faculty in addition to completion of a formal written post-program evaluation (described in a separate poster) at the end of Day 2. The group of students expressed their enjoyment in participating in the workshop series, finding value in the experience, appreciating the balance of IPE and MI content, recommended broadening and expanding the workshop series, and expressed interest in participation in future IPE-MI and other IPE offerings.

Lessons Learned: The main lesson learned involved the IPE elements of the workshop. One element was that the success of an IPE offering requires a full collaborative group effort in the design and implementation by the faculty involved after group rules and norms are established. Setting clear expectations of each member of the group and giving all members of the group equal voice in the decision-making was essential for the optimal functioning of the faculty group. This also modeled the core values of IPE. With these expectations and norms set, including setting a standing meeting time, the group was able to overcome many of the challenges faced during the planning of the pilot workshop series, especially the deficiency of explicit IPE content. It is possible that the dedication to modeling of IPE values in the faculty group process implicitly improved the communication of IPE principles to students during the workshop; it also solidified our dedication to making the

IPE elements of the training more explicit, improving the IPE experience for students overall. Because of this, the revised IPE-MI workshop series was much better received than the pilot offering.

Future Applications and Next Steps: The IPE-MI workgroup plans to capitalize on existing momentum and continue to fine-tune the workshop series using the same basic structure and format. The workgroup submitted a self-nomination for the Provost's Teaching Innovation Award and hope to be selected as recipients, which will help build capacity to continue to offer and improve the workshop series. The group is actively working on additional dissemination efforts through publications. We also hope that disseminating the products of our experience will inspire groups in other academic settings to pursue similar IPE-MI initiatives.

Poster # 110



Revision of the Interprofessional Education – Motivational Interviewing (IPE-MI) Workshop: Creating a Robust Interprofessional Experience

Kuzma EK, Yorke A, Belmonte BC, Bostwick JR, DeSena D, Furgeson D, Inglehart MR, Patel M

BACKGROUND

- In the Winter term 2017, faculty from Dental Hygiene, Dentistry, Kinesiology, Medicine, Nursing, Pharmacy, Physical Therapy, Public Health, and Social Work from the University of Michigan developed a pilot IPE - MI program with two 3-hour long workshops.
- The student baseline data showed exceptionally high interest to engage in learning about IPE and MI.
- The students' evaluations at the end of the first workshop showed strong appreciation of the MI content delivered. However, the IPE efforts were perceived as insufficient.
- Student evaluations guided the redesign of this workshop series to create a more robust IPE experience for students in the Fall term 2017.

AIMS

The objectives were to:

- 1) Be true to the spirit of MI and IPE
- 2) Create an interactive IPE experience using MI as the frame within which students could learn together.

REVISION PROCESS

This research was determined to be exempt from Institutional Review Board (IRB) oversight by the Health Sciences and Behavioral Sciences IRB of the University of Michigan (#HUM00126049).

- The faculty involved in the revision workgroup worked together to re-envision how MI can be taught in an IPE setting utilizing each faculty's strengths. See Table 1 below for a summary of adjustments to the November (Time 2) program. Faculty were paired smaller interprofessional teams to tackle different components of the content:
 - 1) Roles and Responsibilities
 - 2) Interprofessional Communication
 - 3) Motivational Interviewing Spirit and IPE Values & Ethics
 - 4) Intercultural Intelligence
 - 5) Teams/Teamwork.
- Patient case scenarios were created and used throughout the workshops as a framework for the different topics.

Table 1: Overview of the responses to the recruitment survey

| Response types: # of students who | February 2017 | | November 2017 | |
|-----------------------------------|---------------|-----|---------------|------|
| | N | % | N | % |
| Logged into registration site | 171 | 100 | 94 | 100% |
| Entered name & affiliation | 136 | 80% | 90 | 96% |
| Provided some information | 120 | 70% | 86 | 91% |
| Provided all information | 114 | 67% | 81 | 86% |
| Were invited | 79 | 46% | 56 | 60% |
| Attended workshop 1 | 66 | 39% | 35 | 37% |
| Attended workshop 2 | 60 | 35% | 30 | 33% |



INTERPROFESSIONAL EDUCATION



Table 1: Overview of the Educational Intervention

| Timeline: educational intervention and data collection | Time 1: February 1 & 8, 2017 | Time 2: November 8 & 15, 2017 |
|--|---|--|
| Registration opens | | |
| Registration survey | | |
| Baseline survey | | |
| First three-hour workshop: MI content | Background and Theory of MI MI evidence base Emplying skills (OARS: open-ended questions and reflections) Didactic (lectures/discussion) | MI spirit Evolving (selecting change talk within MI work, developing discrepancy) How to do a full MI session (practice) Didactic (minimal) |
| First three-hour workshop: MI process | Large group exercises (e.g. reflection "having practice") | Small group work/discussion Recorded role plays (using IPEak) Large group discussion |
| First three-hour workshop: IPE content | None planned | IPE/CUM IPE Competencies Interprofessional communication Roles and responsibilities Values and Ethics |
| First three-hour workshop: IPE process | Open-ended IPE discussions involving students following MI lectures | Intentionally integrated into all exercises Small group work/discussion Large group discussion |
| End of workshop 1 survey | | |
| Second three-hour workshop: MI content | Evolving skills (double-sided reflections, identifying change talk, "rules," values and strengths) Planning skills | Engaging skills (affirmations) Evolving skills (developing discrepancy) MI spirit |
| Second three-hour workshop: MI process | Didactic (lectures/discussion) Large group exercises (e.g. reflection "having practice") Lecture role play with student | Small group work/discussion Review of recorded role plays (using IPEak) Large group discussion |
| Second three-hour workshop: IPE content | None planned | IPE/CUM IPE Competencies Interpersonal multiprovider Teamwork Interprofessional communication Patient Case Discussion |
| Second three-hour workshop: IPE process | Open-ended IPE discussions involving students following MI lectures | Intentionally integrated into all exercises Small group work/discussion Recorded role plays (using IPEak) Large group discussion |
| End of workshop 2 survey | | |

RESULTS

- Student participants of the revised workshop series participated in a verbal debrief with faculty in addition to completion of a formal written post-program evaluation (described in a separate poster) at the end of Day 2.
- The group of students expressed their enjoyment in participating in the workshop series, finding value in the experience, appreciating the balance of IPE and MI content, recommended broadening and expanding the workshop series, and expressed interest in participation in future IPE-MI and other IPE offerings.

Table 2: Information about the program participants by academic background

| U-M health science school | February 2017 | | | | November 2017 | | | |
|--|---------------|-------|-------|-----------|---------------|-------|-------|------------|
| | N (%) | N (%) | N (%) | Atten ded | N (%) | N (%) | N (%) | Atten ded |
| Registered | N=136 | N=79 | N=66 | 2/2017 | N=94 | N=64 | N=55 | 11/15/2017 |
| Dental hygiene program | 9 | 9 | 5 | 5 | 2 | 1 | | |
| Dentistry | 24 | 12 | 11 | 12 | 7 | 5 | | |
| Flint: Health Professions and Studies or Nursing | 2 | 2 | 2 | 2 | 1 | 1 | | |
| Kinesiology | 1 | 1 | 1 | 1 | 0 | 0 | | |
| Medicine | 11 | 8 | 7 | 5 | 0 | 7 | | |
| U of M Nursing | 11 | 9 | 8 | 8 | 5 | 5 | | |
| Pharmacy | 14 | 12 | 9 | 8 | 11 | 9 | | |
| Public Health | 20 | 5 | 5 | 5 | 30 | 13 | | |
| Social Work | 33 | 12 | 10 | 7 | 30 | 14 | | |
| Social work & Public health | 3 | 2 | 2 | 2 | 1 | 0 | | |
| Total responses | 136 | 100% | | | 87 | 55 | | |

LESSONS LEARNED

- The success of an IPE offering requires a full collaborative group effort in the design and implementation by the faculty involved after group rules and norms are established.
- Setting clear expectations of each member of the group and giving all members of the group equal voice in the decision-making was essential for the optimal functioning of the faculty group.
- With these expectations and norms set, including setting a standing meeting time, the group was able to overcome many of the challenges faced during the planning of the pilot workshop series, especially the deficiency of explicit IPE content.
- It is possible that the dedication to modeling of IPE values in the faculty group process implicitly improved the communication of IPE principles to students during the workshop.
- It also solidified our dedication to making the IPE elements of the training more explicit, improving the IPE experience for students overall.

CONCLUSIONS

- The Time 1 / workshop 1 data showed that increased IPE-related educational efforts were needed. Efforts to increase IPE content were therefore made in Time 1 / workshop 2.
- The Time 2 workshops were revised to increase the IPE focus; the student evaluations demonstrate that these efforts were successful.
- Creating a cohesive team among faculty members from 8 different disciplines needed concentrated efforts. These efforts will be intensified for the Time 3 workshop in October 2018.
- IPE focused educational intervention create challenges for faculty members used to merely teaching students from their own discipline.

NEXT STEPS

- The IPE-MI workgroup plans to capitalize on existing momentum and continue to fine-tune the workshop series using the same basic structure and format.
- The workgroup hopes to continue to build capacity to continue to offer and improve the workshop series.
- The group is actively working on additional dissemination efforts through publications.
- We also hope that disseminating the products of our experience will inspire groups in other academic settings to pursue similar IPE-MI initiatives.



Acknowledgment

We would like to acknowledge the efforts of Nasuh Malas, MD, MPH, Ken Resnicow, PhD, and Dani Koel, MA who were involved in the pilot IPE-MI workshop series developed in Winter 2017. They helped provide the foundation for the revised workshop series.

111: Cricothyroidotomy Skills Maintenance Program in Ethiopia

Authors: Virginia Gauger, Deb Rooney, David Zopf, Kevin Kovatch, Lauren Richey

Background: Ethiopia has a population of over 100,000,000 people and, similar to other sub-Saharan countries, suffers from a severe shortage of adequately trained health professionals. In response to this problem, the government of Ethiopia has expanded the number of medical schools as well as post-graduate sub-specialty training programs over the past 15 years. However, the shortage of trained professionals creates a challenge for education of these residents. Academic partnerships to improve training the health workforce is one of the sustainable ways of capacity building for low-resource settings. Building upon a successful collaborative platform between the University of Michigan (UM) and St Paul's Hospital Medical Millennium College (SPHMMC) in Addis Ababa, Ethiopia, the UM Department of Anesthesiology has been assisting with education of the SPHMMC anesthesia residents by way of short visits and weekly lectures via BlueJeans video-conferencing. The recent advances in both simulation training as well as 3D modeling offer alternatives to improved training, especially in situations that are rarely encountered in the clinical setting. Front-of-Neck Access (FONA) is the final common pathway for the rare, but life-threatening, Cannot-Intubate-Cannot-Oxygenate (CICO) scenario. This can include needle cricothyroidotomy, scalpel-bougie technique, or emergency tracheostomy depending on the clinical situation, the personnel present, and the equipment available. Given the lack of resources in low- and middle-income countries (LMICs) as well as the high incidence of trauma and advanced disease, needle cricothyroidotomy should be in the armamentarium of all emergency medical physicians, including surgeons, anesthesiologists, intensivists, and emergency room physicians.

Actions, Methods or Interventions: Following review and exemption determination by the University of Michigan and St Paul's Hospital Medical Millennium College Institutional Review Boards, twelve anesthesia residents (5 first year, 7 second year) participated in the Cricothyroidotomy Skills Maintenance Program (CSMP). The program consisted of a pre-training knowledge test and procedural performance evaluation, a didactic training session, and a subsequent post-training knowledge test and procedural performance evaluation. The procedural performance evaluations included timing of the procedure as well as two assessment tools, the CSMP Global Rating Scale and the CSMP Checklist. The CSMP Global Rating Scale is a 6-item tool scored on a 3-point scale: 0 (Not Done), 1(Done Incorrectly) and 2 (Done Correctly). The CSMP Checklist is a 9-item tool that represented 9 step-wise tasks associated with proper cricothyroidotomy, also scored on the same 3-point scale. A laryngotracheal model, produced with computer aided design and 3D printing from medical grade silicone, was incorporated into a mannequin to produce a low-cost, high-fidelity simulator. Prior to performance of the cricothyroidotomy, each participant was given a scenario resulting in a CICO situation. Performances were videotaped at the consent of the residents and rated independently by 3 University of Michigan faculty judges at a later date. The training session included a short PowerPoint presentation on emergency airway management as well as demonstration of correct needle cricothyroidotomy skills by one of the authors.

Results: Mean post-training knowledge test summed scores were higher ($M_{post}=4.46$, $SD=1.27$) than pre-training knowledge ($M_{pre}=3.31$, $SD=0.63$), $t(12)=3.64$, $p=0.003$). Mean post-training total time to perform cricothyroidotomy (measured in seconds) was lower ($M_{post}=72.82$, $SD=15.68$) than pre-training total time ($M_{pre}=96.64$, $SD=40.99$), but differences were not statistically significant, $t(10)=1.71$, $p=0.12$). Overall, residents' mean Global ratings were higher following training ($M_{post}=0.70$) than prior to training ($M_{pre}=0.20$), $X^2=677.3$, $df=1$, $p=0.001$). Statistically significant differences were observed between pre- and post-training mean ratings for each of the 6 items on the CSMP Global Rating Scale ($p=0.0001$), all with moderate to large effect sizes. Overall, residents' mean Checklist ratings were higher following training ($M_{post}=0.90$) than prior to training ($M_{pre}=0.51$), $X^2=242.5$, $df=1$, $p=0.001$). Statistically significant differences were observed between pre- and post-training mean ratings for 8 of 9 checklist items ($p\leq 0.01$), with small to large effect sizes. Residents' mean post-training self-reported confidence was higher ($M_{post}=3.08$, $SD=0.86$) than self-reported pre-training confidence ($M_{pre}=1.69$, $SD=1.03$), $t(12)=4.45$, $p=0.001$, $d=1.14$.)

Lessons Learned: Our work shows that cricothyroidotomy skills taught to anesthesia residents at SPHMMC with a 3D printed laryngotracheal model improves knowledge, skills, and confidence. The inter-departmental (anesthesia, otolaryngology, and simulation) development of the curriculum permitted the creation of a low-cost, high-fidelity simulator that has the potential to impact patient care and safety world-wide.

Future Applications and Next Steps: Future efforts will be concentrated on 4 areas: (1) education of anesthesia providers at the University of Michigan, (2) expansion of the training curriculum into other departments at the University of Michigan, (3) repeat testing of SPHMMC anesthesia residents during future visits to assess retention of knowledge and skills, and, (4) consideration of using the curriculum to train other LMIC medical providers. Further, a local needs assessment to evaluate needs and develop tools for other emergency airway procedures, train local physicians, and ultimately improve outcomes in emergent airway scenarios would be valuable.



Cricothyroidotomy Skills Maintenance Program in Ethiopia

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Background

Ethiopia has a population of over 100,000,000 people and, similar to other sub-Saharan countries, suffers from a severe shortage of adequately trained health professionals. Building upon a successful collaborative platform between the University of Michigan (UM) and St Paul's Hospital Millennium College (SPHMMC) in Addis Ababa, Ethiopia, the UM Department of Anesthesiology has been assisting with education of the SPHMMC anesthesia residents by way of short visits and weekly lectures via BlueJeans video-conferencing. The recent advances in both simulation training as well as 3D modeling offer alternatives to improved training, especially in situations that are rarely encountered in the clinical setting such as emergency needle cricothyroidotomy.



Methods

Following review and exemption determination by the University of Michigan and St Paul's Hospital Millennium College Institutional Review Boards, twelve anesthesia residents (7 first year, 5 second year) participated in the Cricothyroidotomy Skills Maintenance Program (CSMP). Departments of Anesthesiology, Otolaryngology, and Learning Health Sciences collaborated to develop and validate a low-cost, high-fidelity task trainer. This consisted of a medical grade silicone laryngotracheal model produced with computer aided design and 3D printing technologies, and incorporated into a mannequin. The CSMP consisted of a pre-training knowledge test and procedural performance evaluation, a didactic training session, and a subsequent post-training knowledge test and procedural performance evaluation. The procedural performance evaluations included timing of the procedure as well as two assessment tools, the CSMP Global Rating Scale and the CSMP Checklist. The CSMP Global Rating Scale is a 6-item tool scored on a 3-point scale: 0 (Not Done), 1 (Done Incorrectly) and 2 (Done Correctly). The CSMP Checklist is a 9-item tool that represented 9 step-wise tasks associated with proper cricothyroidotomy, also scored on the same 3-point scale. A laryngotracheal model, produced with computer aided design and 3D printing from medical grade silicone, was incorporated into a mannequin to produce a low-cost, high-fidelity simulator. Prior to performance of the cricothyroidotomy, each participant was given a scenario resulting in a CICO situation. Performances were videotaped at the consent of the residents and rated independently by 3 University of Michigan faculty judges at a later date. The training session included a short PowerPoint presentation on emergency airway management as well as demonstration of correct needle cricothyroidotomy skills by one of the authors.



Results

Mean post-training knowledge test summed scores were higher (Mpost=4.46, SD=1.27) than pre-training knowledge (Mpre=3.31, SD=0.63), $t(12)=3.64$, $p=0.003$. Mean post-training total time to perform cricothyroidotomy (measured in seconds) was lower (Mpost=72.82, SD=15.68) than pre-training total time (Mpre=96.64, SD=40.99), but differences were not statistically significant, $t(10)=1.71$, $p=0.12$. Overall, residents' mean Global ratings were higher following training (Mpost=0.70) than prior to training (Mpre=0.20), $X^2=677.3$, $df=1$, $p=0.001$. Statistically significant differences were observed between pre- and post-training mean ratings for each of the 6 items on the CSMP Global Rating Scale ($p=0.0001$), all with moderate to large effect sizes. Overall, residents' mean Checklist ratings were higher following training (Mpost=0.90) than prior to training (Mpre=0.51), $X^2=242.5$, $df=1$, $p=0.001$. Statistically significant differences were observed between pre- and post-training mean ratings for 8 of 9 checklist items ($p<0.01$), with small to large effect sizes. Residents' mean post-training self-reported confidence was higher (Mpost=3.08, SD=0.86) than self-reported pre-training confidence (Mpre=1.69, SD=1.03), $t(12)=4.45$, $p=0.001$, $d=1.14$.

| No. | Item | Pre Mean (SD) | Post Mean (SD) | Effect size (d) | Fisher's Exact Test |
|-------------------|---|---------------|----------------|-----------------|---------------------|
| 1 | Identifies landmarks | 1.11 (0.44) | 1.68 (0.48) | 0.58 | 0.03 / 0.00 |
| 2 | Attaches saline-filled syringe to Removes cricoid | 0.23 (0.40) | 1.07 (0.80) | 0.80 | 0.30 / 0.04 |
| 3 | Stabilizes cricothyroid with non-dominant hand | 0.00 (0.00) | 1.27 (0.80) | 0.10 | 0.71 / 0.07 |
| 4 | Inserts Removes tube, CTR while aspirating | 0.11 (0.40) | 0.59 (0.57) | 0.79 | 0.18 / 0.16 |
| 5 | Stabilizes cricoid off midline into trachea | 0.40 (0.60) | 1.10 (0.80) | 0.73 | 0.09 / 0.16 |
| 6 | Removes needle | 0.40 (0.60) | 1.30 (0.80) | 0.78 | 0.73 / * |
| 7 | Reconnects position by separation of air | 0.14 (0.34) | 0.59 (0.58) | - | 0.48 / * |
| 8 | Stabilizes vacuum cannula | 0.11 (0.35) | 0.59 (0.57) | 0.11 | 0.90 / 0.99 |
| 9 | Connects rapid CP tubing to cannula | 0.54 (0.64) | 1.42 (0.70) | 0.78 | 0.72 / * |
| Completed 9 items | | 0.71 (0.31) | 1.18 (0.72) | 0.48 | 0.00 / 0.00 |

*Unreliable because variability was 0.0

Lessons Learned

Our work shows that cricothyroidotomy skills taught to anesthesia residents at SPHMMC with a 3D printed laryngotracheal model improves knowledge, skills, and confidence.

The inter-departmental (anesthesia, otolaryngology, and simulation) development of the curriculum permitted the creation of a low-cost, high-fidelity simulator that has the potential to impact patient care and safety world-wide.



Future Application and Next Steps

Future efforts will be concentrated on 4 areas: (1) education of anesthesia providers at the University of Michigan, (2) expansion of the training curriculum into other departments at the University of Michigan, (3) repeat testing of SPHMMC anesthesia residents during future visits to assess retention of knowledge and skills, and, (4) consideration of using the curriculum to train other LMIC medical providers. Further, a local needs assessment to evaluate needs and develop tools for other emergency airway procedures, train local physicians within multiple disciplines, and ultimately improve outcomes in emergent airway scenarios would be valuable. outcomes in emergent airway scenarios would be valuable.

112: An IPC/IPE Assessment of a Student-Run Clinical Setting: Saturday Morning Pickney Student-Run Clinic

Authors: Robert Ault, Hunter Holsinger, Lisa Caratelli

Background: This presentation summarizes the recommendations presented to a clinic providing Interprofessional Collaborative Care (IPC) to underserved populations in the greater Ann Arbor area. These recommendations were developed by an Interprofessional Team of students from Dentistry, Kinesiology and Pharmacy following a semester-long IPE elective focused on fundamental concepts and skills related to Interprofessional Education (IPE) and Interprofessional Collaborative Care (IPC). The goal of this elective was to prepare students to practice inter-professionally and to improve the collaboration between professions at a clinics providing IPC for underserved populations. Students attended 4 seminars on campus and completed 4 observational visits to 2 clinics providing IPC to underserved populations in the area: the Hope Clinic in Ypsilanti and the UM Student-Run Free Clinic in Pinckney, Michigan. Using knowledge gained from the seminars and observational visits, the teams provided recommendations to the clinics focused on improving the clinic's IPC efforts.

Actions, Methods or Interventions: The team used visits to the Saturday Morning UM Student-Run Free Clinic as their observational model of patient care and recommend changes that would improve the quality and quantity of Interprofessional Collaborative Care. The charge was to assess the type of IPC provided and to prepare:

1. An executive report to the clinic on recommendations for improvement in IPC activity
2. A presentation to the class on their findings and recommendations complete with evidence from the literature supporting their recommendations
3. A poster presentation on their findings in anticipation of presenting at HPE Day.

Results: The Saturday Morning UM Student-Run Free Clinic overall was very effective in providing an efficient workflow for patient care. From a provider perspective, there was a seamless flow and interaction between the providers. The faculty-M4 and M1 interactions were very impactful learning experiences. The availability of flu shots, pregnancy tests, affordable mammograms and dietary counseling demonstrates the range of services offered. From a patient perspective, the clinic provides a convenient, financially realistic solution to their various health. On the down side, the process itself is time consuming, and there is potential for error in transcription as well as the potential for illegible penmanship on behalf of the patients. Despite that, patients have a secure place to have health concerns addressed as well as learn about insurance plans that they may qualify for and more importantly the steps to take to apply. The team assessed the clinic in term of IPEC Competencies Met in the interactions and Key Systems in Operations with a final analysis of Cumulative Gains. Findings and recommendations were:

- IPEC Competencies Met to varying degrees
- Use the knowledge of one's own role and those of other professionals to appropriately assess and address the health care needs of patients and to promote advance the health of populations (Roles/Responsibilities)
- Work with individuals of other professions to maintain a climate of mutual respect and shared values (Values/Ethics for Interprofessional Practice)
- Communicate with patients, families, communities, and professionals in health and other fields in a responsive and responsible manner that supports a team approach to the promotion and maintenance of health and the prevention and treatment of disease (Interprofessional Communication)
- Apply relationship-building values and the principles of team dynamics to perform effectively in different team roles to plan, deliver, and evaluate patient/population-centered care and population health programs and policies that are safe, timely, efficient, effective, and equitable (Teams and Teamwork)
- Key systems in operations where improvement can be gained:
 - Short Term Changes
 - Assess patient satisfaction to measure the humanistic aspect of Interprofessional care
 - Include survey with every in-take packet
 - Will help to determine additional long-term changes
 - Increase pharmacy student involvement in rounding teams to assist with medication questions and management
 - Need to increase preceptor availability
 - Should decrease role strain of rounding practitioners
 - Long Term Change
 - Improve workflow efficiency at patient intake
 - Recruit students from Health Informatics Program to assist in streamlining intake process
 - Switch from paper intake forms to electronic forms
- Cumulative Gain
- Future implementation of survey findings -> increased patient satisfaction with overall care
- Inclusion of pharmacy and health informatics professions -> increased interprofessionalism
- Inclusion of pharmacy -> decreased strain on rounding teams

-Digital patient intake forms -> Increased workflow efficiency, decreased patient wait time and increased student productivity

-Overall gain: Holistic, efficient care that is centered around conforming to the needs of the patients.

Lessons Learned: Opportunities exist within the greater Ann Arbor area for students to become involved in IPE/IPC activities in clinical settings. These opportunities and outcomes for patients can be improved through a collaborative effort between students, clinic managers and clinic personnel.


Future Applications and Next Steps: Next year's course could be improved by:

1. Adding additional sites to provide more experiences.
2. Include speakers from each community to discuss needs of the community


Interprofessional Collaboration Experience

An IPE Assessment of Saturday Pinckney Clinic


Robert Ault¹, Hunter Holsinger², Lisa Caratelli³



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UNIVERSITY OF MICHIGAN




SCHOOL OF KINESIOLOGY²
UNIVERSITY OF MICHIGAN



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BACKGROUND

As part of a collaboration between the School of Dentistry, Kinesiology, and Pharmacy at the University of Michigan, the interprofessional education pilot elective course was developed to enhance our knowledge of interprofessional collaboration prior to putting those concepts into practice. With the use of the IPEC teaching competencies in a classroom setting led by Dr. Mark Fitzgerald and Dr. Thomas Templin in collaboration with Dr. Jolene Bostwick, we applied the classroom proficiencies to a clinical setting. The information in this poster represents our knowledge and application of the IPE coursework to improve a University of Michigan student-run free clinic located in Pinckney, MI.



Patient Centered
IPE
IPC

COMPETENCIES

This list represents the interprofessional competencies that were met by the clinic and those that could be improved or were not issues to be addressed based on our visits.

A full chart of competencies can be referenced in the lower right hand corner of this poster.

Met:

1. RR1/RR4/RR7 - The provider listed as lead in treatment made sure to introduce everyone in the room and our goals in treatment. Group meetings before patient interaction helped us determine roles and responsibilities and form relationships.
2. RR2/RR3/CC1/CC6 - Before the patient interaction limitations were acknowledged and room was allowed for providers to speak up and ask questions. We worked together as a team with different viewpoints communicating differently and using translators when needed.
3. CC8 - Rather than specifically explained was represented through the experience of the patient.
4. CC4/VE3/CC6/TT1 - The meeting beforehand delegated our roles and responsibilities and how to work together to manage patients with our different backgrounds. We listened, encouraged, and supported in a professional manner.
5. TT8 - No post experience evaluation of our particular effort and productivity was measured but our project addresses the clinics.

Unmet:

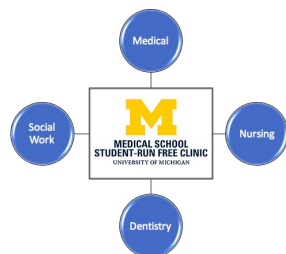
6. CC1 - In-take using paper forms is a slow and tedious process that increases wait times for patients and requires an additional student to re-input information into the EMR.
7. RR3 - Additional health professions could be leveraged at the clinic to meet specific patient care needs.
8. TT10 - Nothing was presented to us on the first day as far as evidence of what it took for the team to be effective. Directors of the clinic normally do receive training in this aspect, however.
9. TT8 - No post experience evaluation of our particular effort and productivity was measured but our project addresses the clinics.

Unaddressed during our visits:

10. TT6 - As providers we all have different backgrounds and are in different places in education allowing for more acceptance and learning so that disagreements were not present.
11. VE 8 - In experiences, no specific ethical dilemmas were present that needed to be addressed.

PROPOSED CHANGES & EXPECTED RESULTS

Current health professions that participate at the Saturday Pinckney Clinic




Short-term changes:

- Assess patient satisfaction to measure the humanistic aspect of interprofessional care
 - Initiated by including a survey with every clinic in-take packet
- Increase pharmacy students on rounding teams to assist with medication questions and management
 - Initiated by speaking with necessary stakeholders including pharmacy administration to find way to increase preceptor availability

Long-term changes:

- Increase workflow efficiency at patient intake
 - Approach students in the Health Informatics Program to assist with streamlining the intake process
 - Initiated by switching from paper intake forms to electronic forms on a touchscreen device



Two medical students discuss a patient visit with Rafat Rizk, M.D., assistant professor of gastroenterology, at the U-M Student-Run Free Clinic. <https://medicineatmichigan.org/news-research/2017/summer/our-voices-change>

Expected Results:

- Future implementation of survey finds -> increased patient satisfaction with overall care
- Inclusion of pharmacy and health informatics professions -> increased interprofessionalism
- Inclusion of pharmacy -> decreased strain on rounding teams
- Digital patient intake forms -> increased workflow efficiency, decreased patient wait time and increased student productivity

Cumulative Gain:

- Holistic, efficient care that is centered around conforming to the needs of the patients in Pinckney

SUMMARY

- **Current activities: Provider Perspective**
 - Seamless flow and interaction between providers: interactive learning experience to share and gain knowledge
 - Phenomenal organization with delegated tasks; concerns and needs addressed
 - Strong relationship with nearby labs for workups; pregnancy tests, flu shots, mammograms provided
- **Current activities: Patient Perspective**
 - Financially realistic, convenient place to get multifaceted health needs met by experienced practitioners
 - Social workers help with insurance options
 - Paperwork process is lengthy
- **Competencies**
 - Many competencies met (roles/responsibilities and goals clearly set; pre-patient meeting set the stage for treatment)
 - Some competencies were not met (effective communication tools: need quicker patient intake method; engage diverse health care professionals)
- **Short term changes:** create tool to evaluate patient satisfaction with degree of care; include pharmacy to assist with medication questions and management while decreasing strain on other practitioners (could be assessed with survey tool)
- **Long term changes:** Use of electronic media to denote patient intake information in order to alleviate transcription errors from poor handwriting; increases workflow efficiency and makes patient stay shorter
- **Cumulative gain from changes:** Center the functionality of the Pinckney student-run free clinic around the ever-changing needs of the community

| IPEC Competency List | |
|--|---|
| <ul style="list-style-type: none"> ● RR1. Communicate one's roles and responsibilities clearly to patients, families, and other professionals. ● RR2. Recognize one's limitations in skills, knowledge, and abilities. ● RR3. Engage diverse health care professionals who complement one's own professional expertise, as well as associated resources to develop strategies to meet specific patient care needs. ● RR4. Explain the roles and responsibilities of other care providers and how the team works together to provide care. ● RR7. Forge interdependent relationships with other professions to improve care and advance learning. ● CC1. Choose effective communication tools and techniques, including information systems and communication technologies, to facilitate discussions and interactions that enhance team function. ● CC8. Communicate consistently the importance of teamwork in patient-centered and community-focused care. ● TT1. Describe the process of team development and the roles and practices of effective teams. | <ul style="list-style-type: none"> ● TT10. Use available evidence to inform effective teamwork and team-based practices ● CC6. Use respectful language appropriate for a given difficult situation, crucial conversation, or interprofessional conflict. ● TT6. Engage self and others to constructively manage disagreements about values, roles, goals, and actions that arise among health care professionals and with patients and families. ● VE3. Embrace the cultural diversity and individual differences that characterize patients, populations and the health care team. ● VE8. Manage ethical dilemmas specific to Interprofessional patient/population centered care situations ● CC4. Listen actively, and encourage ideas and opinions of other team members. ● TT8. Reflect on individual and team performance for individual, as well as team, performance improvement. |

113: Pilot Interprofessional Collaborative Experience (ICE) and the Clinical Year

Authors: Joseph House, Sally Santen, Paula Ross, Michelle Daniel

Background: The Interprofessional Clinical Experience (ICE) pairs first-year medical students with other health professionals for an active observership. The goals of the course are to introduce students to the healthcare team, healthcare system, and the patient. This course was developed 3-years ago and the first cohort of students have recently completed their required third-year rotations.

Actions, Methods or Interventions: A survey was created using qualtrics (www.qualtrics.com). The survey was emailed to all 3rd year students 8 months into their third-year rotations. Reminders to complete the survey were sent out at 2-and 4-weeks. The students were split into three groups. All students were asked if they participated in ICE (some clinical students were off cycle and did not participate in ICE), had prior healthcare experience, which sites they rotated, and their degree of agreement or disagreement with 4-questions: 1) I learned the roles of other health professionals, ICE helped me understand the organization of healthcare systems, ICE prepared me for my responsibilities to work in teams, and ICE helped me interact with patients. A third of the students were asked: "how did ICE influence your interaction with various members of the healthcare team as a clerkship student?", a third were asked: "how did ICE influence your understanding of healthcare systems as a clerkship student?", and the last third were asked "how did ICE influence the care you provided to patients as a clerkship student?"

Results: Eighty-five students (51%) responded to the survey. Sixty-two percent of student somewhat-to-strongly agreed ICE taught them role of health professionals, 55% somewhat-to-strongly agreed ICE helped them understand the healthcare system, 45% somewhat-to-strongly agreed ICE prepare them to work with other professionals, and 33% somewhat-to-strongly agreed ICE helped patient interactions.

Of the 85 students, 63 students replied to the last questions with a narrative response. The three main themes were: learners had better understanding of the role of others (29), it did not help them in their clinical rotations (9), and they had better understanding of team dynamics (7). Other categories included, recognized value of other professions, improved comfort in the hospital, recognized resources available, and better understanding of patient perspective (4 each) and improved communication and healthcare system (3 each).

Lessons Learned: The goal of ICE was to introduce students to the patient, healthcare team, and healthcare system. Reviewing the impact of ICE during the clinical years showed that it met many of these goals, but it was not universal. Students had a better understanding of the role of the healthcare team which improved their understanding of team dynamics, but students rotated at two different locations and some felt one site met some goals, while the other did not. One student noted that roles of providers varied so much depending on clinical setting, ICE did not increase his knowledge, while others noted they had previously healthcare experience making ICE less impactful.

Future Applications and Next Steps: When developing ICE, it was unknown how this course would affect clinical care. Even though ICE occurred during the first year of medical school it still impacted many student's clinical time, but it did not impact everyone. When developing labor and cost intensive courses it is important to analyze why it may not be impactful for all, which will be the next step.

BACKGROUND

- Interprofessional Clinical Experience (ICE) pairs students with practicing professionals in an active observership role
- Goal introduce students to healthcare team, healthcare system, and patient
- Course began 3yrs ago and first cohort recently began clinical rotations
- Goal of study was to survey students regarding affect of ICE on clinical rotations.

METHODS

- Survey sent to students 8 months into their 10-months of clinical rotations
- Reminders sent at 2- and 4-weeks
- Students split into thirds
 - All student were asked background information
 - 4 agree/disagree questions on 7pt scale
 - I learned the roles of other health professionals
 - ICE helped me understand the organization of healthcare systems
 - ICE prepared me for my responsibilities to work in teams
 - ICE helped me interact with patients
 - 1 of 3 short-answer questions:
 - How did ICE influence your interaction with various members of the healthcare team as a clerkship student?
 - How did ICE influence your understanding of healthcare systems as a clerkship student?
 - How did ICE influence the care you provided to patients as a clerkship student?

RESULTS

- 51% responded (83)
- Somewhat to strongly agreed:
 - I learned the roles of other health professionals: 62%
 - ICE helped me understand the organization of healthcare systems: 55%
 - ICE prepared me for my responsibilities to work in teams: 45%
 - ICE helped me interact with patients: 33%
- 63/85 replied to narrative questions
- Themes:
 - 29-learners had better understanding of the role of others
 - 9-didn't help on their clinical rotation
 - 7-better understanding of team dynamics
 - 4 each-recognized value of other professions, improved comfort in the hospital, recognized resources available, and better understanding of patient perspective
 - 3 each-improved communication and healthcare system

DISCUSSION/CONCLUSIONS

- ICE met many goals, but not universal
- Better understanding of role of healthcare team members which helped with understanding team dynamics
- Some felt single site was enough, others enjoyed seeing differences as role varied depending on clinical setting
- If student had previous healthcare experience impact was lower
- Even though ICE occurred in first year it still impacted 3rd year rotations, but not everyone
- Site impacted experience

ACKNOWLEDGMENTS

Angie Sullivan: ICE coordinator
Jacob Cedarbaum and Lynze Franco: helped advertise completion of survey to students and posted on facebook page
Development of course was partially funded by AMA grant

114: Pilot Interprofessional Collaboration Seminar with Free Clinic Experiences

Authors: Jolene Bostwick, Thomas Templin, Mark Fitzgerald, Emily Ginier, Marilyn Filter

Background: A gap within our health science curricula identified an opportunity for an interprofessional seminar course with clinical experiences at local free clinics. A pilot was offered in Fall 2017 for 3 students from each of the following disciplines: pharmacy, dentistry, and kinesiology to gain interprofessional experiences both in the classroom and in the experiential setting. This project resulted from the first IPE fellows cohort. Course goals included: 1) prepare students to practice interprofessionally and 2) improve the collaboration between professions at the student run clinic for underserved populations.

Actions, Methods or Interventions: The pilot course began in September 2017. Students completed a pre-course survey identifying their discipline, understanding of ethical principles, level of experience with interprofessional education, level of interest in working with interprofessional teams, comfort working on an interprofessional team, and opened ended questions related to their personal and/or professional interest in IPE. Further, background information was gathered on their clinical experiences in free health clinics and their level of comfort working with culturally different populations and attitudes toward intercultural interactions. This same survey was completed at the conclusion of the course. The interprofessional collaborative competency attainment survey (ICCAS) was also completed at the end of the course to highlight competencies attained through the clinic and classroom experiences. Finally, students completed multiple reflections over the course of the semester following each clinic visit in addition to presentations summarizing how they feel they can have a more positive impact in the clinic settings they observed.

Results: Results are pending. They will be reported on the poster.

Lessons Learned: Overall, faculty impression is that student experiences through this course were positive. While there are opportunities for improvement, we can successfully make these modifications and continue to offer this course next fall.

Future Applications and Next Steps: We intend to offer this course again in Fall 2018. Modifications will include having a more consistent schedule with the hopes to expand to another discipline or up to 12 students from the disciplines currently involved. Course faculty will work closely with preceptors at the free clinic sites in order to better engage and enlist their assistance in supporting student clinic observations. Further, we are working on summarizing data, albeit limited, obtained through the pilot, to share our experiences via publication. Finally, we are exploring opportunities for further grant funding to support this course and identify how we can help contribute to enhancing the patient care experience at the clinic sites.

Pilot Interprofessional Collaboration Seminar with Free Clinic Experiences



Jolene R. Bostwick, PharmD, BCPS, BCPP; Marilyn S. Filter, PhD, CNM, MS, RN;
Emily Ginier, MLIS; Thomas Templin, PhD; Mark Fitzgerald, DDS, MS

Background

There is currently a potential gap within our health science curricula: students within health professions are educated in silos. There is a need to bring students together to engage in interprofessional education and collaboration (IPEC) activity whereby they address healthcare issues collaboratively and explore the opportunities.

A pilot was offered in Fall 2017 for three students from each of the following three disciplines: pharmacy, dentistry, and kinesiology, to gain interprofessional experiences both in the classroom and in the experiential setting.

Objectives

Objectives for students enrolled based on the four domains of IPEC competencies:

1. To learn more about the concept of interprofessional communication
2. To enhance understanding of the needs of underserved populations
3. To develop team building and communication skills
4. To develop assessment skill when working with the underserved in a multidisciplinary team

Course Description

A two credit interprofessional education (IPE) seminar/clinical was offered September - December 2017. Students from Kinesiology, Pharmacy, and Dentistry were enrolled in the course (n=9).

Students were introduced to interprofessional education and collaboration and interacted with students and professionals in various healthcare professions at the Medical School Student Run free clinic in Pinckney and at the Hope Clinic in Ypsilanti.. Students attended supervised clinics throughout the semester.

Student Outcomes

- Reflections journal
- Group presentation of case presentation in PowerPoint format
- Executive summary for clinic
- Group posters for presentation at HPE day

Results

Selected ICCAS Results (n=9)

| Interprofessional Communication | Mean Rank |
|---|-----------|
| Promote effective communication among members of an interprofessional (IP) team | 5.00* |
| Use an IP team approach with the patient to assess the health situation | 4.50* |
| Values and Ethics | |
| Take into account the ideas of IP team members | 4.50* |
| Roles and Responsibilities | |
| Understand the abilities and contributions of IP team members | 4.50* |
| Team and Teamwork | |
| Develop an effective care plan with IP team members | 5.00* |

Items of ICCAS were scored on a 7 point Likert Type Scale: 1= strongly disagree to 7= strongly agree ; na= not applicable; *p<0.05

Methods

A 10-question pre-post course survey and the Interprofessional Collaborative Competency Attainment Survey (ICCAS; 20 item instrument) were administered.

Conclusions

- The pre-post course survey was not found to be statistically significant; results may have been impacted by the small sample and high level of previous student involvement in free health care clinics (75%).
- Most students reported being at the high-end of comfort and positive attitudinal level in intercultural interactions and when working with culturally different populations at baseline impacting any measurable increase.
- Limitations include: lack of reliability and validity of the pre-post survey, a small sample size, and missing pre-test data for one student. Outcomes were based on a single pilot course with an intervention in two communities including students with an already high level of interest in working on interprofessional teams.
- Collected data is unable to indicate which program component was the most effective in enhancing student collaboration.

115: Identification of core ethical topics for interprofessional education in the intensive care unit: A thematic analysis

Authors: Crystal Rui, Janice Finn, Christian Vercler, Raymond De Vries, Andrew Shuman

Background: The ICU has high incidences of ethical conflicts whose resolution, or lack thereof, greatly affect patients and families; thus, it is vital that critical care providers have a fundamental knowledge of medical ethics. Furthermore, patient care in the ICU relies on an interprofessional team, and it is imperative that members communicate efficiently especially in the setting of difficult ethical dilemmas. Currently, no effective approaches for ethics education of interprofessional critical care providers have been identified. As the first step to addressing this gap, we examined what critical care professionals know and do not know about medical ethics. Our results will be used to develop an in-service ethics training program for professionals who work in ICUs.

Actions, Methods or Interventions: We interviewed six individuals each from the CCMU and SICU, with purposeful sampling to reflect the interprofessional nature of the patient care teams (i.e. 6 physicians, 2 social workers, and 4 nurses). Participants were instructed to “think aloud” as they worked through three ethical cases. Interviews were conducted between November 2016 and February 2017. We used realist thematic analysis to examine the extent and content of team members’ knowledge of medical ethics.

Results: Participants differed in level of prior clinical ethics training (ranging from no formal training to 1 participant minoring in ethics in university) and number of years in clinical practice (2.5-25 years, median 14 years). We found wide variation in the participants’ knowledge in three core areas: 1) ability to recognize and name the principles of biomedical ethics; 2) understanding of ethical concepts, particularly capacity, withdrawing and withholding treatment, and futility; and 3) the resolution of ethical dilemmas.

Lessons Learned: While interprofessional team members agree that they have an obligation to be skilled in addressing basic ethical challenges in the ICU, as a group they lack knowledge in several key areas. This makes resolving ethical dilemmas more difficult, as team members lack a common language and understanding which may impact effective teamwork.

Future Applications and Next Steps: Ethics education tailored to these three core areas will help equip critical care professionals with the necessary skills to address ethical dilemmas encountered in the ICU. Preventative ethics rounds are one approach for providing real-time, embedded interprofessional ethics education in the clinical setting. Informed by the core ethics education content areas identified here, our next step is to meet with each ICU to customize the format and frequency of preventative ethics rounds. We will then evaluate the impact and outcomes of the different approaches.

BACKGROUND

- ICU has high incidence of ethical conflicts
- ICU care is interprofessional
- Patients, families, and clinicians suffer when conflicts are unresolved
- No standard approach for interprofessional ICU ethics education

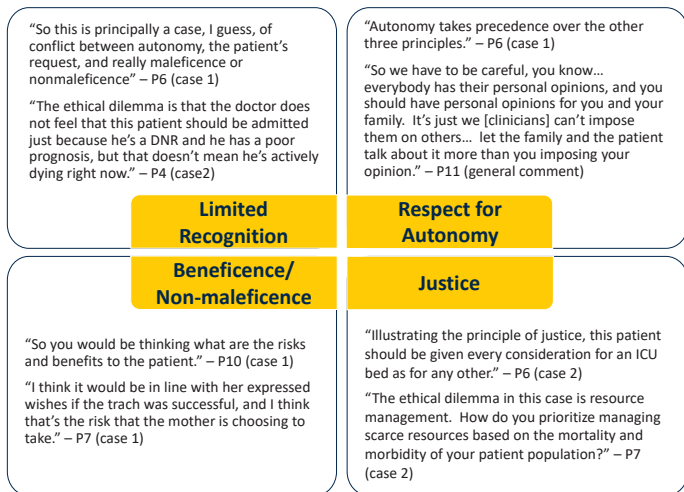
METHODS

- 12 individuals in medical and surgical ICUs were interviewed
- Participants instructed to use think aloud method for 3 cases (Table 1)
- Realist thematic analysis used to examine knowledge of medical ethics

RESULTS

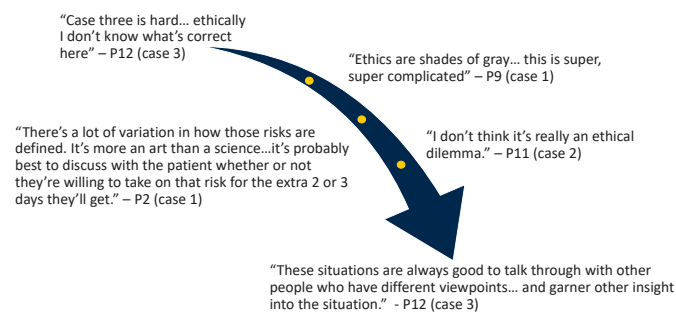
- 12 Critical Care clinicians participated in the study (Table 2)
- Wide Variation in 3 core areas:
 - Recognizing principles of biomedical ethics**
 - Difficulty in recognizing principles other than autonomy (Figure 1)
 - Understanding key ethical concepts**
 - Difficulty defining and applying 3 relevant ethical concepts (Figure 2)
 - Resolving ethical dilemmas**
 - Primary team felt to have primary responsibility to resolve dilemmas, but recognized challenges and expressed need for support for decision-making (Figure 3)

Figure 1. Recognizing and naming principles of biomedical ethics



P = Participant

Figure 3. Resolving ethical dilemmas



OBJECTIVE

- Evaluate what critical care clinicians understand about medical ethics
- Identify areas to include in a tailored preventative ethics curriculum for each ICU

| Case | Summary | Principles |
|--|---|---------------------------------------|
| Case 1: A Surgeon's Dilemma | 31yo single mother with terminal cancer decompensates, requires tracheostomy. Very high risk surgical candidate, poor prognosis, likely ventilator dependent. Patient has capacity, wants "more time" with her child. | Autonomy, Beneficence/Non-maleficence |
| Case 2: Whose Bed? | 67yo man with severe heart and lung disease is DNAR. Becomes progressively SOB and hypotensive, may benefit from closer observation. Only 1 bed left in the CCU. | Autonomy, Justice |
| Case 3: TempORIZING after Spinal Cord Injury | 22yo previously healthy man suffers spinal cord injury, paralysis below neck. Intubated in field, requested extubation after arrival to hospital. Continues to express desire to withdraw treatment several days after admission. | Autonomy |

| Table 2. Participant Demographics | |
|--------------------------------------|--|
| Gender | 6 Male, 6 Female |
| Age | Range: 27-59 years old (median 33 years old) |
| Ethnicity | 11 Caucasian, 1 South Asian |
| Years in clinical practice | Range: 2.1-25 years (median 14 years) |
| Profession | 6 Physicians, 4 Nurses, 2 Social Workers |
| Areas of clinical practice | 6 Surgical ICU, 6 Medical ICU |
| Perception ethical dilemma frequency | 5 Daily, 5 Weekly, 1 Monthly, 1 Yearly |
| Ethics education | 5 None, 1 CME, 5 University course, 1 Ethics minor |

Figure 2. Understanding key ethical concepts



Lessons Learned

- ICU members agree that they have an obligation to be skilled in addressing basic ethical challenges
- They lack knowledge in key areas which makes resolving dilemmas difficult and can contribute to provider distress

Next Steps

- Develop an ethics education program focusing these 3 core areas
- Establish preventative ethics rounds to provide embedded interprofessional education
- Customize the format and frequency to the needs of each ICU

116: An IPC/IPE Assessment of a U of M Student-Run Clinical Setting: Wednesday Evening Pickney Student-Run Clinic

Authors: Sophie Moon, Seraphina Provenzano, Tien Ho

Background: This presentation summarizes the recommendations presented to a clinic providing Interprofessional Collaborative Care (IPC) to underserved populations in the greater Ann Arbor area. These recommendations were developed by an Interprofessional Team of students from Dentistry, Kinesiology and Pharmacy following a semester-long IPE elective focused on fundamental concepts and skills related to Interprofessional Education (IPE) and Interprofessional Collaborative Care (IPC). The goal of this elective was to prepare students to practice inter-professionally and to improve the collaboration between professions at a clinics providing IPC for underserved populations. Students attended 4 seminars on campus and completed 4 observational visits to 2 clinics providing IPC to underserved populations in the area: the Hope Clinic in Ypsilanti and the UM Student-Run Free Clinic in Pinckney, Michigan. Using knowledge gained from the seminars and observational visits, the teams provided recommendations to the clinics focused on improving the clinic's IPC efforts.

Actions, Methods or Interventions: The team used visits to the Wednesday Evening UM Student-Run Free Clinic as their observational model of patient care and recommend changes that would improve the quality and quantity of Interprofessional Collaborative Care. The charge was to assess the type of IPC provided and to prepare:

1. An executive report to the clinic on recommendations for improvement in IPC activity
2. A presentation to the class on their findings and recommendations complete with evidence from the literature supporting their recommendations
3. A poster presentation on their findings in anticipation of presenting at HPE Day.

Results: The Wednesday evening UM Student-Run Free Clinic overall was very effective in providing an efficient workflow for patient care. From a provider perspective, there was a seamless flow and interaction between the providers. The faculty-student interactions were very impactful learning experiences. The availability of flu shots, pregnancy tests, affordable mammograms and dietary counseling demonstrates the range of services offered. From a patient perspective, the clinic provides a convenient, financially realistic solution to their various health. On the down side, the process itself is time consuming, and there is potential for error in transcription as well as the potential for illegible penmanship on behalf of the patients. Despite that, patients have a secure place to have health concerns addressed as well as learn about insurance plans that they may qualify for and more importantly, the steps to take to apply. The team assessed the clinic in terms of IPEC competencies and the recommendations include having an adequate number of staff and a balanced trained/untrained staff ratio. It is advised for the staff to complete a training workshop or seminar before beginning work at the clinic. Additionally, the inpatient flow, from intake to completion can be improved with better administration management and by preemptively identifying barriers to smooth patient flow.

Lessons Learned: Opportunities exist within the greater Ann Arbor area for students to become involved in IPE/IPC activities in clinical settings. These opportunities and outcomes for patients can be improved through a collaborative effort between students, clinic managers and clinic personnel. While interprofessional team members agree that they have an obligation to be skilled in addressing basic ethical challenges in the ICU, as a group they lack knowledge in several key areas. This makes resolving ethical dilemmas more difficult, as team members lack a common language and understanding which may impact effective teamwork.

Future Applications and Next Steps: Next year's course could be improved by:

- Adding additional sites to provide more experiences.
- Increasing number of visits to sites

○ Include more health disciplines in class
 interprofessional ethics education in the clinical setting. Informed by the core ethics education content areas identified here, our next step is to meet with each ICU to customize the format and frequency of preventative ethics rounds. We will then evaluate the impact and outcomes of the different approaches.

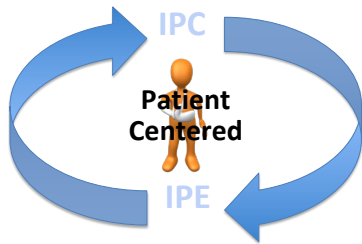
Interprofessional Collaboration Seminar An IPC/IPE Assessment of U of M Student-Run Free Clinic

Sophie Ju Hyung Moon¹, Seraphina Provenzano², Tien Ho³



BACKGROUND

Students from the University of Michigan School of Dentistry, Kinesiology, and College of Pharmacy jointly visited and observed two interprofessional sites, Hope Clinic and the University of Michigan Student-Run Free Clinic (UMSRFC) located in Ypsilanti and Pinckney, MI respectively. Students focused on events that occurred on Wednesdays at the UMSRFC, whereby the Nurse Practitioners provided care. From intake to discharge, advantages and disadvantages of IPC were evaluated.



INTRODUCTION

Interprofessional collaboration (IPC) is important to improving quality of healthcare and patient experience.

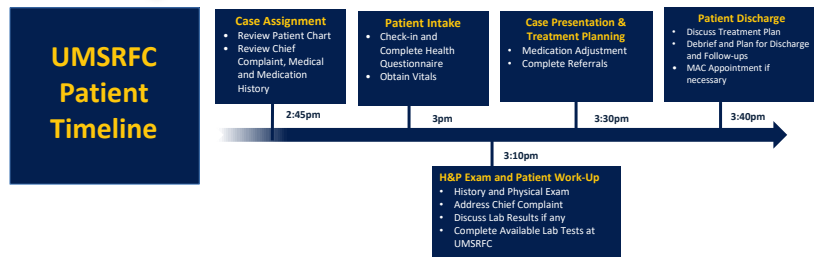
1. Multiple disciplines contribute to patient care at one appointment.
2. Cost of care can decrease.
3. Patient safety improves.
4. Responsibility for patient outcomes is shared between many professionals.
5. Collaboration improves expected patient results and maximizes information provided at each appointment.



METHODS & RESULTS



Students visited the University of Michigan Student-Run Free Clinic (UMSRFC) on two Wednesdays and shadowed patient visits from intake to discharge. A nursing student was paired with an IPE student. They presented each case to a supervising nurse practitioner, formulated a treatment plan, and debriefed the patient as a team. Students from other disciplines also contributed. Pharmacy residents provided consults in medication management while medical students worked as Spanish translators and Medicaid Assistance Coordinators (MAC).



DISCUSSION

IPC in action at UMSRFC Wednesdays:

- Pharmacy students and residents collaborating in medication management and treatment planning
- Medical students assisting in patient enrollment of Medicaid and MSsupport (financial assistance program for the uninsured)
- Medical students facilitating communication between non-English patients and healthcare professionals

Opportunities for improvement:

- Improved scheduling for site visits
- More frequent site visits
- Inclusion of additional health disciplines at UMSRFC

SUMMARY

- Interprofessional collaboration (IPC) is invaluable in providing efficient and comprehensive patient-centered healthcare while mitigating health care costs.
- IPC requires relationship-building values and principles of team dynamics to perform effectively in a team
- The interactions between different healthcare disciplines including medical students, nurse practitioners, and pharmacy residents at UMSRFC has led to improved collaboration and coordination of care.

117: Interprofessional education teams and teamwork experience

Authors: Sarah Kelling, Rina Hisamatsu, Olivia Anderson, Leslie Dubin, Josh Mergos

Background: Interprofessional education and practice is increasingly recognized as being critical for achieving the triple aim to improve the patient experience in terms of quality and satisfaction, improve the health of populations, and reduce the cost of health care. In order for students, and eventually practitioners, to effectively contribute to interprofessional teams, an asynchronous experience related to the Interprofessional Education Collaborative competency of teams and teamwork was developed.

Actions, Methods or Interventions: A 4-hour asynchronous experience open for a 4-week period, focused on teams and teamwork was developed in summer and fall of 2017 and began in January 2018. During the first week, students worked individually to complete a reading with an associated quiz, an online personality assessment based on the five factor model, and a pre-survey. Students are subsequently divided into teams of 4-5 students from different disciplines with similar goal-achievement strategies (week 3) and dissimilar strategies (week 4) and complete team assignments. Students then complete an individual post-survey at the end of the experience. All course information is located on the learning management system Canvas.

Results: A total of 345 students enrolled in the experiencing, including in the courses related to pharmacy (n=85), physical therapy (n=60), epidemiology (n=55), public health (n=40), kinesiology (n=33), nursing (n=28), health-related financial management (n=28), health policy (n=11), and 5 students enrolled in both the multiple courses. These students were enrolled in courses with seven faculty members representing the University of Michigan Ann Arbor Campus (n=4) and Flint Campus (n=3). Additional results will be presented at Health Professions Education Day.

Lessons Learned: While additional details will be available after implementation in January and February 2018, it is likely that there will be lessons learned related to use of a blended mode of teaching, use of Canvas across all two campuses, and level of learners.

Future Applications and Next Steps: We are documenting the process of creating, implementing, and evaluating this experience in order to share it with other faculty and staff interested in creating modules related to the Interprofessional Education Collaborative competencies of values/ethics, roles/responsibilities, and interprofessional communication. We are also exploring strategies to increase the sustainability of this module.



Interdisciplinary Education and Approaches to Healthcare: Teams and Teamwork Experience

Rina Hisamatsu, Olivia Anderson PhD, MPH, RD, Les Dublin MSW, ACSW, Josh Mergos MS, CNIM, Sarah Kelling PharmD, MPH, BCACP

Background

- Healthcare is increasingly moving towards a patient-centered approach that focuses on effective provider-client communication, partnership, trust, and optimal health promotion.¹
- A growing number of patients live with complex health issues that benefit from collaboration of multiple health profession disciplines to address patient health.²
- Interprofessional education (IPE) was first recommended by the Institute of Medicine in 2001 as a collaborative approach to develop the skills of healthcare students as members of an IP team.³
- Healthcare students with IPE training are more likely to work collaboratively and practice with respect and positive attitudes towards all to maximize patient care.³
- Elements of collaborative practice include responsibility, accountability, coordination, communication, cooperation, assertiveness, autonomy, and mutual trust and respect.³
- An Introduction to IPE foundational-level module was implemented in fall 2016 at the University of Michigan.

Objectives

- To create a structure for IPE modules focused on each of the Interprofessional Education Collaborative (IPEC) competencies.⁴
- To design, implement, and evaluate a foundational level module focused on the IPEC competency of Teams and Teamwork.
 - IPEC Teams and teamwork competency: *To apply relationship-building values and the principles of team dynamics to perform effectively in different team roles to plan, deliver, and evaluate patient/population-centered care and population health programs and policies that are safe, timely, efficient, effective, and equitable.*

Methods

- Faculty attended the Train-the-Trainer (T3) Interprofessional Faculty Development Program at the University of Washington.
- Faculty consulted with University of Michigan Center for Interprofessional Education, Center for Research on Learning and Teaching, and faculty who created Introduction to IPE module.
- Developed theoretical framework for IPE modules series (Figure 1).
- Developed and implemented teams and teamwork module using Canvas as Learning Management System.
- Identified themes of student open responses in and quantitative differences across pre- and post-survey data (*latter is in progress, not reported here within*).

Figure 1. Framework of foundational IPE modules

| Patient & Family Centered | | | | | | |
|---------------------------------|------------------------------|-----------------------------|--------------------------------------|---|------------------------------------|---------------------|
| Module 1 Introduction | Module 2 Teams & Teamwork | Module 3 Values & Ethics | Module 4 Roles & Responsibilities | Module 5 Interprofessional Communication | Module 6 Intercultural Exchange | Module 7 Wrap up |
| Community & Population Oriented | | | | | | |

Module Goals & Competencies

Overarching Module Goal: To instill foundational level knowledge of effective teams that students can apply to teamwork with peers and in other IPE scenarios.

Competencies:

- Describe the roles and practices of effective teams.
- Engage self and others to understand disagreements about values, roles, and actions that arise among health and other professionals.
- Reflect on team performance individually and as a team.

Module overview

- A 3.5-hour series of mini activities over a four-week period (Figure 2).
 - Module Part A: students required to complete an individual pre-survey, reading and an associated quiz, and an online personality test.
 - Module Part B: instructors generate student groups of 4-5 members using data from part A.
 - Module Part C, student groups of differing disciplines with similar personalities were prompted to solve a case related to cell phone use in the work place setting.
 - Module Part D involved teams with dissimilar personalities coming to agreement on a second group case related to travel methods to a conference as well as completion of a final post-survey.

Figure 2. Module Overview



Preliminary Results

- 345 students from Central and Flint campuses enrolled (Table 1)
- 322 students (n=93.3%) completed the module
- At the beginning of the experience
 - The most common themes when students describe effective teamwork
 - Reaching a common goal (22.1%)
 - Clear communication (21.8%)
 - Working together (17.2%)
 - The most common challenges that students anticipate when working on IP team
 - Conflicting ideas (37.5%)
 - Communication (17.4%)
 - Conflicting values (14%)

Table 1. Student enrollment

| Discipline or course | # of students | Campus |
|-------------------------|---------------|---------|
| Pharmacy | 85 | Central |
| Physical therapy | 60 | Flint |
| Epidemiology | 55 | Flint |
| Public health | 40 | Central |
| Kinesiology | 33 | Central |
| Nursing | 28 | Central |
| Financial management | 28 | Flint |
| Health policy | 11 | Flint |
| Enrolled in two courses | 5 | Flint |

Table 2. Pre-Survey Results. Student perception regarding interprofessional education, before initiation of IPE team activities; n=339

| Pre-Survey | Strongly Agree (%) | Agree (%) | Neutral (%) | Disagree (%) | Strongly Disagree (%) |
|---|--------------------|-----------|-------------|--------------|-----------------------|
| Teams consisting of a variety of health sciences professionals are more effective than teams consisting of professionals in one health sciences field | 56.8 | 36.7 | 4.4 | 2.1 | 0 |
| Working/training with interprofessional teams is crucial to my career/education as a health professional | 61.4 | 32.5 | 4.1 | 2 | 0 |
| Other health science professionals will influence my work (career) | 56.9 | 38.4 | 3.2 | 1.2 | 0.3 |
| Interprofessional health care benefits patient care | 71.3 | 26.6 | 2.1 | 0 | 0 |

| Post-Survey | Strongly Agree (%) | Agree (%) | Neutral (%) | Disagree (%) | Strongly Disagree (%) |
|---|--------------------|-----------|-------------|--------------|-----------------------|
| Teams consisting of a variety of health sciences professionals are more effective than teams consisting of professionals in one health sciences field | 52.5 | 35.4 | 8.4 | 1.9 | 1.9 |
| Working/training with interprofessional teams is crucial to my career/education as a health professional | 54.4 | 38.8 | 5 | 0.6 | 1.2 |
| Other health science professionals will influence my work (career) | 52.6 | 39.9 | 5.3 | 0.9 | 1.2 |
| Interprofessional health care benefits patient care | 67.7 | 29.2 | 1.9 | 0 | 1.2 |

Table 3. Post-Survey Results. Student perception regarding interprofessional education, after completion of IPE team activities and module; n=322.

Preliminary Results cont'd

- Students generally agreed that interprofessional education and practice was important (Tables 2 and 3).
 - As a respondent reflected, *"you get insight, new ideas, and perspectives from working with a team rather than working alone, and are exposed to individuals with different backgrounds and experiences, all of which foster a productive and diverse working community."* (Figure 1).
- Students agreed that working or training with IP teams is crucial to one's career and education as a health professional.
- Students indicate IPE is a key factor in reinforcing optimal patient-care, with 96.9% students in agreement after completing the module (Table 3).
 - One particular respondent stated that, *"each profession brings a different specialty and level of knowledge, which can further enhance patient care."*

Barriers to Success

- Management of a multi-campus study.
- Student participation in activities.
- Student difficulties navigating through the online modules
- Respondents shared views on some challenges of IPE:
 - One student stated, "commitment of members coming together, trust, respect, and differing opinions, and ways of accomplishing tasks" were the biggest barriers to success.

Future Directions

- The Teams and Teamwork module serves as a framework for future development of modules around foundational IPE competencies.
- We will utilize the data collected from this module to pursue a process paper as well as a data-driven paper to help inform the larger IPE community.
- Refine Teams and Teamwork module based off pre- and post-survey results.

Acknowledgements and Funding

We would like to thank Taz Daniels, Nicole Tuttle, Vani Patterson, Laura Smith and Frank Ascione for their support in developing and implementing the Module.

This work was supported by the University of Michigan Interprofessional Education Center seed funding.

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2017-2018 UMICH IPE Center Fellows at Train-the-Trainer (T3) Interprofessional Faculty Development Program Seattle, WA, August 2017



118: Interprofessional education teams and teamwork experience

Authors: Jian Lee, Kara McConaghy, Sarah Kim

Background: This presentation summarizes the recommendations presented to a clinic providing Interprofessional Collaborative Care (IPC) to underserved populations within Washtenaw County and Pinckney. These recommendations were developed by an Interprofessional Team of students from Dentistry, Kinesiology and Pharmacy following a semester-long IPE elective focused on fundamental concepts and skills related to Interprofessional Education (IPE) and Interprofessional Collaborative Care (IPC). The goal of this elective was to prepare students to practice inter-professionally and to improve the collaboration between professions at a clinics providing IPC for underserved populations. Students attended 4 seminars on campus and completed 4 observational visits to 2 clinics providing IPC to underserved populations in the area: the Hope Clinic in Ypsilanti and the UM Student-Run Free Clinic in Pinckney. Using knowledge gained from the seminars and observational visits, the teams provided recommendations to the clinics focused on improving the clinic's IPC efforts.

Actions, Methods or Interventions: The team visited Hope Clinic in Ypsilanti, Michigan to observe their model of patient care and recommend changes that would improve the quality and quantity of Interprofessional Collaborative Care. The charge was to assess the type of IPC provided and to prepare:

1. An executive report to the clinic on recommendations for improvement in IPC activity utilizing guidelines, named Core Competencies, set forth by the Interprofessional Education Collaborative made up of 15 national associations of schools of health professionals in 2016.
2. A presentation to the class on their findings and recommendations complete with evidence from the literature supporting their recommendations
3. A poster presentation on their findings in anticipation of presenting at HPE Day.

Results: The Hope Clinic in Ypsilanti, Michigan has a mission to be a beacon of hope for the surrounding community. Members of the community with no insurance are able to fulfill their healthcare needs at this clinic that offers a full time social worker, dentists, physicians, and pharmacists. In addition, community members can also utilize this space as a place of worship, to do their laundry, or supplement their food needs on an appointment basis.

The team assessed the clinic utilizing the guidelines of IPEC Competencies Met and Key Systems in Operations with a final analysis of Cumulative Gains. Findings and recommendations were:

•IPEC Competencies Met by the Hope Clinic

-Work with individuals of other professions to maintain a climate of mutual respect and shared values (Values/Ethics for Interprofessional Practice)

-Use the knowledge of one's own role and those of other professionals to appropriately assess and address the health care needs of patients and to promote advance the health of populations (Roles/Responsibilities)

-Communicate with patients, families, communities, and professionals in health and other fields in a responsive and responsible manner that supports a team approach to the promotion and maintenance of health and the prevention and treatment of disease (Interprofessional Communication)

-Apply relationship-building values and the principles of team dynamics to perform effectively in different team roles to plan, deliver, and evaluate patient/population-centered care and population health programs and policies that are safe, timely, efficient, effective, and equitable (Teams and Teamwork)

•Key systems in operations:

-Patient flow through clinic

-Intake system currently only focuses on the patient's chief complaint

•Goal: Create a system that allows all of a patient's health needs to be assessed at once

•Desired Result: Maintain long term health of patient, avoid worsening of possible

lifestyle diseases, avoid unnecessary return trips to the clinic, and create more holistic treatment strategies

-Have a position dedicated to thoroughly assessing all of a patient's health needs upon

intake

•Create standard set of questions

- Use questions to determine necessary services
- Work with professionals to organize times for multidisciplinary consultations
 - Allow healthcare providers to work together directly when necessary
 - Patients with overlapping or conflicting needs
- Alter scheduling of professionals
 - Currently, dental and medical clinics do not have the same hours
 - Align schedules, so all resources are available to patients
- Student involvement
 - Relatively few students were involved in the day-to-day activities at the clinic
 - Goal: incorporate more student volunteers in clinic operations
 - Desired Result: lower running costs of clinic while getting students more involved in the local community
 - Has been shown to have a wide variety of benefits for both students and the community at large
 - Establish program for University of Michigan students to get involved at Hope Clinic
 - Expose students to interprofessional environment
 - Bring students into community outside of university
 - Bring IPE students earlier in the day
 - More exposure to patients
 - Greater ability to participate in the running of the clinic
 - Funding for sustainability
 - Changes to accommodate more interprofessional collaboration as well as new community outreach programs require greater funding
 - Goal: create a better development office that helps write grants and seeks funding for new initiatives
 - Result: Create the revenue to reorganize the intake process and further develop new community outreach program
 - Address child obesity in local community
 - Utilize a greater variety of professions
 - Creation of a volunteer-run office dedicated to seeking funding for new initiatives
 - Incorporate student volunteers
 - Create new projects
 - Bring in more professionals
 - Facilitate collaborative efforts
- Cumulative Gain
 - More comprehensive care of patients in every visit
 - More streamlined intake
 - Greater professional cooperation and collaboration
 - Greater incorporation of student volunteers
 - Decreased costs
 - Greater community interaction
 - Increased social capital
 - Inspire future interprofessional efforts
 - Improve funding
 - Ensure the long-term success of program
 - Prevent competition over limited resources
 - Improve cooperative efforts and patient care

Lessons Learned: While additional details will be available after implementation in January and February 2018, it is likely that there will be lessons learned related to use of a blended mode of teaching, use of Canvas across all two campuses, and level of learners.

Future Applications and Next Steps: We are documenting the process of creating, implementing, and evaluating this experience in order to share it with other faculty and staff interested in creating

Lessons Learned: Opportunities exist within the Southeast Michigan area for students to become involved in IPE/IPC activities in clinical settings. These opportunities and outcomes for patients can be improved through a collaborative effort between students, clinic managers and clinic personnel.

Next year's course could be improved by:

- Changing scheduling of visit to insure more patient interactions. This would require not restricting interaction experiences to the scheduled IPE class periods.
- Allowing hands-on experiences rather than just shadowing
- Including more health profession students into the class.

Future Applications and Next Steps:

-Intake process:

- Create a streamlined approach to the patient intake process
- Create a complete intake form that addresses each type of visit-specialty visit, walk-in, primary care
- Allow comprehensive care through each department, rather than for the chief complaint

-Student involvement:

- Student volunteers in each respective department – Pharmacy, Dental, Intake, Food Pantry, etc
- Advertising to both Undergraduate and Health Profession students

-Funding:

- Continue applying for financial grants
- Utilize volunteers to decrease costs

Interprofessional Collaboration Seminar

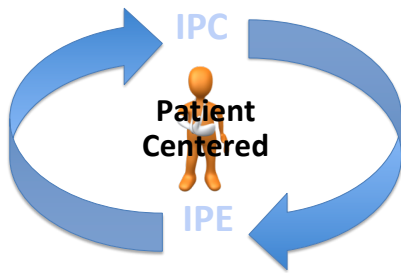
An IPC/IPE Assessment of a Clinical Setting: Hope Clinic

Jian Lee¹, Kara McConaghy², Sarah Kim³



BACKGROUND

The Hope Clinic in Ypsilanti, Michigan hopes to be beacon of hope for the surrounding community. Members of the community with no insurance are able to fulfill their healthcare needs at this clinic that offers a full time social worker, dentists, physicians, and pharmacists. On top of all that, community members can also utilize this space as a place of worship, to do their laundry, or supplement their food needs on an appointment basis.



INTRODUCTION

In 2009, six national associations of schools of health professions formed a collaborative to promote and encourage constituent efforts that would advance substantive interprofessional learning experiences. The goal was, and remains, to help prepare future health professionals for enhanced team-based care of patients and improved population health outcomes. The core competencies for IPC practice are as follows:

1. Work with individuals of other professions to maintain a climate of mutual respect and shared values. (Values/Ethics for Interprofessional Practice)
2. Use the knowledge of one's own role and those of other professions to appropriately assess and address the health care needs of patients and to promote and advance the health of populations. (Roles/Responsibilities)
3. Communicate with patients, families, communities, and professionals in health and other fields in a responsive and responsible manner that supports a team approach to the promotion and maintenance of health and the prevention and treatment of disease. (Interprofessional Communication)
4. Apply relationship-building values and the principles of team dynamics to perform effectively in different team roles to plan, deliver, and evaluate patient/population centered care and population health programs and policies that are safe, timely, efficient, effective, and equitable. (Teams and Teamwork)

METHODS & RESULTS

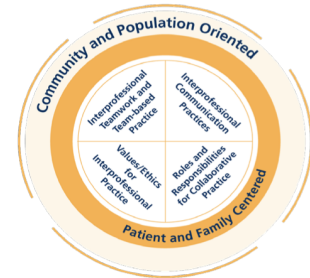
The IPC/IPE Assessment brought us into the Hope Clinic. These are the observations that we have gathered in our time there as well as suggestions for improvement.

1. Intake

The intake system currently only focuses on the patient's chief complaint. Our suggestion is to create a system that allows all of a patient's health needs to be assessed at once. This will maintain long term health of a patient, avoid worsening of possible lifestyle diseases, avoid unnecessary return trips to the clinic, and create more holistic treatment strategies. This can be done by creating a job title dedicated to thoroughly assessing all of a patient's health needs upon intake and a standard set of questions to determine necessary services. The professionals can also organize times for multidisciplinary consultations to work together directly when necessary like when patients have overlapping or conflicting needs. By aligning the schedules of professions such as dental and medical, resources can be available consistently while they are at the clinic.

3. Funding

Currently, changes to accommodate more interprofessional collaboration as well as new community outreach programs require greater funding. By expanding upon the development office that helps write grants and seeks funding for new initiatives, the Hope Clinic will be able to generate revenue to reorganize the intake process and further develop new community outreach program. One of the current problems in the community is childhood obesity. An initiative to combat this can be successfully funded through a grant in this potential expansion of the development office. This expansion will be able to realize more projects and utilize a greater variety of professions. We also suggest to create of a volunteer-run office dedicated to seeking funding for new initiatives as mentioned in the previous two points. These opportunities include incorporating student volunteers, creating new projects in general, attracting more professionals, and facilitate any potential collaborative efforts .

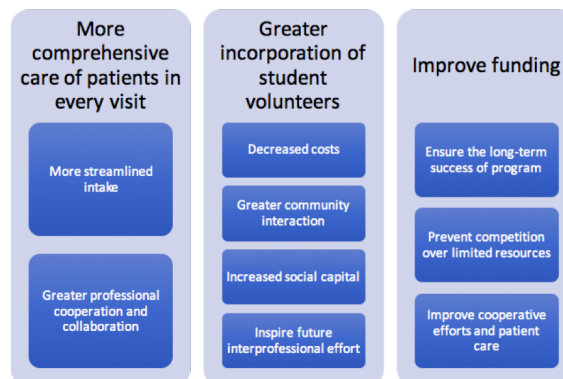


The Learning Continuum pre-licensure through practice trajectory

2. Student Involvement

Relatively few students were involved in the day-to-day activities at the clinic. Our suggestion is to incorporate more student volunteers in clinic operations. This may lower running costs of clinic while getting students more involved in the local community. This can be done by establishing a program for University of Michigan undergraduate students to get involved at Hope Clinic to expose students to interprofessional environment while involving students into the community.

DISCUSSION/SUMMARY



Graphics and competencies courtesy of: Interprofessional Education Collaborative. (2016). Core competencies for interprofessional collaborative practice: 2016 update. Washington, DC: Interprofessional Education Collaborative.

119: Primary care students' perceptions of physical activity counseling

Authors: John Lowry, Graceson Kerr

Background: Physical activity has been shown to be an effective way to prevent and manage many common health problems, such as heart disease and type II diabetes. Many primary care providers support the idea of their patients engaging in physical activity, but there are many barriers to proper physical activity counseling, including education and training, and time with patients.

Actions, Methods or Interventions: Students currently enrolled in a DO or MD medical school, physician assistant, or nurse practitioner (NP) program were recruited to take an online survey. Incorporating two previously validated surveys, subjects were asked about their own PA counseling training they have received, the importance of various PA counseling tasks, and their competency to do each task. Data analyses were performed on each Likert scale question. Open ended questions were analyzed thematically.

Results: Of the participants who completed the survey (n=72), 6.8% were MD, 52.3% were DO, 21.6% were physician assistant, and 18.2% were NP students. Primary care students rated many aspects of physical activity as being important (59.4-76.7% agreed/strongly agreed), but reported low confidence in their education and abilities to do them (19.7-51.3% agreed/strongly agreed). The most common barriers (in order of frequency) to physical activity counseling were patient motivation/compliance, lack of education, time, support system for patients, and cost/billing. The most common solutions they proposed (in order of frequency) to overcome these barriers were more education for primary care professionals, being able to refer patients to specialist, and help with psychological aspects of counseling. There was strong interest in taking an elective course, attending a CME/continuing education course, and having a certified fitness and/or nutrition professional in the office.

Lessons Learned: There is a clear disconnect between what primary care students find important and what they feel competent to do in the field. There is a need for improving medical education related to physical activity counseling. There are many opportunities for improving physical activity counseling. We recommend reforming pre-medical education to include more emphasis on physical activity counseling in the undergraduate curriculum and MCAT.

Future Applications and Next Steps: We also recommend that medical schools partner with kinesiology programs and exercise professionals to teach and assess physical activity counseling skills in the medical curriculum, as well as offer CME courses. Medical professionals could also partner with exercise professionals to provide physical activity counseling and support for patients, which would free up the providers' time to meet with patients.

Primary Care Students' Perceptions of Using Physical Activity Counseling as a Medical Intervention

John E. Lowry, Ph.D. and Graceson Kerr, B.S., Saginaw Valley State University



Purpose

The purpose of this study was to learn about the knowledge and perceptions that students in primary health care professions have related to using physical activity (PA) counseling. We also sought to identify the barriers that primary care student perceive relative to PA counseling.

Methods

Students currently enrolled in a DO or MD medical school, physician assistant, or nurse practitioner (NP) program were recruited to take an online survey. Using the Exercise and Physical Activity Competence Questionnaire (EPACQ) and other questions, participants were asked about their own PA counseling training they have received, the importance of various PA counseling tasks, and their competency to do each task. Data analyses were performed on each Likert scale question. Open ended questions were analyzed thematically.

Results

Of the participants who completed the survey (n=72), 6.8% were MD, 52.3% were DO, 21.6% were physician assistant, and 18.2% were NP students. Primary care students rated many aspects of physical activity as being important (59.4-76.7% agreed/strongly agreed), but reported low confidence in their education and abilities to do them (19.7-51.3% agreed/strongly agreed). The most common barriers (in order or frequency) to physical activity counseling were patient motivation/compliance, lack of education, time, support system for patients, and cost/billing. The most common solutions they proposed (in order of frequency) to overcome these barriers were more education for primary care professionals, being able to refer patients to specialist, and help with psychological aspects of counseling. There was strong interest in taking an elective course, attending a CME/continuing education course, and having a certified fitness and/or nutrition professional in the office.

Conclusions

There is a clear disconnect between what primary care students find important and what they feel competent to do in the field. There is a need for improving medical education related to physical activity counseling. There are many opportunities for improving physical activity counseling.

Future Applications and Next Steps

We recommend reforming pre-medical education to include more emphasis on physical activity counseling in the undergraduate curriculum and MCAT. We also recommend that medical schools partner with kinesiology programs and exercise professionals to teach and assess physical activity counseling skills in the medical curriculum, as well as offer CME courses. Medical professionals could also partner with exercise professionals and organizations to provide physical activity counseling and support for patients, which would free up the providers' time to meet with patients.



| Skills | n | Important n (%) | Competent n (%) |
|---|----|-----------------|-----------------|
| Conducting a physical examination on a non-pregnant healthy adult to approve that person to begin an exercise program | 62 | 41 (66.1) | 24 (39.4) |
| Determining the maximum heart rate for a non-pregnant healthy adult | 62 | 43 (69.3) | 22 (36.1) |
| Determining the daily caloric and nutritional needs of a non-pregnant healthy adult | 61 | 47 (77.0) | 22 (36.1) |
| Determining the body mass index for a non-pregnant healthy adult | 61 | 38 (62.3) | 51 (83.6) |
| Calculating the aerobic training heart rate range for a non-pregnant healthy adult | 62 | 36 (58.0) | 15 (24.6) |
| Designing an exercise prescription including frequency, duration, and intensity for a non-pregnant healthy adult | 62 | 46 (74.2) | 17 (27.9) |

| Most Common Barriers | Most Common Solutions |
|-------------------------------|---|
| Patient motivation/compliance | More education for primary care professionals |
| Lack of education/training | CME courses taught by exercise professionals |
| Time | Be able to refer patients to an exercise specialist |
| Support systems for patients | Help with psychological aspects of PA counseling |
| Cost and billing | Having a certified fitness and/or nutrition professional in the office. |

120: Student Reflection of Team-Based Simulation to Facilitate Interprofessional Education Competencies

Authors: Stephanie Munz, Michelle Aebersold, Anita Hart, Leila Cherara, Meg A. Bakewell, Dina Kurz, Patricia Mullan, Daniel Fischer

Background: Simulation-based education has been proven to foster team-based decision making in health professions education. Health professions students were provided a simulation opportunity to develop and practice interprofessional skills in ethics/professionalism, understanding roles and responsibilities, communication, and teams/teamwork while navigating the nuances of these behaviors in an observed and mentored setting. A simulation exercise was designed for inclusion in the University of Michigan's Interprofessional Education (IPE) Course on Team-Based Clinical Decision Making for the Winter semester 2017. Student responses were used to evaluate perception of team learning, and the experience affects the students' perception of individual and overall team learning.

Actions, Methods or Interventions: Learning objectives that were developed for the students participating in this module are based on the specific interprofessional collaborative (IPC) practice core competency domains, developed in 2011 by an expert panel sponsored by the Interprofessional Education Collaborative (IPEC) objectives. The instructional design involved a group pre-brief introducing simulation planned and rules which was followed by concurrent activities: a) an acute care simulated patient scenario and b) a brief lecture followed by a group activity utilizing a values and goals matrix to facilitate shared medical decision-making.

Students were asked to reflect on their simulation experience after debriefing using an anonymous web-based evaluation. All 320 students from Medicine, Pharmacy, Nursing, Dentistry, and Social Work enrolled in a team-based decision making course in the winter semester 2017 were included. Dentistry was the most represented profession (129 students, 40. 3%). A total of 75 students responded (response rate= 23. 4%). Pharmacy (33. 3%, 25/75) and Dentistry (28. 0%, 21/75) students represented the majority of the respondents.

Results: Student feedback was insightful and promoted further adaptation of an acute care simulated patient scenario. Salient points focused on inclusion of all team members, student self-criticism and discomfort based on their performance, and the importance of communication, delegation and leadership. Approximately half (52. 0%, 39/75) expressed the experience as "stressful" or "intimidating" or "overwhelming" yet students equally expressed it was "interesting" or "thought-provoking" or "valuable" (50. 7%, 38/75). Most students reported no previous clinical simulation experience (85. 3%, 64/75).

Lessons Learned: Based on student feedback, unique lessons learned included an expected response to the cognitive and emotional load of managing a seriously ill patient. As a result, we modified the final team debrief to include content on self-care, including dual management of the cognitive and emotional load, stress response leading to either a good or bad outcome (compassion fatigue, burnout or resilience) types of coping mechanisms (active versus avoidance), and finding balance. As student experiences in the clinical environment was limited and varied with this group, it would be important to consider the complexity and challenge of the simulation scenario to match the level of the student learners.

Future Applications and Next Steps: Despite known challenges, these findings support simulation as a proven strategy for positive team learning. This simulation promoted practice of interprofessional education competencies in a clinically stressful scenario. Of particular relevance, students may benefit from training in health professional self-care, resilience and coping strategies in acute

patient care scenarios. Additional simulation experiences may relieve the intimidation factors. The process for simulation design of this module as well as identification of logistical and design challenges will be addressed in a distributable format to others who are committed to using simulation in their team-based IPE experiences.



Student Reflection of Team-Based Simulation to Facilitate Interprofessional Education Competencies

SM Munz, M Aebersold, AL Hart, L Cherara, MA Bakewell, D Kurz, P Mullan, D Fischer
University of Michigan

ABSTRACT

Objectives: Simulation-based education has been proven to foster team-based decision making in health professions education. Health professions students were provided a simulation opportunity to develop and practice interprofessional skills in ethics/professionalism, communication, roles/responsibilities, and teams/teamwork while navigating the nuances of these behaviors in an observed and mentored setting. The objectives are to describe the simulation development in its first semester based on students' reflections. Student responses were used to evaluate perception of team learning, and how the experience affects the students' perception of individual and overall team performance.

Methods: Students were asked to reflect on their simulation experience after debriefing using an anonymous web-based evaluation. All 320 students from Medicine, Pharmacy, Nursing, Dentistry, and Social Work enrolled in a team-based decision making course in the winter semester 2017 were included. Dentistry was the most represented profession (129 students, 40.3%).

Results: Student feedback was insightful and promoted further adaptation of an acute care simulated patient scenario. Salient points focused on inclusion of all team members, student self-criticism and discomfort based on their performance, and the importance of communication, delegation and leadership. Approximately half (52.0%, 39/75) expressed the experience as "stressful" or "intimidating" or "overwhelming" yet students equally expressed it was "interesting" or "thought-provoking" or "valuable" (50.7%, 38/75).

Conclusions: Despite known challenges, these findings support simulation in a clinically stressful scenario as a proven strategy for positive team learning and promotion of IPC practice.

BACKGROUND

Interprofessional simulation-based education has demonstrated its effectiveness in improving learner self-efficacy in clinical scenarios. A mixed-methods study by Walters et al. showed improvement in perceived communication and teamwork abilities.¹ IPE competencies in the WHO framework.² Simulation based education has also shown effectiveness in multidisciplinary training in teamwork, communication and leadership.³ Health professions education prioritizes collaborative learning and competence, as outlined by the Interprofessional Education Collaborative.⁴ A simulation exercise was designed for inclusion in the University of Michigan's Interprofessional Education (IPE) Course on Team-Based Clinical Decision Making for the Winter semester 2017 and 2018. Utilizing mixed methodology, our interprofessional faculty team has three specific aims: 1) to evaluate if the sequence of these experiences affects observable team performance 2) to identify if measured teamwork attitudes and behaviors correlate to the timing of the simulation exercise and 3) how these experiences affect the students' perception of individual and overall team performance.

AIMS

We performed assessments on student perception of:

- Team learning experiences,
- Simulation effects on individual performance,
- Simulation effects on team performance.

METHODS

This research was exempted from IRB oversight (#HUM 00126071).

Respondents: Data were collected from health professions students in Dentistry, Medicine, Nursing, Pharmacy and Social Work. Responses were received from 75 of the 320 students. The overall response rate was 23.4%. Less than 15% of the students had participated in any clinical simulation before. For 85.3%, 64/75) this was their first such experience.

Procedure: Data were collected with anonymous web-based evaluation at the end of the simulation module in an interprofessional team-based decision making course.

Educational intervention: A group pre-brief was followed by concurrent activities: an acute care simulated patient scenario involving an 88-year-old female who is acutely ill and presents for emergency evaluation after a recent surgery and hospital stay related to an oral squamous cell carcinoma; and a brief lecture followed by group activity utilizing a values and goals matrix to facilitate shared decision-making. The session concludes with a group debrief.

The 7 open-ended questions related to scenario reflection, including description of the experience and its impact, identification of roles and contributions, what went well and what could have happened differently.

Table 1: Overview of the respondents

| Discipline | # of students | Response rate (%) |
|-------------|---------------|-------------------|
| Pharmacy | 25 | 33.3 |
| Dentistry | 21 | 28.0 |
| Social Work | 16 | 21.3 |
| Nursing | 11 | 14.7 |
| Medicine | 2 | 2.7 |
| Total | 75/320 | 23.4 |

RESULTS



Table 2: Themes in team learning experiences by IPE Competencies

| Themes | Positive | Negative | Neutral |
|-------------------------------------|----------|----------|---------|
| Values/Ethics | 8 | 2 | 0 |
| Roles and Responsibilities | 20 | 10 | 0 |
| Communication | 9 | 3 | 2 |
| Teams and Teamwork | 8 | 5 | 0 |
| Expectations, Situational Structure | 2 | 20 | 0 |
| Emotional Self Experience | 13 | 20 | 10 |
| Emotional Situational Experience | 27 | 9 | 7 |

Respondents were far more critical of their individual performance than of others' and the team's overall performance. The frequency of comments deemed 'positive' reflections of team performance far outweighed 'negative' comments with 57/60 or 95% of comments as supportive and appreciative of other team members' contributions to team function. The 3 'negative' or 'neutral' responses referred to observable challenges for team members stepping out of a comfortable proscribed role to fill a gap in the team dynamic.

Identified themes correlated with IPE competencies.⁴ Students reported feeling underprepared for the simulation scenario most often based on lack of clinical, simulation and team-based experience.

Positive: Patient-centered empathy, self awareness of role, importance of listening and closed-loop communication, reliance on team members for cumulative success, motivation and engagement in process application, useful and active practice in a safe environment.

Negative: Lack of involvement, assertion and confidence, team performance impacted by emotional gravity of situation, intimidating, frustrating, overwhelming.

Neutral: Stressful, realistic, chaotic, intense.



Table 3: Themes and frequency regarding individual performance

| Themes | Positive | Negative | Neutral |
|-------------------------------------|----------|----------|---------|
| Values/Ethics | 36 | 4 | 0 |
| Roles and Responsibilities | 33 | 33 | 0 |
| Communication | 42 | 20 | 1 |
| Teams and Teamwork | 8 | 3 | 0 |
| Expectations, Situational Structure | 10 | 30 | 0 |
| Emotional Self Experience | 21 | 34 | 11 |
| Emotional Situational Experience | 4 | 2 | 7 |

DISCUSSION

This simulation showcased the breadth and depth of opportunity in facilitating active learning of interprofessional competencies⁴ while navigating the nuances of these behaviors in an observed and mentored setting. Overall, reflections of student performance were more critical of themselves and more complimentary and appreciative of others' contributions, which highlighted development of team members' roles and communication strategies. Focus was sometimes diverted from the learning process toward the clinical case outcome. Negative impressions were associated with the stress and genuine nature of the simulation. We made an early course correction to incorporate the importance of self-care, resilience and coping strategies. Furthermore, we recommend incorporating these elements in health professions education, even at the preclinical level. Utilizing emotionally demanding clinical simulations combined with such a curriculum may be an area of educational research that could enhance the subsequent resilience of health professionals before compassion fatigue and burnout.



CONCLUSIONS

- This optional reflective activity after an acute care simulation illustrated student reaction to a challenging clinical scenario which may help promote an active reflective practice.
- Simulation was reported to feel genuine and provided a structured and safe environment for learners.
- Self-efficacy and introspective identification of self limitations may provide a catalyst for future growth and development.
- Health professions students may benefit from training in self-care, resilience and coping strategies in emotionally demanding care scenarios. Additional simulation experiences may relieve intimidation factors experienced by the novice.

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ACKNOWLEDGMENTS

We want to thank the student respondents for responding to our survey. This material is based on work supported by the University of Michigan's Center for Interprofessional Education, which was funded through the U-M Transforming Learning for a Third Century (TLTC) grants program. Additional project support was provided by the Center for Research on Learning and Teaching and the Interprofessional Leadership Fellows program.

121: “IN MY SHOES”: Improving Empathy and Interprofessional Care for Patients with Autism using Virtual Simulation Based Learning Experiences guided by the IPEC competencies

Authors: Harneet Grewal, Carman Turkelson, Peggy Ursuy, Natalie Colabianchi

Background: Autism spectrum disorder (ASD) is a developmental disability that presents challenges for affected individuals socially and emotionally; it impacts and manifests through communication and behavior. One in 68 persons in the United States are affected with autism, which equates to approximately 1% of the population and all of them need, require and deserve optimal health care (CDC, 2018). Traditionally healthcare professions students have limited opportunities to learn about or gain an understanding of the lived experience of an individual and family with autism. Likewise, future healthcare providers often have limited understanding of the interprofessional team role and responsibilities in providing patient family centered care for this vulnerable population.

Actions, Methods or Interventions: A pre-post design will be used to examine the effectiveness of a multifaceted strategy including traditional educational strategies (didactic, videos, case studies) and a virtual reality (VR) simulation based learning experience on enhancing healthcare profession students empathy and understanding of their interprofessional roles and responsibilities for a patient with autism. Students from undergraduate and graduate nursing and dentistry programs will participate in an evidence based interprofessional educational experience that will include a virtual reality simulation based learning experience focusing on the lived experience of an individual with autism.

Results: Primary outcome measures will include examination of student perceptions related to empathy using the Jefferson Scale of Empathy. Perceptions of their roles and responsibilities as a healthcare team member who is providing patient/family centered care to a person with ASD using the ISVS-9A and ISVS-9B for data collection. Qualitative data will also be collected from self-reflection assessments and the simulation based learning experience debrief session.

Lessons Learned: It is anticipated that utilization of a multi-faceted educational approach including traditional methods plus virtual reality simulation based learning experience will allow students to gain valuable experiential knowledge regarding autism, as well as gain appreciation for the role the interprofessional team contributes to high-quality, compassionate care for this vulnerable population. Hopefully they will appreciate what it means to be “in the shoes” of their patient with ASD as well as another healthcare provider serving this population.

Future Applications and Next Steps: Create more immersive and experiential interprofessional educational exercises on ASD and neurodevelopmental disorders to enhance and better provide patient/family centered care to children and their families.



IN MY SHOES: Improving Empathy and Interprofessional Care for Patients with Autism Using A Multifaceted Learning Experience Guided by the IPEC Competencies

H Grewal¹, P Ursuy², C Turkelson², N Colabianchi³
Dentistry¹, Nursing² and Kinesiology³

BACKGROUND

- Autism (ASD) is a developmental disability that presents challenges for affected individuals socially and emotionally; it impacts and manifests through communication and behavior.
- One in 68 persons in the United States are affected with autism, which equates to approximately 1% of the population and all of them need, require and deserve optimal health care (CDC, 2018).
- Traditionally healthcare professions students have limited opportunities to learn about or gain an understanding of the lived experience of an individual and family with autism.
- Likewise, future healthcare providers often have limited understanding of the interprofessional team role and responsibilities in providing patient family centered care for this vulnerable population.

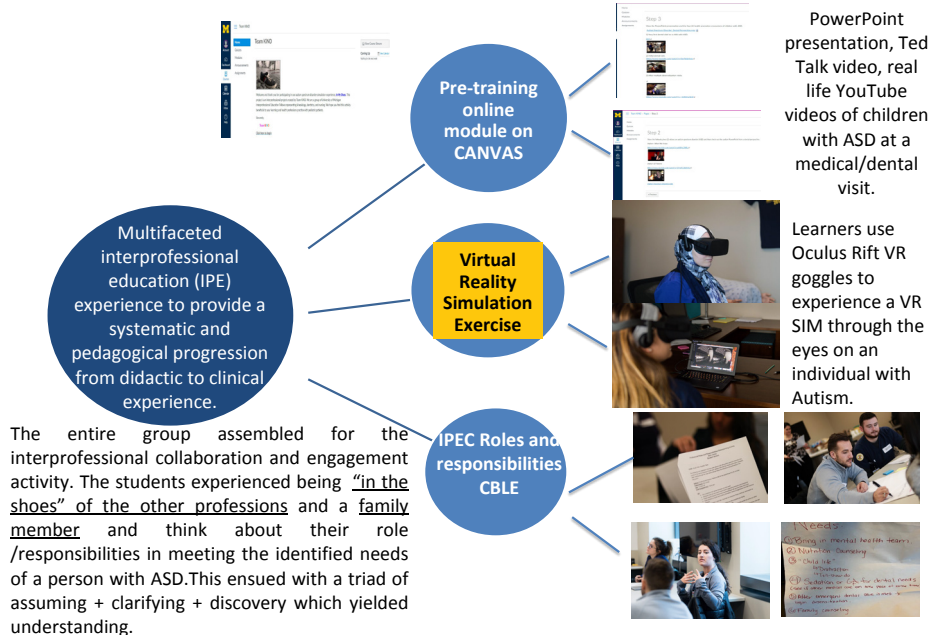
PURPOSE

- To improve the awareness of the lived experience of ASD through the lens of an affected child and family
- To enhance the empathy of healthcare professional students through an interprofessional educational experience using virtual reality.
- Additional outcome measures will be to explore the learner's perceptions of interprofessional socialization and readiness to function in interprofessional teams who may be caring for a child and family affected with ASD.

METHODS

- A convenience sample of six final semester undergraduate Bachelor of Science in Nursing (BSN) students and six first year Pediatric Dentistry residency students was recruited participate in this pilot study. Primary outcome measures included examination of student perceptions related to empathy using the Jefferson Scale of Empathy.(JSE)
- Perceptions of their roles and responsibilities as a healthcare team member who is providing patient/family centered care to a person with ASD using a pre-post Interprofessional Socialization and Valuing Scale (ISVS-9A and ISVS-9B).
- Qualitative data collected from self-reflection assessments and the simulation based learning experience debrief session.

METHODS



PowerPoint presentation, Ted Talk video, real life YouTube videos of children with ASD at a medical/dental visit.

Learners use Oculus Rift VR goggles to experience a VR SIM through the eyes on an individual with Autism.

The entire group assembled for the interprofessional collaboration and engagement activity. The students experienced being "in the shoes" of the other professions and a family member and think about their role/responsibilities in meeting the identified needs of a person with ASD. This ensued with a triad of assuming + clarifying + discovery which yielded understanding.

OUTCOMES

Data analysis is in progress. Preliminary results from the qualitative data indicate that both dental and nursing students found the experience to be very valuable and recommended that it be incorporated into a formal course.

Pediatric dental residents' comments:

- ❖ "Eye-opening", "Overwhelming"; "Very informative"
- ❖ "...a very realistic perspective on the hardships families with autism endure."
- ❖ "Have better understanding of the role of nurses in coordination of care..."
- ❖ "Inter-provider communication is important and a challenge."
- ❖ "I will be more cognizant about the barriers these families face and try to assist as best as possible in making the child's dental experience as efficient as possible."

Nursing Student Comments:

- ❖ "Emotional"; "Beneficial"; "Surprising"
- ❖ "...recognize the fact that parents of children with ASD are often forced to function as their own case managers."
- ❖ "...highlighted the importance of being knowledgeable in these patient conditions and ways to enhance the inpatient experience."
- ❖ "It provided a much-needed realization for me, in that I never knew that those who have autism that are non-verbal actually had the opportunity to communicate complex thought with the assistance of technology."

| Quantitative Survey Items | t-Test(sig ^{*)}) | Qualitative Comment |
|--|----------------------------|---|
| I am able to negotiate more openly with others within a team (ISVS B) | 0.0463* | Trying to work more with child life and the other care providers to provide coordinated care, possibly coordinating appointments as well to make it easier on the family. |
| Nursing: I feel knowledgeable about the role of a dentist on a team serving the health care needs of a patient with autism spectrum disorder (ASD) and their family. | 0.0409* | I really enjoyed the interprofessional aspect and working with the dentists! Seeing what they do and their point of view was very interesting. |
| A health care provider's sense of humor contributes to a better clinical outcome (JSE) | 0.0055* | I loved the videos that were incorporated. The emotion and humor that resulted from them really helped keep me interested and engaged. |

DISCUSSION

- Utilization of a multi-faceted IPE approach allowed students to gain valuable experiential knowledge regarding ASD.
- Students also gained appreciation for how an IP team contributes to high-quality, empathetic care for this vulnerable population.
- Insight gained related to what it means to be "in the shoes" of the patient with ASD as well as the family members and another healthcare caring for this population.

FUTURE DIRECTIONS

Create more immersive and experiential interprofessional educational exercises on ASD to enhance patient/family centered care .

ACKNOWLEDGEMENTS

The authors would like to thank Dr. Vidya Ramaswamy and Nishitha Malugari for their statistical support. Funding/support for this project was received from University of Michigan's Center for Interprofessional Education, which was funded through the U-M Transforming Learning for a Third Century (TLTC) grants program.

122: A Four Week Residency Preparation Course: Primary Care “Boot Camp”

Description

Authors: Scott Kelley, Julie Blaszczak, Anna Laurie

Background: Literature pertaining to residency preparation courses (RPCs) or “boot camps” dates back to at least 2004.¹ There is growing acceptance of RPCs as a way to better prepare medical students for day one of internship, and mitigate safety concerns around a “July Phenomenon.”^{2,3} Our institution is moving toward required RPCs for all graduating students, and Family Medicine (FM) will pilot a Primary Care RPC in March 2018. Others have described boot camps of two weeks or less in primary care, but we believe this would be the first four week transition course in FM.⁴⁻⁶

Actions, Methods or Interventions: The outline for the course was created using an iterative process involving focus groups of interns and residency leadership within our department, as well as collaboration with other disciplines at the University of Michigan (UM) that have established RPCs. A key component of the RPC is a mock paging curriculum, which emphasizes the importance of communication with nurses.

Results: We designed a novel four week RPC in FM, for implementation March 2018, and seek to describe this course. Outcomes will include measurement of student satisfaction, knowledge, and skills before, during, and after the course. Mock paging will be administered and scored by two experienced nurses.

Lessons Learned: We successfully created a RPC through collaboration with multiple stakeholders in Michigan Medicine.

Future Applications and Next Steps: RPCs are appreciated by students and teaching faculty alike.³ We anticipate that our course will be similarly welcomed, and can serve as a model for other health professions schools seeking to better prepare their students for internship and other advanced practice.



Background

Literature pertaining to residency preparation courses (RPCs) or "boot camps" dates back to at least 2004.¹ There is growing acceptance of RPCs as a way to better prepare medical students for day one of internship, and mitigate safety concerns around a "July Phenomenon."^{2,3} Our institution is moving toward required RPCs for all graduating students, and Family Medicine (FM) piloted a Primary Care RPC in March 2018. Others have described boot camps of two weeks or less in primary care, but we believe this would be the first four week transition course in FM.⁴⁻⁶

Methods

The outline for the course was created using an iterative process involving focus groups of interns and residency leadership within our department, as well as collaboration with other disciplines at the University of Michigan (UM) that have established RPCs. A key component of the RPC is a mock paging curriculum, which emphasizes the importance of communication with nurses. Mock paging was administered and scored by two experienced nurses. Additional outcomes measured include student satisfaction, knowledge, and skills before, during, and after the course.

Results

We designed a novel four week RPC in FM, for implementation March 2018, and seek to describe this course. Most post-course measurements are pending at this time, but all students demonstrated competence with the simulated procedures. After the first four paging cases, no student had performed all of the "must do" or "should do" actions. Conversely, none of the students performed any of the "must not do" actions.



⁷ Lumbar Puncture Simulator

| Date | Time | Topic |
|----------|------------|--|
| Mon/5 | 8A-9A | Intro, Orientation |
| | 9A-12P | Pre-test (Aquifer) |
| | 1-2P | Approach to Respiratory Emergencies |
| | 2-5P | Respiratory Cases & Colonoscopy |
| Tues/6 | 9A-10A | Approach to Paging |
| | 10A-12P | Screening (HME) |
| | 1P-2P | Resilience |
| | 2P-4P | NG Tube and IV placement |
| Wed/7 | 4P-5P | Intro to Individual Development Plan |
| | 10A-12P | Lumbar Puncture |
| Wed/7 | 1P-3P | Billing/coding Basics |
| | 8A-10A | Thoracentesis (with IM) |
| Thurs/8 | 10A-12P | YB, BD, MK, CL |
| | 10A-12P | Thoracentesis (with IM) |
| | 1-2:30P | KM, ES, SW, NZ |
| | 2:30-5P | Resident as Teacher |
| Fri/9 | 1-2:30P | Self-directed learning (e.g., develop chalk talks) |
| | 2:30-5P | |
| Fri/9 | 8A-12P | Co-precepting (Chelsea) KM, ES, SW |
| | 1P-5P | Co-precepting (Chelsea) YB, BD, MK |
| Mon/12 | 10A-12P | ACLs Intro |
| | 1:30-5 | ACLs Cases |
| Tues/13 | 9A-12P | NBME Health System Science Exam |
| | 1P-3P | Efficiency, Intern Survival Skills |
| | 3P-5P | Self-directed learning (e.g., iSim) |
| Wed/14 | 8A-10A | Fam. Med. Grand Rounds |
| | 10A-12P | FM Resident Conference |
| Thurs/15 | 1P-5P | FAST/Abdominal Ultrasound |
| | 9A-10:30 | Professionalism |
| Thurs/15 | 10:30-12 | Communication Skills (with staff and pts.) |
| | 1P-4P | Perineal Repair and OB Ultrasound |
| Fri/16 | | MATCH DAY – no residency prep activities scheduled |
| Mon/19 | 10A-12P | Note Writing |
| | 1P-5P | Co-precepting (Chelsea) CL, NZ |
| Tues/20 | 10A-12P | Paracentesis |
| | 1P-5P | Self-directed learning (e.g., Aquifer cases) |
| Wed/21 | 9A-11A | Difficult Conversations (Breaking Bad News) |
| | 11A-12P | EBM Overview |
| | 12:50-1:50 | Brianwood All Team Meeting |
| | 2-3P | Chalk Talks |
| Thurs/22 | 3P-5P | |
| | 9A-10A | Outpatient Management of Chronic Disease |
| Thurs/22 | 10-10:30 | Break/Room Change |
| | 10:30-12 | Anx/Dep/Mental Illness |
| | 1P-5P | Self-directed learning |
| | | |
| Fri/23 | 9-10 | Shock |
| | 10-11:30 | Central Lines |
| | 11:30-1:30 | Individual feedback |
| | 1:30-3 | Paging Debriefing |
| Fri/23 | 3-5 | Self-directed learning |
| | | |
| Mon/26 | 10A-12P | OB Triage, Day 1 L&D |
| | 1P-2P | Death Exam |
| | 2P-3P | Delirium |
| | 3P-3:40 | Signout/Cross Coverage |
| | 3:40-4:20 | Stress Testing + Pre-operative Exam |
| | 4:20-5P | Bugs and Drugs |
| Tues/27 | 9A-10A | OPEN |
| | 10A-11A | OPEN |
| | 11A-12P | OPEN |
| | 1P-5P | Self-directed learning |
| Wed/28 | 8A-10A | Fam. Med. Morbidity and Mortality Conf. |
| | 10A-12P | FM Resident Conference |
| | 1P-2P | Cervical Cancer Screening |
| | 2P-3P | Vaginitis |
| | 3P-4P | Contraception 101 |
| | 4P-5P | Self-directed learning |
| Thurs/29 | 5P-6P | NBME Health System Science Review |
| | 10A-11A | PCMH/Population Management |
| Thurs/29 | 11A-12P | Well Child Exam |
| | 1P-4P | Wrap up, post test (Aquifer) |
| Fri/30 | | |
| | | Good Friday and start of Passover |
| | | Self-directed learning |

Nurse pages student with the following scenario: "Re: Patient HL - I received a call from the lab that Mr. HL has a critical lab value - potassium is 6.8. Please advise. Pager # XXXXXX Callback # xxx-xxx-xxxx (MOCK Paging)"

Summary information for RN: Mr. HL is an 84yo M with history of type 2 DM, HTN, and newly diagnosed multiple myeloma and renal insufficiency. He was admitted last night and given IV fluids and medications for symptomatic hypercalcemia.

If queried, the following relevant information should be provided:

| Vitals and Physical | Symptoms |
|--|--|
| Vitals Temp 37.1, HR 98, RR 16, BP 158/92, O2 sat 90% room air | What are you concerned about/why did you page? I just got a call from the lab about a critical value, potassium of 6.8, and wanted to make sure you were aware. |
| I/O (only give if specifically asked). No urine output since admission. | What symptoms does the patient have? The patient says he is a little tired. |
| Physical Exam Neurologic - AAOx3 Lungs - Crackles in bilateral lung fields. Heart - Regular rhythm. No murmurs or rubs Abdomen - Abdomen is soft, non-tender Extremities - 2+ bilateral pitting edema to the knees. Foley (urinary catheter) is present | If asked about specific symptoms: Is the patient short of breath? No Does he have chest pain? No Pain? No Dizziness? No Urinary symptoms? No dysuria or urinary symptoms. |
| Diagnostics: Labs & Imaging | Historical Info & Follow Up |
| Labs (drawn 1 hour ago): Only give if students can describe use for this information | What is his past medical history? Type 2 diabetes, hypertension, myeloma |

HYPERKALEMIA EVALUATION GRID (MAX 27pts)

| Must Do (+2) | Should Do (+1) | Could Do (0) | Shouldn't Do (-1) | Mustn't Do (-2) |
|-------------------------------------|---------------------------------------|--|--------------------|-----------------|
| ASSESSMENT | | | | |
| Ask if blood specimen was hemolyzed | Urine electrolytes | | | |
| Ask for the rest of the basic panel | Urine electrolytes | | | |
| ↓ | ↓ | ↓ | | |
| MANAGEMENT | | | | |
| Give calcium gluconate | Ensure patient on low K diet (or NPO) | Discontinue IV fluids OR Give IV Fluids | | |
| Give insulin + glucose | Give kayaxalate | Give diuretic (i.e. Give insulin without | Repeat labs before | |



Conclusions

We successfully created a RPC through collaboration with multiple stakeholders in Michigan Medicine. Experience elsewhere suggests that RPCs are appreciated by students and teaching faculty alike.³ We anticipate that our course will be similarly welcomed, and can serve as a model for other health professions schools seeking to better prepare their students for internship and other advanced practice.

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200: Entrustable Professional Activities: A Framework for Assessment in Dental Education

Authors: Vidya Ramaswamy, Theodora Danciu, Mark Fitzgerald, Aditi Gupta, Carol Anne Murdoch-Kinch, Stephanie Munz, Romesh P. Nalliah, Tracy de Peralta

Background: The essence of Entrustable Professional Activities (EPAs) assessment framework is the entrustment of responsibility to a trainee/student, by the faculty/teacher. This approach assumes that adequate performance by the trainee includes the ability to effectively demonstrate competencies in a workplace setting so that the teacher entrusts the trainee with the care of their patient, to perform the activity with a specified level of independence and supervision. Thus, an EPA framework goes beyond competency-based assessment, is more holistic, and links competencies to the workplace. EPAs require the demonstration of multiple competencies in an integrated manner, and are descriptors of work rather than descriptors of workers (competencies). EPAs "...identify the critical activities that constitute a specialty ...the activities of which we would all agree should be carried out by a trained specialist" (ten Cate & Scheele, 2007). In this sense, EPAs more closely align themselves to Miller's pyramid's "does" level and require that the trainee demonstrate overall competence. EPAs and their developmental milestones define the expectations of a trainee in within a clinical context (Gilhooly, Schumacher, West, & Jones Jr, 2014).

Need for EPAs: There are 3 reasons why EPAs are useful in dental education. One, they emphasize the role of "entrustment" in the assessment of competencies. The value of including entrustment, or assessment of trustworthiness to provide care to the patient, is that it places patient safety into focus, as suggested by EPA work in Pediatrics (Gilhooly, Schumacher, West, & Jones jr, (2014). A second reason why EPAs should be useful in dental education is that they directly assess how well the student is prepared for clinical practice. A significant barrier to the integration of competencies in medical education has been the perception of a lack of applicability to real world practice (Carraccio & Burke, 2010) and this issue is relevant for dental education too. EPAs bridge the gap between the theory of competency based education and clinical practice, and includes judgement of trustworthiness of the trainee to competently perform the care, putting it all together for patient safety. (ten Cate & Scheele, 2007). Third, faculty may find EPAs as a more useful assessment framework, as it takes assessment of competency and readiness for practice beyond evaluation of performance of individual skills, in a controlled setting, to longitudinal assessment of competence and trustworthiness for patient care within an authentic workplace setting. In a survey of 2013 dental school graduates, many areas of under preparedness were self-identified (Garrison, Lucas-Perry, McAllister, Anderson, & Valachovic, 2014). It seems that conventional measures of performance may not be good indicators of "readiness for practice". The use of EPAs will help faculty better assess students' readiness for practice, thereby promoting overall competency in graduating dentists. The AAMC has adopted the use of EPAs in medical education. The EPA framework holds great promise for dental education as it provides the clinical context for dental competencies and milestones in a way that makes sense to dental educators and practicing professionals.

Actions, Methods or Interventions: In the current ongoing study, following a similar approach as was used for creating the AAMC EPAs for entering residency, a core EPA steering committee at the School of Dentistry at the University of Michigan is drafting the EPAs for general dentistry. To inform the process the group has examined EPAs in pediatrics and family medicine and also examined the EPA literature. A Delphi method will be used to obtain feedback from various groups to refine these EPAs. A preliminary list of EPAs was presented to the academic deans of North American dental schools at the ADEA (American Dental Education Association) Fall Meeting to obtain feedback (First phase). Future revisions will be presented to a reactor panel comprising the academic deans of the Big Ten dental schools (second phase) and in the final phase, the drafted EPAs will be sent out to survey participants (n=200) that will include educators, students, dentists and insurance representatives to further refine the EPAs

Results: Feedback from the academic deans meeting has been compiled and used to refine the EPAs. The EPA steering committee has defined competency domains and competencies for dentistry for 14 dental EPAs and is in the process of drafting a detailed EPA rubric for each of the 14 EPAs that maps these competency domains, with defined developmental milestones.

Lessons Learned: • EPAs can provide a framework for assessment of progression towards and attainment of readiness for practice. In order to measure entrustment (by the faculty) and trustworthiness (of the trainee), assessment has to be based on longitudinal feedback from multiple sources and multiple evaluators. Assessments of overall competence and assessments in applied contexts that mimic real life situations are of great value to measuring entrustment, trustworthiness, and overall competency.

•For the EPA framework for assessment to be adopted by other dental schools, they have to be presented

in a flexible format that allows each school to adapt it according to their School's mission and intended educational outcomes

Future Applications and Next Steps: Future plans are to present the EPAs to a wider national audience, pilot the EPAs as an assessment framework at the University of Michigan School of Dentistry and carefully evaluate the best way to facilitate their use in dental education.



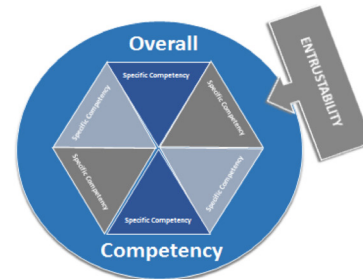
SCHOOL OF DENTISTRY
UNIVERSITY OF MICHIGAN

Entrustable Professional Activities: A Framework for Assessment in Dental Education

YOUR PHOO

Vidya Ramaswamy, Theodora Danciu, Mark Fitzgerald, Tracy de Peralta, Stephanie Munz, Romesh P. Nalliah, Aditi Gupta, Carol Anne Murdoch-Kinch

The essence of Entrustable Professional Activities (EPAs) assessment framework is the entrustment of responsibility to a trainee/student, by the faculty/teacher. An EPA framework goes beyond competency- based assessment, is more holistic, and links competencies to the workplace. EPAs require the demonstration of multiple competencies in an integrated manner, and are descriptors of work rather than descriptors of workers.



Milestones

Describe, in behavioral terms, learning and performance levels dental students are expected to demonstrate for specific competencies by a particular point in their education.



Based on Mullan & Lypton 2011; Swing et al 2009 JGME

An example of an Entrustability Scale: The Ottawa Surgical Competency Operating Room (O-SCORE) Scale

| Level | Descriptor |
|-------|--|
| 1 | "I had to do" (i.e., requires complete hands on guidance, did not do, or was not given the opportunity to do) |
| 2 | "I had to talk them through" (i.e., able to perform tasks but requires constant direction) |
| 3 | "I had to prompt them from time to time" (i.e., demonstrates some independence, but requires intermittent direction) |
| 4 | "I needed to be there in the room just in case" (i.e., independence but unaware of risks and still requires supervision for safe practice) |
| 5 | "I did not need to be there" (i.e., complete independence, understands risks and performs safely, practice ready) |

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The authors adapted the scale from Gofton W, Dudek N, Wood T, Balaa F, Hamstra S. The Ottawa surgical competency operating room evaluation (O-SCORE): A tool to assess surgical competence. Acad Med. 2012;87:1401-407.

THE EPA PROJECT IN A NUTSHELL Funded by ADEA GIES Grant 2017-2018

AIM: To develop a **template for EPAs** in Dentistry with the help of the following groups using the DELPHI method.

- A. A **Core Steering Committee at UMSD** who will oversee all phases of this project.
- B. The **Academic Deans** at the ADEA FALL 2017 meeting. (Phase 1)
- C. A **Reactor Panel** consisting of different stakeholders. (Phase 2)
- D. Survey feedback from practicing dentists. (Phase 3)

EPAs for the General Dentist

(modified from the EPA framework in Family Medicine, <http://www.afmrd.org/page/epa>)

1. Provide a primary care dental home for comprehensive longitudinal oral care for individuals and their families of all ages, including people with special healthcare needs.
2. Serve as a first contact source and access point to care for oral health issues and dental problems.
3. Develop trusting relationships and sustained partnerships with individuals, families, communities and other professionals.
4. In the context of culture and health beliefs of individuals and families, use the best scientific evidence to set mutual health goals and provide recommendations most likely to benefit health.
5. Provide preventive care recommendations that optimize wellness and function, modify risk factors for illness and injury, detect illness in early manageable stages, and expedite recovery from intervention.
6. Use scientific evidence to optimize the care of individuals, families and populations.
7. Provide leadership within interprofessional care teams and work collaboratively across disciplines and professions.
8. Diagnose and manage conditions and [multiple] comorbidities.
9. Diagnose and manage oral emergencies, trauma and infection.
10. Perform common procedures in multiple settings.
11. Manage medical emergencies in the dental setting.
12. Coordinate care and evaluate specialty consultation and referral as the condition of the individual requires.
13. Coordinate care and evaluate specialty consultation and referral as the condition of the individual requires.
14. Advocate for individuals, families and communities to optimize health care equity and minimize health outcome disparities.
15. Provide oral health care within the scope of general dentistry, including local anesthesia, and pain and anxiety control, with consideration of the impact of prescribing practices and substance use disorder.

201: Presence of Encouraging Words Impacts Medical Student Perception of Feedback Effectiveness

Authors: Kathryn Marchetti, Britta Han, Gabrielle Shaughness, Gurjit Sandhu, David T Hughes, Anne Pelletier-Cameron, Rishindra M Reddy,

Background: Medical education literature emphasizes the importance of improving methods of providing feedback to medical students. However, little is known about whether students can differentiate between effective and ineffective feedback. Students' inability to recognize effective feedback may diminish the impact of efforts aimed to improve such. We hypothesized students would be able to differentiate between effective and ineffective feedback regardless of feedback content and level clinical experience.

Actions, Methods or Interventions: Via an anonymous evaluation, pre- and post-clinical medical students were asked to label 7 examples of feedback as effective, mediocre, or ineffective. Completion of all core third-year clerkships designed post-clinical status. The examples provided included 3 effective and 3 ineffective examples. Effective feedback had only specific and encouraging/corrective elements, and ineffective feedback had only nonspecific and encouraging/corrective elements.

Results: 341 medical students were surveyed, and 140 (41%) students responded with 72 pre- and 68 post-clinical. Pre- and post-clinical students correctly identified effective feedback with similar accuracy of 72.6% versus 69.9%, respectively ($p = 0.576$). Both groups identified ineffective feedback with diminished precision, yet, post-clinical students correctly identified ineffective feedback with overall improved accuracy of 55.4% versus 39.4%, respectively ($p = 0.001$). Overall, clinical experience improved students' ability to correctly identify feedback as effective, mediocre, and ineffective ($p = 0.023$). Further, effective feedback with encouraging elements was 5.4 times as likely to be correctly label as effective, whereas effective feedback with only corrective elements was 1.2 times as likely to be correctly labeled (OR 4.4 95% CI: 2.49 – 7.71). Ineffective feedback with encouraging elements was 9.8 times as likely to be incorrectly labeled as mediocre or effective (OR 14.9, 95% CI: 7.8 – 28.3).

Lessons Learned: Clinical experience improves students' ability to more accurately identify feedback quality. Yet for all students, the presence or absence of encouraging words significantly impacted their perception of feedback efficacy. This perception of quality may skew utilization. These results warrant the inclusion of students in efforts designed to improve clinical feedback.

Future Applications and Next Steps: Interventions designed to improve clinical feedback should incorporate medical students. If students are aware of bias to view feedback without encouragement as ineffective, then they may improve their receptiveness to corrective feedback.

203: Medical Students More Likely to Provide Ineffective Feedback to Core Surgical Clerkship

Authors: Britta Han, Kathryn Marchetti, Gurjit Sandhu, David T Hughes, Rishindra M Reddy

Background: Current medical education emphasizes improving methods of giving feedback to medical students. However, there is sparse literature about medical student ability to give effective feedback to faculty and core clerkships, which is important for improvement of faculty teaching. Additionally, at many institutions, evaluations from medical students are used as a metric for faculty career advancement. The aim of this study was to characterize the quality of feedback, using summative evaluations as a proxy, provided by third year medical students to the core surgery clerkship.

Actions, Methods or Interventions: As part of an anonymous online evaluation of the core surgery clerkship, 374 third year medical students were asked, "What did you like best about this clerkship?" (reinforcement response) and "How might this clerkship be improved?" (improvement response). Using qualitative content analysis, these responses were coded as encouraging, corrective, specific, and nonspecific. These responses were further labeled as effective, mediocre, and ineffective. Effective feedback had specific and either encouraging or corrective elements; ineffective feedback had only nonspecific and encouraging or corrective elements; and mediocre feedback had both effective and ineffective elements.

Results: At a single institution, 374 third year medical students were asked to respond to two questions for a total of 748 possible responses. 72.7% of students (n = 272) responded to at least one question for a total of 480 responses. Only 9.8% of all responses were effective while 52.1% were ineffective. 3.1% of reinforcement responses were effective while 17.6% of improvement responses were effective ($p < 0.0005$). Of all responses, 52.1% were ineffective. 67.6% of reinforcement responses were ineffective while 33.9% of improvement responses were ineffective ($p < 0.0005$). Of all responses, 47.3% included specific elements; 31.7% of reinforcement and 65.6% of improvement responses contained specific elements ($p < 0.0005$).

Lessons Learned: Overall, the majority of feedback provided by medical students was ineffective. Yet, students provided more effective feedback when asked for improvement type responses by incorporating more specific elements. This data supports the importance a formal feedback curriculum for medical students, who will become the next generation of residents and faculty tasked with giving feedback, and additionally will lead to improved faculty teaching evaluations.

Future Applications and Next Steps: Our data should be utilized to develop an explicit and robust feedback curriculum designed specifically to improved ability of medical students to provide effective feedback.



MICHIGAN MEDICINE
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Medical Students More Likely to Provide Ineffective Feedback to Core Surgical Clerkship

Britta Han MS^{1*}; Kathryn Marchetti BS^{1*}; Gurjit Sandhu PhD²; David T. Hughes MD²; Rishindra M. Reddy MD²

¹University of Michigan Medical School ² Department of Surgery, Michigan Medicine

*Co-first authors

BACKGROUND

Medical education literature emphasizes the importance of improving the methods and quality of clinical feedback.

Yet, little is known about medical students' ability to provide effective feedback to residents, faculty, and core clerkships. Medical student feedback is utilized to support residents on applications for fellowship and faculty positions, improve faculty teaching, and as a metric for faculty career advancement.

Reinforcement questions in feedback identifies items that should remain the same (e.g. What did you like best?). Improvement questions in feedback identifies items that require change (e.g. How might ___ be improved?)

AIM: We sought to characterize the quality of feedback provided by third year medical students to the core surgery clerkship. We hypothesized students would provide ineffective feedback for both reinforcement and improvement questions.

METHODS



Third Year Medical Students
(n = 374)



Anonymous Evaluation of Core Surgery Clerkship

Students were asked...

- "What did you like best about this clerkship?" (reinforcement response)
- "How might this clerkship be improved?" (improvement response)

Retrospective qualitative content analysis was used to code student responses using a previously developed coding framework¹ for feedback (Table 1). The analysis results between reinforcement and improvement responses were compared for differences using chi-square analysis with $p < 0.05$ being significant.

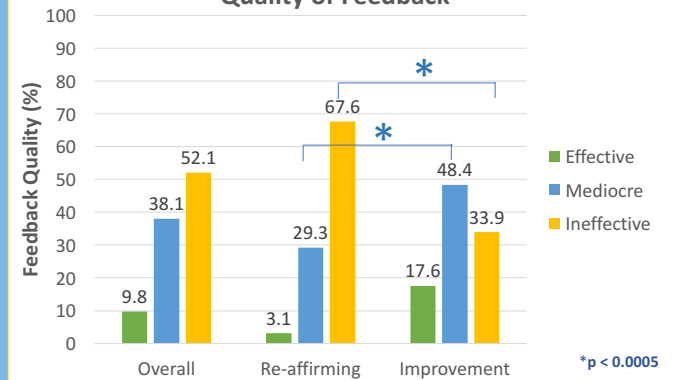
Table 1.

| | |
|-------------|---|
| Effective | Specific + Encouraging and/or Corrective |
| Mediocre | Specific + Non-specific + Encouraging and/or Corrective |
| Ineffective | Non-specific + Encouraging and/or Corrective |

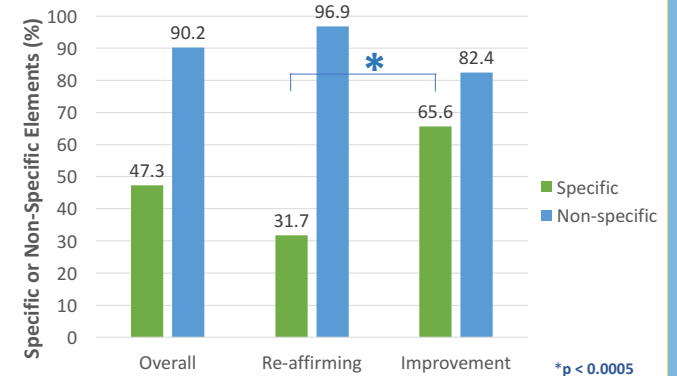
RESULTS

- 72.7% of students (n = 272) responded to at least one question
- Possible total of 780 responses (374 students x 2 questions)

Quality of Feedback



Presence of Specific and Non-Specific Elements



CONCLUSION

- The majority of feedback provided by medical students was ineffective.
- Students provide more effective feedback when asked for improvement type responses than reinforcement type responses by incorporating more specific elements.
- Future Goals: Develop formal feedback curriculum for medical students who will be come next generation of residents and faculty tasked with giving feedback

References

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205: Michigan Hip Curriculum: Early evaluation of a new simulation-based curriculum for diagnosis of developmental hip dysplasia

Authors: Deborah Rooney, Wes Turner, Patricia Dine, Hannah King, Skoczylas Maria, Theresa Nemetz, Scott Laorr, Michelle Caird, Clifford Craig

Background: The diagnosis of developmental hip dysplasia (DDH) relies heavily on physical examination findings. DDH physical exam maneuvers (Ortolani and Barlow) require practice and exposure to develop mastery to ensure accurate diagnosis. Until recently, examination skills were taught bedside, with rare opportunities to examine an infant with DDH. With recent development of a high-fidelity simulator, the Michigan Hip, we aim to remedy the limitations of other teaching models by providing a more realistic response to maneuvers. The goals of this collaborative work, that includes researchers from Biomedical Engineering, Pediatric Orthopaedics, Pediatrics, and the Clinical Simulation Center, were to evaluate the impact of the novel simulation-based DDH curriculum on pediatric learners' affect and ability to diagnose DDH in the infant.

Actions, Methods or Interventions: Ninety-seven trainees (24 second-year medical students, 72 third-year medical students) engaged in hands-on simulation-based training from July, 2017 to January, 2018, targeting DDH exam and diagnostic skills during the nursery component of their pediatric rotation. Following training with the faculty instructor (CC), each student supplied information regarding current DDH training practices and self-efficacy at DDH examination and diagnosis. Trainees then examined and diagnosed three unknown simulators with different clinical presentations (e.g. right, bilateral, left DDH) and reported diagnoses confidence using 5-point scale (5= "really confident"). Pre-post self-efficacy ratings were compared using Kruskal Wallis test, with effect sizes calculated, and percent frequency of post-training correct diagnoses on each simulator were calculated.

Results: Trainees reported an average of 9.5 DDH exams to date (range=[0, 40], SD=9.4), with only 9 students (9.3%) reporting ever feeling a dislocatable hip in the clinical setting. Participants reported Observations in clinical setting (91.8%) and Observations in clinical setting with added explanation (77.3%) as most common DDH instructional methods prior to this training. Participants' self-reported knowledge of proper DDH exam, and confidence at correctly diagnosing normal and DDH positive infants improved with training, $p < 0.05$ (Table 1). Following training, the majority of participants (52, 54.2%) were able to correctly diagnose all 3 models with high confidence, $M=3.72$, while 33 (34.4%) of trainees correctly diagnosed 2/3, and 11 (11.4%) were able to correctly diagnose 1/3 models, with moderate confidence, $M=3.55$ and $M=3.64$, respectively.

Lessons Learned: Early evidence suggests the instructor facilitated, simulation-based curriculum that employs our novel model may benefit trainees as they learn and practice DDH exam skills.

Future Applications and Next Steps: Extension of curricula to other training-levels, specialties, and institutions, and development of objective performance standards to follow.

Michigan Hip Curriculum: Early evaluation of a new simulation-based curriculum for diagnosis of developmental hip dysplasia

Wes Turner¹, Deborah Rooney PhD², Patricia Dine³, Hannah King¹, Maria Skoczylas MD⁴, Theresa Nemetz⁴, Scott Laorr², Clifford Craig MD³

¹Department Orthopaedic Surgery, C.S. Mott Children's Hospital, ²Department of Learning Health Sciences, University of Michigan Medical School
³Department of Biomedical Engineering, University of Michigan College of Engineering, ⁴ Department of Pediatrics, C.S. Mott Children's Hospital



Background

The diagnosis of developmental hip dysplasia (DDH) relies heavily on physical examination findings. DDH physical exam maneuvers (Otolani and Barlow) require practice and exposure to develop mastery to ensure accurate diagnosis.

Until recently, examination skills were taught bedside, with rare opportunities to examine an infant with DDH. With recent development of a high-fidelity simulator, the Michigan Hip, we aim to remedy the limitations of other teaching models by providing a more realistic response to maneuvers.

The goals of this collaborative work, that includes researchers from Biomedical Engineering, Pediatric Orthopaedics, Pediatrics, and the Clinical Simulation Center, were to evaluate the impact of the novel simulation-based DDH curriculum on pediatric learners' affect and ability to diagnose DDH in the infant.

Methods

- 97 trainees (24 second-year medical students, 72 third-year medical students) engaged in hands-on simulation-based training from July, 2017 to January, 2018, targeting DDH exam and diagnostic skills during the nursery component of their pediatric rotation.
- Following training with the faculty instructor (CC), each student supplied information regarding current DDH training practices and self-efficacy at DDH examination and diagnosis.
- Trainees examined and diagnosed three unknown simulators with different clinical presentations (e.g. right, bilateral, left DDH) and reported diagnoses confidence using 5-point scale (5= "really confident").
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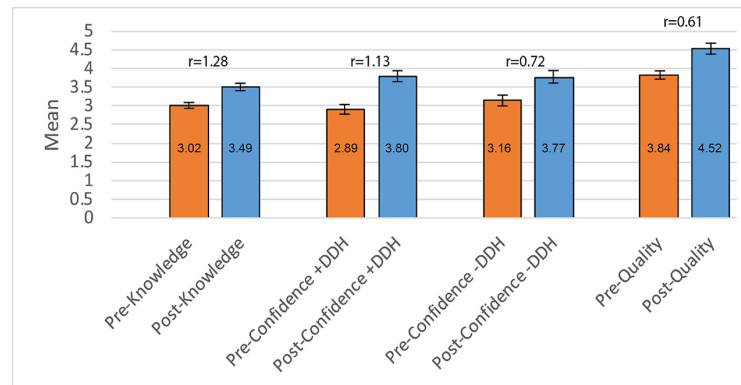
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Participants' self-reported knowledge of proper DDH exam, and confidence at correctly diagnosing normal and DDH positive infants improved with training, $p < 0.05$ (Figure 1).

Figure 1. Comparison of trainee pre-post ratings using Kruskal Wallis test. Knowledge scored using 4-point scale, while Quality and Confidence scored used 5-point scale. Effect size (r) indicated



Following training, the majority of participants (52, 54.2%) were able to correctly diagnose all 3 models with high confidence, $M=3.72$, while 33 (34.4%) of trainees correctly diagnosed 2/3, and 11 (11.4%) were able to correctly diagnose 1/3 models, with moderate confidence, $M=3.55$ and $M=3.64$, respectively.



Conclusion

Early evidence suggests the instructor facilitated, simulation-based curriculum that employs our novel model may benefit trainees as they learn and practice DDH exam skills.

Next Steps

Extension of curricula to other training-levels, specialties, and institutions, and development of objective performance standards to follow.

300: How Students Choose E-learning Resources – The Importance of Convenience and Familiarity

Authors: Lauren Rodenbarger, Michael Hortsch

Background: Student use of electronic learning (e-learning) resources in the biomedical sciences is rapidly increasing in popularity. E-learning tools such as online software and mobile applications are also growing in format variety. The factors that influence students' e-learning preferences and the effectiveness of these resources on learning outcomes remain understudied. Investigating which e-learning formats are favored by students and which factors contribute to their ultimate choice can improve the design of these resources to achieve optimal student usage and learning outcomes.

Actions, Methods or Interventions: The SecondLook Histology tool is a widely used self-assessment resource that is available to University of Michigan students enrolled in a histology course. Identical in content, it is offered in three formats to cater to a variety of student preferences and electronic devices. SecondLook is available in the form of PowerPoint files, an interactive website, and a mobile smartphone/tablet application (app). University of Michigan undergraduate, graduate, and dental students (N=156) participating in one of two histology courses were provided with directions to access any of the all three SecondLook formats at the beginning of the course. Upon the conclusion of the course, students were surveyed about which SecondLook Histology format they favored and asked to elaborate on the factors that impacted their choice.

Results: The SecondLook e-learning format survey was completed by 155 out 156 dental and graduate/undergraduate students (91.8% participation rate). A majority of students (54.2%) reported using only one format. The PowerPoint format was the most popular final choice (58.3%). Both the interactive website and mobile app formats were favored less often (19.9% and 21.1%, respectively). Familiarity with the PowerPoint software and convenience of obtaining and using a specific resource was named by many students as a major factor in selecting their favored e-learning format.

Lessons Learned: The added user-friendly features of both the interactive website and mobile app formats did not deter the students from ultimately favoring the PowerPoint SecondLook format. Ease of access and familiarity rather than user features and novelty were major factors in students' format choice. Other factors governing format selection included device and time availability, flexibility of use, and the environments in which the students used the formats. In addition, the survey results also demonstrated that the availability of these e-learning tools seemingly replaced student use of some more traditional, lower tech learning tools such as textbooks and the course website.

Future Applications and Next Steps: The SecondLook histology self-assessment review tool has demonstrated to be a popular e-learning resource among undergraduate, graduate, and dental students learning histology at the University of Michigan. Many of the factors governing format selection discussed above possess the potential to impact learning outcomes. Future studies include correlating the students' format selections with individual learning outcomes to determine whether there are differences in students' examination results correlating with SecondLook e-learning format choices.



University of Michigan
Medical School

HOW STUDENTS CHOOSE E-LEARNING RESOURCES - THE IMPORTANCE OF CONVENIENCE AND FAMILIARITY

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University of Michigan
Medical School

Abstract: Student use of electronic learning (e-learning) resources in the biomedical sciences is rapidly increasing in popularity. E-learning tools such as online software and mobile applications are also growing in format variety. The factors that influence students' e-learning preferences and the effectiveness of these resources on learning outcomes remain understudied. Investigating which e-learning formats are favored by students and which factors contribute to their ultimate choice can improve the design of these resources to achieve optimal student usage and learning outcomes. **Actions, Methods or Intervention:** The *SecondLook™* Histology tool is a widely used self-assessment resource that is available to University of Michigan students enrolled in a histology course. Identical in content, it is offered in three formats to cater to a variety of student preferences and electronic devices. *SecondLook™* is available in the form of PowerPoint files, an interactive website, and a mobile smartphone/tablet application (app). University of Michigan undergraduate, graduate, and dental students (N=156) participating in one of two histology courses were provided with directions to access any of the all three *SecondLook™* formats at the beginning of the course. Upon the conclusion of the course, students were surveyed about which *SecondLook™* Histology format they favored and asked to elaborate on the factors that impacted their choice. **Results:** The *SecondLook™* e-learning format survey was completed by 155 out of 156 dental (DENT510) and graduate/undergraduate students (CDB450/550) (91.8% participation rate). A majority of students (54.2%) reported using only one format. The PowerPoint format was the most popular final choice (58.3%). Both the interactive website and mobile app formats were favored less often (19.9% and 21.1%, respectively). Familiarity with the PowerPoint software and convenience of obtaining and using a specific resource was named by many students as a major factor in selecting their favored e-learning format. **Lessons Learned:** The added user-friendly features of both the interactive website and mobile app formats did not deter the students from ultimately favoring the PowerPoint *SecondLook™* format. Ease of access and familiarity rather than user features and novelty were major factors in students' format choice. Other factors governing format selection included device and time availability, flexibility of use, and the environments in which the students used the formats. In addition, the survey results also demonstrated that the availability of these e-learning tools seemingly replaced student use of some more traditional, lower tech learning tools such as textbooks and the course website. **Future Application and Next Steps:** The *SecondLook™* histology self-assessment review tool has demonstrated to be a popular e-learning resource among undergraduate, graduate, and dental students learning histology at the University of Michigan. Many of the factors governing format selection discussed above possess the potential to impact learning outcomes. Future studies include correlating the students' format selections with individual learning outcomes to determine whether there are differences in students' examination results correlating with *SecondLook™* e-learning format choices.

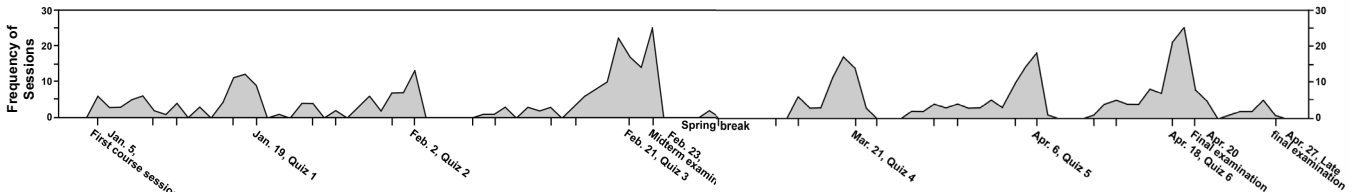
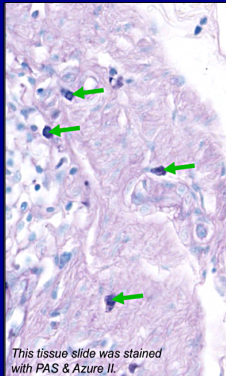


Figure 1. Number of daily *SecondLook™* website sessions. The frequency by which graduate and undergraduate students (CDB450/550 course) accessed the online *SecondLook™* resource was plotted against the timeline of assessment events in the course schedule.



Identify the cells indicated by the green arrows.
Mast cells require a special stain (such as Azure II or Toluidine blue) to visualize their basophilic granules.
What are their main secretion products? Mast cells secrete histamine, heparin and other bioactive molecules, e.g., cytokines.
Comment on their clinical importance? Mast cells participate in allergic reactions and may cause anaphylactic shock when triggered.
Name a similar cell that can be found in peripheral blood smears.
Basophils

Figure 2. Representative slide of the *SecondLook™* resource material. For the tissue image comprised of mast cells (left), the instructions for the assessment shown in yellow display first, and the answers shown in white proceed second (right).

| Software Format Attributes and Features: | SecondLook™ PowerPoint files | SecondLook™ online website | SecondLook™ mobile application |
|---|------------------------------|----------------------------|--------------------------------|
| Interactive user experience | + | + | + |
| 27 sets covering most topics of the course | + | + | + |
| Order of set pages can be randomized | - | + | + |
| Allows combination of different sets into customized review session | - | + | + |
| Can be downloaded to a device | + | - | + |
| Always requires a live Internet connection | - | + | - |
| Requires a connection to a password-protected server | One time | Every time | One time |
| Works on a desktop/laptop computer | + | + | - |
| Works on a smartphone and computer tablet | - | + | + |
| Software requirements | MS PowerPoint | Internet browser | iOS or Android OS |

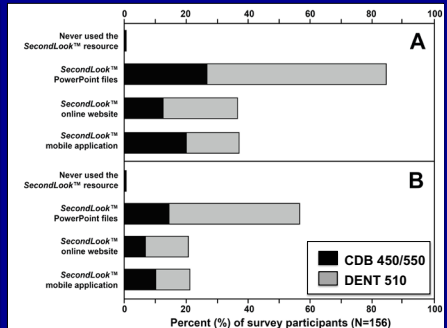


Figure 3. Percentage of CDB 450/550 and DENT 510 students that A) used and B) preferred each *SecondLook™* format (i.e. PowerPoint files, online website, or mobile application).

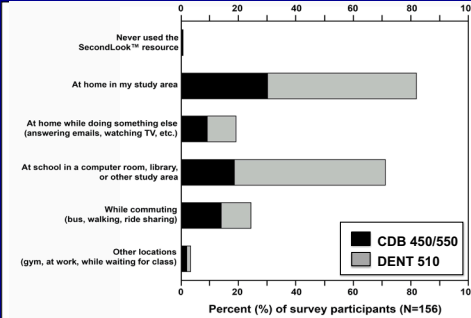


Figure 4. Percentage of CDB 450/550 and DENT 510 students that used the *SecondLook™* resource in different study environments.

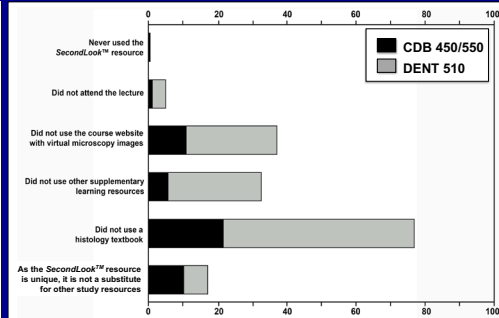


Figure 5. Percentage of CDB 450/550 and DENT 510 students that substituted *SecondLook™* for other learning resources.

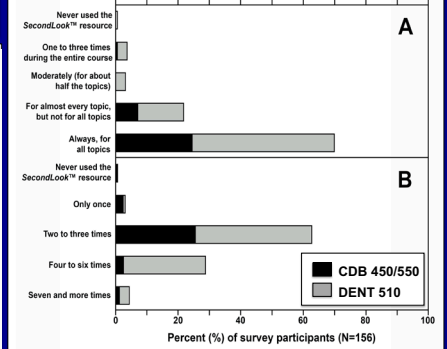


Figure 6. Percentage of CDB 450/550 and DENT 510 students that used the *SecondLook™* resource with respect to number of uses A) during the entire course and B) for each lecture topic.

Results and Conclusions: The *SecondLook™* resource is a valuable asset to the histology curriculum at the University of Michigan (Hortsch 2015) and is widely popular among students as a review tool (Figs 1). The **Three Formats of *SecondLook™*:** *SecondLook™* is available in three formats which contain identical content (Fig 2), yet differ in their accessibility, device-compatibility, and available features (Tab 1) (Hortsch 2015). The majority of students surveyed marked that they accessed and preferred the PowerPoint format most, whereas the online website or the mobile application were less favored (Fig 3). No correlation was found between the *SecondLook™* format preference and course grade (data not shown). Convenience and familiarity with the PowerPoint software and device-availability were cited most often as reasons for their choice of *SecondLook™* format.
Comparing the PowerPoint and Mobile Application Formats: Although one might speculate that this generation of students would prefer all their e-learning software in a feature-packed mobile application form, this study demonstrates that students prefer the lower-tech PowerPoint format. Using *SecondLook™* on a laptop computer instead of a mobile device eliminates hindrances with the utility of mobile applications as well as the frequent distractions associated with mobile devices, which are both common frustrations associated with mobile e-learning software (Gikas and Grant 2013). Viewing the *SecondLook™* resource on a laptop computer also offers a much larger screen from which to visualize the intricate histology images.
Comparing the PowerPoint and Online Website Formats: One possible reason for the students' preference for the PowerPoint format over the online website may be due to the downloadable nature of the PowerPoint material and thus requires no live internet connection nor password to review (Tab 1). Additionally, the *SecondLook™* PowerPoint slides are saved in the same location as the course lecture slides for each topic, providing easy accessibility.
The students' predominant use of the resource occurs in academic environments conducive to studying, such as a computer room or designated study area (Fig 4). Some students employed the *SecondLook™* tool as a substitute for other learning resources, such as a histology textbook or the course website (Fig 5). A majority of students accessed the *SecondLook™* material consistently, for every topic covered in the course, and engaged in 2-3 review sessions per topic (Fig 6). In conclusion, the *SecondLook™* PowerPoint format is being widely used by histology students at the University of Michigan for reviewing course material in advance of quizzes and exams. Future studies include an expansion of the sample size to include histology students from the Spring 2018 CDB 450/550 course.

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Hortsch, M. (2016). *Taking a SecondLook™ at a Time-Efficient Self-Review Resource*. *Medical Science Education*. 26. 3-4. 10.1007/s40670-015-0210-y.
Gikas, J. and Grant, M. (2013). *Mobile Computing Devices in Higher Education: Student Perspectives on Learning with Cellphones, Smartphones & Social Media*. *The Internet and Higher Education*. 19. 18-26. 10.1016/j.iheduc.2013.06.002.

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301: Dental Students' Evaluations of Two Diversity-related Field Trips during Orientation: A Comparison

Authors: Nicholas Zoppi, Nolan A. Wendling, Marita R. Inglehart

Background: Preparing newly enrolled pre-doctoral dental students from Day 1 of their educational experience for their professional lives in an increasingly more diverse nation, is a top priority for all dental school programs in the U. S. The University of Michigan - School of Dentistry therefore integrated outreach visits to the Holocaust Memorial in Farmington Hills, MI, (HM) and the Charles Wright African American History Museum in Detroit (CWM) into their orientation for incoming dental students. The objectives of this study were to assess how pre-doctoral dental students evaluated the visits to these sites, to compare the evaluations over the different years (HM: 2007-2013; CWM: 2008-2017) and for the two sites, and to explore whether students' evaluations for each site were intercorrelated.

Actions, Methods or Interventions: During the orientation for incoming dental students at the beginning of the students' first academic year, the students visited the Holocaust Memorial in Farmington Hills, MI, (HM) in 2007 to 2013 and the Charles Wright African American History Museum in Detroit (CWM) from 2008 to 2017. They spent about 3 to 4 hours in each place and received a guided tour plus had opportunities to ask questions. At the end of each visit, program evaluation data were collected from all students who visited the HM (N=742) and the CWM (N=862). The response rates in the different years ranged from 66%-100%.

Results: Overall the visits to the two sites were evaluated very positively, with the HM visit being consistently evaluated more favorable. (5-point scale with 5=best evaluation: 4.41 vs. 4.21; $p < .001$). The students agreed/strongly agreed on average that the visits were thought provoking (4.42 vs. 4.15; $p < .001$), that going to these sites was a good idea (4.10 vs. 3.84; $p < .001$), and that the visit should happen again the next year. The data showed that certain student cohorts differed in the degree to which they appreciated the visits. For example, both for the HM and the CWM, the students in 2013 provided the lowest average evaluations. The responses for the students were highly inter-correlated, showing that personal perspectives might affect the evaluations of these visits.

Lessons Learned: Taking students out of their comfort zone and challenging them to learn more about the socio-cultural history of future patients resulted in positive student responses. Ways to engage students in such learning outside of classroom-based settings is crucial.

Future Applications and Next Steps: These findings showed that these outreach visits during the orientation for incoming students were on average very positively evaluated. However, class characteristics and personal background characteristics seemed to affect the evaluations. The next steps are to evaluate the effects of these visits over the course of the students' professional education.

Dental Students' Evaluations of Two Diversity-related Field Trips during Orientation: A Comparison

N Zoppi, N Wendling, MR Inglehart



ABSTRACT

Objectives: The objectives were (a) to assess how pre-doctoral dental students evaluated two diversity-related orientation programs, namely a visit to the Holocaust Memorial in Farmington Hills, MI, (HM) and a visit to the Charles Wright African American History Museum in Detroit (CWM), (b) to compare the evaluations over the different years (HM: 2007-2013; CWM: 2008-2017) for each of the two sites, and (c) to explore whether students' evaluations for each site were intercorrelated.

Methods: Data were collected from 704 students who had visited the HM and from 862 students who visited the CWM (Response rate range: 66%-100%)

Results: Overall the visits to the two sites were evaluated very positively, with the HM visit being consistently evaluated more favorable. The students agreed/strongly agreed on average that the visits were thought provoking, that going to these sites was a good idea, and that the visit should happen again the next year. The data showed that certain student cohorts differed in the degree to which they appreciated the visits. For example, both for the HM and the CWM, the students in 2013 provided the lowest average evaluations. The responses for the students were highly intercorrelated, showing that personal perspectives might affect the evaluations of these visits.

Conclusion: These findings showed that these outreach visits during the orientation for incoming students were on average very positively evaluated. However, class characteristics and personal background characteristics seemed to affect the evaluations.

INTRODUCTION

Preparing newly enrolled pre-doctoral dental students from Day 1 of their educational experience for their professional lives in an increasingly more diverse nation, is a top priority for all dental school programs in the U. S. The University of Michigan - School of Dentistry therefore integrated outreach visits to the Holocaust Memorial in Farmington Hills, MI, (HM) and the Charles Wright African American History Museum in Detroit (CWM) into their orientation for incoming dental students.

AIMS

- The objectives were
- to assess how pre-doctoral dental students evaluated two diversity-related orientation museum visits;
 - to compare the evaluations over the different years (HM: 2007-2013; CWM: 2008-2017) for each of the two sites, and
 - to explore whether students' evaluations for each site were intercorrelated.



Holocaust Memorial Center – Farmington Hills, MI

METHODS

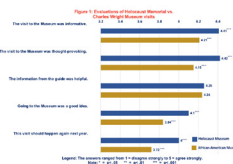
This study was determined to be exempt from Institutional Review Board oversight by the Health Sciences and Behavioral Sciences IRB at the University of Michigan, Ann Arbor, MI. (HUM#00136647).

Respondents: Table 1 shows that data were collected from 704 students who had visited the HM and 862 students who visited the CWM. Response rates ranged from 66%-100%. Note: In 2008, two staff persons filled out the evaluation forms of the HM, and in 2015, four staff persons responded to the evaluations of the CWM.

Table 1: Overview of the respondents by year and response rate.

| Year | Total # students | Non-visit | Response rate | African American | Response rate |
|-------|------------------|-----------|---------------|------------------|---------------|
| 2007 | 185 | 88 | 54% | n/a | n/a |
| 2008 | 182 | 107 | 100% | 103 | 95% |
| 2009 | 185 | 94 | 51% | 82 | 76% |
| 2010 | 188 | 102 | 59% | 100 | 59% |
| 2011 | 182 | 101 | 54% | n/a | n/a |
| 2012 | 188 | 100 | 100% | 71 | 60% |
| 2013 | 188 | 99 | 93% | 101 | 95% |
| 2014 | 188 | n/a | n/a | 95 | 82% |
| 2015 | 182 | n/a | n/a | 100 | 100% |
| 2016 | 185 | n/a | n/a | 97 | 52% |
| 2017 | 188 | n/a | n/a | 100 | 92% |
| Total | 1783 | 794 | 59% | 682 | 56% |

The first objective was to assess how pre-doctoral dental students evaluated two diversity-related orientation museum visits. Figure 1 shows that overall, the visits to the two sites were evaluated very positively, with the HM visit being consistently evaluated more favorable. It also shows that, on average, students found both museums informative, thought-provoking, and a good idea, with the HM visit receiving higher evaluations.



The second objective was to compare the evaluations over the different years (HM: 2007-2013; CWM: 2008-2017) for each of the two sites. Tables 2 and 3 show that evaluations were relatively consistent over the years, with only some student cohorts differing in the degree to which they appreciated the visits, specifically 2013 for both the HM and CWM which provided the lowest average evaluations.

Table 2: Average evaluations of the Holocaust Museum visit by year.

| Evaluations | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|------|------|------|------|------|------|------|
| The visit to the HM was informative | 4.57 | 4.53 | 4.21 | 4.28 | 4.50 | 4.34 | 4.21 |
| The visit to the HM was thought-provoking | 4.69 | 4.37 | 4.34 | 4.41 | 4.45 | 4.47 | 4.25 |
| The visit to the HM was a good idea | 4.54 | 4.46 | 3.68 | 4.24 | 4.12 | 4.23 | 3.91 |
| The information from this visit should be my responsibility | 4.28 | 4.25 | 3.95 | 4.28 | 4.14 | 4.14 | 4.21 |
| The information given to this site was useful | 4.53 | 4.48 | 4.4 | 4.49 | 4.53 | 4.71 | 4.51 |
| Going to the HM was a good idea | 4.36 | 4.19 | 3.7 | 4.11 | 4.19 | 4.29 | 3.84 |
| The delivery of the visit was informative | 3.59 | 3.40 | 3.10 | 3.62 | 3.69 | 3.24 | 3.21 |
| The visit should happen again next year | 4.16 | 4.03 | 3.09 | 4.12 | 4.17 | 4.21 | 3.73 |

Table 3: Average evaluations of the CWM visit by year.

| Evaluations | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|------|------|------|------|------|------|------|------|------|------|
| The visit to the CWM was informative | 4.47 | 4.07 | 4.23 | 3.59 | 3.59 | 4.42 | 4.20 | 4.27 | 4.27 | 4.27 |
| The visit to the CWM was thought-provoking | 4.28 | 4.2 | 4.03 | 3.8 | 3.56 | 4.25 | 4.02 | 4.27 | 4.25 | 4.25 |
| The visit to the CWM was a good idea | 4.47 | 4.15 | 3.59 | 3.59 | 3.79 | 4.12 | 4.46 | 4.12 | 4.12 | 4.12 |
| The information from this visit should be my responsibility | 4.46 | 4.22 | 4.16 | 3.97 | 3.28 | 4.22 | 4.27 | 4.45 | 4.12 | 4.12 |
| The information given to this site was useful | 4.19 | 3.98 | 3.92 | 3.42 | 3.68 | 3.55 | 3.55 | 4.19 | 4.12 | 4.12 |
| Going to the CWM was a good idea | 4.50 | 3.85 | 3.39 | 3.28 | 3.72 | 3.26 | 4.42 | 4.42 | 4.42 | 4.42 |
| The delivery of the visit was informative | 4.04 | 3.94 | 3.14 | 3.04 | 3.4 | 3.27 | 3.3 | 3.26 | 3.26 | 3.26 |
| The visit should happen again next year | 4.1 | 3.78 | 3.65 | 3.44 | 3.63 | 3.8 | 3.48 | 4.27 | 4.27 | 4.27 |

Table 4: Correlation of the responses for the HM visit.

| Statements | B | C | D | E | F | G | H | I |
|---|-----|------|-----|-----|-----|-----|-----|-----|
| The visit to the HM was informative | .71 | .48 | .61 | .62 | .49 | .62 | .37 | .60 |
| The visit to the HM was thought-provoking | 1 | .47 | .65 | .62 | .47 | .62 | .32 | .60 |
| The visit to the HM was a good idea | .47 | 1 | .66 | .55 | .25 | .55 | .46 | .53 |
| The information from this visit should be my responsibility | .65 | .66* | 1 | .53 | .60 | .67 | .67 | .67 |
| The information given to this site was useful | .62 | .58 | .53 | 1 | .46 | .52 | .53 | .49 |
| Going to the HM was a good idea | .47 | .25 | .60 | .46 | 1 | .49 | .19 | .35 |
| The delivery of the visit was informative | .62 | .55 | .67 | .55 | .46 | 1 | .51 | .52 |
| The visit should happen again next year | .32 | .46 | .60 | .39 | .19 | .51 | 1 | .53 |

Table 5: Correlation of the responses for the CWM visit.

| Statements | B | C | D | E | F | G | H | I |
|---|-----|-----|-----|-----|-----|-----|-----|-----|
| The visit to the CWM was informative | .73 | .61 | .65 | .66 | .50 | .49 | .35 | .64 |
| The visit to the CWM was thought-provoking | 1 | .65 | .53 | .64 | .52 | .52 | .23 | .63 |
| The visit to the CWM was a good idea | .65 | 1 | .63 | .67 | .56 | .60 | .29 | .67 |
| The information from this visit should be my responsibility | .63 | .63 | 1 | .53 | .41 | .39 | .23 | .51 |
| The information given to this site was useful | .64 | .67 | .53 | 1 | .62 | .63 | .47 | .64 |
| Going to the CWM was a good idea | .52 | .56 | .41 | .62 | 1 | .66 | .52 | .62 |
| The delivery of the visit was informative | .62 | .60 | .39 | .63 | .66 | 1 | .45 | .68 |
| The visit should happen again next year | .33 | .29 | .23 | .47 | .52 | .65 | 1 | .49 |

Table 6: Correlation of the responses for the CWM visit.

| Statements | B | C | D | E | F | G | H | I |
|---|-----|-----|-----|-----|-----|-----|-----|-----|
| The visit to the CWM was informative | .73 | .61 | .65 | .66 | .50 | .49 | .35 | .64 |
| The visit to the CWM was thought-provoking | 1 | .65 | .53 | .64 | .52 | .52 | .23 | .63 |
| The visit to the CWM was a good idea | .65 | 1 | .63 | .67 | .56 | .60 | .29 | .67 |
| The information from this visit should be my responsibility | .63 | .63 | 1 | .53 | .41 | .39 | .23 | .51 |
| The information given to this site was useful | .64 | .67 | .53 | 1 | .62 | .63 | .47 | .64 |
| Going to the CWM was a good idea | .52 | .56 | .41 | .62 | 1 | .66 | .52 | .62 |
| The delivery of the visit was informative | .62 | .60 | .39 | .63 | .66 | 1 | .45 | .68 |
| The visit should happen again next year | .33 | .29 | .23 | .47 | .52 | .65 | 1 | .49 |

Table 7: Average evaluations of the CWM visit by year.

| Evaluations | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|------|------|------|------|------|------|------|------|------|------|
| The visit to the CWM was informative | 4.47 | 4.07 | 4.23 | 3.59 | 3.59 | 4.42 | 4.20 | 4.27 | 4.27 | 4.27 |
| The visit to the CWM was thought-provoking | 4.28 | 4.2 | 4.03 | 3.8 | 3.56 | 4.25 | 4.02 | 4.27 | 4.25 | 4.25 |
| The visit to the CWM was a good idea | 4.47 | 4.15 | 3.59 | 3.59 | 3.79 | 4.12 | 4.46 | 4.12 | 4.12 | 4.12 |
| The information from this visit should be my responsibility | 4.46 | 4.22 | 4.16 | 3.97 | 3.28 | 4.22 | 4.27 | 4.45 | 4.12 | 4.12 |
| The information given to this site was useful | 4.19 | 3.98 | 3.92 | 3.42 | 3.68 | 3.55 | 3.55 | 4.19 | 4.12 | 4.12 |
| Going to the CWM was a good idea | 4.50 | 3.85 | 3.39 | 3.28 | 3.72 | 3.26 | 4.42 | 4.42 | 4.42 | 4.42 |
| The delivery of the visit was informative | 4.04 | 3.94 | 3.14 | 3.04 | 3.4 | 3.27 | 3.3 | 3.26 | 3.26 | 3.26 |
| The visit should happen again next year | 4.1 | 3.78 | 3.65 | 3.44 | 3.63 | 3.8 | 3.48 | 4.27 | 4.27 | 4.27 |

Table 8: Correlation of the responses for the CWM visit.

| Statements | B | C | D | E | F | G | H | I |
|---|-----|-----|-----|-----|-----|-----|-----|-----|
| The visit to the CWM was informative | .73 | .61 | .65 | .66 | .50 | .49 | .35 | .64 |
| The visit to the CWM was thought-provoking | 1 | .65 | .53 | .64 | .52 | .52 | .23 | .63 |
| The visit to the CWM was a good idea | .65 | 1 | .63 | .67 | .56 | .60 | .29 | .67 |
| The information from this visit should be my responsibility | .63 | .63 | 1 | .53 | .41 | .39 | .23 | .51 |
| The information given to this site was useful | .64 | .67 | .53 | 1 | .62 | .63 | .47 | .64 |
| Going to the CWM was a good idea | .52 | .56 | .41 | .62 | 1 | .66 | .52 | .62 |
| The delivery of the visit was informative | .62 | .60 | .39 | .63 | .66 | 1 | .45 | .68 |
| The visit should happen again next year | .33 | .29 | .23 | .47 | .52 | .65 | 1 | .49 |

DISCUSSION

Overall, students showed a very positive response to the museum visits; many of them found the museums to be informative, thought provoking, and a good idea.

Overall, the HM visit received higher average scores for all responses. However, the CWM still received positive average scores for all survey questions, showing the students found both sites to be a positive learning experience.

Year-by-year evaluations of the two museum visits showed that while the evaluations for both museums over the years were consistently positive, the 2013 averages were the lowest for both the HM and the CWM.

For future research, it would be interesting to see if students from other dental schools would evaluate the visits to multicultural museums also in a positive fashion. Follow-up surveys after the first, second and final year of dental schools could provide further insights into the effectiveness of these visits.

CONCLUSIONS

- It can be concluded that:
- Both the visits to the HM and the CWM were evaluated as informative, thought-provoking, and a good idea.
 - Students, on average, agreed that the trips should be a part of next year's orientation.
 - Students evaluated the visit to the HM more favorably than the visit to the CWM.
 - Class characteristics seemed to affect the evaluations.
 - The students' responses were highly intercorrelated.

ACKNOWLEDGMENT

We thank the dean for student affairs Dr. Marilyn Woolfolk and the director of diversity Dr. Ken May for supporting the field trips to the HM and the CWM until 2013. We want to thank Dr. Duff and Dr. Ester for supporting the visits to the CWM from 2014 to 2017, and all the students that responded to these surveys.



Charles W. Wright Museum of African American History—Detroit, MI

302: Endodontics Program Directors' and Residents' Considerations about CBCT-related Graduate Education

Authors: Hoorman Rabiee, Marita R. Inglehart, Neville McDonald, Reinhilde Jacobs, Ali Aminlari

Background: Since the beginning of the 21st century, a major revolution in dental imaging occurred with the introduction of Cone Beam Computed Tomography (CBCT). The advantages of this new approach are numerous. Over the past decade, CBCT has been increasingly more used by endodontists. The objectives are to assess endodontic programs' and residents' considerations concerning CBCT-related (a) education, (b) professional attitudes, and (c) behavior.

Actions, Methods or Interventions: 31 of 56 directors of the U.S. endodontic graduate programs (Response rate: 55%) and 73 of 270 residents (Response rate: 27%) responded to a web-based survey concerning CBCT-related education in endodontics residency programs.

Results: Ten programs did not offer CBCT-related education. The majority of program directors (91%) who offered CBCT-related education and 85% of residents agreed strongly that future endodontists need to be able to use CBCT. Both groups agree strongly that residents want to learn about CBCT (directors: 95% vs. residents: 79%), and will use it after graduation (62% vs. 69%). However, residents were less satisfied on average with the quality of their clinical CBCT-related education (scale from 1 = most negative to 5 = most positive: 3.55 vs. 4.62; $p < .001$), and the way CBCT was taught in their program (3.26 vs. 4.52; $p < .001$). While both groups have positive attitudes concerning CBCT-related education and strongly agree that there is a need for CBCT in endodontics (4.81 vs. 4.87), residents agreed more strongly that having competent staff to support CBCT is a challenge (3.45 vs. 2.68; $p < .001$) and that maintenance of equipment is a challenge (3.28 vs. 2.80; $p < .001$), but agreed less that many patients inquire about CBCT for their endodontic treatment (1.79 vs. 2.26; $p < .001$).

Lessons Learned: Although nursing students understand the importance of trauma-informed care, few students feel prepared to provide this care to patients. A significant proportion of UMSN students report traumatic experiences during their lifetime, which has implications both for their learning and future clinical care.

Future Applications and Next Steps: More work is needed related to best practices for integrating TIC into the nursing curriculum. As a large proportion of nursing students have experienced trauma, educational practices sensitive to these experiences need to be evaluated in order to ensure that future nurses are prepared without risk of re-traumatization.



Endodontics Program Directors' and Residents' Considerations Concerning CBCT-related Graduate Education

H. Rabiee, N. McDonald, R. Jacobs, A. Aminlari, M.R. Inglehart; University of Michigan School of Dentistry



ABSTRACT

Objective: A major revolution in dental imaging occurred with the introduction of Cone Beam Computed Tomography (CBCT). The objectives were to assess endodontic program directors' and residents' considerations concerning CBCT-related (a) education, (b) professional attitudes, and (c) behavior.
Methods: 31 of 56 directors of the U.S. endodontic graduate programs (Response rate: 55%) and 73 of 270 residents (Response rate: 27%) responded to a web-based survey concerning CBCT-related education in endodontics residency programs.
Results: Ten programs did not offer CBCT-related education. 91% of programs who offered CBCT-related education and 85% of residents agreed strongly that future endodontists need to be able to use CBCT. Both groups agreed strongly that residents want to learn about CBCT and will use it after graduation. However, residents were less satisfied on average with the quality of their clinical CBCT-related education, and the way CBCT was taught in their program. While both groups had positive attitudes concerning CBCT-related education and strongly agreed that there was a need for CBCT in endodontics, residents agreed more strongly that having competent staff to support CBCT is a challenge and that maintenance of equipment is a challenge, but agreed less that many patients inquire about CBCT for their endodontic treatment.
Conclusions: A better understanding of residents' CBCT-related considerations could inform endodontic program directors' future CBCT-related educational efforts.

INTRODUCTION

A revolution in dental-maxillofacial imaging occurred when Cone Beam Computed Tomography (CBCT) was introduced into dentistry in 1998 by Mozzo and colleagues.¹ CBCT is a three-dimensional (3D) imaging modality. It essentially involves imaging a volume that allows either the entire maxillofacial skeleton (large field of view) or a restricted dento-alveolar region involving a few teeth (small field of view) to be imaged. The U.S. Food and Drug Administration approved the first CBCT unit for dental use in the U.S. in 2001.²

In endodontics, CBCT use is exceptionally helpful in diagnosis such as in locating/identifying the anatomy of calcified canals,³ locating 62% more apical lesions than periapical radiographs,⁴ and showing both the position and extent of periapical lesion.⁵ It is also beneficial for treatment planning and treatment such as for treatment planning for apical root resection,⁶ and for evaluating the anatomy of the root apex and the neighboring pathosis prior to endodontic surgery.⁷ The use of CBCT also contributes to successful auto-transplantations of teeth.⁸

AIMS

The objectives were to assess endodontic program directors' and residents' considerations concerning CBCT-related

- (a) education,
- (b) professional attitudes, and
- (c) behavior.



METHODS

This research was determined to be exempt from IRB oversight by the Health Sciences and Behavioral Sciences IRB at the University of Michigan (#HUM00120664).

Respondents: 31 of the 56 directors of the U.S. endodontic graduate programs (Response rate: 55%) and 73 of the 270 residents (Response rate: 27%) responded to a web-based survey concerning CBCT-related education in endodontics residency programs. (See Table 1).

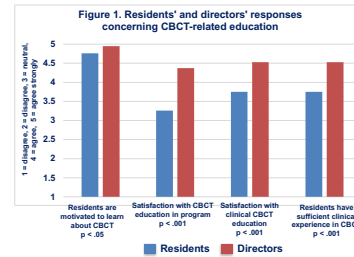
Procedure: A recruitment email plus one follow-up email were sent to the program directors, and one email plus two follow up emails were sent to the residents in these programs, asking them to respond to a web-based survey.

Table 1: Overview of the program characteristics

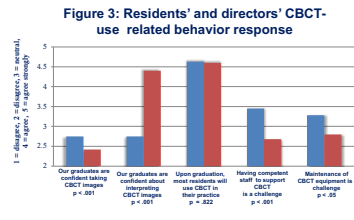
| Endodontics program characteristics | Directors N=31 | Residents N=73 |
|-------------------------------------|----------------|----------------|
| Number of: | Programs | Residents |
| - in U.S. | 56 | 544 |
| - contacted | 31 | 270 |
| - responded | 31 | 73 |
| - Response rate | 55% | 27% |
| Program settings: | | |
| - Dental school | 77% | 86% |
| - Hospital based | 13% | 3% |
| - Armed Services | 10% | 7% |
| Degree granted: | | |
| - Certificate | 77% | 84% |
| - Master's degree | 71% | 52% |
| - Ph.D. | 7% | 0% |
| Average # of students per year: | Mean | n/a |
| Range | 2 - 10 | |
| Length of program in months: | | |
| Mean | 26.81 | 26.47 |
| Range | 24 - 36 | 24 - 36 |

RESULTS

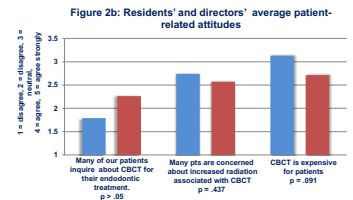
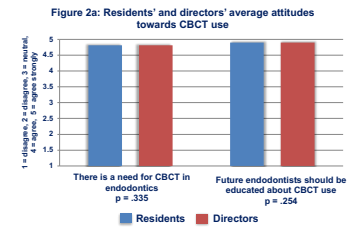
The **first objective** was to assess endodontic program directors' and residents' considerations concerning CBCT-related **education**. Ten programs did not offer CBCT-related education. Figure 1 shows that both groups agreed strongly that residents want to learn about CBCT. However, residents were less satisfied on average with the CBCT-related education in their program and with the quality of their clinical CBCT-related education.



The **third objective** was to assess endodontic program directors' and residents' CBCT-related **professional behavior**. Figure 3 shows that both groups strongly agreed that most residents will use CBCT after graduation. Residents agreed more strongly that having competent staff to support CBCT is a challenge and that maintenance of equipment is a challenge, but agreed less that many patients inquire about CBCT for their endodontic treatment.



The **second objective** was to assess endodontic program directors' and residents' considerations concerning CBCT-related **professional attitudes**. Figure 2a shows that program directors and residents agreed strongly that there is a need for CBCT in endodontics and that future endodontists should be educated about CBCT use.



DISCUSSION

- Not all endodontic graduate programs offered CBCT-related education. This might explain why residents were on average less satisfied with their education compared to program directors. However, both groups strongly agreed that residents were motivated to learn about CBCT-use.
- Given that the absolute majority of both residents and program directors strongly agreed that there is a need for CBCT in endodontics, educational efforts should be increased to provide future endodontists with a solid education about CBCT use.
- Comprehensive CBCT-related education is also needed because both residents and program directors strongly agreed on average that most residents will use CBCT after graduation.

CONCLUSIONS

- Program directors and residents strongly agreed that there is a need for CBCT in endodontics and that future endodontists need to be able to use CBCT.
- They also agreed strongly that graduates will use CBCT in their practices.
- However, satisfaction with CBCT-related graduate education was not optimal.

ACKNOWLEDGMENTS

This research was made possible by funding from the Delta Dental Foundation in Michigan and the University of Michigan Rackham Graduate School Program. We want to thank the respondents for taking time out of their busy schedules to respond to these surveys.

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303: Nursing Students' Experiences with Trauma-Informed Care Education and Re-Traumatization in Classroom, Simulation, and Clinical Settings: Results from an Online Survey

Authors: Lindsay Cannon, Elizabeth Coolidge, Courtney Buckley, Emily Chapin, Katrina Coley, Megan Harris, Zeineb Selmane, Elizabeth K. Kuzma

Background: Nurses play a vital role in providing care to vulnerable populations, many of which have experienced trauma. Trauma has profound effects on the health and well-being of individuals across the lifecourse and is associated with a myriad of acute and chronic health implications, including chronic disease, increased morbidity, and, ultimately, premature mortality. The University of Michigan School of Nursing (UMSN)'s mission is to improve the health of society by preparing exceptional nurses and leaders in healthcare. To provide cutting edge leadership and care, nursing needs to integrate trauma-informed care (TIC) principles throughout the curriculum. However, doing so risks exposing students to vicarious trauma or re-traumatization. Despite the development of best practices for teaching TIC within schools of psychology and social work, there are no best practices for nursing.

Actions, Methods or Interventions: Ninety-nine students from UMSN completed an online survey. Undergraduate and graduate nursing students were recruited via an email sent to all UMSN students (excluding freshmen). Participants were asked about their understanding of TIC, perceptions of how TIC is currently taught at UMSN, and how TIC could be better integrated into the curriculum. Additionally, participants were asked about experiences with re-traumatization and how current practices help to resist re-traumatization. Descriptive statistics were computed and thematic analysis was conducted.

Results: Although 99% of students report that learning about TIC is important, less than half report that the curriculum currently prepares them to provide TIC. Only 30% of students report that they feel confident in their ability to provide TIC. 64% of students reported a traumatic experience in their lifetime. Of these students, 64% reported that the curriculum is sensitive to their experiences. Students recommended a number of modalities for teaching about TIC, including case studies and simulations, and stressed the importance of debriefing in a sensitive manner to resist re-traumatization.

Lessons Learned: Although nursing students understand the importance of trauma-informed care, few students feel prepared to provide this care to patients. A significant proportion of UMSN students report traumatic experiences during their lifetime, which has implications both for their learning and future clinical care.

Future Applications and Next Steps: More work is needed related to best practices for integrating TIC into the nursing curriculum. As a large proportion of nursing students have experienced trauma, educational practices sensitive to these experiences need to be evaluated in order to ensure that future nurses are prepared without risk of re-traumatization.



SCHOOL OF NURSING
UNIVERSITY OF MICHIGAN

Nursing students' experiences with trauma-informed care education and re-traumatization in classroom, simulation, and clinical settings: Results from an online survey

Lindsay M. Cannon, MPH, MSW, Elizabeth Coolidge, Courtney Buckley, Emily Chapin, BSN, RN, Katrina Coley, Megan Harris, CPNP, Zeineb Selmane, & Elizabeth K. Kuzma, DNP, RN, FNP-BC

Background

- Nurses play a vital role in providing care to vulnerable populations, many of which have experienced trauma
- Globally, 70% of people report at least one trauma exposure in their lifetime¹
- Trauma exposure is associated with increased risk of acute and chronic illnesses, as well as premature morbidity and mortality^{2,3}
- University of Michigan School of Nursing (UMSN)'s mission is to improve the health of society by preparing exceptional nurses and leaders in healthcare
- In order to provide more holistic care, nursing students must be trained in trauma-informed care (TIC), which risks exposing students to vicarious trauma or re-traumatization
- Despite best practices for teaching TIC in other fields, there are no best practices for nursing

Study Aims

Aim 1: To understand school of nursing students' perceptions of the need for integration of TIC into the curriculum

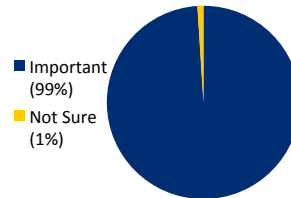
Aim 2: To understand the risk of re-traumatization when teaching about trauma in an educational setting

Methods

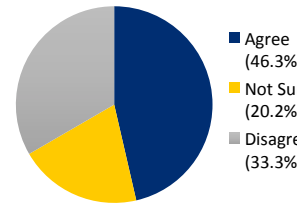
- 99 undergraduate, master's, and doctoral level students at UMSN completed a survey via Qualtrics
- Surveys were emailed to all UMSN students (excluding freshman and DNP students) via a listserv
- Participants were compensated with a \$5 Amazon gift card for their participation
- Participants were asked investigator-created quantitative and qualitative questions about their understanding of TIC, perceptions of how TIC is currently taught at UMSN, and how TIC could be better integrated into the curriculum
- Participants were also asked about experiences with re-traumatization in the classroom, clinical, and simulation settings, as well as how current practices help prevent or perpetuate re-traumatization
- Descriptive statistics were computed using SPSS version 24
- Thematic analysis was conducted using the constant comparative method^{4,5}

Trauma-Informed Care Education

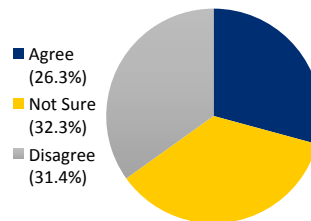
Importance of Learning about TIC



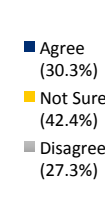
Clinicals and Simulations Prepared to Provide TIC



Courses Prepared to Provide TIC

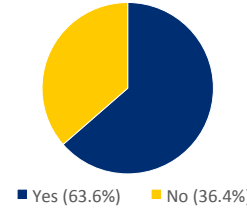


Confident in Ability to Provide TIC

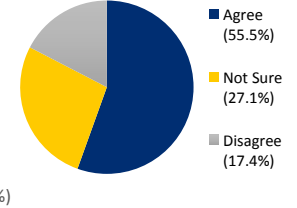


Resisting Re-Traumatization

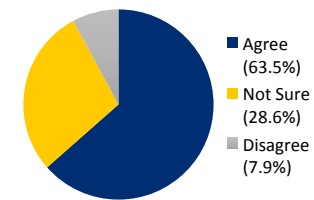
Percentage of Students Who Have Experienced Trauma in Their Lifetime



Sufficient School of Nursing Resources to Help Students Cope with Trauma



Curriculum is Sensitive to Personal Experiences with Trauma



Qualitative Findings

Inconsistent Knowledge about TIC

- Only 46% of surveyed students defined TIC similarly to the SAMHSA definition. These students incorporated *resisting re-traumatization, realizing the widespread impact of trauma, recognizing the signs and symptoms of trauma, and/or responding by fully integrating knowledge about trauma into practices into their definitions*.⁵
- 46% of students stated they did not know what TIC is or defined it as providing care to a patient with acute physical trauma.
- 4% of patients discussed trauma-specific interventions.

Integration of TIC

- Students discussed a number of mechanisms for integrating TIC into the curriculum, including:
 - Specific simulation or case study examples
 - Teaching about TIC in existing courses, bringing in guest speakers, and having assignments related to TIC
 - Infusing TIC into all courses, beginning freshman year
 - Class discussions about trauma and using TIC
 - Being sensitive to students' trauma histories and experiences
 - Discussing TIC in the clinical context

Current TIC Education

- 55% of students discussed receiving information on TIC in at least one course (i.e., pediatrics, psychiatry, obstetrics/gynecology)
- Majority reported that TIC was covered in one class session on a specific topic, such as sexual assault
- 9% of students reported learning about trauma-informed practices and skills specific to nursing care
- 18% of students reported that TIC was discussed in their simulation or clinical experiences
- 1 student reported that TIC is infused throughout their program as a whole
- 16% of students had not received information on TIC

Faculty Practices Sensitive to Trauma

- Students discussed practices that faculty currently employ when discussing content related to trauma:
 - Communicating or discussing trauma in a professional manner
 - Being sensitive, non-judgmental, & normalizing reactions to trauma
 - Preparing students by providing disclaimers or prefacing material
 - Being transparent and discussing trauma openly, honestly, and objectively
 - Allowing students to leave as needed or taking breaks in class
 - Inviting expert guest lecturers
 - Providing resources to students

TIC in the Clinical Setting

- Students discussed practices that preceptors currently employ when trauma manifests in the clinic:
 - Providing education and information about how to work with patients who have experienced trauma
 - Debriefing or facilitating discussions with multiple students
 - Supporting students and being sensitive to their needs/experiences
 - 6% of students stated that they did not learn about TIC in the clinical setting or discussed instances of preceptors failing to providing TIC to their patients

How Can TIC Be Better Integrated into Nursing Education?

- Normalize reactions to trauma
- Provide advanced warning before trauma-related topics are discussed
- Debrief
- Understand that students may have experienced trauma
- Teach skills related to communicating with patients who have experienced trauma
- Provide case studies, simulations, guest speakers, and examples related to trauma
- Ensure that faculty, preceptors, and lecturers are educated on TIC and how to integrate it into their educational practices

Discussion/Conclusion

- Nursing students understand the importance of trauma-informed care, but few students feel prepared to provide this care to patients
- A significant proportion of UMSN students report traumatic experiences during their lifetime
- Integrating education about TIC into nursing education in a sensitive manner will help to better prepare students

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304: Need for Integration of Trauma-Informed Care Principles in Nursing Education: Results from Semi-Structured Interviews with Faculty, Preceptors, and Lecturers

Authors: Megan Harris, Lindsay M. Cannon, Emily Chapin, Katrina Coley, Liz Coolidge, Courtney Buckley, Zeineb Selmane, Elizabeth K. Kuzma

Background: The University of Michigan School of Nursing (UMSN)'s mission is to improve the health of society by preparing exceptional nurses and leaders in healthcare. Nurses provide care to vulnerable populations in all care settings, many of which have experienced adverse childhood events (ACEs). In a recent national study, approximately two-thirds of adults reported at least one ACE and over 20 percent reported three or more ACEs. ACE studies have demonstrated that these adverse experiences in childhood have a profound, cumulative effect on the health and development of individuals, therefore impacting the health of society. To provide cutting edge leadership and care, nursing needs to integrate trauma-informed principles and practices. This requires integration of trauma-informed concepts throughout the nursing curriculum to have a long term impact on nursing practice. However, doing so exposes students to vicarious trauma or re-traumatization. The social work and psychology professions have developed best practices for their students, yet there are no models or best practices for nursing.

Actions, Methods or Interventions: Semi-structured interviews were conducted with fifteen faculty, lecturers, and clinical preceptors from the UMSN. Participants were asked about their understanding and experiences with trauma-informed care, perceptions of how trauma-informed care is currently taught within the School of Nursing, and the School of Nursing's role in preparing nursing students to provide trauma-informed care. Additionally, participants were asked about best practices for resisting re-traumatization in nursing students in the classroom, simulation, and clinical settings. Thematic analysis was conducted using the constant comparative method.

Results: Analysis is currently in progress. Preliminary themes indicate a need for further integration of trauma-informed care and educational practices to resist re-traumatization within the UMSN curriculum. Though participants expressed that trauma-informed care needs to be "woven" throughout the nursing curriculum at all levels (i.e., undergraduate, DNP, PhD), multiple modalities and methods for disseminating this material were proposed.

Lessons Learned: Best practices for implementing trauma-informed care are currently lacking in the nursing profession. Education about trauma-informed care is vital to the preparation and well-being of UMSN nursing students.

Future Applications and Next Steps: Further research into trauma-informed educational models is necessary to advance nursing care of vulnerable populations, including those who have experienced ACEs. This education is foundational for creating trauma-informed multidisciplinary healthcare teams and workplaces.

Need for integration of trauma-informed care principles in nursing education: Results from semi-structured interviews with faculty, preceptors, and lecturers

Megan Harris, CPNP, Lindsay Cannon, MPH, MSW, Emily Chapin, BSN, RN, Katrina Coley, Elizabeth Coolidge, Courtney Buckley, Zeineb Selmane, & Elizabeth K. Kuzma, DNP, RN, FNP-BC

Background

- Nurses play a vital role in providing care to vulnerable populations, many of which have experienced trauma.
- Globally, 70% of people report at least one trauma exposure in their lifetime.¹
- Trauma exposure is associated with increased risk of acute and chronic illnesses, as well as premature morbidity and mortality.^{2,3}
- University of Michigan School of Nursing (UMSN)'s mission is to improve the health of society by preparing exceptional nurses and leaders in healthcare.
- In order to provide more holistic care, nursing students must be trained in trauma-informed care (TIC), which risks exposing students to vicarious trauma or re-traumatization.
- Despite best practices for teaching TIC in other fields, there are no best practices for nursing.

Methods

- Semi-structured interviews conducted with 15 faculty, lecturers, and preceptors from UMSN
- Participants were compensated for their time with a \$15 MasterCard gift card
- Interviews lasted between 45-60 minutes and were conducted in-person (N=13) or over the phone (N=2)
- Participants were asked about their understanding of and experiences with TIC, perceptions of how TIC is currently taught within UMSN, and UMSN's role in preparing student to provide TIC
- Participants were also asked about best practices for resisting re-traumatization in nursing students in the classroom, simulation, and clinical settings
- Thematic analysis was conducted in NVivo version 11 using the constant comparative method^{4,5}

Results

"The person that I co-teach with has had some experiences actually in her clinical life that brought back to her the importance of trauma informed care in her everyday practice, seeing students, children who come into the hospital with significant mental stress, sometimes suicidal, homicidal, sometimes just totally in a melt down, and not having resources, she's recognizing the need for it as well, and recognizing the difficulty for her as an experienced Nurse Practitioner to deliver care to those patients, and then what it must be like for a student to have to encounter that."

Participants discussed how education on trauma and TIC needs to be better integrated into the classroom, as their own education came largely through clinical practice or personal experiences

Need for Education on TIC Informed by Faculty Experiences

Early Delivery and Infusion Through Curriculum

Participants discussed how information on TIC needs to be dispersed across all classes at each level of nursing education, starting in the first year of undergraduate education

"Having that integrated into some of the core courses that we do have both for undergrads and for master students so that there's that kinda one stop introduction and then having threads of it weave through the curriculum, I think that that's going to be a little bit more challenging...but I think it's something that we just have to do."

"One issue is that many students have themselves experienced various kinds of trauma in their past. And so, certainly when you begin discussing issues related to trauma, um, it's going to resonate with certain students. So I think, very specifically, and then, um, you know, trying to be sensitive to that."

Participants discussed the need for awareness to pick up on cues related to student re-traumatization and need for compassion for students with these experiences

Need for Awareness & Compassion for Student Trauma

Barriers to Integrating Trauma Informed Practices

Participants identified large class sizes, lack of rapport between students and professors, lack of time, and online class formats as barriers to teaching about TIC in a sensitive manner

"One of the challenges that I see with the larger course in particular...it just feels very distant and so I think that, and we don't meet very often. We meet four times a semester and the rest is online and so it's hard to establish that rapport with the students so that they feel safe and like coming and spilling their heart and saying hey, this is really hard and I need some help."

"So the simulations all have a debrief in those 4 hours so anytime we do, some have multiple scenarios we do so there's always pre-brief to sim and then a debrief and then kind of summarize the whole day at the end in clinical because we do it at dinner there usually if somebody has something that day they're usually pretty good about bringing it up the next day at dinner, 'This happened at the end of last night.'"

Participants discussed multiple materials (slide decks, videos) and methods (small group discussions, debriefs, case studies, role plays, guest lectures) that could enhance education on TIC

Methods and Materials

Facilitators to Integrating Trauma Informed Practices

Participants identified small class size, rapport between students and professors, and faculty approachability as facilitators to teaching about TIC in a sensitive manner

"There's a divide, right, between the students and the faculty. I sometimes think that the students need to feel like you're a human being... 'cause I think it... makes that distance a little bit shorter. I think it's just general approachability... But, the other piece I think, too, I think the idea of including content in the syllabus, um, is a great idea, just to kind of get it out there and let students know that, like, if they have an issue, they can come and talk to you whether they choose to or not."

"I think with training, I think with educating nurses and student nurses, and I think with training staff and precepting staff and having managers that are supportive and saying, like, be, having it be okay if you need to take a mental health day because the day before there was something really overwhelming for the patient that you cared for. And having that be an okay thing to do, an encouraged thing to do, even."

Participants discussed how faculty experts, leadership at nursing schools, and regulatory bodies all have a role in ensuring that students, preceptors, and professors are educated in TIC

Culture Change

Preparation is Important

Participants discussed the need to prepare students, both early in the course via the syllabus and before each lecture to prepare students for sensitive content and make aware of faculty accessibility

Discussion/Conclusion

- There is a clear need for increased trauma-informed care education infused early and throughout the nursing curriculum to appropriately prepare future nursing professionals.
- Though there are a variety of facilitators and barriers to trauma-informed care education, awareness, compassion, preparation, approachability, and overall changes in nursing culture were stressed.
- Further research into trauma-informed educational models is necessary to advance nursing care for vulnerable populations.

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305: Dental and Dental Hygiene Students' Attitudes and Curricular Suggestions Concerning Group Projects: A Qualitative Analysis

Authors: Yunus Al-garadi, Said Al-Jazaeri, Marita R. Inglehart

Background: During the course of both a dental and dental hygiene education, students are likely to be required to work on group projects. One interesting question is which attitudes and suggestions for the conduct of group projects students have. The objectives were to explore dental and dental hygiene students' thoughts concerning (a) which group members they would prefer, (b) which team characteristics they would value, (c) how the assignment should be structured and (d) which time-related considerations they had.

Actions, Methods or Interventions: Data were collected from 32 second year dental hygiene students and 107 first year dental students. The students responded with an essay style response to an open question inquiring about their considerations concerning group projects.

Results: The most common responses related to which group members the students would prefer were related to how the groups should be composed. Twenty-five students wanted to choose their own group members or wanted to work with persons they knew or were friends with. Fifteen students stressed the importance that other group members should be flexible, open to others' ideas and open minded, and 12 students wanted to be in groups with students from different backgrounds. Fourteen students stressed that other group members should work hard and be responsible. Concerning team characteristics, 39 students stressed the importance of everybody contributing and being willing to work together and 36 students the importance of good communication. Relatively fewer students provided suggestions of how the assignment should be structured such as that explicit details of the project should be given (N=4) and that examples from past projects should be provided (N=4). Twenty-two students suggested providing in-class time for projects and four students to have specific times set up for work on the group project.

Lessons Learned: Students have clear expectations of what group member characteristics they prefer, how group projects should function and how time should be provided. However, only few students had clear suggestions of how group assignments should be structured.

Future Applications and Next Steps: The next steps in this project are to design a survey with closed ended questions based on these responses. This survey will then be administered to dental and dental hygiene students as well as to undergraduate students in the College of LS&A. The questions will assess the relevance of the identified factors when engaging in group / team learning.



Dental and Dental Hygiene Students' Attitudes and Curricular Suggestions Concerning Group Projects: A Qualitative Analysis

Yunus A. Al-Garadi, Said M. Al-Jazaeri, Marita R. Inglehart; University of Michigan School of Dentistry



ABSTRACT

Objective: The objectives were to explore dental and dental hygiene students' thoughts concerning (a) which group members they would prefer, (b) which team characteristics they would value, (c) how the assignment should be structured and (d) which time-related considerations they had concerning working in groups.

Methods: Data were collected from 31 second year dental hygiene students and 108 first year dental students.

Results: Concerning which group members the students would prefer, the data showed that 25 students wanted to choose their own group members or wanted to work with persons they knew or were friends with. Concerning team characteristics, 39 students stressed the importance of everybody contributing and being willing to work together, and 36 students stressed the importance of good communication. Relatively fewer students provided suggestions of how the assignment should be structured such as that explicit details of the project should be given (N=4) and that examples from past projects should be provided (N=4). Concerning time considerations, 22 students suggested providing in-class time for projects and four students to have specific times set up for work on the group project.

Conclusions: Students have clear expectations of what group member characteristics they prefer, how group projects should function and how and which time should be provided. However, only few students had clear suggestions of how group assignments should be structured.

INTRODUCTION

During the course of both a dental and dental hygiene education, students are likely to be required to work on group projects. This situation is especially relevant when class sessions take place as problem based learning. One interesting question is which attitudes and suggestions for the conduct of group projects students have. Research showed that characteristics of the group members and the students' preferences and experiences were important factors to improve the outcome of the project.¹ In addition, research concerning students' experiences and attitudes toward group assignments showed that students had certain expectations for group members and how dividing work evenly between them, and the type of assignments they preferred.² Additionally, the outcome of the group work for college students was dependent on who was in the group, and how individuals shared responsibility among them.³

AIMS

The objectives were to explore dental and dental hygiene students' thoughts concerning

- (a) which group members they would prefer,
- (b) which team characteristics they would value,
- (c) how the assignment should be structured and
- (d) which time-related considerations they had concerning working in groups.



METHODS

This research was determined to be exempt from IRB oversight by the Health Sciences and Behavioral Sciences IRB at the University of Michigan.

Respondents: Data were collected from 31 second year dental hygiene students and 108 first year dental students.

Procedure: The students responded with an essay style response to an open question inquiring about their considerations concerning group projects.



RESULTS

The first objective was to explore dental and dental hygiene students' thoughts concerning which group members they would prefer. Figure 1 shows that 25 students wanted to choose their own group members or wanted to work with persons they knew or were friends with.

Table 1: Responses related to group member characteristics

| Group member characteristics | Rater 1 | Rater 2 |
|---|---------|---------|
| Pick group members / groups | 11 | 9 |
| Group members who are open to other ideas | 7 | 5 |
| Group members with creative ideas | 4 | 5 |
| Flexible and are willing to try and meet | 1 | 4 |
| Open minded | 3 | 0 |
| Different background / experiences / diversity / personality type | 6 | 10 |
| Working with people I know well with my friends; people with similar personality. | 12 | 13 |
| Individuals that are motivated | 1 | 2 |
| Different types of learners | 3 | 0 |
| Group members who work hard | 4 | 4 |
| Members who do what they say they will do | 2 | 0 |
| Similar characteristics | 1 | 0 |
| Total | 65 | 52 |

The third objective was to discover how dental and dental hygiene students think the assignment should be constructed. Figure 3 shows that relatively fewer students provided suggestions of how the assignment should be structured such as that explicit details of the project should be given (N=4) and that examples from past projects should be provided (N=4).

Table 3: Responses concerning the group assignment

| Group assignment related responses | Rater 1 | Rater 2 |
|--|---------|---------|
| Delegate roles for the members of the group | 2 | 10 |
| Proper introduction with dental hygiene students | 3 | 5 |
| Retriever of the material | 1 | 2 |
| Good explanation of the project | 2 | 0 |
| Examples from the past classes project | 4 | 4 |
| Explicit details of the project | 5 | 1 |
| Concise grading / clear rubric | 4 | 5 |
| Provide the students with ideas for the project | 3 | 2 |
| Understanding the benefits of the assignment | 3 | 3 |
| Access to sources | 4 | 3 |
| Total | 31 | 35 |

The second objective was to explore which team characteristics dental and dental hygiene students valued. Figure 2 shows that 39 students stressed the importance of everybody contributing and being willing to work together, and 36 students stressed the importance of good communication.

Table 2: Responses related to the characteristics of the team

| Team characteristics | Rater 1 | Rater 2 |
|---|---------|---------|
| Be cooperative/ Responsive | 8 | 10 |
| Understanding each other's preference | 6 | 0 |
| Good communication / Effective communication/ Flexible communication | 36 | 32 |
| Mixed groups | 7 | 7 |
| Everyone is able to voice their/ his opinion | 8 | 6 |
| Team-oriented group members | 3 | 4 |
| smaller groups to maintain order | 1 | 2 |
| Work as a cohesive unit | 5 | 4 |
| Put in the same effort/ equal amount of work/ everyone contributes to the project/ involved | 33 | 32 |
| Understanding of people's strengths and weaknesses | 5 | 0 |
| Willing to work together | 6 | 1 |
| A group that is honest | 1 | 1 |
| Total | 119 | 99 |

The fourth objective was to explore which time-related considerations they had concerning working in groups. Figure 4 shows that 22 students suggested providing in-class time for projects and four students to have specific times set up for work on the group project.

Table 4: Frequencies of time related responses

| Time related responses | Rater 1 | Rater 2 |
|--------------------------------|---------|---------|
| In class time | 13 | 12 |
| Similar schedule time | 1 | 2 |
| Project time is efficient | 4 | 1 |
| Time to know each other | 5 | 2 |
| Specific time outside of class | 4 | 6 |
| Total | 27 | 23 |

DISCUSSION

Based on this analysis of qualitative data, we are now working on developing a survey instrument with closed-ended and open-ended questions concerning

- a. Which characteristics of group members are most desired by dental and dental hygiene students,
- b. Which team work related considerations these students have,
- c. How group assignments should be structured, and
- d. Which time considerations they have.

In addition, this future research will also explore if dental and dental hygiene have the same considerations of group work. Developing recommendations based on the findings of these studies for educators engaging their dental and dental hygiene students in group work is crucial.

CONCLUSIONS

Students have clear expectations of what group member characteristics they prefer, how group projects should function and how time should be provided. However, only few students had clear suggestions of how group assignments should be structured.

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We want to thank the students who responded to this assignment.

306: Evaluating the performance of the Minute Feedback System: A novel web-based feedback tool for medical students

Authors: Gabrielle Shaughness, Patrick Georgoff, Lisa Leininger, Vahagn Nikolian, Gurjit Sandhu, Rishindra Reddy, David Hughes

Background: Medical students often report dissatisfaction with the feedback they receive on their clinical rotations. The purpose of this study is to evaluate the performance of the Minute Feedback System (MFS), a novel web-based tool designed to facilitate medical student acquisition of same day written feedback.

Actions, Methods or Interventions: From May 2015 through April 2016 third year medical students on their surgery rotation utilized the MFS. System-generated data, targeted surveys, and end of clerkship questionnaires were used to evaluate system performance.

Results: One hundred and seventy students made 3,190 feedback requests and received 1,978 responses (62% response rate). The average number of requests made per student over the 2-month clerkship was 19 (SD = 5.6). Students felt the system was easy to use (90%), provided useful feedback (74%), and allowed them to obtain more feedback than they would have in its absence (81%). Fifty-five percent of students and 75% of residents and faculty rated the system favorably. The most common reasons resident and faculty did not complete requests included "inadequate exposure to the student," "feedback was or will be given in person," and "lack of time." Following implementation of the MFS students on their surgery rotation reported an increase in the quality of feedback (3.39 vs. 3.63, 5-point Likert scale, $p = 0.06$) and in the overall quality of the rotation (3.75 vs. 4.01, $p = 0.03$). Students and educators raised concerns regarding the quality of electronic feedback (e.g., often generic, not anonymous, and less desirable than in-person feedback) and whether the data would be used for formative assessment, summative assessment, or both. While some students felt the modest response rate reduced the system's value, residents and faculty expressed concerns regarding the large number of requests being made and the time required to complete them.

Lessons Learned: The Minute Feedback System is easy to use, encourages same-day assessment, and increases the quantity of documented medical student feedback.

Future Applications and Next Steps: Further development is required to improve feedback quality and response rates. To ensure appropriate use, system-generated data should be utilized for formative assessment only.

Evaluating the performance of the Minute Feedback System: A novel web-based feedback tool for medical students

P Georgoff, MD; G Shaughness, BA; L Leininger, MPH; V Nikolian, MD; G Sandhu, PhD; R Reddy, MD; D Hughes, MD
University of Michigan Department of Surgery

Background

Medical students frequently cite inadequate feedback during their clinical rotations. Reasons include: lack of feedback overall, poor quality feedback that is neither specific nor actionable, and feedback that isn't timely. The learners themselves can also impede feedback by not seeking it out, avoiding it altogether, or by failing to recognize it.

To provide frequent, timely, and meaningful feedback to medical students during their surgery clerkship, we created the *Minute Feedback System*. This system allows medical students to request and receive same-day written feedback about their performance in the clinical care setting.

Please select the faculty or resident you worked with today to receive feedback.

Feedback will in no way be used for grading. It is for your edification only.

Name: ;
Email: ;

How long did you work with this faculty/resident?
 1/2 day Full day

What do you want feedback about? Pick one.

To improve the quality of feedback, you are encouraged to ask a specific question in the text box below.

Direct Observation (you are required to obtain feedback on one of each type of Direct Observation session per person):
 Physical Exam
 Patient History
 Oral Presentations
 Technical Skills
 Please comment on my two-handed knot tying technique. |
 General Performance

Minute Feedback for Surgery Students

You worked with Patrick Georgoff for a full-day. Please provide feedback on the following:

Technical Skills: Please comment on my two-handed knot tying technique.

You can use your microphone function to dictate if you are using your phone.

Your response will be used for feedback only (not grading). Students are required to obtain feedback via this system two times per week (including Direct Observation once per period).

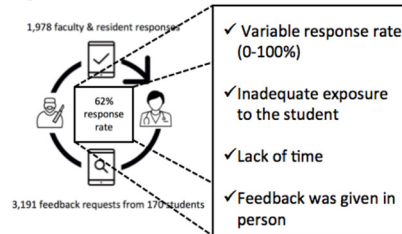
Overall, your technique has improved. All of your knots were square today. I would continue to work on tying a surgeon's knot or slip knot to ensure the approximation of tissue that is under tension.

Methods

Using the Minute Feedback System on their phone or computer, the student selects a resident or faculty, identifies how long they worked together, and requests feedback on a specific clinical skill. Feedback categories include: direct observation of a physical exam or patient history, oral presentations, technical skills, or general performance. The system then generates a request email to the selected resident or faculty who can enter feedback into a single free text field by typing or dictating. The time required to complete the feedback survey is intended to be less than one minute. Upon completion, feedback is immediately emailed back to the requesting student. All of the data generated using the system is stored on a secure database accessible by the clerkship directors and coordinators.

Results

170 students used the Minute Feedback System from May 2015 to April 2016 averaging 19 requests per student over a 2-month clerkship for a total of 3,190 student feedback requests. 1,978 responses from residents and faculty were given for an overall response rate of 62%.



Although 75% of users rated the system favorably, some concerns raised were:

Most of the feedback was generic and therefore not very useful." - student
 "I feel like this is stuff we should be having as face-to-face conversations daily." - resident
 "There are downsides to giving identifiable negative feedback in writing." - faculty
 "Important to distinguish whether this is aimed at feedback or grading because it is unclear." - resident
 "I am skeptical that it is not being used for grading." - student

Conclusions

The *Minute Feedback System* is easy to use, encourages same-day assessment, and increases the quantity of documented feedback. Further work is required to increase response rate, clarify the system's use as a formative assessment tool, and improve the quality of written feedback. While the Minute Feedback System demonstrated its utility, there are legitimate concerns about the value of electronic feedback and its role in clinical education. Ideally, feedback should be delivered in person shortly after a learner's performance is observed - this is the gold standard. However, it comes as no surprise that the gold standard is rarely being met. So where does electronic feedback fit in? The Minute Feedback System is designed to supplement timely in-person feedback, not to replace it. Students were encouraged to actively seek out in-person feedback and integrate it into their clinical practice. However, in settings where this is challenging or insufficient, the Minute Feedback System can offer another modality to increase the



- Feedback quality was low
- Providing feedback is not an innate skill
- Feedback is part of a complicated social interaction
- Quality feedback is specific, actionable, and tailored to the individual trainee

307: SafeMD: Establishing a Sexual Assault Awareness and Education Curriculum for Medical Students

Authors: Boone Marois, Hanna Berlin

Background: Sexual assault is a pervasive issue that necessitates address by the medical community, including designing an effective curriculum to provide the knowledge for medical professionals to prevent sexual assault in their communities and provide healthcare to survivors of sexual assault.

Actions, Methods or Interventions: Students at University of Michigan established SafeMD, a peer-led organization that addresses the shortcomings of both curricular and extra-curricular efforts to address sexual assault. To accomplish this mission, we developed education seminars, conducted a needs assessment, and established an inter-graduate school alliance centered around sexual assault awareness and education.

Results: To educate our community, SafeMD launched two main programs: Allyhood Training and M1 Orientation. In Allyhood Training, medical students received education about the prevalence of sexual assault, the Sexual Assault Nurse Examiner program, and the legal aspects of reporting sexual assault from experts in each field. During M1 orientation, first year medical students were provided with an overview of sexual assault and the resources available to medical students.

SafeMD also conducted a “Needs Assessment” by sending a survey to all preclinical medical students regarding sexual assault education. This allowed students to provide input on areas that both SafeMD and the medical school administration needed to address.

Lastly, SafeMD created an inter-graduate school collaborative known as SafeMichigan that allows for collaboration between graduate students working to improve education about sexual assault in their respective graduate schools.

Lessons Learned: SafeMD’s work has shown the potential for students to organize and improve their own education about sexual assault through peer-led collaboration. Further, it shows student desire to be prepared to address sexual assault during their education and during their profession as a health care provider. Lastly, it shows the potential for collaboration between graduate students to share resources and provide opportunities for interschool education about sexual assault.

Future Applications and Next Steps: This work acts as a framework for other medical schools to adopt similar peer-led sexual assault awareness and prevention groups. With further development and assessment of this intervention, future physicians will be able to better support both those in the medical community and patients who have survived sexual assault.



SafeMD

Medical Students Developing a Sexual Assault Awareness and Education Curriculum Targeted To Medical Professionals

Hanna Berlin^{1*}, Boone Marois^{2*}, Petrina LaFaire^{3*}, Jonathon McBride^{4*}, Seth Klapman^{5*}, Kathryn S. Brown^{5*}, and Peris Castaneda^{6*}

¹University of Michigan Medical School, Ann Arbor, MI

*The authors contributed an equal amount of work



MEDICAL SCHOOL
UNIVERSITY OF MICHIGAN

INTRODUCTION

- Sexual assault affects thousands of people every year, particularly on university campuses, and leaves an impact on both the individual and community level. In addition to the personal impact, medical professionals stand in a unique position as sexual assault affects their patients as well.
- As medical students at the University of Michigan, we were disappointed to find that sexual assault was only minimally addressed at our institution, both within the curriculum or extracurricularly, and specific sexual assault resources were not made clear to students.
- In Fall 2015, UM medical students founded **SafeMD** (Survivors, Advocates, Friends, Educators) to promote an environment in which sexual assault is illuminated, understood, not tolerated and actively combated; in which survivors of sexual assault have access to and are aware of supportive resources; and in which future medical professionals become proficient at handling patients involved in sexual assault with nuance, skill, and care.

OUTREACH

SAFE MICHIGAN



Goal: Work with other graduate schools on the UM campus to support development of sexual assault awareness programs within each school.

Achieved: Organized an inter-professional mixer to share SafeMD's successful model and assess other graduate efforts to address sexual assault.

Impact: Established a means for SafeMichigan communication (event sharing, networking etc.) and aided in foundation of SafeSPH.

SAFE WORLD



Goal: Connect with medical schools across the country to share programming and ideas regarding sexual assault awareness.

- Impact:**
- Connected with medical students from other institutions at national conferences.
 - Developed a shared resources portal to consolidate potential curricular activities.

EDUCATION: ALLYHOOD TRAINING

Goal: Educate the Medical School Community Through a Peer-Led Sexual Assault Basic Training.

Achieved: In collaboration with the UM Central Campus Sexual Assault Preventions and Awareness Center, medical students designed and implemented a training, which included integrated, multi-day sessions exploring the themes: *Bystander intervention & Community Engagement, Sexual Assault Law & Legal Processes and Responding as a Medical Professional*. Speakers included representatives from the SAPAC, UM School of Law, and the UM Sexual Assault Nurse Examiner program.

Impact: During the 2017 Allyhood training series, twenty-eight medical students attended two-out-of-three sessions, and received SafeMD lapel pins for their white coat.

OPTIONAL ALLYHOOD TRAINING



2017 Allyhood Training session in progress.

SAFE SPACE: M1 ORIENTATION

Goal: Introduce Incoming M1 Medical Students to Campus Sexual Assault Mandatory and Nonmandatory Reporting Resources.

Achieved: A dedicated session, designed and presented by medical students, was built into the M1 Orientation ("Launch") to give incoming students an introduction to Sexual Assault and ensure all students know what resources (confidential and mandatory reporters) are available to them. Topics covered during the 25-minute session include defining sexual assault, bystander intervention, consent, and resources.

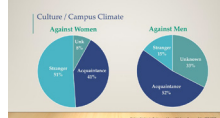
Impact: 177 incoming M1 medical students attended the session and received Resource Cards (see below).

M1 ORIENTATION / LAUNCH OVERVIEW

Resource Wallet Card



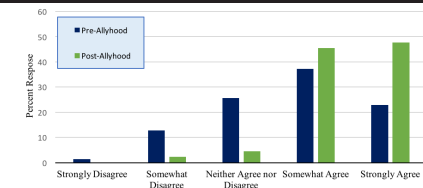
Presentation – Sample Slides



ALLYHOOD SURVEY TRENDS

- 2016/17 Allyhood participants completed anonymous pre-and post-surveys about their knowledge of and perceived preparedness to handle situations of potential sexual.
- 78 participants completed the pre-survey, 47 participants completed the post-survey.

"I feel prepared to be a proactive bystander should the occasion call for it."



"Do you believe you are prepared to deal with a patient exposed to sexual assault?"

Pre-Allyhood

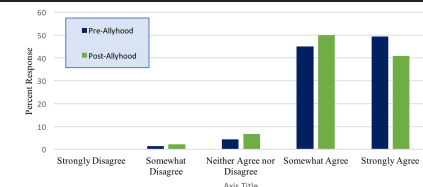
Post-Allyhood



■ Yes ■ No

■ Yes ■ No

"I am planning to learn more about the problem of sexual assault in medical school."



CONCLUSIONS

- Preliminary examination of the Allyhood training series shows a positive trend in participants feeling more prepared both as bystanders and health professionals in confronting sexual assault.
- Further education should be provided to students who plan to learn more about the problem of sexual assault in medical school, beyond Allyhood training.
- SafeMD provides an excellent model for other medical students and institutions to initiate similar programs dedicated to educating future professionals on sexual assault in order to better serve their patients and communities.

ACKNOWLEDGMENTS

M MEDICAL SCHOOL **M** OBSTETRICS AND GYNECOLOGY

309: Dental Hygiene Students' and Dental Students Evaluations of the Orientation Session "Building Communities in Times of Diversity"

Authors: Raymond Hong, Mariah Newton, Marita R. Inglehart

Background: The first cultural audit at the University of Michigan - School of Dentistry drew attention to the fact that students with different background characteristics did not feel equally well accepted in the dental school environment. An orientation session entitled "Building community in times of diversity" for incoming dental students has therefore been implemented since 1994. Since 2000, this orientation session was also offered for incoming dental hygiene students. The objectives were to explore how students evaluate this orientation session overall and specific components of this session. In addition, the average responses of dental and dental hygiene students were compared.

Actions, Methods or Interventions: End of program survey data were collected from 510 dental hygiene students between 2000 and 2017 and from 2311 dental students between 1994 and 2017.

Results: Overall, both student groups on average agreed that this session was informative (5-point with 1=disagree strongly to 5 = agree strongly: dental students: Mean=4.08 vs. dental hygiene students: Mean=4.42; $p<.001$) and that building a community among dental students is important (4.89 vs. 4.88). Both student groups agreed on average that the movie was interesting (4.12 vs. 4.45; $p<.001$), that the small group discussions were interesting (3.94 vs. 4.21; $p<.001$), and that the discussion of the classroom scenarios was interesting (3.83 vs. 4.20; $p<.001$). They also agreed on average that their classmates interacted well (4.42 vs. 4.33) and that they learned new perspectives about working as a professional in a team and that an orientation about community issues should be done next year (4.18 vs. 4.36). There also were significant changes in the average responses over the years for each program.

Lessons Learned: Both groups of students responded overwhelmingly positively to the orientation session itself. Given that these students had only minimal prior interactions with each other, it is interesting that they positively evaluated the movie and the small group discussions. Experiential learning with a specific exercise however received the least positive responses.

Future Applications and Next Steps: Introducing incoming students right at the beginning of their education about diversity related issues can set the tone for future educational interventions concerning cross culturally sensitive patient care. Future research should explore whether these positive evaluations carry over to evaluations of classroom-based and community-based additional interventions. persist over time.



Dental Hygiene Students' and Dental Students Evaluations of the Orientation Session "Building Communities in Times of Diversity"

Raymond Hong, Mariah Newton, Marita R. Inglehart; University of Michigan School of Dentistry



ABSTRACT

Objective: The first cultural audit at the University of Michigan - School of Dentistry drew attention to the fact that students with different background characteristics did not feel equally well accepted in the dental school environment. An orientation session entitled "Building community in times of diversity" for incoming dental students has therefore been implemented since 1994. The objectives were to explore students' evaluations of this session overall and of specific components. In addition, the average responses of dental and dental hygiene students were compared.

Methods: End of program data were collected from 510 dental hygiene and 2311 dental students over these years.

Results: Both student groups agreed that this session was informative and that building a community among dental students is important. Both student groups agreed on average that the movie was interesting, that the small group discussions were interesting, and that the discussion of the classroom scenarios was interesting. They also agreed on average that their classmates interacted well and that they learned new perspectives about working as a professional in a team and that an orientation about community issues should be done next year.

Conclusions: Introducing incoming dental and dental hygiene students about the importance of building a community among the diverse members of their classes is an important objective that both dental and dental hygiene students appreciate.

INTRODUCTION

The first cultural audit at the University of Michigan - School of Dentistry drew attention to the fact that students with different background characteristics did not feel equally well accepted in the dental school environment.¹ An orientation session entitled "Building community in times of diversity" for incoming dental students has therefore been implemented since 1994. Since 2000, this orientation session was also offered for incoming dental hygiene students. The workshop consisted of showing a movie and engaging the participating students in small group activities.

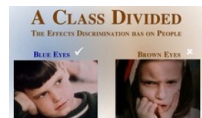
AIMS

The objectives were to explore dental and dental hygiene students' thoughts concerning

(a) the overall value of the orientation session,

(b) which specific components they valued and

(c) how the average responses of the students compared throughout the years.



METHODS

This research was determined to be exempt from IRB oversight by the Health Sciences and Behavioral Sciences IRB at the University of Michigan.

Respondents: Data were collected from 510 second year dental hygiene students and 2,311 first year dental students

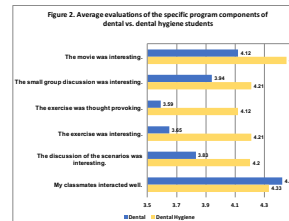
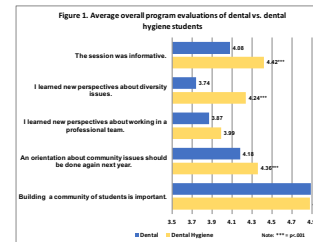
Procedure: The students responded to a survey following the orientation including an open ended response.

Table 1: Overview of the respondents by year and type of program

| Year | Total # dental students | Dental respondents | Total # dental hygiene students | Dental hygiene respondents |
|-------|-------------------------|--------------------|---------------------------------|----------------------------|
| 1994 | 100 | 75 | 0 | 0 |
| 1995 | 100 | 75 | 0 | 0 |
| 1996 | 101 | 69 | 0 | 0 |
| 1997 | 100 | 103 | 0 | 0 |
| 1998 | 105 | 92 | 0 | 0 |
| 1999 | 106 | 96 | 0 | 0 |
| 2000 | 103 | 110 | 32 | 33 |
| 2001 | 113 | 107 | 31 | 28 |
| 2002 | 105 | 90 | 32 | 28 |
| 2003 | 105 | 102 | 35 | 30 |
| 2004 | 105 | 93 | 28 | 36 |
| 2005 | 110 | 107 | 26 | 25 |
| 2006 | 105 | 101 | 28 | 25 |
| 2007 | 105 | 102 | 28 | 21 |
| 2008 | 105 | 102 | 30 | 29 |
| 2009 | 105 | 96 | 31 | 30 |
| 2010 | 106 | 95 | 29 | 29 |
| 2011 | 108 | 95 | 35 | 32 |
| 2012 | 108 | 96 | 23 | 22 |
| 2013 | 106 | 104 | 26 | 27 |
| 2014 | 108 | 91 | 25 | 22 |
| 2015 | 104 | 102 | 32 | 29 |
| 2016 | 105 | 101 | 32 | 33 |
| 2017 | 109 | 90 | 32 | 31 |
| Total | 2527 | 2311 | 543 | 510 |
| % | 100 | 91.5% | 100 | 93.9% |

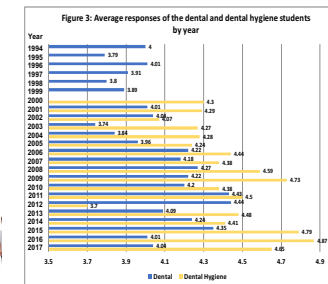
RESULTS

The first objective was to explore dental and dental hygiene students' thoughts concerning the overall value of the orientation session. Figure 1 shows that dental students and dental hygiene students agreed on average that the session was informative, that they had learned new perspectives about diversity issues, and that this session should be done again next year. The dental hygiene students had a more positive response when asked if they learned new perspectives about working in a professional team. The dental students agreed more strongly that building a community is important.



The second objective was to explore the students' evaluations of the specific program components. Figure 2 shows that dental students and dental hygiene students agreed on average that the movie and small group discussion were interesting. They also agreed that the exercise was thought provoking and interesting. Both groups agreed that the discussion of the scenarios was interesting. The dental students agreed more that their classmates interacted well when compared to the dental hygiene students.

The third objective was to explore how the average evaluations differed over the years. Figure 3 shows the average responses of dental and dental hygiene students to the statement "This session was informative". Figure 3 shows that the responses differed over the years. In addition, this figure also shows that the dental hygiene responses were more positive than the dental student responses.



DISCUSSION

When the first ever cultural audit of the climate at the University of Michigan School of Dentistry took place in 1994, the data showed that there were divisions and segmentations among the approximately 100 dental students. Challenging the students already during their orientation with the task to consider how they can build a community in times of diversity seemed therefore needed.

A three hour long orientation session "Building community in times of diversity" was initiated and has been part of the orientation since then. This session was then also implemented as part of the dental hygiene orientation in 2000.

The program consists of showing the movie "A class divided" and then breaking out in smaller groups to discuss the movie, participate in an exercise and discuss classroom scenarios.

The end of program evaluations were overall quite positive, but varied over the years.

CONCLUSIONS

Introducing incoming dental and dental hygiene students during their orientation to the importance of building a community among the diverse student members of their classes is an important objective that both dental and dental hygiene students appreciated.

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ACKNOWLEDGMENT

We want to thank Dr. Tedesco and Dr. Woolfolk for supporting the creation of this workshop in 1994 and Prof. Kerschbaum for introducing it into the dental hygiene program in 2000.

311: Population Health Simulation Interprofessional Education Pilot Project: Chronic Disease Management for Diabetes Mellitus

Authors: Amy Yorke, Ebbin Dotson, Paul Walker, Michael Klay, Erin Khang

Background: Managing the health care needs of a person with diabetes is complex. According to Michigan Behavioral Risk Factor Surveillance System, 2013-2015 data, approximately 10.5% of the population in the state of Michigan has been diagnosed with diabetes.* An interprofessional health care team is best positioned in order to help a person with diabetes manage his or her multiple health needs. Successful interprofessional healthcare teams demonstrate skills in communication, leadership, situation monitoring, and provide a supportive environment. Healthcare professionals are expected to work together in order to maximize patient outcomes; however, are not commonly trained in the skills required for effective team work during their professional education.

This study is being conducted to evaluate the impact of a population health-based simulated interprofessional education event on learning outcomes. The academic and practical design elements will create a patient care simulation experience for a healthcare team comprised of students from various health sciences disciplines. An interprofessional healthcare team of students from Medicine, Pharmacy, Physical Therapy, Public Health, and Social Work will complete a simulation experience with social contact theory and reflective/experiential learning as the theoretical frameworks used to address team-based practices. The simulation will use diabetes mellitus as the exemplar. Specifically, it will focus on improving teamwork, communication, and understanding of roles and responsibilities.

By the end of the simulation experience students will be able to: contextualize and integrate population health in healthcare delivery services, apply relationship values and the principles of team dynamics to perform effectively in different team roles, differentiate between roles/responsibilities of varying health care professionals, and create a comprehensive interprofessional patient centered care plan for a person with diabetes.

*http://www.michigan.gov/mdhhs/0,5885,7-339-71550_5104_5279_39424-134707--,00.html

Actions, Methods or Interventions: The simulation will be piloted in March 2018, utilizing a one-day simulation event for 20 to 40 students who. Each student will be assigned to an interprofessional team comprised of one student from the five health disciplines.

The simulation will be piloted, culminating in a one-day simulation event for 20 to 40 students who will be assigned to interprofessional teams. Each team will be comprised of one student from the five health disciplines. Standardized patients will be used in the simulation exercise. Outcomes will be assessed by administering the Performance Assessment Communication and Teamwork Tools Set (PACT Tools) in pre-test/post-test fashion to students. Each team's standardized patient interaction will be video recorded; both students and investigators/observers will use PACT tools to evaluate the teams' communication and teamwork.

Results: PENDING

Lessons Learned: Ensuring adequate resources (financial, time, space) is essential to planning, executing, and sustaining a simulated IPE.

Future Applications and Next Steps: After the execution of the simulation, we plan to develop an aligned curricular offering and identify best practice recommendations for the Center for Interprofessional Education partners interested in scaling simulation events as part of its push for experiential learning.



Interprofessional Education Population Health Simulation: Chronic Disease Management for Diabetes Mellitus

Ebbin Dotson, PhD, MHSA; Michael Clay, MD; Paul C. Walker, PharmD; Amy Yorke, PT, PhD, NCS; Erin Khang, LMSW

Background and Purpose

- Approximately 10.5% of the population in the state of Michigan has been diagnosed with diabetes.¹
- Managing the health care needs of these patients is complex and an interprofessional (IPE) health care team is best positioned to help manage multiple health needs and maximize patient outcomes; however, health sciences students are not commonly trained in the skills required for effective team work during their professional education.²
- Simulation based learning experience (SBLE) is an array of structured activities that represent actual or potential situations in education and practice. SBLE allow participants to develop or enhance knowledge, skills and attitudes, or analyze or respond to realistic situations in a simulated environment.³
- The purpose of this study is to evaluate the impact of a population health-based simulated interprofessional education event on learning outcomes in students from five different health sciences schools.

Methods

- SBLE was executed using diabetes mellitus management in the ambulatory care setting.⁴
- Four students from five different health care professionals (Medicine, Pharmacy, Physical Therapy, Public Health, and Social Work) participated in the two hour SBLE
- Assessment of student learning outcomes related IPEC competencies (teamwork, communication, understanding of roles/responsibilities) using Performance Assessment Communication and Teamwork (PACT) tool set.^{5,6}
- The SBLE consisted of three components
 1. Pre-simulation each student completed a survey individually and worked as a team to develop an assessment plan (30 minutes)
 2. Simulation with standardized patient (40 minutes)
 3. Post-simulation each team prepared and presented a care plan, participated in group debriefing (modified plus/delta), and individually completed post-survey
- Granted exemption by IRB (HUM00138846)

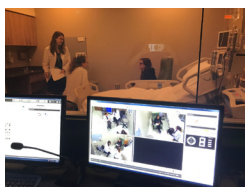
Preliminary Results

Pre-simulation

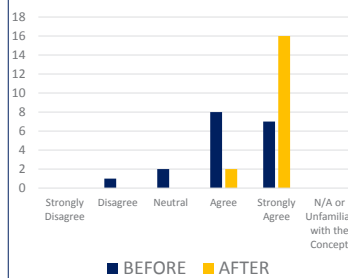
- Pre-Survey results: low KSAs related to IPE, Patient Safety, Shared Mental Model
- Worksheet: Each team discussed and developed a Patient Care Plan prior to seeing the standardized patient.

Table 1: Summary of each profession identified priority pre-visit

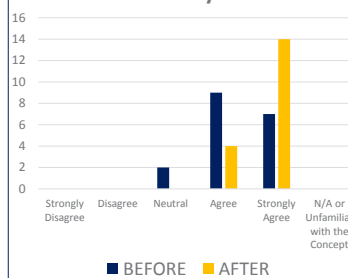
| Profession | Identified Priority |
|------------------|---|
| Medicine | Medical history, education |
| Pharmacy | Medication regimen and adherence, side effects |
| Physical Therapy | Balance and movement, foot exam |
| Public Health | Lifestyle, access to care, environmental and personal factors |
| Social Work | Insurance and social support |



Understand the Benefits of IPE



Association between Patient Safety and IPE



Post-simulation

- Team Presentations of Care Plan: Included information on follow up visit, additional referrals, and on financial resources.
- Approaches Observed: Group (2), Dyadic (1), Individual (1)

Table 2: Summary of Debriefing Themes

| Debriefing | Themes |
|------------------------------------|--|
| Emotional Decompression | Energized, awesome, inspired, |
| Plus | Worked well as team, communication, efficient |
| Delta | Order of health care professionals (who spoke first), dividing up patient summary |
| Incorporation into future practice | Resources, use expertise of other health care professionals, better patient review prior to visit, more knowledgeable about other health care professionals, more mindful of patient perspective |

Discussion

- Coordinating an IPE SBLE among 5 health professions is challenging (student and faculty schedules, simulation space availability)
- Preliminary results demonstrate an overall positive impact on student learning

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- IPE Leadership Fellows Program and the Michigan Center for Interprofessional Education
- School of Nursing Clinical Learning Center with special thanks to Michelle Aebersold, Amanda Nuechterlein, and Jodi Smolek
- 20 graduate students who took two hours of time on Friday, March 29th to participate in our pilot IPE SBLE

313: Training your future doctor to speak Mandarin -- Medicine in Mandarin elective at the University of Michigan Medical School

Authors: Yingchao Zhong, Elaine Liu, Kelly Young, Jane Miller, Paula Ross, Michael Heung

Background: The Chinese population makes up a substantial fraction of patient burden, especially in certain parts of the country. Cities such as New York City, San Francisco, and Los Angeles each had a Chinese population of over 500,000 as of 2015. Furthermore, only 42% of foreign born and 59% of all Chinese Americans are English proficient, indicating that many rely on language assistance in complicated health care settings (Pew Research). From a larger health education context, Chinese Americans are one of the fastest growing populations in the United States (U.S. Census Bureau, 2010) To better prepare future providers to care for this population, several medical schools have developed and implemented a Medicine in Mandarin course for their students. Despite growing popularity of such programs, the efficient delivery of an in-language elective aimed to provide students with the ability to take a history and perform a physical exam in Mandarin is a challenging endeavor. At University of Michigan Medical School (UMMS), a Medicine in Mandarin course development was influenced by both general and local needs assessments.

Actions, Methods or Interventions: In 2014, Medicine in Mandarin, formerly an informal student led course, was officially recognized by the University of Michigan Medical School curriculum policy committee as a pre-clinical elective. The Department of Learning Health Sciences recruited a nationally certified healthcare Mandarin interpreter and authorized medical interpreter trainer to serve as the elective's instructor. A complete 30 hour curriculum was developed, and included didactic activities, interactive components, and guest lectures. Didactic activities consisted of vocabulary organized by organ systems and common phrases and were intended to build the basic foundation for communication. Interactive components included conversational practice and group presentations, and were meant to reinforce and integrate learned vocabulary into conversation. Guest lectures and miscellaneous topics introduced students to cultural relevance and field experience. Assessments to encourage learning reinforcement included weekly quizzes, multiple standardized patient interviews, and a final exam. The elective has run each academic calendar year since 2014, graduating a total of 25 students.

A course evaluation was administered following completion of the elective to determine the effectiveness of the course. A separate post-course online survey was administered to all students at least six months after completion of the course to determine the application of the skills learned in the elective to the clinical setting.

Results: Twenty-three of 25 completed the course evaluation and 22/25 students completed the post-course application survey. Prior to the course, few students (2, 8.7%) felt comfortable practicing medicine in Mandarin, and this increased to 22/23 (22, 95.7%) students after completing the elective. Nearly all of the students (22, 95.7%) stated that the Standardized Patient encounters improved their ability to practice medicine in Mandarin, and all students (23, 100%) stated that the course instructor improved their ability to practice medicine in Mandarin. When asked about their experiences, nearly all students (18, 81.8%) stated they have applied valuable skills learned from the course in the clinical setting. Overall, nearly all students (22, 95.7%) rated the course as very good or excellent, and all students (22, 100%) believe that medical language courses are an important part of a medical curriculum.

Lessons Learned: The elective was effective at increasing student confidence in practicing medicine in Mandarin. Students indicated satisfactory mastery and appreciation of the course, especially unique elements such as standardized patient encounters. Students reported the course instructor as a main reason for success in the course.

Future Applications and Next Steps: Medicine in Mandarin will continue to be offered to preclinical students at UMMS. Each class will be adjusted according to the feedback from the previous class. UMMS is currently undergoing a curriculum change. Hence, important next steps would be to investigate how and where the Medicine in Mandarin elective should fit within the context of the new curriculum.



MEDICAL SCHOOL
UNIVERSITY OF MICHIGAN

Medicine in Mandarin: Training Future Doctors to Provide Care in the Patient's Native Language

A Pre-clinical Elective at Michigan Medicine

Yingchao Zhong; Elaine Liu; Kelly Young; Jane Miller; Michael Heung, MD
University of Michigan Medical School

Background

- The U.S. Chinese population, which totaled almost 5 million in 2015, makes up a substantial fraction of patient population
- Only 42% of foreign born and 59% of all Chinese Americans are English proficient (Mitchell, 2017)
- To better prepare future providers to care for this growing population, several medical schools have developed Medicine in Mandarin courses
- At University of Michigan Medical School (UMMS), a Medicine in Mandarin course was developed in response to general and local needs assessments

Methods and Materials

- The main objective of the elective was to provide students with the ability to take a history and perform a physical exam in Mandarin
- A curriculum committee was created to oversee the development of a 30 hour curriculum (Table 1) and the student recruitment/application process
- Since 2014, the course has been offered 4 times to a total of 27 students
- A course evaluation was administered following completion of the elective to determine effectiveness of the course, and a "On the Wards" survey was sent out to assess application of skills in a clinical setting

Table 1. Description of Curriculum Content

| Curriculum Overview | Schedule |
|---|------------|
| Basic Common Phrases | Week 1 |
| General Terminology and Body Parts | Week 2 |
| Chinese and Chinese American Culture, Sociocultural Aspects, and Health Beliefs (Guest Lecture) | Week 3 |
| How to take a History and do a Physical Exam (Guest Lecture) | Week 4 |
| Focused Organ System Vocabulary | Week 5-11 |
| Common Illnesses in the Chinese Community | Week 13 |
| Patient Decision Making (End of Life Care, Palliative Care, Hospice, and Advance Directives) | Week 14 |
| Chinese Diet, Nutrition, Lifestyle, and Exercise | Week 14 |
| Activities | |
| Informal History Practice Session with Native Chinese Speakers | Week 12 |
| Group Presentation on Illnesses Common in the Chinese Community | Week 13 |
| Assessments | |
| Weekly Multiple Choice Vocabulary Quizzes | Week 1-16 |
| History Intake and Physical Exam with a Standardized Patient (2) | Week 2, 16 |
| Final Multiple Choice Exam | Week 16 |
| Final Oral Exam | Week 16 |

Outcomes

Figure 1. Student survey response to "I am comfortable with my ability to practice medicine in Mandarin."

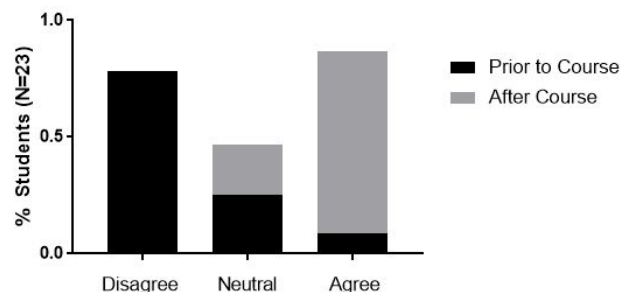


Table 2. Application of Medicine in Mandarin on the Wards

| | Strongly agree or agree, N (%) | Neutral, N (%) | Strongly disagree or disagree, N (%) |
|---|--------------------------------|----------------|--------------------------------------|
| The Medicine in Mandarin course prepared me to communicate with Mandarin speaking patients (n=22) | 20 (90.9) | 1 (4.5) | 0 (0) |
| The Medicine in Mandarin course provided me with valuable skills that I have applied in the clinical setting (n=22) | 18 (81.8) | 3 (13.6) | 1 (4.5) |

"Using my Medical Mandarin vocabulary, I explained pros and cons of different labor interventions, gave entire neonate discharge talks, and provided reassurance to patients' many medical questions. I would not have felt prepared to do this without first having completed the Medical Mandarin elective."

"There was no Mandarin speaker available, either in-house or by phone... I volunteered to speak to the family and was available afterwards for the family's questions. Medical Mandarin gives us the tools to speak and care effectively for our patients."

Next Steps

- Continue recruiting pre-clinical students for the course each year
- Improve and adjust course based on student feedback
- Work with the medical school administration and discuss how Medicine in Mandarin fits within the context of a changing medical school curriculum
- Secure financial resources through a combination of grant applications and negotiations with medical school administration

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400: Healthcare Transitions and Complex Medical Conditions Arising out of Childhood: a New Resident-Led Lecture Series for Pediatric and Internal Medicine Trainees

Authors: Marie Pfarr, Angelico Razon, Patricia Keefer

Background: More youth with special healthcare needs (YSHCN) are surviving to adulthood due to advancements in detection, treatments and medical services. It is estimated that 750,000 children with special health care needs will transition from pediatric to adult healthcare annually in the US. The importance of a comprehensive healthcare transition for these youth has become apparent. Over the last 10 years, several national efforts have been made to promote high-quality healthcare transition for both healthy youth and YSHCN; however, several barriers have been identified. Published surveys have noted that both pediatricians and internists report a lack of skills and knowledge in healthcare transition process and planning and are often not aware of available community resources that support the YSHCN population during this time of need. Additionally, both pediatricians and internists identify a lack of training and knowledge regarding care for these complex conditions arising from childhood.

Actions, Methods or Interventions: This lecture series will be composed of eight 1-hour long lectures presented to pediatric residents and six 1-hour long lectures presented to internal medicine residents. These lectures will be presented over the 2017/2018 academic year during residents' scheduled morning educational conferences. All lectures have been created and will be presented by Medicine-Pediatric residents with guidance from a faculty mentor.

Two lectures (Transitional Medicine: An Overview; and Financial and Legal Issues with Healthcare Transitions) will focus on expanding pediatric and internal medicine residents' knowledge of health care transition for both healthy adolescents and those with special healthcare needs.

Additional lectures given to the pediatric residents will be focused on the care of YSHCN. Objectives were constructed for each of these lectures by incorporating American Board of Pediatrics content specifications. The lectures will cover the following: 1) spina bifida; 2) intellectual disabilities; 3) long-term cancer survivorship; 4) solid organ transplant; and 5) technology and mobility issues. The final pediatric presentation will be "Parental Experiences: Life with a Child with Chronic Illness", including a panel of family members caring for YSHCN.

The remaining four lectures for the internal medicine residents will be focused on the care of adults with chronic childhood conditions. These lectures will include topics on 1) cerebral palsy; 2) spina bifida; 3) Down syndrome; 4) long-term cancer survivorship; and 5) intellectual disabilities.

Results: To evaluate the curriculum, a pre- and post-survey will be administered to all pediatric and internal medicine participating residents measuring their level of comfort with competencies related to the objectives of the lectures.

Future Applications and Next Steps: Educating pediatric and internal medicine residents on the importance of comprehensive healthcare transition for all youth, including those with special health care needs, is an important step toward improving medical care for this population. Further, this lecture series will help prepare residents to care for individuals with chronic conditions arising out of childhood.



Healthcare Transitions and Complex Medical Conditions Arising Out of Childhood: a New Resident-Led Lecture Series for Pediatric and Internal Medicine Trainees

Authors: Marie Pfarr, MD¹, Angelico Razon, MD¹, Patricia Keefer, MD¹
¹Michigan Medicine, University of Michigan, Ann Arbor

Background

More youth with special healthcare needs (YSHCN) are surviving to adulthood due to advancements in detection, treatments and medical services. It is estimated that 750,000 children with special health care needs will transition from pediatric to adult healthcare annually in the US. The importance of a comprehensive healthcare transition for these youth has become apparent. Over the last 10 years, several national efforts have been made to promote high-quality healthcare transition for both healthy youth and YSHCN; however, several barriers have been identified. Published surveys have noted that both pediatricians and internists report a lack of skills and knowledge in healthcare transition process and planning and are often not aware of available community resources that support the YSHCN population during this time of need. Additionally, both pediatricians and internists identify a lack of training and knowledge regarding care for these complex conditions arising from childhood.

Purpose

We have created a lecture series that will address these identified weaknesses in training for both pediatric and internal medicine residents.



Methods

The following lectures will be presented over the 2017/2018 academic year during residents' scheduled educational conferences. All lectures have been created and will be presented by Medicine-Pediatric residents with guidance from a faculty mentor.

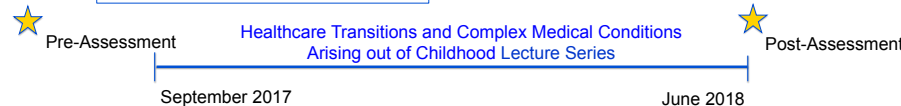
Internal Medicine Lecture Series

- 1 *Transitional Medicine: An Internist Perspective*
- 2 *Caring for Adults with Childhood Illnesses: Cerebral Palsy, Mobility Impairment, Nutritional Support, and Technology Dependence of the Nervous System*
- 3 *Long Term Survivorship: Life after Childhood Cancer*
- 4 *Caring for Adults with Childhood Illnesses: Spina Bifida and Down Syndrome*
- 5 *Social-Legal Issues for Adults with Childhood Illnesses (Access to health insurance, guardianship, and more)*

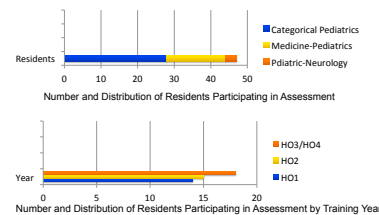
★ To evaluate the lecture series, a pre- and post-assessment will be administered to all participating pediatric and internal medicine residents. This survey will measure their level of comfort with competencies related to the objectives of the lectures.

Pediatric Lecture Series

- 1 *Transitional Medicine: A Pediatric Perspective*
- 2 *Caring for Children with Special Health Care Needs: Spina Bifida*
- 3 *Caring for Children with Special Health Care Needs: Intellectual Disabilities*
- 4 *Long-Term Survivorship: Life after Childhood Cancer*
- 5 *Caring for Children with Special Health Care Needs: Solid Organ Transplant*
- 6 *Children with Special Needs: Technology, Mobility, and More*
- 7 *Financial and Legal Issues with Healthcare Transitions*
- 8 *Parental Experiences: Life with a Child with Chronic Illness*



Overview of Pre-Assessment Data: Pediatric Residents



- ✓ 59% of residents feel somewhat uncomfortable or extremely uncomfortable with knowing the key steps in a planned healthcare transition.
- ✓ 66% of residents feel somewhat uncomfortable or extremely uncomfortable identifying the financial and legal factors associated with transitioning an adolescent with special healthcare needs.
- ✓ 45% of residents feel somewhat uncomfortable providing appropriate anticipatory and ongoing guidance to the parents of a child who has a chronic or handicapping condition.
- ✓ 50% of residents feel somewhat uncomfortable recognizing the age-related clinical findings associated with intellectual disabilities of various etiologies.

- ✓ 41% of residents feel somewhat uncomfortable recognizing the clinical manifestations and complications associated with spinal dysraphism.
- ✓ 41% of residents feel somewhat uncomfortable understanding the prognosis for a patient who has undergone renal transplant.
- ✓ 45% of residents feel extremely uncomfortable distinguishing between government benefits.
- ✓ 28% of residents feel extremely uncomfortable knowing where to find available resources for providers caring for children and adolescent cancer survivors.

**Internal Medicine Residents Pre-Lecture Series Assessment In Progress

Future Ideas: Expanding to a Curriculum

- ✓ *One-pagers*: fact sheets to help providers care for youth with special healthcare needs and adults with childhood illnesses
- ✓ *Website* combining national resources and lecture series material
- ✓ *Cross-over lectures* between departments

Conclusions

Educating pediatric and internal medicine residents on the importance of comprehensive healthcare transition for all youth, including those with special health care needs, is an important step toward improving medical care for this population. Further, this lecture series will help prepare residents to care for individuals with chronic conditions arising out of childhood.

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401: First-year Medical Students' Perceptions of Student-generated Multiple Choice Questions and the Association Between Utilization and Standardized Exam Performance

Authors: Josh Kurtz, Beth Holman, Matt Konerman, Seetha Monrad

Background: Despite the ubiquitous use of multiple choice questions (MCQs) in assessment during medical school, there are limited examples of medical students generating MCQs as a strategy for active learning to be used by peers (Mavis et al; Gooi et al). Medical student performance on MCQs generated by their peers is correlated with improved performance on summative institutional examinations (Walsh et al). How student performance on student-generated MCQs correlates with performance on national standardized examinations, such as those created by the National Board of Medical Examiners (NBME), is unknown.

Actions, Methods or Interventions: Second-year medical students created 108 cardiology NBME-style MCQs; cardiology faculty reviewed a representative sample of 36 for content accuracy, which were shared via Canvas with 179 first-year medical students to prepare for a customized NBME examination containing cardiology questions. An analysis of covariance (ANCOVA) was used to compare NBME exam performance for the 65 students who completed the student-generated MCQs to the 114 students who did not. Students' first year course cumulative score (overall percent score based on course grades received to date) was used as a covariate to control for knowledge differences. A $p < 0.05$ was used to determine statistical significance. Discrimination indices were generated using the Canvas Quiz statistics functionality. Additionally, we sent a survey using questions on a Likert-like scale to assess the perceptions of the 65 students who completed the MCQs.

Results: The mean performance on the student-generated MCQs was 63 +/-7.25% with a range of 17-100%. The mean performance on the NBME exam for students who used the student-generated MCQs was 62.8 (N=65) compared to 55.2 (N=114) for students who did not use the MCQs, with a mean difference of 4.3 ($p = 0.002$) based on the ANCOVA results. In terms of discrimination index (DI), 47% of the MCQs had $DI > 0.25$, 44% between 0-0.249, and 9% less than zero. 28 of the 65 students who used the student-generated questions completed the survey. Overall, students reported that the MCQs were moderately helpful in preparing for their exam (3.25/4 +/- 0.7). They rated the MCQs as more useful than other resources they used to prepared for the exam (3.56/5 +/- 0.78) and they reported that the style of the MCQs was relatively similar to the exam questions (2.71/4 +/-0.7).

Lessons Learned: Second-year medical students have the capacity to create standardized-test style MCQs that their first-year peers find equally as or more useful than other commercially created resources to prepare for standardized examinations that mimic the style of these MCQs reasonably well. Additionally, students have the capacity to create MCQs for their peers that, when utilized, are associated with improved standardized exam performance.

Future Applications and Next Steps: The remaining 72 MCQs will be edited to maximize content accuracy. We will explore timing of provision of the student-generated MCQ questions to optimize learning and performance.

First-year Medical Students' Perceptions of Student-generated MCQs and the Association between Utilization and Standardized Exam Performance

Josh Kurtz MS2, Beth Holman DrPH, Matt Konerman, MD, Seetha Monrad MD | University of Michigan Medical School



Abstract

Background: Medical student performance on peer-generated multiple choice questions (MCQs) is correlated with improved performance on summative institutional examinations¹, but the correlation with performance on national standardized examinations has not been previously reported.

Methods: Second-year medical students created 108 cardiology NBME-style MCQs which were shared via Canvas™ with 179 first-year medical students to prepare for a customized National Board Medical Examiners (NBME) examination containing cardiology questions. An analysis of covariance (ANCOVA) was used to compare anonymized NBME exam performance for the 65 students who completed the student-generated MCQs to the 114 students who did not with a covariate control of students' first year course cumulative score. A $p < 0.05$ was used to determine statistical significance. Additionally, we sent a survey using questions on a Likert-like scale to assess the perceptions of the 65 students who completed the MCQs

Results: The mean performance on the NBME exam for students who used the student-generated MCQs was 62.8 (N=65) compared to 55.2 (N=114) for students who did not use the MCQs, with a mean difference of 4.3 ($p = 0.002$) based on the ANCOVA results. In terms of discrimination index (DI), 47% of the MCQs had $DI > 0.25$, 44% between 0-0.249, and 9% less than zero. The survey had a response rate of 43%. Overall, students rated the MCQs as more useful than other resources they used to prepare for the exam (3.56/5 +/- 0.78) and they reported that the style of the MCQs was relatively similar to the exam questions (2.71/4 +/- 0.7).

Lessons Learned: Second-year medical students have the capacity to create standardized-test style MCQs that their first-year peers find as useful as other commercially created resources to prepare for standardized examinations. Further, the use of these MCQs is associated with improved standardized exam performance.

Methods

Generation



- MS2s create 108 NBME-style MCQs
- Faculty review 36 representative MCQs

Administration



- MCQs sent to 179 MS1s via Canvas
- 65 MS1s use MCQs as preparation

Survey



- Survey with Likert-like questions sent to 65 MS1s
- 43% response rate

MCQ Performance



- Canvas-generated student performance reports including discrimination indices

NBME Performance



- ANCOVA NBME score comparison between MS1s using MCQs for prep to MS1s not
- Covariate control of MS1 cumulative first-year score

Survey Results

Table 1 - Students' perception of how the student-generated MCQs compared to the NBME questions in style and content, by percentage of total (N=28) and mean.

| Question | Very different (1) | Relatively different (2) | Relatively similar (3) | Very similar (4) | Mean |
|----------|--------------------|--------------------------|------------------------|------------------|------|
| Content | 3% | 29% | 61% | 7% | 2.71 |
| Style | 3% | 32% | 54% | 11% | 2.71 |

Table 2 - Students' perception of how the student-generated MCQs compared to the NBME questions in difficulty and how useful they were comparatively as a prep tool, by percentage of total (N=28, 23) and mean.

| Question | Much less (1) | Slightly less (2) | About the same (3) | Slightly more (4) | Much more (5) | Mean |
|---------------------|---------------|-------------------|--------------------|-------------------|---------------|------|
| Difficulty | 7% | 47% | 21% | 25% | 0% | 2.64 |
| Comparative Utility | 0% | 4% | 48% | 35% | 13% | 3.57 |

MCQ Performance

Number of students

Mean: 63.25%
SD: 7.25%

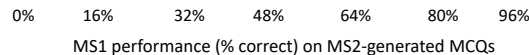


Figure 2: Discrimination Indices for Student-Generated MCQs, by range

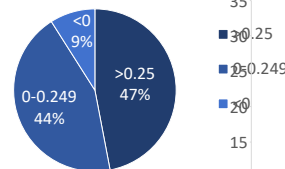
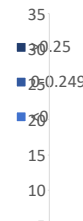


Figure 1: MS1 Performance



NBME Performance

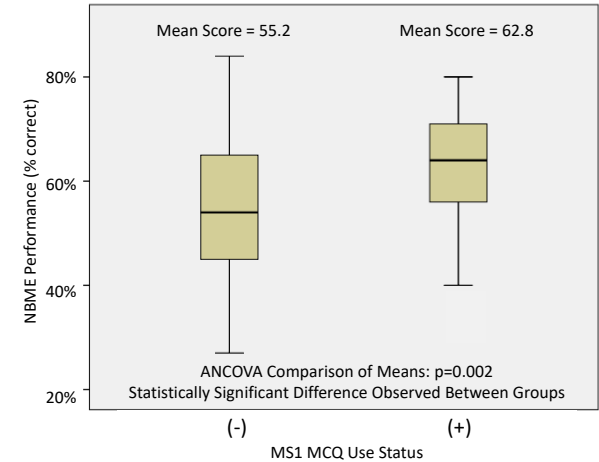


Figure 3: Comparison of NBME exam performance for MS1s who used the student-generated MCQs (+) = used MCQs, N=65) compared to students who did not (-) = did not use MCQs, N=114).

Conclusion and Future Directions

Conclusion: Second-year medical students can create standardized-test style MCQs that their first-year peers find as useful as commercially created resources to prepare for standardized examinations, and that mimic the style of these MCQs reasonably well. Additionally, students can create questions for their peers that, when utilized, are associated with improved standardized exam performance.

Next Steps: The remaining 72 MCQs will be edited to maximize content accuracy. We will explore timing of provision of the student-generated MCQs to optimize learning and performance.

Works Cited

- Wang B, Tayyaba S, Harris D, Smith P. Student-written single-best answer questions predict performance in finals. 2016;352-356.

402: Near-Peer Teaching as a Beneficial Tool in the Transition from Pre-Clinical to Clinical Student

Authors: Alex Zheutlin, Irina Khurana, Tessa Adzemovic

Background: One particularly difficult transition in medical education is the development from a “Pre-Clinical” to a “Clinical” student. Many students find it challenging to apply the library of information learned in a didactic setting to a clinically relevant scenario. Clinical students involved in The Internal Medicine Interest Group (IMIG) at the University of Michigan Medical School leveraged the experience of fourth-year students to create a near-peer learning experience offered to pre-clinical students. The aim of this program is to help pre-clinical students understand how to apply and communicate medical knowledge in a format that aligns with expectations of a clinical student.

Actions, Methods or Interventions: The new Near-Peer teaching group, sponsored by IMIG, has a three-pronged approach: 1) develop an organized approach to presenting in the most commonly encountered patient settings on a clinical rotation: newly admitted inpatient, continued inpatient, and outpatient; 2) learn appropriate management plans for an early clinical student, such as determining acuity of illness (sick vs. not-sick), exploring treatment options, triaging inpatient vs. outpatient concerns, and anticipating disease course and complications; and 3) review how to anticipate, answer, and appreciate the value of “pimp” questions while on rounds. These aims are carried out through an interactive workshop led by clinical students. Pre-clinical students receive an introductory didactic session followed by breakout sessions in which each student presents a unique case in a format resembling medical rounds with subsequent feedback from senior medical students.

Results: Following the interactive workshop, qualitative feedback is obtained from the pre-clinical students in attendance. Thematic elements extracted from feedback include an appreciation of: the low-stakes setting, receiving immediate feedback, distinction between various presentation types and the appropriate settings, and clearly stated expectations for medical students.

Examples of qualitative feedback are displayed below:

“The oral presentation workshop was really useful because we only had one day dedicated to learning the SOAP format of presentations. It was a low-stress environment presenting in front of peers and it was helpful hearing immediate feedback from an M4. It was particularly useful to learn the details of what to put in each part of the presentation and then immediately get feedback after putting it into practice.”

“The oral presentation workshop was very helpful because it allowed M2’s to present and then receive direct feedback from upperclassmen on areas for improvement before starting clinical rotations. It was also very valuable receiving advice on how to formulate an assessment & plan, as well as how presentations differ between inpatient and outpatient.”

Lessons Learned: Through peer-to-peer education, the objective of this program is to utilize medical cases to practice organizational and communication skills, helping mediate the transition from pre-clinical to clinical student. Senior medical students, not far removed from the preclinical years yet with additional clinical experience, are in the unique position of being able to distill information at a level appropriate for pre-clinical students. We discovered that this format allows for pre-clinical students to practice presentations in an environment that better resembles the clinical experience while still in a low-stakes, comfortable setting. Furthermore, this workshop is scalable across specialties, and empowers clinical students to reflect on their recent time on the wards to aid the in-coming students in pivotal transition from a pre-clinical to clinical student. We learned that there are immeasurable and, as of yet mostly underutilized, opportunities for clinical students mentor students in bread and butter clinical tasks - tasks that residents often do not have time to teach when students are starting on the wards.

Future Applications and Next Steps: This structured learning platform will serve as a springboard for a future internal medicine program focused on clinical adjustment designed by clinical students for their younger colleagues. We hope that it will act as the foundation for the development of longitudinal cohorts that will serve

as support groups for medical students interested in the field of medicine. These senior medical students will ultimately serve as liaisons between the classroom and the clinic: linking pre-medical students with residents and faculty, individuals pre-clinical students otherwise have less access to.

Future programming will include regular sessions in which pre-clinical students can continue developing presentation skills and gaining comfort with the uncertainties of clinical medicine in a safe space. Short term goals include recruiting more senior students to act as peer teachers, training them how to advise pre-clinical students, and advertising to more pre-clinical students. We also hope to expand the focus to provide lessons in other clinical skills that are under-taught and in high demand, such as writing orders, notes, and proper etiquette for working with consulting teams.



Near-Peer Teaching as a Beneficial Tool in the Transition from Pre-Clinical to Clinical Student

Tessa Adzemovic BA; Irina Tacon BA,BS; Alexander Zheutlin BS



Future Doctor

Problem: Pre-clinical students are often ill-equipped to apply and communicate medical knowledge in a format that aligns with expectations of a clinical student.

Pilot Solution: The Near-Peer Teaching Course, hosted by the Internal Medicine Interest Group, created a program to enhance pre-clinical students' clinical presentations by incorporating a didactic session with breakout groups simulating medical rounds led by senior medical students.

Qualitative Feedback Themes: appreciation of the low-stakes setting, receiving immediate feedback, distinction between various presentation types and the appropriate settings, and clearly stated expectations for medical students.

"The oral presentation workshop was really useful because we only had one day dedicated to learning the SOAP format of presentations. It was a low-stress environment presenting in front of peers and it was helpful hearing immediate feedback from an M4. It was particularly useful to learn the details of what to put in each part of the presentation and then immediately get feedback after putting it into practice."



MEDICAL SCHOOL
UNIVERSITY OF MICHIGAN

500: Fires and Friendships: An Innovative Tool for Reducing Burnout in Medical Education

Authors: Alec Bernard, Jacquelyn Kercheval, Alex Blaty, Heather Burrows

Background: Burnout is a pervasive problem in healthcare and often manifests during the educational years. There is increasing interest in medical education in building skills and developing habits during training that will prevent burnout later in one's career. Several undergraduate institutions use wilderness orientation programs to assist students in their transition from high school to college and have demonstrated efficacy in improving educational readiness and building resilience. Such programs could be especially useful for medical students because of their potential to mitigate burnout during medical school. An innovative wilderness pre-orientation program, CAMP ("Creating Adventurous and Mindful Physicians"), was developed at the University of Michigan Medical School ("UMMS") in the summer of 2017. This pilot program included teamwork and resilience skill-building as well as activities around mindfulness and value articulation.

Actions, Methods or Interventions: Fifteen incoming students were recruited for a three-day, two-night backpacking trip held in the Pinckney State Recreation Area in Southeast Michigan before the start of classes. The trip curriculum was modified from established undergraduate programs and tailored to the unique requirements of a medical school program. To assess student perceptions of efficacy, a pre- and post-trip survey based on the Maslach Burnout Index was administered. The survey also provided participants with a space for short-form entries. Because of the broad nature of the survey and an incomplete response rate (12 of the 15 students responded to the majority of questions before and after the trip), no statistical analysis of the results was performed.

Results: For 11 of the 12 respondents, their emotional strength and energy were either reinforced or improved following the trip. When students were explicitly asked about their fear of burnout, the pre- and post-trip comparison was similar: 11 students felt similarly or less worried about burnout following the trip. Participants' free response comments corroborated the survey findings and shared numerous themes, including connection with other students, a desire for the trip to continue in future years, and community. Students cited the setting in the wilderness, the opportunity to overcome challenges, the activities of reflection, and the ability to bond with classmates as stand-out aspects of the program.

Lessons Learned: The results from the 2017 pilot program suggest that CAMP had a positive impact on participant's adjustment to medical school and provided them with a number of tools useful for mitigating burnout. The apparent success of the program is likely attributable to the fact that the curriculum design was informed by past successes from undergraduate orientation programs, and the receptive population who tends to come into medical school open minded.. Medical students' susceptibility to burnout makes this population more likely to benefit from a program early in training. The findings will be especially useful in informing the design of future wilderness orientation trips at UMMS, with the eventual goal of preventing medical student burnout.

Future Applications and Next Steps: Based on the success of this pilot program, UMMS has agreed to formally fund the expansion of the program for the summer of 2018 to include up to 60 incoming students on multiple trips. The limitations of the survey design and sample size from the pilot program will be used to inform the development of a more rigorous survey, ideally with a control group, to allow for a more thorough, longitudinal analysis of the outcomes of the CAMP program.



Fires and Friendships: An Innovative Tool for Reducing Burnout in Medical Education



Alec Bernard¹, Jacquelyn Kercheval¹, Alexander D Blaty¹, Heather L Burrows MD PhD¹

¹University of Michigan Medical School, Ann Arbor, Michigan

Background

Problem:

- Burnout among medical students and physicians
- Prevalence among medical students reported as high as 50% (Annals of IM 2008)

Solution:

Several undergraduate institutions use wilderness pre-orientation programs to assist students in their transition from high school to college. An innovative wilderness pre-orientation program, CAMP ("Creating Adventurous and Mindful Physicians"), was developed at the University of Michigan Medical School ("UMMS") in the summer of 2017. Through this pilot program, researchers wanted to know:

Can a medical school wilderness orientation program mitigate future burnout among participants?

Trip Framework

Who:

- 15 incoming students

What:

- Three-day, two-night backpacking trip

Where:

- Pinckney State Recreation Area

When:

- The week prior to the start of classes

How:

- The trip's curriculum was developed from established undergraduate programs focused on teamwork and resilience skill-building as well as activities around mindfulness and value articulation

Impact Analysis Methodology

Goal:

- To assess student perceptions of burnout mitigation potential

What:

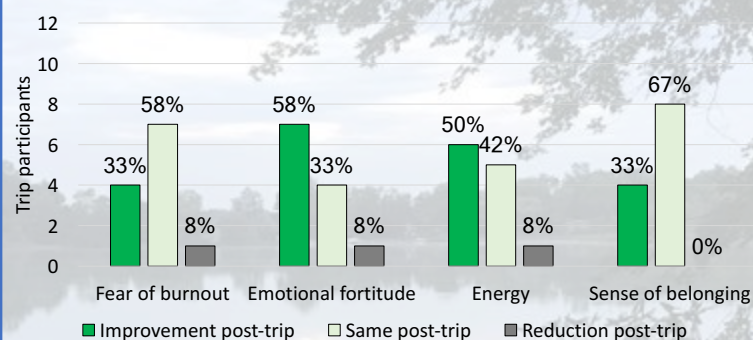
- A pre- and post-trip survey based on the Maslach Burnout Index
- Space for short-form entries

Limitations:

- No statistical analysis of the results was performed because of the basic nature of the survey and an incomplete response rate (12/15 response rate)

Results

Figure 1: Changes in individual-level responses, pre- vs. post-trip



- **Reduced fear of burnout:** 11/12 students felt similarly or less worried about burnout following CAMP

- Participants' **emotional fortitude and energy**, both indicators of burnout, improved/were reinforced in 11/12 respondents

- All students finished the trip with either a renewed or improved **sense of belonging**



Short-form comment themes:

- Connection with other students
- Desire for the trip to continue in future years
- Community

Stand-out aspects of the program included:

- Wilderness setting
- Opportunity to overcome challenges
- Activities of reflection
- Ability to bond with classmates



Future Applications and Next Steps

Summer 2018:

- UMMS-funded expansion of the program
- 60 incoming students on multiple trips
- 18 student guides
- Comprehensive guide-training program and continuing trip curriculum development
- New survey design with a control group and longitudinal follow-up to assess outcomes

Conclusion

The results from the 2017 pilot program suggest that CAMP had a positive impact on adjustment to medical school and provided participants with a number of tools that can be used to mitigate burnout. The apparent success of the program is likely attributable to the participant-identified themes of connection with other students and the overcoming of challenges in a wilderness setting. The findings will be especially useful in informing the design of future wilderness pre-orientation trips at UMMS, with the long-term goal of creating an annual program that establishes a culture of support for incoming students and provides them with the tools needed to prevent burnout.

501: Resilience Training for Disaster Workers

Authors: Judith Daltuva, Matt Uptmore

Background: In the wake of Hurricane Maria, the United Auto Workers (UAW) immediately mobilized skilled trades workers and nurses in post disaster response. The UAW Health and Safety Department also began the process of deploying workers experienced in industrial emergency response and adult learning techniques.

Actions, Methods or Interventions: An evaluation team from the University of Michigan School of Public Health issued surveys, conducted interviews and focus groups with the response team and trainers in order to learn of their experiences and find gaps in training.

Results: When working in stressful situations we often do not take care of ourselves, not only physically, but also mentally. The most requested training was a four hour resiliency training. Self-care and stress management were just as important for disaster workers as training in hazardous chemical, mucking and gutting, and infectious disease.

Lessons Learned: Health and safety hazards are not only those we can physically see, but can also be unseen.

Future Applications and Next Steps: Resilience training can be adapted in a variety of settings.

Hurricane Maria - A Post Disaster Response

Background:

In the wake of Hurricane Maria, the United Auto Workers International (UAW) immediately mobilized skilled trades workers and nurses in post disaster response. The UAW Health and Safety Department also began the process of deploying workers experienced in industrial emergency response and adult learning techniques to deliver health and safety training in Puerto Rico.



Actions, Methods or Intervention:



An evaluation team from the University of Michigan, School of Public Health issued surveys, conducted interviews and focus groups with the response team and trainers in order to learn about their experiences and find gaps in training to plan for future training. This revealed that exposure to the day to day stressors in disaster response and recovery work can have similar effects as an exposure to a traumatic event.

How are disaster sites different than normal worksites?

- They are chaotic, unplanned and attract lots of attention
- They require oversight from many agencies and are managed by an incident command system
- They may be a crime scene
- Fire, police, and other personnel involved may not be familiar with the work activities
- They may trigger high emotions due to seeing loss of life and property
- The work cycle is frequently 24/7 and there is significant pressure to get things done quickly.



Results:

When working in stressful situations we often do not take care of ourselves, not only physically, but also mentally.

- Disaster workers experience stress and trauma
- Stress can affect how we think, act, and feel
- Stress can cause injuries and illnesses
- Training can increase preparedness

The most requested training was a four-hour resiliency training module. Self-care and stress management were just as important for the disaster workers as training in hazardous chemicals, mucking and gutting, and infectious disease.



Resiliency is the ability to become strong, healthy or successful again after something bad happens. It means bouncing back from difficult experiences. Resiliency is not a trait we inherit. It is a combination of behaviors, thoughts, and actions aimed at coping specifically for you.

Lessons Learned:

Health and safety hazards are not only those we can physically see, but can also be stressors which are unseen.

How can you manage your stress?

- Avoid extremes
- Set realistic goals
- Manage how stress affects you
- Change how you see the situation
- Change how you react to stress
- Set priorities
- Take control of the situation
- Discover new relaxation techniques
- Figure out what is most important



Future Application and Next Steps:

Resilience training can be adapted in a variety of settings.



Support provided by NIEHS Grant No. 5U45 ES006180



600: Future Physicians Summit: Strategically Strengthening the Pipeline through a Train-the-trainer Pedagogy

Authors: Jasmyne Jackson, Hamilat Olaniyan, Dara Watkins, Tochukwu Ndukwe, Reginald Wilburn, Kaela Brown, Jolyna Chiangong, Keshyra Williams Orr

Background: While African Americans are 13% of the US population, the American Association of Medical Colleges reports that African Americans represent 6% of medical graduates and only 4% of full-time physician faculty. Exposure to medicine is key for addressing the racial disparity in the physician workforce, generating interest, and building the confidence needed to achieve a medical career. The Office of Health Equity and Inclusion (OHEI), the Black Medical Association (BMA) and the Black Undergraduate Medical Association (BUMA) collaborated with Wolverine Pathways to curate an action-based outreach program entitled the Future Physicians Summit. The summit is a day of undergraduate-led college and medical field related activities on the University of Michigan Medical School campus. Undergraduate students are empowered by medical students to spearhead the educational and experiential programming geared toward underrepresented high school and middle school students. This program serves to establish and strengthen the pipeline for underrepresented minorities in medicine by increasing access to the field of medicine, improving college readiness and strategically building upon self-awareness in a way that will help lead to self-actualization.

Actions, Methods or Interventions: Funding for the program was secured through the University of Michigan Medical School's Innovative Education Student Fund. BMA summit directors met with OHEI stakeholders to plan logistics and gain approval for the event. The day will consist of welcome and icebreaker activities, a college readiness game entitled So You Think You Can College?, clinical skills sessions, lunch with a Pipeline Panel and a Mission and Vision workshop. The Summit is scheduled for April 7th from 9am-3:30pm. Wolverine Pathways will provide transportation for 48 middle and high school students from the Detroit and Southfield area.

A critical aspect of the program is the 'train the trainer' pedagogy. Under the guidance of medical students, the undergraduates students serve as the primary leadership positions and execute the summit. This approach provides future physicians with leadership opportunities that highlight the importance of service and outreach, strengthening the pipeline. With this in mind, BMA summit directors delivered a presentation to a BUMA mass meeting detailing the summit and the responsibilities of the following available positions: Summit Co-Chairs, College Readiness Facilitator, Clinical Skills Liaison, and Panel Coordinator. An application was distributed and positions were filled. Two Summit Co-Chairs are responsible for coordinating and leading monthly summit leadership team meetings, tracking a myriad of deliverables, and being the main contact for Wolverine Pathways. The Summit Co-Chairs consistently communicated with the BMA directors about progress, obstacles, successes and opportunities. The Summit Co-Chairs also planned the welcome ceremony, catering, and t-shirts. The College Readiness Facilitator created an interactive game that teaches attendees about the college application process, study habits, email etiquette, and other key topics. The Clinical Skills Liaison had the responsibility of securing four BMA and four BUMA volunteers to conduct the clinical sessions. BUMA and BMA pairs were created for the following stations: pulmonary, cranial nerve, reflexes, and history of present illness. Attendees will be provided with a stethoscope, penlight and reflex hammer so that they can actively participate in learning the physical exam. Each session will have a clinical correlate that disproportionately affects the Black community and attendees will learn the pathophysiology, symptoms and treatments. The clinical skills session followed the 'train the trainer' pedagogy by BMA members meeting with their BUMA partner to teach them the clinical skill and clinical correlates. The pairs will also create a worksheet for attendees. During the summit, BUMA students will lead the clinical skill session and the BMA student will have a supporting role. The Panel Coordinator created questions for the panel and secured an undergraduate student, medical student, resident, and attending physician for the panel to fully represent every step of the journey to medicine, and provide networking opportunities. The Mission and Vision workshop was curated by one of the BMA directors with the assistance of Ross School of Business.

Results: The summit is set to take place April 7th and the preparation has been a positive experience for both BMA and BUMA members. The summit planning and execution focused on building transferable skills for both BUMA and BMA participants. The BMA participants gained experience teaching clinical information and physical exams. The development of teaching, mentoring, and supervising skills helps prepare BMA students for guiding medical student success and learning as residents. In addition to gaining medical exposure, the BUMA students practiced task management, improved written communication and sharpened professionalism. Involvement in the summit motivates and prepares each level of the pipeline further along their journey in medicine by providing leadership opportunities. On April 7th, BMA and BUMA will provide the Wolverine Pathway scholars, who are middle school and

high school students, with exposure to the medical field in hopes of increasing interest in medical professions and building their confidence.

Lessons Learned: The outreach paradigm was transformed by positioning the undergraduate students as the change agents of the summit. Empowering undergraduate students synergized multileveled impact. Fostering undergraduate leadership created space for committing and correcting mistakes, which is critical for leadership growth. Furthermore, the support of OHEI and Wolverine Pathways enabled the summit, demonstrating that institutional support and collaboration can be critical for diversity initiatives.

Future Applications and Next Steps: On April 7th, the pilot summit will take place through the BUMA-BMA partnership. The summit was curated so that it could become a staple event for different undergraduate-medical organizational partnerships. It is easily replicated and applicable to diverse target demographics. After collecting summit feedback, a 'how-to' manual will be developed and distributed to student organizations so that they will be able to execute the 'train-the-trainer' summit in the years to come. Survey results will help assess impact. Through a 'train-the-trainer' lens, the Future Physicians Summit cultivates opportunities to strengthen the pipeline, increase diversity in medicine and develop future physician leaders.



Future Physicians Summit: Strategically Strengthening the Pipeline through a Train-the-Trainer Pedagogy

Jasmyne Jackson, Tochukwu Ndukwe, Halimat Olaniyan, Dara Watkins, Reginald Wilburn, Kaela Brown, Jolyna Chiangong




Background & Methods

Actions & Intervention

Results & Lessons Learned

Background: African Americans compose 13% of the US population, but the American Association of Medical Colleges reports that African Americans represent 6% of medical graduates and only 4% of full-time physician faculty.^{1,2} The Office of Health Equity and Inclusion (OHEI), the Black Medical Association (BMA) and the Black Undergraduate Medical Association (BUMA) collaborated with Wolverine Pathways to curate an action-based outreach program entitled the Future Physicians Summit. The summit is a day of undergraduate-led college and medical field related activities for 6th -12th graders on the medical school campus.

Methods:



Middle & High School Students
Gain exposure to medicine, improve college readiness and unlock their vision

Medical Students
Mentor, teach clinical skills and provide logistical support

BMA summit directors delivered a presentation to BUMA members detailing the summit and the responsibilities of the following available undergrad positions: Summit Co-Chairs, College Readiness Facilitator, Clinical Skills Liaison, and Panel Coordinator. Applications were distributed. Positions were filled. Co-chairs led bimonthly meetings with the leadership team to assess progress on their deliverables, create content and problem solve.

Funding for the program was secured through the University of Michigan Medical School's Innovative Education Student Fund. BMA summit directors met with OHEI stakeholders to plan logistics and gain approval for the event.



Summit Leadership Team

Future Physician Summit Itinerary:

9 a.m.: Welcome Ceremony, Pre-survey and Icebreaker: Heads Up, Health Field Edition
10 a.m.: College Readiness Game: So You Think You Can College?
11 am: Clinical Skills Sessions
12 pm: Lunch and Pipeline Panel with an undergrad student, medical student, resident, and attending physician to represent every step along the journey to medicine, and provide networking opportunities
1:30 pm: Mission and Vision Workshop curated by one of the BMA directors with the assistance of Ross School of Business.
2:30 pm: Tour of Taubman Health Sciences Library
3 pm: Post-survey Distribution

Clinical Sessions: BUMA & BMA pairs were created for the following stations: pulmonary, cranial nerve, reflexes, & history of present illness. Each session has a clinical correlate specifically related to the Black community. Attendees will learn the pathophysiology, symptoms and treatment. Attendees will receive a stethoscope, penlight and reflex hammer to participate in learning the physical exam. BUMA students will lead the session with the BMA students in a supportive role.

Black Undergraduate Medical Association



A critical aspect of the program is the 'train the trainer' pedagogy. Under the guidance of medical students, the undergraduates serve as the primary leadership positions and execute the summit. This approach provides future physicians with leadership opportunities that highlight the importance of service and outreach, strengthening the pipeline.



Black Medical Association

Mission & Vision
Workshop: One of the BMA summit directs partnered with the Sanger Leadership Center at the Ross School of Business to create an interactive workshop to help attendees identify their values, create a mission statement and develop a vision for their impact on the world.

Action-based Learning:

BMA

- Practiced resident-level teaching skills
- Guided students through problem-solving

BUMA

- Improved clinical knowledge
- Practiced systematic thinking
- Gained cross-functional team experience

Outreach and Uplift: Key Takeaways

- Transformation of the outreach paradigm synergized multileveled impact by empowering undergrads
- Experiential learning provides safe space for leadership growth
- Institutional support and collaboration can be critical for diversity initiatives.

Future Steps

- 2018 summit will take place on April 7th
- Development of a 'how-to' manual that will be distributed to student organizations resulting in continued impact
- Feedback will be analyzed to inform future summits, secure additional funding and synthesize a publication

References

1. AAMC, *Diversity in the Physician Workforce: Facts & Figures 2014*
2. AAMC, *Current Trends in Medical Education: Facts & Figures 2016*

601: Should medical school curricula be more like fellowships? Influence of the Michigan Global Health and Disparities Path of Excellence on medical students' career trajectories

Authors: Katherine Hughey, Jason Bell, Brent Williams

Background: Medical school curricula are being transformed to address societal needs in addition to clinical skills. Few studies have examined the impact these curricula have on the careers of junior physicians after graduation.

The Global Health and Disparities (GHD) Path at the University of Michigan Medical School (UMMS) enrolls 20-35 students each year and includes: a) four-year relationship with an assigned advisor; b) scholarly field project; c) small group activities in the second year; and d) a Mini Field Project focusing on team-building and leadership skills. Since its inception in 2012, GHD students have regularly rated relationships with faculty, peer interactions, and scholarly field work as the most valuable aspects of the program.

Actions, Methods or Interventions: In spring 2017, we administered a confidential, online survey to the 57 UMMS students who participated in GHD for all four years of medical school in the graduating classes of 2015 and 2016.

Graduates rated the impact of GHD on 1) choice of specialty, 2) choice of residency program within specialty, 3) competitiveness in the match, and 4) professional relationships/networks on a 5-point scale (0-No Impact; 5-High Impact). Graduates also rated their intent to explicitly address health disparities in their careers, and the influence of GHD on these plans on 5-point scales. Lastly, respondents recorded the number of graduate-authored presentations and publications that were related to or enabled by GHD.

Results: Thirty (53%) of the 57 students completed surveys. Of respondents, 83% reported GHD had a high impact (rating 4 or 5) on professional relationships/networks in their careers. 77% felt GHD had at least a moderate influence (rating 3-5) on their plans and goals to address health disparities throughout their careers. Fewer graduates reported high impact of GHD on choice of specialty (32%), residency program within specialty (48%), or competitiveness in the match (35%). Nine graduates (30%) had one first-authored publication related to work in GHD, and 25 graduates (83%) had at least one presentation or publication related to work in GHD. As a group, respondents had 14 papers published related to their work in GHD.

Lessons Learned: Graduates of a program in global and domestic health disparities that emphasizes longitudinal advising and peer interactions perceive a positive impact on career intentions and scholarly productivity. Students' choice of specialty and residency within specialty appeared influenced by other factors.

Future Applications and Next Steps: As medical school curricula promote skills in system reform, intentionally structuring the development of professional networks, as is common in academic fellowships designed to produce leaders and scholars, may be as important as curricular content and scholarly work. Future research should investigate ways to structure relationships among students and faculty to positively influence career intentions address society's needs.

Should medical school curricula be more like fellowships? Influence of the Michigan Global Health and Disparities Path of Excellence on medical students' career trajectories

K. L. Hughey, MD¹ J. Bell, MD, MPH, MS² B. C. Williams, MD, MPH³;
1. Family Medicine. 2. Obstetrics & Gynecology. 3. Internal Medicine

BACKGROUND

- Medical school curricula increasingly addressing societal needs
- Global Health and Disparities (GHD) UM's 1st Path of Excellence
 - Mission: to promote students' experience and career intentions related to ameliorating health disparities
 - Began enrolling students in 2012.
 - Components:
 - Longitudinal Advisor
 - Capstone Project with separate Advisor
 - Other experiences (e.g., small group sessions, team field projects, role model interactions)
- Tensions arose when medical school asked for:
 - Competencies and exams (like a course)
 - Elective assessment forms (clinical performance)

GOAL

Determine GHD's overall and component-specific impact on students' professional development

METHODS

Confidential online surveys Spring 2017:

Senior Survey

21 GHD students graduating 2017

- Impact of GHD on professional development, by component

Alumni Survey

- 57 GHD students graduating 2015 or 2016 (Alumni Survey).
 - Impact of GHD on residency selection, competitiveness, professional relationships
 - Intention to address health disparities professionally

Item responses: 5-point Likert-type scale + free-text comments

RESULTS

Senior Survey:

| "Moderate / Strongly Positive Impact on Professional Development" (% students) (n=15; 71% response rate) | |
|---|-----|
| GHD Advisor | 80% |
| Other GHD Faculty | 80% |
| Small groups | 87% |
| Interactions with other students | 87% |
| Team Project | 73% |
| Portfolio | 13% |

References:

1. Umoren RA, Gardner A, Stone GS, Helphenstine J et al., Career choices and global health engagement – 24-year follow up of U.S. participants in the Indiana University – Moi University elective. *Healthcare* 2015;3:185-9.
2. Gonzalo JD, Haidet P, Papp KK, Wolpaw D, et. Al. Educating for the 21st-century health care system: An interdependent framework of basic, clinical, and systems sciences. *Acad Med* 2017;92:35-39.

RESULTS (cont'd)

Senior Survey Comments:

(GHD) provided strong longitudinal mentoring and a unifying theme to my extracurricular learning in medical school.

(GHD) challenged me to be assertive in approaching mentors with questions relevant to my career development.

Alumni Survey:

| "GHD Impact on..." % Students w responses 3-5 on scale: 1 (None) – 5 (High) (n=30; 53% Response rate) | |
|---|-----|
| Choice of specialty | 46% |
| Choice of residency in specialty | 56% |
| Competitiveness in match | 57% |
| Professional relationships (networking) | 83% |
| GHD influence on your plans and goals regarding addressing health disparities in your careers (Moderate / Significant / High) | 77% |

Alumni Survey Comments:

The networking available through GHD was really important in helping me find mentors throughout medical school who had my best interests at heart and were interested in very similar areas to me.

I am in a global health track in my residency and feel that GHD equipped me to comprehend well and facilitate deeper discussion here.

CONCLUSIONS

- Students in a co-curricular path related to health disparities perceived *fellowship-like activities* - mentoring, networking, and scholarly activities - as having *high impact on their professional development*.
- Medical schools seeking to promote social and system reform should develop methods and measures to foster professional networks and field engagement rather than individuals' competencies and exam performance.
- Future research should investigate ways to structure relationships among students and faculty to positively influence career intentions to address society's needs.

700: Creating Patient Education Materials for Clinical Programs at Michigan Medicine

Authors: Heidi McCoy, Tracie Straub

Background: Clinical Design & Innovation (CDI) is one division under the Quality Department at Michigan Medicine. CDI partners with clinical programs across the Health System to maximize the value of the patient journey. CDI leads clinical programs through the creation of sound processes and products to ensure sustainable value. Value = Appropriateness x Outcomes/Cost. The focus encompasses the entire patient journey, from first encounter to last encounter, and considers the patient's perspective in creation of the processes and products. Creating patient education materials is just one product that we develop for clinical programs. CDI works closely with the Patient Education & Health Literacy (PEHL) department at Michigan Medicine to achieve this goal.

Actions, Methods or Interventions: Building Collaboration with the Patient Education & Health Literacy (PEHL) department at Michigan Medicine was key to this whole endeavor. CDI meets with clinical programs to assess what types of patient education materials would be beneficial for patients. When working with Surgical Services, CDI will work with the Surgical team and other Subject Matter Experts to build patient education materials (for example: instructions on what to eat after a colorectal surgery). CDI collects all the integral parts of the education elements and works with PEHL to develop a patient document using Plain Language Guidelines. After the document is created, CDI gets feedback from the clinical program on the document. Many times, there are many version edits prior to the final draft approval from the clinical program. Once approval is reached, the PEHL team publishes the document in the Patient Clearinghouse. The PEHL team then submits the document to the MiChart team (once a month) to have the document converted to smart text. The reason for converting the document to smart text is because Healthcare Providers can attach the patient education document (while in the patient's chart) to a patient's After Visit Summary (AVS). The advantage and purpose of having the document attached to the patient's AVS is that the document will print out when the patient is either discharged from the hospital or when they check out from an outpatient appointment. The "end goal" is reached: the patient will go home with important education materials, written in an easily understood format.

Results: Providers are attaching patient education materials to patient's AVS at different types of visits (initial, pre-op, follow-up appointments, etc.) to equip and explain to the patient (in Plain Language Guidelines) their diagnosis, recovery, what to do in an emergency, and who to contact. Reports are generated for the PEHL department to give measurement of frequency the education materials are being used. Will give examples on poster.

Lessons Learned: Follow-up with clinical programs on how they like the document(s) that were developed and ask what feedback they have received from patients at standardized time points, instead of Ad hoc.

Future Applications and Next Steps: Involve the Office of Patient Experience (Patient Advisors) in the document development and review processes. Not just get feedback from patients after everything has been published and used. We would like to learn what parts of the document were most useful and which parts were not as useful up front.

PLAN: Background

Clinical Design & Innovation (CDI) is one division under the Quality Department at Michigan Medicine. CDI partners with clinical programs across the Health System to maximize the value of the patient journey. CDI leads clinical programs through the creation of sound processes and products to ensure sustainable value.

$$V = A \times \frac{Q}{C}$$

VALUE = APPROPRIATENESS × (QUALITY / COST)

The focus encompasses the entire patient journey, from first encounter to last encounter, and considers the patient's perspective in creation of the processes and products. Creating patient education materials is just one product that we develop for clinical programs. CDI works closely with the Patient Education & Health Literacy (PEHL) Program at Michigan Medicine to achieve this goal.

Clear Problem Statement: Patients do not receive educational materials in a way they can understand.

PLAN: Goals Established

CDI Program: Colorectal Surgery

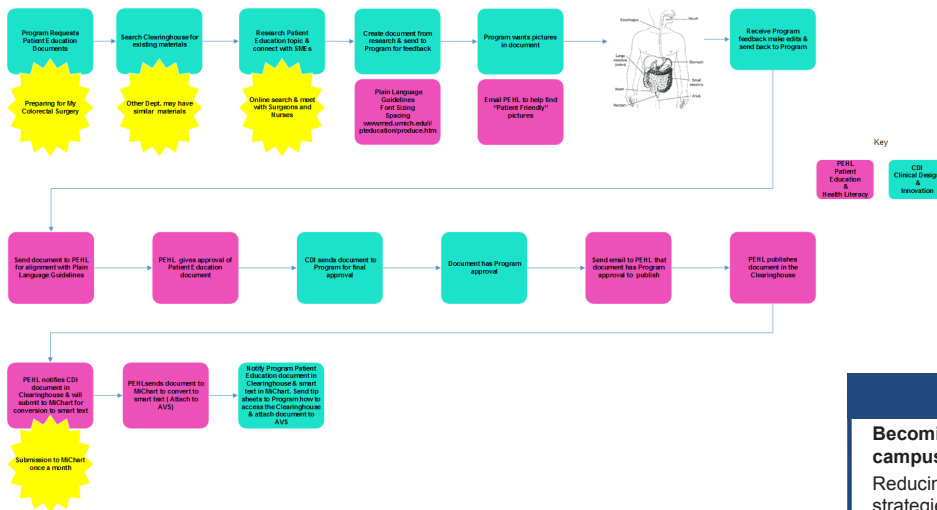
Provide Colorectal patients with education materials describing what to expect before and after surgery starting July 1, 2017.



DO: Analysis and Interventions to Improve our Processes

Building collaboration with the PEHL Program at Michigan Medicine was key to this whole endeavor. CDI meets with clinical programs to assess what types of patient education materials would be beneficial for patients. When working with Surgical Services, CDI will work with the Surgical team and other Subject Matter Experts to build patient education materials (for example: Preparing for My Colorectal Surgery). CDI collects all the integral parts of the education elements and works with PEHL to develop a patient document using Plain Language Guidelines.

Patient Education Creation Process



The "End Goal" is reached: The patient will go home with important education materials, written in an easily understood format.

CHECK: Results, Outcomes Achieved

Providers are attaching patient education materials to patient's AVS at different visits (initial, pre-op, follow-up appointments, etc.) to explain to the patient (in Plain Language Guidelines) their diagnosis, recovery, what to do in an emergency, who to contact, etc. Reports are generated for the PEHL Program monthly to give measurement of frequency the education materials being used and which departments are utilizing the documents.

Catholyte Loading Before Your Colorectal Surgery

What do I have to do to prepare for my surgery?

What supplies do I need?

What are my instructions for the day before surgery?

What do I need to do the day of my surgery?

Preparing for My Colorectal Surgery

What can I expect on the day of my surgery?

What are my instructions for the day before surgery?

Two Colorectal Patient Education Document Usage

| Month | Catholyte Loading | Preparing for My Colorectal Surgery |
|-------|-------------------|-------------------------------------|
| Jul | 1 | 0 |
| Aug | 6 | 0 |
| Sep | 2 | 0 |
| Oct | 6 | 0 |
| Nov | 14 | 0 |
| Dec | 13 | 0 |

ACT/ADJUST: Keys to Success

Becoming a health literate organization is aligned with campus-wide and Michigan Medicine Priorities for FY 17. Reducing the burden of low health literacy is one of the strategies that will help UH, CVC, C&W and the ACU's achieve the following priorities:

- Reduce unscheduled readmissions
- Improve the patient and family experience and patient satisfaction scores
- Improve diversity, equity, and inclusion

Future Application and Next Steps

1. Involve the Office of Patient Experience (Patient Advisors) in the development and review of document(s) at the beginning of the document draft phase.
2. Continue to educate Clinical Design & Innovation Programs on Plain Language Guidelines when developing patient education materials.
3. Get access to monthly reports to monitor patient education document usage and follow through with re-education, if needed.
4. Build a regular cadence for "checking in" with the Programs to see how everyone likes the documents (from Patient to Provider).
5. Integrate developing Patient Education documents into every Clinical Design & Innovation Program.

ACT/ADJUST: Lessons Learned

1. Once the patient education materials are "live" in MiChart and the Patient Education Clearinghouse, ample training needs to be provided to Providers on how to attach the documents to the patient's AVS (not to only give Tip Sheets that were developed).
2. Get patient feedback on documents in the document draft phase, instead of when everything has been published and used. In the beginning, we would like to learn what sections of the document that patients find to be the most useful and which sections were not as useful.

Team Members and Contacts

Heidi McCoy, MS, Tracie Straub, MSA, Ruti Volk, MSI, AHIP, and Karelyn Munro, BA

701: Reported impact of the Adolescent Champion intervention on youth-friendly practices in primary care

Authors: Ellen Wagner, Melissa Dejonckheree, Vani Patterson, Maggie Riley

Background: The American Academy of Pediatrics recommends that all infants, children, and adolescents receive their health care in a medical home, which they define as an environment where care is accessible, continuous, comprehensive, family-centered, coordinated, compassionate, and culturally effective. To meet this need for young people, the University of Michigan's Adolescent Health Initiative developed the Adolescent Champion (AC) model to broadly improve the care provided to adolescent patients seen in a primary care setting.

Actions, Methods or Interventions: Seven primary care sites from pediatrics, adolescent medicine, family medicine, and medicine-pediatrics implemented the Adolescent Champion intervention over the course of one year. We conducted semi-structured interviews with 2-3 members of the patient care teams at each site.

Results: Thematic qualitative analysis revealed that each site experienced facilitators and barriers to implementation. The most significant changes reported were to workflow to ensure providers spent confidential time with patients and conducted standardized risk screening. All seven clinics reported improvements in their care for adolescent patients, centered on standardization of practices, streamlined processes, and ensuring confidentiality. Also important was the emphasis on creating more adolescent-friendly environments, by speaking directly to the patient and developing strategies to communicate more effectively.

Lessons Learned: Clinical staff viewed the Adolescent Champion intervention as an effective tool for improving adolescent care at their clinic. All sites also reported remaining challenges that included both relational and structural barriers.

Future Applications and Next Steps: Future interventions should consider innovative ways to overcome these barriers and support clinical providers and other personnel to improve adolescent health care.

REPORTED IMPACT OF THE ADOLESCENT CHAMPION INTERVENTION ON YOUTH-FRIENDLY PRACTICE IN PRIMARY CARE

Melissa DeJonckheere, PhD; Ellen Wagner, MPH, MS; Vani Patterson, MPH; Margaret Riley, MD

ADOLESCENT CHAMPION MODEL



In 2013 the Adolescent Health Initiative (AHI) created the **Adolescent Champion (AC) Model**, utilizing innovative approaches to improve the quality of primary care services for adolescent patients. The award-winning model is designed to improve care through evidence-based comprehensive health center assessment, targeted quality improvement initiatives, and innovative training and professional development for staff across all roles at the health center.

OBJECTIVE

To understand the impact of implementing a youth-friendly intervention in primary care clinics from the perspective of providers and other clinical staff.

METHODS

Setting:

- Seven primary care sites (pediatrics, adolescent medicine, family medicine, medicine-pediatrics) implemented the AC model over the course of one year.

Data Collection:

- Semi-structured interviews with members of patient care teams at each site.
- 3-5 months after the implementation year.
- At least one Champion and one non-Champion participant at each site.

Semi-Structured Qualitative Interviews (n=19)

| Site 1 | Site 2 | Site 3 | Site 4 | Site 5 | Site 6 | Site 7 |
|----------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|---------------------------------------|
| Champion Provider | Champion Provider | Champion Provider | Champion Provider | Champion Provider | Champion Provider | Champion Provider |
| Non-Champion Provider (PA) | Non-Champion Provider | Non-Champion Provider | Non-Champion Staff (MA) | Non-Champion Provider | Non-Champion Provider | Non-Champion Staff (Front Desk Staff) |
| Non-Champion Staff (RN) | Non-Champion Staff (MA) | Non-Champion Staff (MA) | | Non-Champion Staff (MA) | Non-Champion Staff (MA) | |

Data Analysis:

- Interviews were transcribed verbatim
- Transcripts were coded by the research team using the following process:
 - Reading all of the data to gain a holistic understanding
 - Developing an initial coding scheme using *a priori* codes
 - Assigning codes to each interview, line by line
 - Independently applying codes to 25% of the transcripts and meeting to discuss discrepancies and reach shared understanding
 - Coding remaining transcripts line-by-line
 - Organizing into categories that represented emergent themes.
 - Comparing themes within site, across site, and by provider type.
 - Calculating interrater agreement (kappa=.84).

RESULTS

Across sites, participants indicated that significant changes were integrated into their practice around two key components of adolescent visits: (1) spending confidential time with patients and (2) conducting standardized risk screening.

Baseline, Successes, and Remaining Challenges to SPENDING CONFIDENTIAL TIME WITH PATIENTS

| Challenges faced | Parent resistance | "You do notice there's a very small demographic that the parents are like, 'Absolutely not. You will not see my children without my permission' and we just...we just go, 'Oh, no problem,' you know, but I like that we're telling them. We're giving your kids an opportunity to have some time with the doctor to discuss any questions or concerns and then we'll come get you." (Non-AC Provider) |
|------------------------------------|--|--|
| Successes during AC implementation | Communication strategies with patients | "I just basically talk to them as if they're adults. I don't want to talk to them as if they're a child. When I'm rooming the patient, obviously they'll have one of the parents here or somebody with them, I try to just focus on the actual patient. So when I'm asking questions, I'm looking at them in hopes that they know how to respond. And if they don't, then of course the parent will speak up for them." (Non-Provider) |
| | Communication strategies with parents | "At the 13-year-old physical I'll say, hey, you know I'm gonna do things differently next time, they're gonna come back on their own, and I explain I want them to have ownership of the visit. I don't want them to just depend on you. So, I give them the whole spiel, like, transitioning into the adult world of medicine is better to do with me where they're comfortable." (AC Provider) |
| | Workflow changed | "Oh, well taking them back by themselves. I would say that's the main...the main thing that I've noticed that they are given that opportunity. That wasn't something we did before. You know, you call the patient and mom and dad just goes back." (Non-Provider) |
| Challenges remaining | Communication strategies with parents | "And ultimately, you know, we're not trying to create a battle, and if I have a parent who won't leave the room, I still talk about the issues. I just talk about them in a slightly different way. As opposed to directly asking them are you doing these things, we talk about, you know, these are things that some teens do. These are things that you may see. Let's talk about if you were even in that scenario what might happen. And in some ways I'll actually turn it into a coaching session for the parent and the teen because ultimately you want to have them having these kinds of conversations themselves at home." (AC Provider) |

Baseline, Successes, and Remaining Challenges to RISK SCREENING

| Challenges faced | Ensuring confidentiality | "Previously, some of the providers, I think one or two of us were giving the RAAPS sheet with the parent out of the room, whereas most of the providers were...the teenagers were given the RAAPS sheet during intake with the parent present... But that wasn't totally confidential, they would tell the teenager this is a confidential questionnaire that we want you to fill out, but with the parent in the room it's not always 100% confidential." (AC Provider) |
|------------------------------------|-----------------------------|--|
| Successes during AC implementation | Streamlined process | "I think just consistency. I think before, and I can only speak for myself, but I think I'm speaking for our entire office, I think we were all doing some degree of it, but I think it's been more consistent now. I think having the risk assessment tool has been helpful and I think everything is just a bit more streamlined and you're, you know, less likely to forget to talk about certain things." (Non-AC Provider) |
| | Standardized screening tool | I would say...I don't know, I feel like it makes it harder to forget to ask certain questions I guess I would say. Like I mean I feel like with all those visits I would always try to ask about like risky behavior and bring up drugs, alcohol, sexual activity, but the sheet is very nice because it asks very explicit questions, and then I feel like it's pretty standardized for everyone so that I don't forget something with one person." (Non-AC Provider) |
| | Ensuring confidentiality | "Making sure that it actually is confidential. I think most of us had the parent separate, but there were some providers or some situations where the kid may be filling it out one place and the parent's sitting in the chair next to them." (AC Provider) |
| Challenges remaining | Ensuring confidentiality | "What we'll do is we'll hang onto [the screener], we'll go grab them from the waiting room, and we'll bring them back. I'll have them set all of their belongings into the exam room that we're going into, and then I'll let the parent know I'm going to take them around the corner here to test their vision. And at that point, that gets them away from the parent. So then I'll have them...we do have a chair sitting in the hallway next to our scale, and since it doesn't take that long I just ask them hey, really quick, would you mind taking a seat right here and filling this out?" (Non-Provider) |

DISCUSSION

Clinics that participated in the Adolescent Champion model described improvement across several domains including:

- Spending confidential time with patients
- Improved risk screening processes
- Better communication with adolescent patients and their parents.

These changes were not only implemented by the AC clinical providers but clinic-wide. In addition to system changes, participants interviewed reported a high level of engagement in the process which translated into a shift in the way they approached their work with adolescent patients.

Table 1: Overview of challenges at baseline, successes, and remaining challenges at year-end related to quality improvement of adolescent health care.

| Component of AC Model | Clinic-Family Interactions | | | Clinic Processes | | |
|------------------------------|----------------------------|-------------------------------------|--------------------------------------|-----------------------------|--------------------------|--------------------------------|
| | Parent Resistance | Communication Strategies w/ Parents | Communication Strategies w/ Patients | Standardized Screening Tool | Ensuring Confidentiality | Workflow Changed/ Stream-lined |
| Confidential Time w/ Patient | C R | S | S | | S | S |
| Risk Screening | | | | C S R | C S R | S |

C=Challenge
S= Success
R= Remaining Challenge

Participants cited parent buy-in as a persistent challenge both before and after the intervention. Despite system and communication changes at the clinic, there remained a cohort of parents who did not allow their adolescent to spend confidential time with the provider. Staff and providers were able to discuss strategies that they had used to successfully engage some previously hesitant parents, but even still they continued to face resistance at times. Just as adolescents transition the role they take in their health care as they get older, parents also go through an adjustment in their role in their child's health care. A key next step is to consider how parents experience their adolescent's health care and explore how to best engage them. Future interventions should focus on partnering with parents to optimize the experience and care that adolescents are receiving when they visit their health care providers.

CONCLUSIONS

All seven clinics reported improvements in their care for adolescent patients, centered on standardization of practices, streamlined processes, and ensuring confidentiality. Also important was the emphasis on creating more adolescent-friendly environments, by speaking directly to the patient and developing strategies to communicate more effectively. Despite improvements, all sites also reported remaining challenges that included both relational barriers (e.g. communication with parents) and structural barriers (e.g., institutional procedures for approving new screening tools). Future interventions should consider innovative ways to overcome these barriers and support clinical providers and other personnel to improve adolescent health care.

Connect with the Adolescent Health Initiative:

The Adolescent Health Initiative provides training, technical assistance, and coaching to health care providers, health systems, and organizations across the country to improve adolescent-centered care. For more information please contact adolescenthealth@umich.edu or visit adolescenthealthinitiative.org

702: Evaluation of Patient Handoff from the Pediatric Emergency Department to Inpatient Medical Services

Authors: Elise Gross, Natalie Schellpfeffer, Brandon Meyer, Elaine Pomeranz, Brittany Allen

Background: Handoffs occur when the responsibility of a patient's care transitions from one provider to another. These take place in a variety of settings and represent a vulnerable time when failures in communication are prone to occur. Standardized handoff tools have been shown to decrease medical error rates and increase communication efficiency. Currently, there is not a standardized verbal handoff in place amongst medical providers when a patient is admitted from the pediatric emergency department to inpatient pediatric medical services at C.S. Mott Children's Hospital. The objective of this quality improvement study was to assess the current state of patient handoffs from the pediatric emergency department to inpatient medical services. Using these data, the ultimate goal is to implement a standardized verbal handoff tool to improve patient safety through indirect measures including physician perception of efficiency and quality of handoffs.

Actions, Methods or Interventions: A web-based survey was sent out during September-October 2017 to medical providers who rotate through the pediatric emergency department, including pediatric residents, medicine-pediatric residents, emergency medicine residents, family medicine residents, and physician assistants. The survey assessed perceptions of current handoff practices and any previous education regarding handoff in the emergency department setting.

Handoff assessments were completed from late October 2017 to January 2018 by pediatric and medicine-pediatric residents receiving handoff from the emergency department. Data on individual handoffs were collected, including length of the handoff, whether this was a second or third handoff ("handoff of a handoff"), admitting provider's ability to review the electronic medical prior to handoff, and presence of critical handoff components.

Results: Initial provider survey was completed by 87 providers representing all groups solicited. 76% (N=75) of the respondents reported that they have received no prior education on patient handoff from the emergency department to inpatient setting. Most providers were either neutral or somewhat satisfied with different aspects of current handoffs in regards to efficiency, detail, safety, and length, based on a 5 point Likert scale.

Pre-intervention handoff assessments were performed on 82 individual handoffs. Average length of handoff was 4.6 min (N=77). 25% of handoffs were a "handoff of a handoff" (N=79). The patient's name, age, and gender were mentioned 93% of the time (N=82), the reason for admission was discussed 93% of the time (N=82), patient acuity was mentioned only 68% of the time (N=82). A focused physical exam was mentioned 70% of the time (N = 82), interventions performed in the emergency department were mentioned 84% of the time (N=82), pending tasks and recommendations were discussed only 65% of the time (N=81), and the provider receiving questions was able to ask questions 94% of the time (N=82). On a numeric rating scale of 1-5, with 1 being poor and 5 being excellent, the average rating of handoffs was 3.8 (N=56).

Lessons Learned: Results of the survey and pre-intervention data collected demonstrate that while the majority of providers are either neutral or somewhat satisfied with several components of the current handoff, the majority of providers have not received education on emergency department handoffs. Additionally, there is room for improvement in conveying essential information between providers during the handoff, most notably patient acuity, interventions performed while the patient was in the emergency department, and a focused physical exam of the patient.

Future Applications and Next Steps: A modified I-PASS tool was created by an interdisciplinary group including residents, fellows, attendings, and physician assistants from the departments of emergency medicine and pediatrics. A brief virtual lecture was then created to discuss the importance of handoffs and introduce the new handoff tool to all medical providers rotating through the pediatric emergency department. The standardized verbal handoff tool will be introduced in April 2018. Prior to rotating through the emergency department, all providers will be required to complete the virtual lecture, which will briefly discuss the pre-intervention data, explain the modified I PASS handoff, and provide video examples of handoffs using the new

tool. Visual aids of the new handoff tool will be on display in both settings. Handoff assessments will again be completed in Fall 2018 to re-evaluate the intervention.

Evaluation of Patient Handoff From the Pediatric Emergency Department to Inpatient Medical Services

Elise Gross, MD¹; Brandon Meyer, MD¹; Naomi Williams, PA-C²; Natalie Schellpfeffer, MD²; Brittany Allen, MD¹; Elaine Pomeranz, MD^{1,2}

¹Department of Pediatrics; ²Department of Emergency Medicine; University of Michigan Medical School, Ann Arbor, Michigan

| Background | Specific Aims |
|---|--|
| <ul style="list-style-type: none"> Handoffs occur when patient care transitions from one provider to another, causing a vulnerable time for error within the patient care timeline. Standardized handoff tools decrease medical error rates and increase communication efficiency. No standardized handoff tool exists for medical providers within the pediatric emergency department (PED) in C.S. Mott Children's Hospital when transitioning care from PED provider to inpatient medical service (IMS) provider. | <ol style="list-style-type: none"> Assess current state of patient handoffs from the PED to IMS, involving all PED provider groups, including residents, fellows, physician assistants and attendings from Pediatrics, Emergency Medicine, and Family Medicine. Ultimate goal to use this data to implement standardized verbal handoff tool to improve patient safety through the indirect measures of physician perception of handoff quality, efficiency, and completeness. |

| Methods | Results |
|---|---|
| <p>STEP 1 Evaluate provider opinion of PED handoff through web-based survey</p> <p>STEP 2 Assess current process through handoff assessments performed in real time</p> <p>STEP 3 Creation of new handoff tool and teaching video module</p> <p>STEP 4 Implement handoff tool and required teaching module for all rotating providers</p> <p>STEP 5 Reassess handoff with new tool through repeated real time assessments</p> <p>STEP 6 Re-evaluate provider opinion of PED handoff</p> | <ul style="list-style-type: none"> Pre-intervention assessments were performed on 82 individual handoffs performed by residents accepting handoff. |

| Results | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---------------------------------|---------------------------------|-----------------------|--------------------|----------------------|---------------------|----------------|-----|-----------------------|------|--------------------------------|------|-------------------------------|-----|------------------------------|------|------|------|--------|-----|------|------|------|------|--------|-----|------|------|------|------|
| <ul style="list-style-type: none"> A web-based provider survey completed by 87 providers representing all groups solicited. Most providers were "neutral" or "somewhat satisfied" with current handoff process. <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px 0;"> <p>75% of respondents had no prior handoff education.</p> </div> <p>Provider Perception on Components of Current Handoff</p> <table border="1"> <thead> <tr> <th>Component</th> <th>Extremely Dissatisfied</th> <th>Somewhat Dissatisfied</th> <th>Neutral</th> <th>Somewhat Satisfied</th> <th>Extremely Satisfied</th> </tr> </thead> <tbody> <tr> <td>Efficiency</td> <td>~5%</td> <td>~15%</td> <td>~35%</td> <td>~35%</td> <td>~10%</td> </tr> <tr> <td>Detail</td> <td>~5%</td> <td>~15%</td> <td>~35%</td> <td>~35%</td> <td>~10%</td> </tr> <tr> <td>Safety</td> <td>~5%</td> <td>~15%</td> <td>~35%</td> <td>~35%</td> <td>~10%</td> </tr> <tr> <td>Length</td> <td>~5%</td> <td>~15%</td> <td>~35%</td> <td>~35%</td> <td>~10%</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Select comments from the survey: <p><i>"All of these measures are highly variable with the provider giving the handoff. The most notable differences are between residents in different training programs...a standardized handoff would be great so that expectations are clear and we can minimize some of this variability."</i></p> <p><i>"There is variability of sign out across specialties and having a standardized handoff could be helpful as long as it is efficient."</i></p> | Component | Extremely Dissatisfied | Somewhat Dissatisfied | Neutral | Somewhat Satisfied | Extremely Satisfied | Efficiency | ~5% | ~15% | ~35% | ~35% | ~10% | Detail | ~5% | ~15% | ~35% | ~35% | ~10% | Safety | ~5% | ~15% | ~35% | ~35% | ~10% | Length | ~5% | ~15% | ~35% | ~35% | ~10% |
| Component | Extremely Dissatisfied | Somewhat Dissatisfied | Neutral | Somewhat Satisfied | Extremely Satisfied | | | | | | | | | | | | | | | | | | | | | | | | | |
| Efficiency | ~5% | ~15% | ~35% | ~35% | ~10% | | | | | | | | | | | | | | | | | | | | | | | | | |
| Detail | ~5% | ~15% | ~35% | ~35% | ~10% | | | | | | | | | | | | | | | | | | | | | | | | | |
| Safety | ~5% | ~15% | ~35% | ~35% | ~10% | | | | | | | | | | | | | | | | | | | | | | | | | |
| Length | ~5% | ~15% | ~35% | ~35% | ~10% | | | | | | | | | | | | | | | | | | | | | | | | | |
| <ul style="list-style-type: none"> The average length of handoff was 4.6 min (N=77) and 25% of all handoffs were a "signout of a signout" (N=79). The average rating of handoffs was 3.8, on a scale of 1-5 (N=56). <table border="1"> <thead> <tr> <th>Essential Items of Handoff</th> <th>How often were these mentioned?</th> </tr> </thead> <tbody> <tr> <td>Name, age, gender</td> <td>93%</td> </tr> <tr> <td>Reason for admission</td> <td>93%</td> </tr> <tr> <td>Patient acuity</td> <td>68%</td> </tr> <tr> <td>Focused physical exam</td> <td>70%</td> </tr> <tr> <td>Interventions performed in PED</td> <td>84%</td> </tr> <tr> <td>Pending tasks/recommendations</td> <td>65%</td> </tr> <tr> <td>Opportunity to ask questions</td> <td>94%</td> </tr> </tbody> </table> | Essential Items of Handoff | How often were these mentioned? | Name, age, gender | 93% | Reason for admission | 93% | Patient acuity | 68% | Focused physical exam | 70% | Interventions performed in PED | 84% | Pending tasks/recommendations | 65% | Opportunity to ask questions | 94% | | | | | | | | | | | | | | |
| Essential Items of Handoff | How often were these mentioned? | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Name, age, gender | 93% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Focused physical exam | 70% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Pending tasks/recommendations | 65% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Opportunity to ask questions | 94% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Conclusions | Next Steps |
|--|--|
| <ul style="list-style-type: none"> While most providers are "neutral" or "somewhat satisfied" with several components of the current handoff process, there is room for process improvement. The majority of providers have not received education on emergency department handoffs. | <ul style="list-style-type: none"> A modified I-PASS tool was created by interdisciplinary team of residents, fellows, attendings, and physician assistants from the Emergency Medicine and Pediatrics. A brief virtual lecture was created to introduce the tool and provide ideal patient handoff examples The standardized verbal handoff tool will be introduced in May 2018. Visual aids of the new handoff tool will be on display in both settings and distributed to all providers in badge buddy form. Handoff assessments will again be completed at multiple time points in Fall 2018 to re-evaluate the intervention. |



CES-to-Inpatient Handoff Tool

| Category | Items |
|---|---|
| I Illness Severity | ✓ Stable, "watcher," unstable |
| P Pertinent Patient Summary | ✓ Summary statement ✓ Events leading to presentation ✓ Relevant PMH, including med/FH/SH ✓ Initial focused physical exam |
| A Actions in ED | ✓ Treatments (fluids, medications, etc.) ✓ Labs ✓ Imaging ✓ Consultations ✓ Re-evaluation following interventions |
| S Situation Awareness & Concerns | ✓ Reason for admission ✓ Room pending ✓ Social concerns, boarding status, specific (other) ID's |
| S Synthesis by Receiver | ✓ Opportunity for questions ✓ Say it back |

703: Dental Patients' Oral Health Literacy and Dentist – Patient Communication: An Exploration

Authors: Kelsie J. Pittel, Anna N. Colamarino, Marita R. Inglehart

Background: National literacy assessments showed that nearly 50% of adults in the U.S. have a low level of health literacy. Health literacy describes the ability to interpret and process basic health information, and make informed decisions. Previous research has shown that low levels of Oral Health Literacy (OHL) are more likely observed in individuals with fewer years of education, lower income, and lower socio-economic status, and old age. In this study we aimed to see how OHL related to patients' experiences in a dental clinic.

Actions, Methods or Interventions: The objectives are (a) to assess dental school patients' levels of oral health literacy (OHL), and (b) to determine if patients' oral health literacy is associated with their expectations at the beginning of a dental visit and their level of satisfaction with their treatment at the end. Data were collected from 341 patients at a Midwestern dental school clinic. The patients ranged in age from 19 to 91 years and in level of years of education from 7 to 30. OHL was determined with the Rapid Estimation of Adult Literacy in Dentistry (REALD-30).

Results: The levels of OHL ranged from a low score of 3 to the highest possible score of 30. Patients' OHL was significantly correlated with their age ($r=-.18$; $p<.01$), years of education ($r=.20$; $p<.001$) and income ($r=.15$; $p<.01$). Before the dental visit, patients' OHL was positively correlated with their agreement with statements concerning how much they knew what to expect during the visit, why the visit was needed, and how comfortable they were to explain what to expect. After the appointment, patients' OHL was positively correlated with their degree of understanding the words the dental student had used, the comfort level with knowing what was done during the visit, and what they must do at home to maintain their oral health.

Lessons Learned: These results showed that patients' OHL is correlated to their expectations prior to the visit as well as their dental visit related experiences. The surveys also revealed that large percentages of patients' do not know what to expect during their dental appointment, nor know what to do at home to care for their teeth. These findings reveal the need for improved patient-provider communication, including the need for student providers to better utilize teach-back methods to increase patient understanding and acceptance of care.

Future Applications and Next Steps: Gaining a better understanding of how OHL affects dentist - patient communication is important for dental students and dental educators. The next steps of this project include reviewing the pre-doctoral dental curriculum for opportunities to incorporate OHL content into classroom-based and clinical education.



Patients' Oral Health Literacy and Student Dentist – Patient Communication: An Exploration

KJ Pittel, AN Colamarino & MR Inglehart
University of Michigan School of Dentistry



ABSTRACT

Objectives: National literacy assessments showed that nearly 50% of adults in the U.S. have a low level of literacy. The objectives are (a) to assess dental patients' levels of oral health literacy (OHL), and (b) to determine if patients' oral health literacy is associated with their expectations at the beginning of a dental visit and their level of satisfaction with their student-dentist communication at the end. **Methods:** Data were collected from 341 adult dental patients. OHL was determined with the Rapid Estimation of Adult Literacy in Dentistry (REALD-30). **Results:** The levels of OHL ranged from a low score of 3 to the highest possible score of 30. Patients' OHL was significantly correlated with their age, years of education and income. At the beginning of the dental visit, patients' OHL was positively correlated with their agreement with statements concerning how much they knew what to expect during the visit, why the visit was needed, and how comfortable they were to explain what to expect. After the appointment, patients' OHL was positively correlated with their degree of understanding the words the dentist had used, the comfort level with knowing what was done during the visit, and what they must do at home to maintain their oral health. **Conclusions:** These results showed that patients' OHL clearly affected their expectations prior to the visit as well as their dental visit related experiences. Based on these findings, recommendations for educating dental students about the role of OHL in their communication with patients are being made.

BACKGROUND

Oral Health Literacy (OHL) has been identified as a key factor in preventing oral disease by the United States Department of Health and Human Services.¹ OHL describes the ability to interpret and process basic oral health information, and make informed decisions regarding their oral health.¹ Previous research has shown that low levels of OHL are more likely observed in individuals with fewer years of education^{2,4}, lower income², and old age^{2,3,5}. Additional research showed that OHL affects patient's oral health status^{6,7} and oral hygiene⁸. In this study, we aimed to expand on these correlations to see how OHL is related to patient experiences and expectations before and after dental appointments.

OBJECTIVES

The objectives are

- (a) to assess dental patients' levels of oral health literacy (OHL), and
- (b) to determine if patients' oral health literacy is associated with their expectations at the beginning of a dental visit and
- (c) their evaluations of the appointment and satisfaction with their treatment at the end.

METHODS

- IRB:** This study was determined to be exempt from Institutional Review Board (IRB) oversight by the IRB for the Health Sciences and Behavioral Sciences at the University of Michigan.
- Respondents:** Data were collected from 341 adult dental patients in the waiting areas of the University of Michigan dental school clinics.
- Procedure:** A survey was drafted and pilot tested with 10 adult dental patients. The feedback was used to develop the final survey. Data were then collected with paper-pencil surveys from regularly scheduled adult dental patients in the dental school waiting areas.

Table 1: Overview of the respondents' background characteristics

| Background characteristics | Frequencies N=341 | Percentages |
|-------------------------------|---|-------------|
| Gender: | | |
| - male | 160 | 47% |
| - female | 181 | 53% |
| Age | Mean: 55.74 SD: 18.043 Range: 19-91 | |
| Years of education | Mean = 14.44 SD = 3.223 Range: 7-30 | |
| Family income last month: | | |
| - no income | 15 | 5 |
| - <\$500 | 6 | 2 |
| - >\$500 - \$1,000 | 56 | 17 |
| - \$1,000 - \$2,000 | 69 | 21 |
| - >\$2,000 - \$3,000 | 64 | 19 |
| - >\$3,000 - \$4,000 | 45 | 14 |
| - \$4,000 - \$5000 | 33 | 10 |
| - >\$5,000 | 43 | 13 |
| First visit to dental school: | | |
| - Yes | 27 | 8% |
| Sum of known words | Mean: 18.02 SD: 4.98 Range: 3-30 | |

The first objective was to assess dental patients' levels of oral health literacy. Table 2 provides an overview of the percentages of respondents who knew each of the 30 words.

Table 2: Responses to the Rapid Estimation of Adult Literacy in Dentistry – 30 (REALD-30)

| RAPID-30: YES | Percentages | RAPID-30 (cont): YES | Percentages |
|---------------|-------------|----------------------|-------------|
| Sugar | 89% | Cellulitis | 49% |
| Smoking | 88% | Abscess | 84% |
| Floss | 88% | Incident | 16% |
| Brush | 99% | Hallucias | 55% |
| Braces | 95% | Malocclusion | 17% |
| Pulp | 78% | Singh | 54% |
| Denture | 84% | Dentition | 24% |
| Enamel | 90% | Gumium | 11% |
| Sealant | 73% | Hyperemia | 10% |
| Genetics | 90% | Analgesia | 31% |
| Caries | 95% | Hypoclasia | 13% |
| Restoration | 86% | Apicoectomy | 6% |
| Fluoride | 85% | Temporomandibular | 18% |
| Extraction | 93% | Plaque | 94% |
| Periodontal | 70% | Fistula | 28% |

The second objective was to determine if the OHL of patients is associated with their expectations at the beginning of the dental visit. Figure 1 shows the respondents' thoughts concerning their appointment before the dental visit. This figure shows that patients who agreed strongly that they felt comfortable explaining what will be done during the upcoming appointment, had significantly higher average OHL sum scores than the patients who did not strongly agree with this statement.

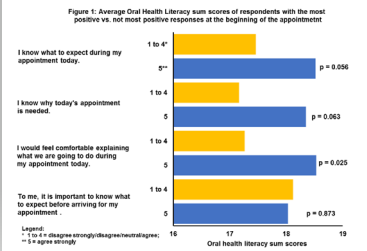


Table 3 shows the correlations between OHL, beginning, and end responses. The higher the OHL scores were, the more the respondents agreed that they knew at the beginning what to expect during their appointment, why the appointment was needed, and that they would feel comfortable to explain what would be done during the appointment; and the more they agreed at the end that student providers used words they could understand, that they would feel comfortable explaining what was done during the appointments, and that they knew when they must do at home.

RESULTS

The third objective was to determine if patients OHL scores were associated with their end of appointment responses. Figure 2 shows the respondents' thoughts concerning their appointment after the dental visit. Patients who strongly agreed that their provider used words they could understand, that they would feel comfortable explaining what was done during the appointment, and that they knew what they must do at home to maintain their oral health, had significantly higher average OHL sum scores than the patients who did not strongly agree with this statement.

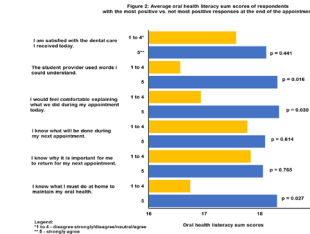


Table 3: Correlations between OHL, beginning and end responses

| Beginning responses | OHL | E Index |
|--|-------|---------|
| A = I know what to expect during my appointment today. | .15** | .81*** |
| B = I know why today's appointment is needed. | -.12* | .77*** |
| C = I would feel comfortable explaining what we are going to do during my appointment today. | .12* | .83*** |
| D = It is important to know what to expect before arriving for my appointment. | .14* | .73*** |
| E = Index "Dental responses before the visit" (Cronbach alpha = .79) | .14* | .1 |
| End responses | | |
| F = I am satisfied with the dental care I received today. | .07 | .43*** |
| G = The student provider used words I could understand. | -.12* | .41*** |
| H = I would feel comfortable explaining what we did during my appointment today. | .13* | .45*** |
| I = I know what will be done during my next appointment. | .03 | .42*** |
| J = I know why it is important for me to return for my next appointment. | .04 | .42*** |
| K = I know what I must do at home to maintain my oral health. | .14* | .44*** |
| L = Index of "Dental visit evaluations" (Cronbach alpha=.93) | .09 | .51*** |

Legend: * = p<.05; ** = p<.01; *** = p<.001

DISCUSSION

- The dental school patients ranged in their OHL scores widely which provided a good basis to explore differences in their responses to (a) an upcoming dental appointment and (b) the evaluations at the end of a dental visit as a function of OHL.
- As expected, the patients' average OHL scores differed between patients who strongly agreed that they would feel comfortable explaining what would happen during the upcoming appointment versus those that did not agree with this statement. In addition, the correlations between OHL and each of the beginning responses were significant, indicating that the higher the OHL scores were, the more positive the responses were concerning communication during the dental visit.
- At the end of the appointment patients who were most positive about the communication during the appointment had higher average OHL scores than patients who were not so positive.

CONCLUSIONS

- Patients at a dental school clinic ranged widely in their OHL scores.
- The higher their OHL scores were, the more positive they were about their knowledge about their upcoming appointment.
- The higher their OHL scores were, the more positive they responded to communication related statements at the end of the appointment.

ACKNOWLEDGMENTS

- We would like to thank the Health Care Delivery Pathways Program from the University of Michigan for funding this project.

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801: Tracking Education Work Hours Using a Mobile-Based Application with Location-Awareness

Authors: Abbey Dunn, Zachary London

Background: Long hours are a common feature of resident education, but they have led to concerns about patient safety and resident well-being. The ACGME enacted common education and work hour requirements for all residents in 2003. While the requirements have evolved over the years, the expectation that residents self-report the number of hours they work has remained the same. Education work hour information is aggregated and used for both programmatic self-evaluations, institutional evaluations, and residency review committees evaluations.

Currently, education and work hours are manually entered by residents after the fact, a method that may not be entirely accurate or reliable. We are proposing an alternative method of education work hour reporting, using mobile-based location awareness technology which automatically “clocks-in” and “clocks-out” when passing through selected geographic boundaries which can be individualized to each user’s needs and work location. We hypothesized that this technology will relieve residents of the burden of entering in-house work hours, and which will provide residents and programs a more accurate assessment of work hour violations. This pilot project aims to assess the feasibility of using a commercially available mobile-based location-awareness technology, HoursTracker, as a method of logging education and work hours, to assess house officers’ attitudes toward the current self-report method and the mobile-based method, and to identify barriers to timely and accurate education and work hour logging.

Actions, Methods or Interventions: We recruited 5 neurology house officers (4 residents and 1 fellow) to record education work hours using the HoursTracker mobile app. They concurrently recorded education work hours by the conventional manual method on the institutional website. After 6 six weeks, data from both sources were collected and analyzed. House officers were given a survey at the end of the study after presented with their HoursTracker data and that from MedHub which they had logged.

Results: Discrepancies weekly education and duty hours logged in MedHub and HoursTracker varied widely amongst house offices (ranging from 3 minutes to 75 hours) but in all but one case, these discrepancies did not lead to more violations.

The majority of participants (4/5) reported that they did not always enter their duty hours on time in MedHub. 4/5 participants indicated that they forget the task and 3/5 were “too busy.” All participants indicated that they believed their manually logged hours for the week were accurate within 1-3 hours. 4/5 house officers reported that they finished reportable work away from the work site which may have led to HoursTracker recording few hours than those in MedHub. 2/5 house officers reported that their phone battery died during the recording period at work. 1/5 residents reported that they had intentionally falsified their work hours by increasing hours worked and 1/5 residents reported decreasing the number of hours worked.

Only 1/5 of the participants preferred using the conventional method, MedHub. 2/5 preferred HoursTracker and 2/5 had no preference. None of the participants reported significant concerns about privacy when using the app.

Lessons Learned: This study is limited due to small sample size but illustrated the technical limitations of the currently available mobile-based location awareness technology. Technical errors likely led to hours being erroneously logged or not logged at all. Survey results indicate that the current system for tracking duty can be improved. House officers have indicated that the current self-report method is often a forgotten task. It may not be feasible for house officers to accurately remember their work hours when submitting them days or weeks later. Duty hours are often submitted late. Hours may be intentionally misrepresented.

Future Applications and Next Steps: The use of mobile-based location awareness technology is promising, but the existing technology requires significant modification and improvement to meet the needs specific to house officers and residency programs to provide a more accurate assessment of education and work hour violations.

Tracking Education Work Hours Using a Mobile-Based Application with Location Awareness



Abbey Dunn, MD; Zachary London, MD,
Department of Neurology, University of Michigan; Ann Arbor, Michigan

Background

Long hours, a common feature of resident education, have led to concerns about patient safety and resident well-being.

Residents are required to self-report the number of hours they work after the fact, a method that may not be entirely accurate or reliable.

We propose an alternative method of education work hour reporting, using mobile-based location awareness technology which automatically “clocks-in” and “clocks-out” when passing through selected geographic boundaries which can be individualized to each user’s needs and work location.

Objectives

- To assess the feasibility of using a commercially available mobile-based location-awareness technology, HoursTracker®, as a method of logging education and work hours,
- To assess house officers’ attitudes toward the current self-report method and the mobile-based method,
- To identify barriers to timely and accurate education and work hour logging.

Methods and Intervention

We recruited 5 neurology house officers from the neurology department to record education work hours using the HoursTracker® mobile app.

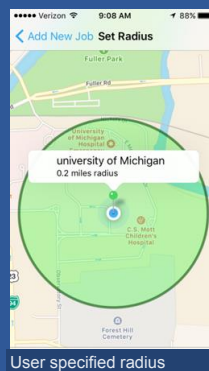
Geographic boundaries were set, specific to their work locations at Michigan Medicine and the VA Hospital

Participants were instructed to allow the app to run in the background for a period of 6 weeks

Education and work hours were concurrently recorded by the conventional manual method on the institutional website (MedHub).

After 6 six weeks, data from both sources was were collected and analyzed.

House officers were given a survey at the end of the study after presented with their HoursTracker® data and that from MedHub which they had logged.



Results

Discrepancies in hour reporting were observed for every house officer.

- Discrepancies in weekly hours logged ranged from as low as 3 minutes per week to as high as 75 hours per week between modalities
- Using the mobile-application did not lead to a net increase in 80 hour violations
- 2 violations using the conventional method and 1 using the mobile-application

Survey Results

The majority of participants (4/5) reported that they did not always enter their duty hours on time in MedHub

All participants indicated that they believed their manually logged hours for the week were accurate within 1-3 hours.

4/5 reported that they finished reportable work away from the work site which may have led to HoursTracker recording few hours than those in MedHub.

1/5 residents reported that they had intentionally falsified their work hours by increasing hours worked and 1/5 residents reported decreasing the number of hours worked.

1/5 of the participants preferred using MedHub, 2/5 preferred HoursTracker®, 2/5 had no preference.

Lessons Learned

This study is limited due to small sample size

Our results illustrate the technical limitations of the currently available technology. Technical errors led to hours being erroneously logged likely due to failure of the app to log in or log out of the work area

Survey results indicate that the current system for tracking duty can be improved.

- Residents and fellows have indicated that the current self-report method is often a forgotten task. Duty hours are often submitted late.
- It may not be feasible for house officers to accurately remember their work hours when submitting them days or weeks later. Hours may be intentionally misrepresented to increase or decrease hours worked

Future Applications

- This technology, with the correct modifications, has the potential to simplify the process of educations and work hour logging
- In the future, this technology could be used to create a mobile application specific to the needs of house officers and residency programs to provide a more accurate assessment of work hour violations and shifting burden of reporting away from house officers

802: Standardized Patient Program Emergency Preparedness Training

Authors: Deanna Arrieta, Laurie Whitman

Background: Large-scale assessments of medical trainees' clinical skills often involve well over 100 participants including standardized patients, students, staff, and faculty. Our institution requires training for evacuation and shelter safety protocols, but we realized the need to adapt these guidelines specifically for safety of standardized patients (SPs). During assessments, SPs are often clothed in gowns with no foot coverings, making it challenging to evacuate to inclement outdoor locations. Furthermore, SPs may be overlooked in institutional safety protocols and emergency preparedness training. We created a SP-specific evacuation and shelter protocol that aligned with institutional and legal regulations.

Actions, Methods or Interventions: Our protocols were created based on institution, state, and federal regulations (e.g., know the location of the nearest fire alarm and fire extinguisher, immediately move to designated assembly area in the event of fire) (UMMS 60260 Fire Safety in the Medical School for non-Clinical Faculty and Staff). Using these guidelines, we identified program deficiencies and areas of improvement to our current practices. We then created a 60-minute training session with a guided safety simulation for the Standardized Patient Program (SPP) staff who would have oversight of the facility occupants during any future evacuation or shelter occasion.

The training involved assigning and delineation of roles for an emergency team consisting of 10 SPP staff members. Each team member learned about their role, how to report status during critical incidents and how their role fit into the overall safety plan. New SP program-specific rules were introduced to address identified issues; for instance, all SPs must be instructed to keep footwear nearby and interior doors should not be propped open in case of a shelter onsite incident. The team participated in a guided safety simulation which required practice with performing emergency responsibilities and reporting status updates via radio.

Results: SPP safety gaps were identified, such as a lack of assigned emergency team roles, a need for a designated plan for evacuation or shelter during assessments involving dozens of people, and SP clothing and footwear rules. These were addressed by adapting standard guidelines to meet SP program needs for emergent situations.

SPEs and staff informally reported an increase in their comfort and feelings of emergency preparedness following the completion of the experiential training. Each staff member accepted an assigned role to be assumed during future emergency situations. Comments from staff included appreciation that responsibilities were clarified and a designated plan for evacuating students, faculty and SPs was established. Staff also requested further practice with assigned roles as well as expansion of the emergency situations to include more scenarios.

Lessons Learned: While SPs play a significant role in medical education (Epstein 2007), the safety and emergency preparedness of SP programs involves deliberate adaptation of institutional guidelines and team training as institutional safety protocols may provide a false sense of security. Traditional emergency preparedness and safety guidelines are adaptable to meet the specific needs of Standardized Patient Programs administering large-scale assessments.

Future Applications and Next Steps: Continued work for programs running large assessments might focus on safety protocols for other emergencies such as an active shooter or medical emergency scenario.

Standardized Patient Program Emergency Preparedness Training

Deanna Arrieta, Laurie Whitman MS, Meg Wolff MD, Nikki Zaidi, PhD



CENTER FOR EXPERIENTIAL LEARNING AND ASSESSMENT
STANDARDIZED PATIENT PROGRAM
UNIVERSITY OF MICHIGAN

Introduction

Large-scale assessments of medical trainees' clinical skills often involve well over 100 participants including standardized patients, students, staff, and faculty. Our institution requires training for evacuation and shelter safety protocols, but we realized the need to adapt these guidelines specifically for safety of standardized patients (SPs). During assessments, SPs are often clothed in gowns with no foot coverings, making it challenging to evacuate to inclement outdoor locations. Furthermore, SPs may be overlooked in institutional safety protocols and emergency preparedness training. We created a SP-specific evacuation and shelter protocol that aligned with institutional and legal regulations.

Outcomes

SPP team reported an increase in their comfort and feelings of emergency preparedness following the completion of the experiential training. Each staff member accepted an assigned role to be assumed during future emergency situations. Comments from staff included appreciation that responsibilities were clarified and a designated plan for evacuating students, faculty and SPs was established. Staff also requested further practice with assigned roles as well as expansion of the emergency situations to include more scenarios.

Conclusions and Next Steps:

While SPs play a significant role in medical education (Epstein 2007), the safety and emergency preparedness of SP programs involves deliberate adaptation of institutional guidelines and team training as institutional safety protocols may provide a false sense of security. Continued work for programs running large assessments might focus on safety protocols for other emergencies such as an active shooter or medical emergency scenario.

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Plan



Prepare

- Define and assign roles for Standardized Patient Program (SPP) staff members
- Divide the area into zones for efficient clearing during emergent situations
- Members learn their role and status reporting protocols for critical incidents
- Prepare clipboards, zone maps, and easy access emergency backpacks

Practice

Team participation in a guided safety simulation to rehearse responsibilities

Create a maintenance/upkeep protocol for emergency supplies



803: The Michigan Journal of Medicine: a Student-Run Peer-Reviewed Medical Journal

Authors: David Cron, Joseph Linzey, Sagar Deshpande, Spencer Lewis, Todd Jaffe, Sanjana Malviya, Jaclyn Sipovic, Jason Coleman, Jasna Markovac, Rebecca Welzenbach, Michael Englesbe, Emily Stucken

Background: Research is the currency of academic medicine, and all academic physicians are expected to participate in the peer review process. Yet, formal training in reviewing and editing manuscripts is rarely provided within medical school curricula. To address this need while also providing students an avenue to publish their research, we created the Michigan Journal of Medicine (MJM), a student-run, peer-reviewed medical research journal at the University of Michigan.

Actions, Methods or Interventions: This initiative has two goals: 1) to teach students to critically write, review, and edit research manuscripts, and 2) to publish and disseminate medical student research. Medical students lead all aspects involved in the production of an annual journal issue, overseen by a faculty director. Submissions on topics related to medicine from University of Michigan health profession graduate student authors are welcomed, and each manuscript is reviewed by a team of medical student reviewers and editors. During the journal's third year of production, MJM has expanded to welcome submissions from other health professional schools, and outreach activities are ongoing as we look to increase interdisciplinary collaboration. Additionally, to improve dissemination of journal articles, MJM is increasingly utilizing social media to share students' published work across a broad audience. This abstract specifically examines the results of MJM's utilization of Twitter during 2017-2018. Visual abstracts, a novel way of graphically displaying the core findings of a research article for dissemination via social media, were also implemented during 2017. For analysis, we focused on two time periods. Period 1 included April 2016 (Twitter account first opened) through February 2017. Period 2 included March 2017 (social media committee created to increase Twitter utilization) through January 2018.

Results: 36 senior medical students participated in MJM during the 2017-2018 school year. The first two issues published 11 articles each, and the third issue will publish 9 articles. At the time of abstract submission, the MJM Twitter account has 446 followers. Average online article downloads were 22 per month in period 1 and 20 per month in period 2. Per tweet, Twitter analytics in period 2 vs. period 1 were as follows: impressions (1759 vs. 962), engagement with tweet (55 vs. 15), engagement percentage (3.4% vs. 1.4%), retweets (4.5 vs. 1.8), likes (9.9 vs. 2.3), URL clicks (5.9 vs. 4.2). When a visual abstract was tweeted (#VisualAbstract; N=11), each tweet received on average 1966 impressions, 59 engagements, 3.1% engagement rate, 5.3 retweets, 10.7 likes, and 5.7 URL clicks.

Lessons Learned: MJM has had success internally and has proved as a valuable educational tool for medical students. The role of social media in enhancing research dissemination for MJM needs further exploration. During the period when social media utilization was increased, more people were able to be reached per tweet (due in part to increase number of followers over time), but this was not associated with an increase in online article downloads.

Future Applications and Next Steps: MJM will work to improve its social media strategy with hopes of increasing visibility of the website (<http://www.michjmed.org/>) and increasing readership of the manuscripts. MJM also hopes to recruit submissions, and eventually leadership representation, from the other health professional schools at the University of Michigan.



MICHIGAN MEDICINE
UNIVERSITY OF MICHIGAN

The Michigan Journal of Medicine: a Student-Run Peer-Reviewed Medical Journal

David Cron, Joseph Linzey, Sagar Deshpande, Spencer Lewis, Todd Jaffe, Sanjana Malviya, Jaclyn Sipovic, Jason Coleman, Jasna Markovac, Rebecca Welzenbach, Michael Englesbe, Emily Stucken



INTRODUCTION

- The Michigan Journal of Medicine (MJM) is a peer-reviewed, student-led research journal that aims to highlight quality student research at the University of Michigan and facilitate the development of writing and editorial skills among students
- MJM is integrated into the M4 curriculum as an Academic Communication Elective

REVIEW PROCESS



VISUAL ABSTRACTS

Combating the Opioid Epidemic After Surgery

#1: Reduce Rx sizes

Match actual patient need

#2: Educate patients

Dispose of leftover pills

#3: Educate providers

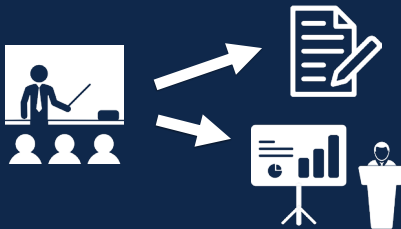
More medical schools should teach prescribing

Ryan Howard, MD and Michael Englesbe, MD

MJM www.MichJMed.org
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MICHIGAN JOURNAL OF MEDICINE
UNIVERSITY OF MICHIGAN

- Adopted Visual Abstracts in 2017 to better disseminate articles
- Trending Twitter hashtag: #VisualAbstract

CURRICULUM



- Monthly didactic and workshop-based lectures
 - Medical editing/writing
 - Giving constructive criticism
 - Effective oral presentations

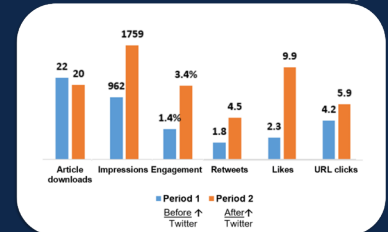
THE CHALLENGE TO A NEW JOURNAL:

DISSEMINATION

How can MJM share articles with a wide audience?

RESULTS

Metrics of dissemination before and after increased Twitter activity



- Comparing metrics before (period 1) and after (period 2) increasing Twitter activity. Period 2 started March 2017. Article downloads is monthly average

ORGANIZATION

MJM Structure of an Editorial Team



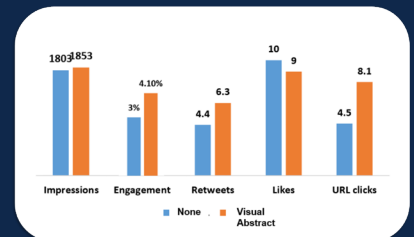
- 12 editorial teams
- Editor positions are filled by M4 students
- Reviewer positions are filled by M1 – M4 students

OUR SOLUTION: SOCIAL MEDIA



- In 2017-2018, MJM increased Twitter activity in attempt to promote journal and disseminate articles
- Designated social media committee
- Connected with University of Michigan social media marketing department

Twitter metrics with and without Visual Abstract



- Comparing metrics for tweets in Period 2 with and without Visual Abstract

CONCLUSIONS

- Increased Twitter activity by MJM was associated with greater metrics of Twitter dissemination, reaching a larger audience. However, this did not appear to lead to increased article downloads
- MJM will work to improve its social media strategy with hopes of increasing visibility of the website

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804: First Do No Harm: The Loss of Evidence-Based Medicine Knowledge during the Fourth Year of Medical School

Authors: Lauren Heidemann, Charles A. Keilin, Sally A Santen, James T. Fitzgerald, Nikki L. Zaidi, Laurie Whitman, Elizabeth Jones, Monica L. Lypson, Helen K. Morgan

Background: The fourth year of medical school (M4) should prepare students for residency, yet it is generally unstructured with questionable rigor. Our primary aim was to determine whether medical students retain medical knowledge in Evidence Based Medicine (EBM) and Urgent Clinical Scenarios (UCS) over the course of the M4 year.

Actions, Methods or Interventions: Medical students who graduated from University of Michigan Medical School (UMMS) and matched into internship at Michigan Medicine (MM) completed identical assessments on EBM and UCS at the beginning of M4 year and thirteen months later during internship orientation (PGY1). Individual scores on these two assessments were compared using a paired t-test analysis. The association of academic performance, residency specialty classification, and initial M4 performance was also analyzed.

Results: During academic years 2014 and 2015, 76 students matched into MM internship; 52 completed identical EBM stations and 53 completed UCS stations. Learners' performance on EBM assessment decreased from M4 to PGY1 (93% + 7 vs. 80% + 13, $P < .01$). Learners' performance on the UCS assessment remained stable (80% + 9 vs. 82% + 8, $P = .22$). Residency specialty classification and academic performance did not impact performance. High M4 performers experienced a larger rate of knowledge decrement compared to low M4 performers for EBM (-20% vs -4%, $P = .01$).

Lessons Learned: This study demonstrates performance decline in EBM during the M4 year and adds to the growing body of literature that highlights the need for curricular reform during this year.

Future Applications and Next Steps: This study highlights the need for deliberate practice and assessment of the skills deemed critical for a successful transition into residency throughout the M4 year.



The Fourth Year of Medical School: Is Knowledge Lost?

MICHIGAN MEDICINE
UNIVERSITY OF MICHIGAN

Lauren A Heidemann, MD, Elizabeth K Jones MD, Charles A Keilin, Laurie Whitman, MSE, James T Fitzgerald, PhD,

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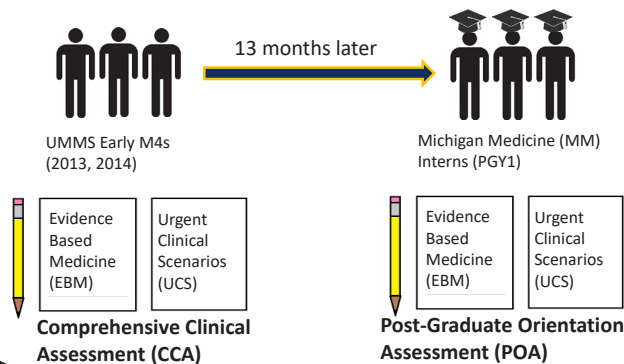
University of Michigan Medical School



BACKGROUND

- The fourth year of medical school is largely unstructured with significant time available for electives¹
 - There are growing concerns about educational quality of this year
- Goal of study:** To determine if valuable knowledge is lost over the course of the M4 year at University of Michigan Medical School (UMMS) in two areas: Evidence based medicine (EBM) and Urgent Clinical Scenarios (UCS)

METHODS



Outcomes

Knowledge Retention on UCS and EBM

Paired T test

- Compared individual scores on M4 CCA and PGY1 POA

Medical school factors affecting knowledge retention

Multivariate ANOVA

- Residency specialty (medical vs. surgical)
- Global academic performance
- Initial M4 Performance on CCA

RESULTS

Participants: 76 UMMS students matched into MM internship

- 53 completed identical assessments on UCS
- 52 completed identical assessments on EBM

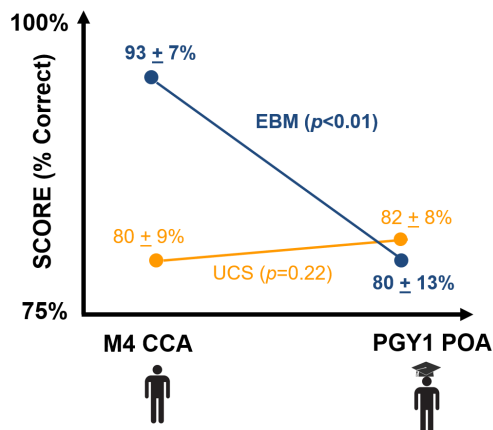


Figure 1: Performance of EBM declines significantly over the course of the M4 year at our institution

RESULTS

Medical school factors affecting knowledge retention:

- Residency specialty and global academic performance had no significant impact on change in scores between M4 and PGY1
- High performers on M4 CCA appear to lose knowledge at a greater rate in both UCS and EBM; while low performers appeared to gain knowledge in UCS (Table 1)

Table 1: Performance on M4 CCA and PGY1 POA based on initial M4 CCA Percentile

| | M4 CCA Avg (% ± Std Dev) | PGY1 POA Avg (% ± Std Dev) | Change (%) | p |
|-------------------------------|--------------------------|----------------------------|------------|--------|
| M4 CCA Percentile-UCS | | | | |
| Top 25 (n=6) | 94 ± 4 | 82 ± 8 | -12 | < .001 |
| 51-75 (n=10) | 87 ± 0 | 82 ± 7 | -5 | |
| 26-50 (n=23) | 81 ± 2 | 83 ± 9 | +2 | |
| Bottom 25 (n=14) | 68 ± 5 | 80 ± 7 | +12 | |
| M4 CCA Percentile- EBM | | | | |
| Top 25 (n=14) | 100 ± 0 | 80 ± 14 | -20 | 0.01 |
| 51-75 (n=11) | 95 ± 0 | 78 ± 16 | -17 | |
| 26-50 (n=9) | 93 ± 1 | 77 ± 15 | -16 | |
| Bottom 25 (n=18) | 85 ± 6 | 81 ± 10 | -4 | |

CONCLUSIONS

Performance on EBM declines significantly over the course of the M4 year at our institution. High performers are not spared from this effect and actually experience a greater decline in knowledge. This adds to the growing body of literature about M4 year that highlights the need for curricular reform.

805: ePortfolio: All-in-One Market Analysis

Authors: Emily Bair, Rachel Niemer, Chia-Ju Lee, Olivia Anderson

Background: An electronic portfolio (e-portfolio) can showcase a students' learning progression, achievements, and abilities through the purposeful collection of their work presented as artifacts. The implementation of e-portfolios within a curriculum demonstrates institutional accountability and serves primary-evidence for re-accreditation. For example, Master of Public Health students within a Public Health program accredited by the Council on Education for Public Health are required to showcase five competencies as represented by two artifacts of work products.

The purpose of this research is to explore the current e-portfolio tools available and being used in academic settings. The results will offer guidance in selecting the appropriate e-portfolio tool and integrating its use into a curriculum based on individual program accreditation goals.

Actions, Methods or Interventions: We developed a set of evaluation matrices to review 19 commonly used e-portfolio tools. The tools were evaluated on the following features: 1) learning activities/goals, 2) competency tracking, 3) collaboration, 4) access/ price, 5) user-friendliness, 6) customization, and 7) retrospection/concept mapping. After evaluating the tools, we identified gaps in current e-portfolio features.

Results: Major gaps in current e-portfolio tools include the absence of learning analytic dashboards, student self-evaluation and competence tracking, limited reflection platforms, curriculum mapping tools, and limited showcase options beyond the classroom.

Lessons Learned: The utilization of evaluation matrices to evaluate current e-portfolio platforms can assist faculty members and instructors in selecting appropriate tools as they integrate e-portfolios into coursework and plan accordingly for an efficient and effective re-accreditation process.

Future Applications and Next Steps: Based on the goals of program accrediting bodies e-portfolio tools can be managed, integrated, and modified to meet evaluation and assessment demands.

806: Application of Lean Methodology in a Low – Resource Emergency Department in Ethiopia

Authors: Jordan Harris, Yonas Kefelegn

Background: Ethiopia has a population of over 100,000,000 people and, similar to other sub-Saharan countries, suffers from a severe shortage of adequately trained health professionals. In response to this problem, the government of Ethiopia has expanded the number of medical schools as well as post-graduate sub-specialty training programs over the past 15 years. However, the shortage of trained professionals creates a challenge for education of these residents. Academic partnerships to improve training the health workforce is one of the sustainable ways of capacity building for low-resource settings. Building upon a successful collaborative platform between the University of Michigan (UM) and St Paul's Hospital Medical Millennium College (SPHMMC) in Addis Ababa, Ethiopia, the UM Department of Anesthesiology has been assisting with education of the SPHMMC anesthesia residents by way of short visits and weekly lectures via BlueJeans video-conferencing. The recent advances in both simulation training as well as 3D modeling offer alternatives to improved training, especially in situations that are rarely encountered in the clinical setting.

Front-of-Neck Access (FONA) is the final common pathway for the rare, but life-threatening, Cannot-Intubate-Cannot-Oxygenate (CICO) scenario. This can include needle cricothyroidotomy, scalpel-bougie technique, or emergency tracheostomy depending on the clinical situation, the personnel present, and the equipment available. Given the lack of resources in low- and middle-income countries (LMICs) as well as the high incidence of trauma and advanced disease, needle cricothyroidotomy should be in the armamentarium of all emergency medical physicians, including surgeons, anesthesiologists, intensivists, and emergency room physicians.

Actions, Methods or Interventions: Following review and exemption determination by the University of Michigan and St Paul's Hospital Medical Millennium College Institutional Review Boards, twelve anesthesia residents (7 first year, 5 second year) participated in the Cricothyroidotomy Skills Maintenance Program (CSMP). Departments of Anesthesiology, Otolaryngology, and Learning Health Sciences collaborated to develop and validate a low-cost, high-fidelity task trainer. This consisted of a medical grade silicone laryngotracheal model produced with computer aided design and 3D printing technologies, and incorporated into a mannequin. The CSMP consisted of a pre-training knowledge test and procedural performance evaluation, a didactic training session, and a subsequent post-training knowledge test and procedural performance evaluation. The procedural performance evaluations included timing of the procedure as well as two assessment tools, the CSMP Global Rating Scale and the CSMP Checklist. The CSMP Global Rating Scale is a 6-item tool scored on a 3-point scale: 0 (Not Done), 1(Done Incorrectly) and 2 (Done Correctly). The CSMP Checklist is a 9-item tool that represented 9 step-wise tasks associated with proper cricothyroidotomy, also scored on the same 3-point scale. A laryngotracheal model, produced with computer aided design and 3D printing from medical grade silicone, was incorporated into a mannequin to produce a low-cost, high-fidelity simulator. Prior to performance of the cricothyroidotomy, each participant was given a scenario resulting in a CICO situation. Performances were videotaped at the consent of the residents and rated independently by 3 University of Michigan faculty judges at a later date. The training session included a short PowerPoint presentation on emergency airway management as well as demonstration of correct needle cricothyroidotomy skills by one of the authors.

Results: Mean post-training knowledge test summed scores were higher ($M_{post}=4.46$, $SD=1.27$) than pre-training knowledge ($M_{pre}=3.31$, $SD=0.63$), $t(12)=3.64$, $p=0.003$). Mean post-training total time to perform cricothyroidotomy (measured in seconds) was lower ($M_{post}=72.82$, $SD=15.68$) than pre-training total time ($M_{pre}=96.64$, $SD=40.99$), but differences were not statistically significant, $t(10)=1.71$, $p=0.12$). Overall, residents' mean Global ratings were higher following training ($M_{post}=0.70$) than prior to training ($M_{pre}=0.20$), $X^2= 677.3$, $df=1$, $p=0.001$). Statistically significant differences were observed between pre- and post-training mean ratings for each of the 6 items on the CSMP Global Rating Scale ($p=0.0001$), all with moderate to large effect sizes. Overall, residents' mean Checklist ratings were higher following training ($M_{post}=0.90$) than prior to training ($M_{pre}=0.51$), $X^2= 242.5$, $df=1$, $p=0.001$). Statistically significant differences were observed between pre- and post-training mean ratings for 8 of 9 checklist items ($p\leq 0.01$), with small to large effect sizes. Residents' mean post-training self-reported confidence was higher ($M_{post}=3.08$, $SD=0.86$) than self-reported pre-training confidence ($M_{pre}=1.69$, $SD=1.03$), $t(12)= 4.45$, $p = 0.001$, $d = 1.14$.)

Lessons Learned: Our work shows that cricothyroidotomy skills taught to anesthesia residents at SPHMMC with a 3D printed laryngotracheal model improves knowledge, skills, and confidence.

The inter-departmental (anesthesia, otolaryngology, and simulation) development of the curriculum permitted the creation of a low-cost, high-fidelity simulator that has the potential to impact patient care and safety world-wide.

Future Applications and Next Steps: Future efforts will be concentrated on 4 areas: (1) education of anesthesia providers at the University of Michigan, (2) expansion of the training curriculum into other departments at the University of Michigan, (3) repeat testing of SPHMMC anesthesia residents during future visits to assess retention of knowledge and skills, and, (4) consideration of using the curriculum to train other LMIC medical providers. Further, a local needs assessment to evaluate needs and develop tools for other emergency airway procedures, train local physicians within multiple disciplines, and ultimately improve outcomes in emergent airway scenarios would be valuable. outcomes in emergent airway scenarios would be valuable.

Application of Lean Methodology in a Low – Resource Emergency Department in Ethiopia

Jordan Harris, BS¹, Yonas Keefelegn, MD²
¹University of Michigan Medical School, ²St. Paul’s Millennium Medical College

BACKGROUND

As emergency department (ED) overcrowding is increasingly becoming a worldwide problem, the international health care community has prioritized quality improvement (QI) initiatives as a potential solution. Our interdisciplinary team applied lean methodology, an iterative QI process developed to systematically identify and eliminate waste, in different areas of the ED at Addis Ababa Burn, Emergency, and Trauma (AaBET) Hospital in Addis Ababa, Ethiopia. The aim was to alleviate ED overcrowding and illustrate the successes and challenges we experienced.

METHODS

Our primary team – consisting of a fourth year medical student, an emergency medicine (EM) resident, two EM physicians, and a head nurse – spent eight weeks applying lean methodology at AaBET with the goal of improving patient flow in the ED. We partnered with triage and laboratory staff members in order to focus our efforts in the triage, laboratory, and low-acuity areas of the ED. Our interdisciplinary team then created a SIPOC diagram to scope the project, followed by application of the A3 scientific problem solving process – value stream mapping of the current state, root-cause analysis (fishbone diagrams and five whys), recommendations/future state, and implementation planning – in each of the aforementioned areas.

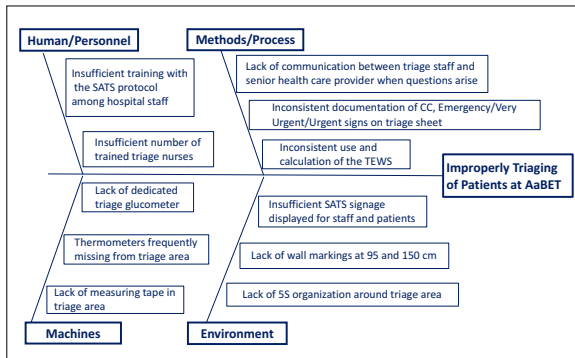


Figure 1. Fishbone diagram of all contributing factors leading to the improper triaging of patients in the emergency department.

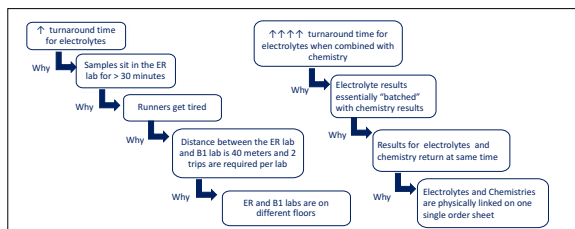


Figure 2. Five whys approach to identify the root causes for prolonged turnaround time for electrolyte and chemistry panels in the laboratory.

RESULTS

Notable successes included creating the initial SIPOC diagram to identify all contributors to the value stream and root-cause analyses, which identified excessive distances traveled by specimen transporters, physically linked laboratory order forms, lack of standardized rounding and charting processes, insufficient triage training, and non-standardized workspaces as contributors to poor patient flow. A major obstacle we faced involved collecting meaningful data. We attributed this to a paper charting system, weekly turnover of ED interns, incomplete documentation, and no clear consensus on time keeping – local Ethiopian time vs East African Time – among staff. Additional barriers included maintaining standardized workplaces and long periods required for implementation of recommendations.

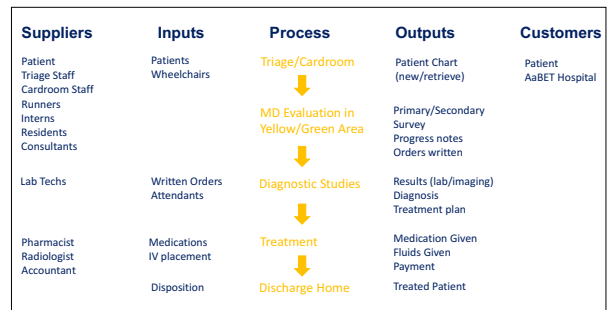


Figure 3. SIPOC diagram used to scope the entire project, which helped to identify all of the contributing team members in the chain of patient care from admission to discharge in the emergency department.

LESSONS LEARNED

The application of lean methodology in this low-resource setting was an easily transferable, low-tech, and cost-effective way to identify and address waste within the ED. By using this systematic approach as an interdisciplinary team we were able to efficiently identify all of the unique contributors to ED overcrowding.

FUTURE APPLICATION AND NEXT STEPS

Applying lean methodology is a viable way to address QI projects in low-resource settings around the globe, but future projects should work to address the challenges involved with data collection. Additionally, we advise recruiting members of the hospital administration to your primary team during the QI project.

807: Simulating Symptoms in a Standardized Patient Encounter Using a Low Cost Device

Authors: Laurie Whitman, Erik Alderink, Jenny Murphy, Paula Ross, Meg Wolff

Background: Simulation exercises augmented with technology are an effective way to develop and practice clinical skills. (Cooke 2011, 2013) While standardized patients (SPs) are trained to portray a patient role, it remains challenging to provide learners with abnormal patient findings without considerable financial investment in simulation equipment. We created a low-cost device that allows SPs to portray abnormal heart and lung sounds that are detectable with a standard stethoscope.

Actions, Methods or Interventions: The \$20 device is created using an elastic band with micro-speakers encased in neoprene foam, attached by Velcro and wired into a small MP3 player. The device simulates a systolic murmur auscultated at the cardiac apex as well as pulmonary findings of inspiratory crackles located at the lung base. We piloted the device during a cardiac and pulmonary clinical skills assessment for 170 second-year medical students.

Results: Twenty-nine students provided feedback about the bands with 68% confirming they heard both sounds clearly, 18% heard one sound and 11% did not hear the sounds. One student commented, "I thought it was an incredibly valuable experience ...in preparation for clinical rotations. I think it highly contributed to my learning because in lecture we learn about abnormal auscultation findings but usually do not get a chance to actually hear them first hand."

Seventeen SPs out of 24 surveyed about the bands agreed or strongly agreed the sound band was easy to use, with seven SPs neutral about the ease of use. SP comments varied from "Interesting and easy" to "I wasn't always sure it was in the right place."

Lessons Learned: The wearable sound device minimizes the need to recruit patients with abnormal heart or lung sounds. It is an inexpensive way to provide learners with diverse clinical findings to help expand their training experiences.

Future Applications and Next Steps: In the future, we plan to increase the reliability of the audio during auscultation and confirm the placement of the bands on the SPs to ensure the sounds are heard at the correct anatomical locations. When feasible, it would be beneficial to provide a pre-brief session for learners with an opportunity to practice using the device.

Simulating Symptoms in a Standardized Patient Encounter Using a Low Cost Device

Laurie Whitman MS, Erik Alderink, Jenny Murphy MPH MSW, Paula Ross PhD, Meg Wolff MD



CENTER FOR EXPERIENTIAL LEARNING AND ASSESSMENT
STANDARDIZED PATIENT PROGRAM
UNIVERSITY OF MICHIGAN

Introduction

Simulation exercises augmented with technology are an effective way to develop and practice clinical skills. (Cooke 2011, 2013) While standardized patients (SPs) are trained to portray a patient role, it remains challenging to provide learners with abnormal patient findings without considerable financial investment in simulation equipment.

Outcomes

This wearable band was piloted during a clinical skills assessment for 170 second-year medical students focusing on the cardiac and pulmonary systems. We received feedback from 29 students about the bands with 68% confirming they heard both sounds clearly, 18% heard one sound and 11% did not hear the sounds.

Project Description

We created a low-cost device that allows SPs to portray abnormal heart and lung sounds that are detectable with a standard stethoscope.

The \$20 device was created using an elastic band with micro-speakers encased in neoprene foam, attached by Velcro and wired into a small MP3 player. The device simulates a systolic murmur auscultated at the cardiac apex as well as pulmonary findings of inspiratory crackles located at the lung base.

A student commented, *"I thought it was an incredibly valuable experience to be able to hear abnormal heart and lung sounds in preparation for clinical rotations.*

I think it highly contributed to my learning because in lecture we learn about abnormal auscultation findings but usually do not get a chance to actually hear them first hand. I would highly recommend using the speakers again in the future for SP experiences."



Next steps and Conclusions:

In the future, we plan to increase the reliability of the audio during auscultation and confirm the placement of the bands on the SPs to ensure the sounds are heard at the correct anatomical locations. When feasible, it would be beneficial to provide a pre-brief session for learners with an opportunity to practice using the device.

The wearable sound device minimizes the need to recruit patients with abnormal heart or lung sounds. It is an inexpensive way to provide learners with diverse clinical findings to help expand their training experiences.

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Cook DA, Hamstra SJ, Brydges R., Zendejas B., Szostek JH, Want AT, Erwin PJ, Hatala R., Comparative effectiveness of instructional design features in simulation-based education: systematic review and meta-analysis., Med Teach 2013;35(1):e867-98.

808: Health Systems Science in the Medical Curriculum

Authors: Maya Hammoud, Anne Sales

Background: Healthcare transformation requires health system members to function and think differently. This means defining new competencies to ensure that critical knowledge and skills for a wide variety of content areas is incorporated into medical education at all levels. These topics span many disciplines in the applied and basic social sciences, and are clustered together as Health Systems Science (HSS), ranging from concepts of value and appropriateness of care to teamwork and interprofessional care to leadership, informatics, and socio-ecological determinants of health, among others.

Actions, Methods or Interventions: A workgroup sponsored by the Office of Medical Student Education, the Institute for Healthcare Policy and Innovation, and the Department of Learning Health Sciences was chartered. It has mapped learning objectives to existing competencies and assessed gaps in the curriculum.

Results: While many learning objectives required by the HSS initiative map to existing competencies in the medical curriculum, there are gaps that will require new competency and assessment development. We have also produced a conceptual framework that groups the HSS learning objectives into a structured approach to be assimilated into the curriculum.

Lessons Learned: We believe that the objectives and framework developed can inform other health professions' education, and that we can learn from work already completed in other professional education. We are seeking an opportunity to stimulate discussion among educators across health professional groups.

Future Applications and Next Steps: We will use any knowledge gained through this discussion to inform our next iteration of the framework and objectives, and continue to address gaps identified in the existing curriculum.



MEDICAL SCHOOL UNIVERSITY OF MICHIGAN

Health Systems Science Workgroup for Medical Curriculum

Maya Hammoud, MD MBA; Anne Sales, PhD RN

Department of Learning Health Sciences, University of Michigan Medical School

Introduction/ Objectives

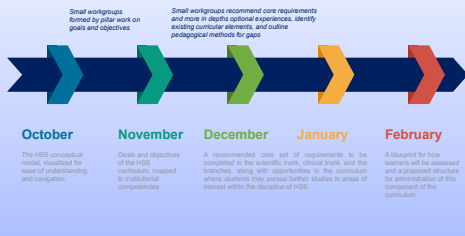
Design a framework for the Health Systems Science curriculum to be pursued by medical students through all 3 phases of the curriculum: the Scientific Trunk, the Clinical Trunk and the Professional Development Branches.

The HSS curriculum will rest on 3 high-level student-centered objectives:

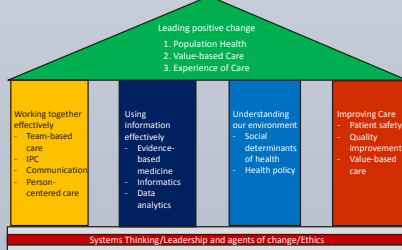
- Develop a foundation of understanding of key UM components of Health System Science
- Engage in the expression and application of these components in the clinical and classroom settings
- Pursue one or more of these elements in depth through experiential opportunities.

Deliverables

Health Systems Science Workgroup Deliverables



The workgroup created a preliminary conceptual model of four pillars, a cross-cutting "floor" of systems thinking, leadership and change agency, and ethics, to produce graduates who can lead positive change in health systems. We also produced goals and objectives mapped to competencies.



| Working together effectively: Team-based care, IPC, Communication, Person-centered care | | |
|--|---|---|
| Goals | Objectives | Competency |
| Students become proficient at collaborating with several individuals including patients/families and various healthcare team members | Demonstrate ability to consult as a patient's care team incorporating patient's preferences, family's input, and recommendations from other healthcare professionals such as nurses, social workers and/or specialists. | PC-iv PB-iv |
| Students are able to communicate effectively regardless of patient's level of education, ethnicity, race, gender and socioeconomic status | Describe a situation where you had to modify the way you communicated to a patient or family to their cultural or ethical background | C-ii PC-iv C-iv SBP-iv LTI-iv |
| Students become champions of interdisciplinary collaboration | Participate in an interdisciplinary team and describe your role as a member of one. Demonstrate understanding of at least one non-physician healthcare role. | C-iv SBP-iv LTI-iv |
| Students become experts at communication across the healthcare continuum | Illustrate how transitions of care has affected one of your patient's outcomes | C-iv |
| Students are able to manage conversations with patients and families that elicit goals of care across the continuum of care (primary care, acute care, post-acute care, long-term care, etc.) of the | Demonstrate leading a goals of care conversation with a patient and/or family in at least two different care settings. | C-ii C-iv C-iv |
| Students demonstrate a range of roles on teams (leader, follower, expert, learner) based on different team activities and needs | Describe your experience in at least two of the following roles on a care team: leader/follower, expert/learner | SBP-iv LTI-iv |
| Students demonstrate the ability to plan and evaluate effectiveness of their own practice and of the teams they participate in | Evaluate the effectiveness of the team(s) in which you participate | LTI-iv |

| Using information effectively: Evidence-based medicine, Informatics, Data analytics | | |
|--|--|--|
| Goals | Objectives | Competency |
| Use information to guide medical decision-making | Find, appraise, and apply evidence-based information to patient care and other clinical tasks | PSU-iv |
| Interact with information technology in a professional manner | Describe how technology can be used to improve patients' health and health care (e.g., personal health records, patient portals, mobile health apps) | PSU-iv, LTI-iv, PC-iv |
| Understand the patient experience of health information technology and data | Describe how technology can be used to improve patients' health and health care (e.g., personal health records, patient portals, mobile health apps) | PC-iv, C-ii, C-iv, PBL-iv |
| Understand how information technology impacts provider decision-making | Understand the use of clinical decision support in improving patient safety and adherence to best practices | SBP-iv, PBL-iv |
| Understand the role of data analytics in improving care | Understand how secondary use of data analytics research and patient self-management approach | PSU-iv, SBP-iv |
| Use information technology to care for patients in non-office-based settings | Participate in care for a panel of patients using population health management approach (e.g., registry data) | PBL-iv, PBL-iv, SBP-iv |
| Develop a big-picture understanding of the technology required to deliver advanced clinical care | Participate in a panel care via network in appropriate setting | C-ii, C-iv, PC-iv, PC-iv, SBP-iv, PBL-iv |
| | Understand if a healthcare organization is using a service or health (e.g., hardware, software, health information exchange) | SBP-iv |

| Understanding our environment: Social determinants of health, Health policy | | |
|---|---|---|
| Goals | Objectives | Competency |
| Identify actions physicians can take to prioritize health promotion and disease prevention during clinical encounters | Identify major social determinants of health and explain how they impact health outcomes and health care delivery | Patient Care |
| Identify social determinants of health and explain how they impact health outcomes and health care delivery | List concrete examples of the ways in which personal and systemic biases impact health care delivery | Systems-Based Practice and Network |
| Understand the role of health policy in improving patient safety and adherence to best practices | Describe innovative healthcare delivery models designed to improve not just individual patient health, but also community and population health | Systems-Based Practice, Critical Thinking and Discovery |
| Understand the role of data analytics in improving care | Define major milestones in US healthcare policy and illustrate how current policies and potential policy changes might influence healthcare delivery, access to care, and health outcomes | Systems-Based Practice |
| Use information technology to care for patients in non-office-based settings | Understand the fragmented nature of health care financing and delivery in the US and how this affects decision-making | Systems-Based Practice |
| Develop a big-picture understanding of the technology required to deliver advanced clinical care | Develop familiarity with how different decision-makers define value for health care programs and interventions | |

| Improving Care: Patient safety, Quality improvement, Value-based care | | |
|---|--|--|
| Goals | Objectives | Competency |
| Able to recognize the basic organization of health care systems and to estimate value (cost awareness and risk/benefit) in patient/population based care (variant of SBP-Q) | Value-Based Care | |
| | Explain the concept of value in healthcare | SBP-iv, SBP-iv |
| | Describe how value is value defined | |
| | Identify different groups of customers of healthcare systems | |
| | Explain how each group defines value and what do and do not value | |
| | Explain how value is described in nationally-recognized aims to assure and improve care | SBP-iv, SBP-iv, SBP-iv |
| | Describe the value in health health of the population, better patient experience, lower-cost trend | |
| | Describe the CMM quality chain aims - safe, effective, patient centered, timely, efficient, and equitable | |
| | Describe the components of healthcare system that contribute to a being high value | |
| | Identify elements or processes in a healthcare system that add to value | SBP-iv, SBP-iv |
| Identify barriers or processes that detract from value | | |
| Describe the physician's role in overcoming key barriers to high value in healthcare | SBP-iv, SBP-iv, LTI-iv | |
| Identify key barriers to high value healthcare | | |
| Explain what knowledge and behaviors on the part of physicians can contribute to improving value | | |
| Participate in assessing the value (cost/benefit) of an aspect of health care (e.g., orders for laboratory tests or imaging studies) | SBP-iv, SBP-iv, SBP-iv | |
| Able to participate in identifying areas for improvement in health care and in implementing solutions, and advocate for quality patient care and optimal patient care systems. (variant of SBP-Q) | Quality Improvement | |
| | Describe quality health measures and sources of quality data | PBL-iv, SBP-iv, SBP-iv, SBP-iv |
| | Describe common and different among the following frequently used quality improvement approaches: PDSA, Six Sigma, Lean, Kaizen, and others | SBP-iv, SBP-iv |
| | Describe all common problems that physicians face as they function in the following various levels of health care systems and/or approaches to addressing those problems | |
| | Physical context of work (e.g., physical layout, equipment design) | |
| | Individual performance (e.g., clinical decision-making) | SBP-iv, SBP-iv, SBP-iv, CTD-iv |
| | Group performance (e.g., inter-team care, team engagement) | |
| | Organizational performance (e.g., institutional priorities, CI training, change management) | |
| | Demonstrate the basic skills of a scientific problem solving by applying them in improving an aspect of healthcare quality | |
| | Demonstrate your group of a problem: recognize, define, and analyze current state and root causes | SBP-iv, SBP-iv, SBP-iv, PBL-iv, PBL-iv, LTI-iv, CTD-iv |
| Then for the problem: | | |
| Propose system/measurements and plans to carry them out | | |
| Patient Safety | | |
| Explain the impacts of medical errors on patients, population, health care workers and institutions | | |
| Define the terms: adverse events, errors and near misses | MI-iv, SBP-iv | |
| Describe the difference between harm (as it is now) compared to harm due to medical conditions | | |
| Explain individual and institutional characteristics of medical errors | | |
| Explain the difference between errors of intended actions and those of unintended actions | SBP-iv, PBL-iv | |
| Describe different types of preventable harm and how they may contribute to medical error | | |
| Describe examples of medical errors (diagnosis, medication, communication) | | |
| Describe how health care systems implement processes to prevent medical errors | | |
| Explain strategies to reduce errors in communication, including transitions of care | C-iv, SBP-iv, SBP-iv, SBP-iv, C4 | |
| Explain how clinical protocols and algorithms can lead to diagnostic, medication and surgical error | | |
| Describe how health care systems recognize and respond to preventable medical errors | | |
| Explain how quality and safety reporting systems operate and the advantages and disadvantages of each system | PR-iv, PBL-iv, SBP-iv, SBP-iv | |
| Describe how you have reported or would report a preventable medical error | | |
| Explain the process of an event analysis | | |

| Systems Thinking, Leadership and agents of change, Ethics | | |
|--|---|--|
| Goals | Objectives | Competency |
| Students will understand how systems thinking can help address problems of health care quality, cost, and accessibility | Systems Thinking | |
| | Define the word "system" and describe its four components in health care context | |
| | Analyze current policies and practices affecting medical systems | SBP-iv |
| | Understand basic healthcare economics and how various constituencies and systems interact | |
| | Illustrate the interrelationship of access and health disparities and assess the effect of those variables on health in the United States | |
| | Leadership | |
| | Demonstrate insight into one's own values, purpose and vision for becoming a physician | PR-iv, PBL-iv |
| | Understand principles of emotional intelligence | PR-iv, PR-iv, LTI-iv, LTI-iv, PBL-iv, CTD-iv |
| | Set effective goals with responsibility and accountability for goal attainment | PBL-iv, CTD-iv |
| | Understand different values, needs and strengths of team members including a framework such as the consulting value framework | |
| Critically analyze factors that influence team effectiveness (including values, communication, collaboration, and leadership roles), C-iv, LTI-iv, PBL-iv, CTD-iv | C-iv, LTI-iv, LTI-iv, PBL-iv, CTD-iv | |
| Implement strategies to improve the effectiveness of your teams (doctoring groups, anatomy groups, student groups) | C-iv, C-iv, LTI-iv, CTD-iv | |
| Ethics | | |
| Recognize the ethical aspects of clinical care and the health care organizations in which we provide it as well as the responsibilities of the individual practitioner as part of that organization | PR-iv, PR-iv, SBP-iv | |
| Develop a core foundation regarding the ethical obligations of physicians in providing a high standard of clinical care across a diverse population of patients | C-iv, PBL-iv, PBL-iv | |
| Demonstrate competence in the provision of services that are sensitive to patients' cultures, differences, and communities-seeking patients' best interests while promoting a just health care system (justice an individual vs. health care system) | C-iv, C-iv, PBL-iv | |
| Facilitate critical thinking in daily practice and in critical decision-making including an awareness of how the receipt and interpretation of information is shaped by one's experiences and biases—and work to reduce such bias | MI-iv, PBL-iv, C-iv, C-iv, PBL-iv, CTD-iv | |
| Provide clinical care that is medically and ethically sound and respond appropriately to ethical challenges and ambiguities related to the delivery of health care | CTD-iv, PBL-iv | |

Further thinking about integration into the curriculum through:

- Paths of Excellence
- Ethics
- Global Health & Disparities
- Health Policy
- Innovation & Entrepreneurship
- Medical Humanities
- Patient Safety/Quality Improvement/Complex Systems
- Scholarship of Learning & Teaching
- Scientific Discovery

Conclusion/ Workgroup Deliverables

Next Steps:

- Identify content gaps
- Develop true integration
- Assessment

Acknowledgements

We would like to acknowledge the hard work and support of the entire Health Systems Science Workgroup.



809: Implementing a standardized patient experience into an Advanced Health Assessment Course to better prepare APRN students' ability to care for LGBTQ patient with cultural humility

Authors: Elizabeth Kuzma, Christie Graziano, Cindy Darling-Fisher, Michelle Pardee

Background: Lesbian, gay, bisexual, transgender, and queer/questioning (LGBTQ) persons account for approximately 3.5% of the population (conservative estimate), equating to around 9 million people. Unfortunately, nursing programs in the United States only provide a median of 2.13 hours of formal content regarding LGBTQ health. This results in iatrogenic barriers to care as experienced by these patients, including misguided treatment strategies, impedance of communication, and abuse.

Actions, Methods or Interventions: A pilot educational project was designed and implemented in a required advanced health assessment core course at the University of Michigan School of Nursing. Ninety-nine advanced practice registered nursing (APRN) students participated in the project. The project was identified by IRB as Exempt (HUM00138569). The components of the project include: course readings on cultural humility, an hour lecture content on cultural humility and LGBTQ health, in-lab role-playing sexual history taking activities and a standardized patient (SP) experience. LGBTQ-identifying volunteers were recruited and trained to work as SPs for the purpose of structured interaction with the APRN students. This experience included: a 15-minute clinical patient encounter focused on the history-taking and patient communication only, followed by a brief 2-3 minute verbal post-evaluation by the SP, a standardized post-evaluation survey completed by the SP, a large group debrief, and a small group debrief in lab groups.

Results: A post-evaluation of the project for quality improvement purposes was completed in several ways: (1) during a formal post-evaluation meeting with faculty, the standardized patients, and a small group of graduate students who were involved in the development and implementation of the project as part of their mentored teaching experience, and (3) through review of student self-evaluations. During the post-evaluation meeting the group discussed the overall project, what went well, areas for improvement, content, flow, student performance, strengths of the project, and suggestions for improvement.

In their self-evaluation of the SP experience, the students reported that overall the learning experience was extremely valuable, provided them exposure to patient experiences they were unfamiliar with, and helped provide them with the skills for their future practice. One in particular said, "I thought the standardized patient was the best learning experience I have had in the past year-and-a-half in the program. It was hard to believe that you could learn so much from one 15 minute activity, but it was really valuable. It was also great that the standardized patients were so open in the de-brief session afterward. It was really generous of them to share their personal experiences with us. I hope you will have the opportunity to keep this activity in the [Health Assessment] curriculum going forward-and even add more like it for future students!" During the faculty debrief sessions, faculty found the experience to be personally enriching for themselves and valuable for their students. The SPs themselves reported enthusiasm for being a part of a project like this, feeling hopeful for the future of LGBTQ health, and interest in participating in future endeavors like this.

Lessons Learned: While the pilot educational project was valuable, there were areas for improvement and some lessons learned. Following the experience faculty identified a few themes in the students' overall performance, (1) many students avoided obtaining a sexual health history, (2) many students also avoided discussions with the transgender SPs about their gender affirming care and transition process, and (3) many did not follow-up with questions about a medication they were unfamiliar with (i.e. Truvada). This pattern demonstrates the need for more explicit preparation and discussion about expectations for the SP experience in the future. Prior to the SP experience the students were given broad information about the experience stating the goal was to focus on patient communication and cultural humility, but did not explicitly notify them that they would be engaging in an encounter with a LGBT identifying SP. Therefore, it is recommended for future terms to provide students with detailed instructions so they will be able to adequately prepare for the SP encounter and better take advantage of the opportunity to engage with the LGBT SP and practice their skills assessing sexuality and gender.

Future Applications and Next Steps: The pilot project has promise to inform future educational offerings and set the standard for LGBTQ health content and application for APRN and other health profession students. This project demonstrates the benefit of integrating LGBTQ SP experiences into APRN coursework for formative and summative evaluation of students. Next steps include designing and implementing further curricular changes, including the broadening the SP experience and classroom content throughout the curricula.

Implementing a Standardized Patient Experience into an Advanced Health Assessment Course to Better Prepare APRN Students to Care For LGBTQ Patients With Cultural Humility



Elizabeth K. Kuzma, DNP, FNP-BC; Christie Graziano, BSN, RN, CCRN, AGACNP Student; Michelle Pardee DNP, FNP-BC; Cynthia S. Darling-Fisher PhD, FNP-BC

BACKGROUND & SIGNIFICANCE

- Lesbian, gay, bisexual, transgender, and queer/questioning (LGBTQ) persons account for about 3.5% of the population (9 M people)
- Research shows that healthcare providers' lack of understanding and sensitivity leads to sub-standard care ranging from disrespectful treatment to lack of awareness of specific LGBTQ health needs
- US Nursing programs only provide a median of 2.13 hours of formal content on LGBTQ health, highlighting the need for improved education

PURPOSE

- Provide advanced practice nursing (APRN) students meaningful clinical interactions with LGBTQ-identifying standardized patients (SPs)
- Reinforce key concepts of cultural humility
- Integrate culturally appropriate communication techniques into a focused health history with SPs who identify as LGBTQ

METHODS

- Pilot project conducted Fall of 2017. The project was identified by IRB as Exempt (HUM00138569)
- **ADVANCED HEALTH ASSESSMENT COURSE** (APRN Required Course in curriculum)
- **Participants:**
 - 99 APRN graduate students:
 - Acute Care (Adult-Gero & Peds)
 - Primary (Adult-Gero & Peds)
 - Family
 - Nurse Midwives
- **LGBTQ-identifying standardized patients (SPs)**
 - 8 hours training:
 - Giving feedback
 - Familiarity with case
 - Open communication regarding safety and comfort

PROJECT COMPONENTS

Project Components

- **Preparation:**
 - Students were given only a broad overview of what to expect with an emphasis on cultural humility
 - Readings on cultural humility
 - 1-hour lecture content on cultural humility and LGBTQ health
 - In-lab role-playing sexual history taking activities
- **SP Experience:**
 - 15-minute clinical patient encounter: history-taking and patient communication only
 - 2-3 minute verbal post-evaluation by the SPs
 - Post-evaluation survey completed by the SP
 - Large and small group debriefings



DATA ANALYSES

A post-evaluation of the project for quality improvement purposes was completed through:

- (1) Formal post-simulation/evaluation meeting with faculty, the standardized patients and graduate students involved
 - Discussed the overall project:
 - What went well
 - Areas for content improvement
 - Flow
 - Student performance
 - Strengths of the project
 - Suggestions for improvement
- (2) Review of student self-evaluations
- (3) Feedback provided in end of term course evaluations and any additional communication students shared about the experience via e-mail or in person

QUALITATIVE FEEDBACK

Faculty:

- Reported that the experience was personally enriching for themselves and valuable for their students.

Standardized Patients:

- Reported enthusiasm for being a part of a project like this, feeling hopeful for the future of LGBTQ health, and interest in participating in future endeavors.

Students:

General feedback:

- Overall, the learning experience was extremely valuable
- They appreciated exposure to patient experiences with which they were unfamiliar
- The experience provided them with the skills for their future practice.
- During the informal group debrief, described feeling they were provided with a non-judgmental, non-punitive space in which to navigate the more sensitive aspects of history-taking.

Specific feedback:

• A wonderful experience:
This **"was the best learning experience I have had in the past year-and-a-half in the program. It was hard to believe that you could learn so much from one 15 minute activity, but it was really valuable...I hope you will have the opportunity to keep this activity in the [Health Assessment] curriculum going forward- and even add more like it for future students!"**

• Well intentioned, room for improvement in execution:
"the volunteer standardized patients...eloquently shared their own sometimes painful experiences with the health care system during debriefing... the simulated encounters themselves ended up feeling like a scary failure for a lot of students and while perhaps the intention was to surprise people into greater awareness...that is not a constructive way to build learner confidence...with more guided preparation...students could have done better at investigating pertinent health risks for their LGBTQIA standardized patients."

LESSONS LEARNED

This was a promising beginning with positive feedback from all involved, but also has room for improvement

Themes based on student performance :

- Avoidance of sexual health history-taking
- Reluctance to engage the SP's in discussion related to transition/gender-affirming procedures
- Failure to follow up on procedures/medications that were unfamiliar

Revisions to be made for Future experiences

- More thorough explanation of expectations
- Detailed instructions
 - Better student preparation
 - Provide specific resources to help students practice and prepare
 - Ability to take full advantage of this opportunity - truly practice skills in a safe, comfortable environment
 - Share nature of SP experience prior to beginning
- Support for international students with language and cultural barriers – resources to practice sexuality and gender assessments
- Provision of resources and tools for students to prepare for the experience in advance.
- Consider offering another formative straight-forward SP experience prior to this experience

CONCLUSIONS

- Overall the LGBTQ SP experience was a positive one for most students
- This experience shows promise for informing future educational offerings
- With suggested improvements, this simulation could set the standard for LGBTQ health content and application for APRN students
- Further research is needed to evaluate the quality of LGBTQ content in APRN curricula to improve the ability of APRN students to provide care to LGBTQ patients

ACKNOWLEDGEMENTS

We want to acknowledge and thank the standardized patients and graduate nursing students we worked with in designing and implementing this project. Without their involvement none of this would have been possible.

810: Culinary Medicine in Medical School

Authors: Keerthi Gondy, Anita Vasudevan, Megan McLeod

Background: Medical education historically has focused on physiology, pathophysiology, diagnostics, and therapy. While this knowledge base is critical for shaping competent physicians, it does not lend itself to having patient-centered conversations about lifestyle and health. Within the basic science curriculum, nutrition education focuses on balancing intake and output of macronutrients and micronutrients. Discussions about real food and an understanding of how patients nourish themselves are noticeably absent from the skill set medical students learn. Culinary Medicine electives--hands-on experiences in which medical students learn to prepare the diets they may prescribe--have been created to remedy this gap in medical education. These courses aim to not only teach medical students how to prepare meals, but also provide techniques for discussing diets with their patients in a culturally competent manner.

Actions, Methods or Interventions: The Culinary Medicine elective taught at the University of Michigan is an abbreviated version of Tulane Medical School's Cooking for Health Optimization with Patients (CHOP) curriculum. This course is a hands-on experience that teaches students culture-specific cooking techniques for kitchens across different socioeconomic levels. The course takes place during the first two weeks of February 2018 and is available to fourth-year medical students. It will include a combination of 4-hour didactic and hands-on cooking lessons. The teaching sessions will focus on topics, such as interviewing patients about their dietary habits, reading nutrition labels, and improving understanding regarding food insecure neighborhoods. The kitchen lessons will help students learn how to cook healthy meals from well-known diet plans, including the Mediterranean and DASH diet. This course is a collaboration between the University of Michigan's School of Public Health and the departments of Endocrinology and Family Medicine. A 59-question panel survey will be administered to students who have completed the course and results will be compared to similar fourth-year medical students who have only received nutrition education as a part of the basic science curriculum. Students will be asked to complete the survey three times following the completion of the course in order to assess for long-term knowledge acquisition and lifestyle changes.

Results: Since the elective is forthcoming, we do not have specific data or feedback to speak to the effectiveness of the program. However, we intend to disseminate the conducted 59-question pre- and post-surveys and will be prepared to provide these results at the Health Professionals Education Day in April 2018.

Lessons Learned: We hope that students participating in this elective will become more knowledgeable and confident in discussing nutrition with their patients, and that they will feel comfortable offering evidence-based nutritional guidance to patient populations with specific chronic conditions, such as heart disease and diabetes. A potential challenge might be that since the course takes place over a short period of two weeks, a student who was previously unfamiliar with topics concerning diet and nutrition may be overwhelmed by the array of factors that play into what people eat. However, the elective will introduce students to resources they can use for further self-education and is meant to offer a glimpse of what health-focused cooking entails.

Future Applications and Next Steps: We aim to obtain peer-matched data in order to evaluate the efficacy of this course in improving students' knowledge regarding evidence-based diets. We hope that this data will help improve future iterations of the course, and can provide a framework for other institutions also looking to incorporate hands-on teaching curricula into medical school education. In the future, we look forward to expanding the audience to include individuals from varying levels of medical training, including residents, as well as from different professional schools, such as the Schools of Dentistry and Nursing.

Background

- Medical education historically has focused on physiology, pathophysiology, diagnostics, and therapy.
- While this knowledge base is critical for shaping competent physicians, it does not lend itself to having patient-centered conversations about lifestyle and health.
- Within the basic science curriculum, nutrition education focuses on balancing intake and output of macronutrients and micronutrients.
- Discussions about real food and an understanding of how patients nourish themselves are absent from the skill set medical students learn.
- Culinary Medicine electives--hands-on experiences in which medical students learn to prepare the diets they may prescribe--have been created to remedy this gap in medical education.

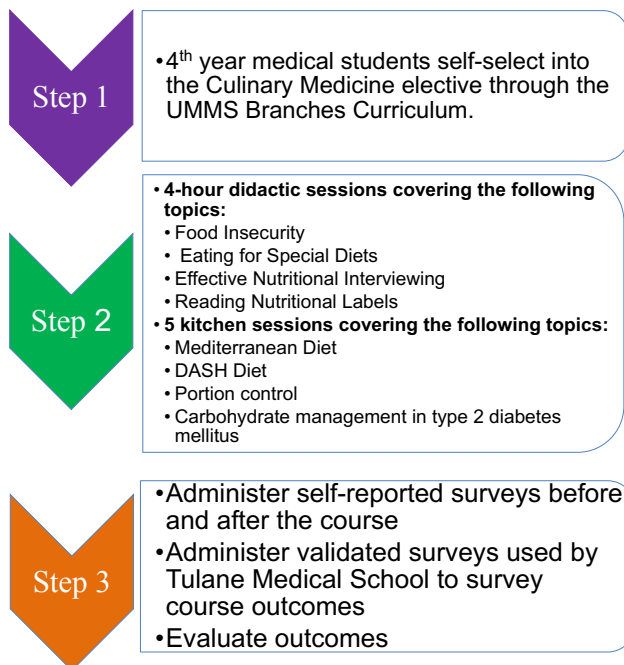
Objectives

The elective's goals are to:

- 1) Help students become more knowledgeable in discussing nutrition and food with their patients
- 2) Help students provide evidence-based nutritional guidance to patient populations with specific chronic conditions, such as heart disease and diabetes.

Methods

The Culinary Medicine elective taught at the University of Michigan is an abbreviated version of Tulane Medical School's Cooking for Health Optimization with Patients (CHOP) curriculum.



Results

| Knowledge base | Mediterranean | | DASH | | Portion control | | Carb/ T2DM | |
|--------------------------------|---------------|-------|--------|-------|-----------------|-------|------------|-------|
| | Before | After | Before | After | Before | After | Before | After |
| Excellent | | 5 | | 5 | | 3 | | 4 |
| Good | 2 | 1 | 2 | 1 | 4 | 3 | | 2 |
| Fair | 2 | | 2 | | 2 | | | 1 |
| Poor | 2 | | 2 | | | | | 2 |
| Comfort discussing w/ patients | Mediterranean | | DASH | | Portion control | | Carb/ T2DM | |
| | Before | After | Before | After | Before | After | Before | After |
| Excellent | | 5 | | 4 | 1 | 4 | 1 | 4 |
| Good | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 3 |
| Fair | 2 | | 1 | | 2 | | 1 | 2 |
| Poor | 3 | | 3 | | 1 | | 2 | |

Table 1. Self-reported knowledge base and comfort with counseling patients about the Mediterranean and DASH diets, portion control and carbohydrate counting before (grey columns) and after (color-coded columns) completing the University of Michigan Culinary Medicine Elective

Themes regarding what students hope to gain from the culinary medicine elective (pre-course survey)

Themes regarding how the culinary medicine elective will impact their future interactions with patients (post-course survey)

| | |
|---|--|
| A greater understanding of the evidence behind commonly prescribed diets (n=5) | Will inform patients that the DASH diet works synergistically with antihypertensive medications (n=2) |
| The hope that by using my own food preparation strategies and experience I will be able to discuss diet change with patients more realistically (n=3) | Will focus less on labeling patients as obese during counseling, and more on lifestyle changes that may improve their overall health (n=3) |
| Increased overall comfort when counseling patients on diet (n=2) | Will incorporate more of the evidence behind commonly prescribed diets when counseling patients (n=5) |

Table 2. Thematic representation of short-answer responses regarding goals for enrolling in the Culinary Medicine Elective (column 1), versus predicted impact that the course will have on students' future patient encounters (column 2).

Lessons Learned

- Students who enrolled in the culinary medicine elective felt that their knowledge base and comfort with counseling patients about the Mediterranean and DASH diets, portion control and carbohydrate counting for T2DM was improved by the end of the course.
- Students' self-reports indicated that they achieved their goal of learning the evidence behind commonly prescribed diets.
- A number of students also learned new ways to identify and talk with overweight patients.
- All of the students who participated in the course would recommend the Culinary Medicine Elective to their peers.

Next Steps

1. Aggregate additional survey data to compare the outcomes of our course with existing data on established culinary medicine programs using externally validated surveys.
2. Use this data to improve future iterations of the course
3. Provide a framework for other institutions looking to incorporate hands-on teaching into medical school education.
4. Expand our audience to include individuals from varying levels of medical training as well as those from different professional schools.

Acknowledgments

Thank you to the Departments of Family Medicine and Endocrinology as well as Food Gatherers, Washtenaw County of Public Health, Ecology Center in Ann Arbor, Ypsilanti Health Center, and Joy Southfield Community Development Corporation.

811: Integrating a Learning Management System for Medical Residency Education

Authors: Rebecca McConnell, Ryan Henyard

Background: The Department of Physical Medicine and Rehabilitation (PM&R) at The University of Michigan had a medical residency didactic curriculum with limited use of technology enhanced learning (TEL) or material available after the weekly, traditional podium lectures. With the increasing use and infrastructure of the CANVAS Learning Management Systems (LMS) in undergraduate and graduate teaching, there was an opportunity to integrate technology enhanced learning into resident education in line with national standards.

Actions, Methods or Interventions: The integration of the Learning Management System into PM&R resident medical education took place over the 2016-2017 academic year. Beginning with foundational knowledge of the available LMS (CANVAS) from a resident educational liaison collaborating with technologist staff, the transition focused on usability, usefulness, and sustainability. Weekly didactics and ancillary learning material were requested from each presenter and organized into 10 course subjects. Attending physician educators were recruited as “physician leads” to submit learning material throughout the academic year and sustain a course. The department chair was encouraged to acknowledge the physician lead role in faculty reviews and supported the training of administrative assistants. Finally, residents were updated regarding information availability and surveyed to evaluate usability and usefulness.

Results: Of the 10 courses created, 7 had full didactic information available at the end of the intervention; 5 continue to have attending leads with content sustained for the 2017-2018 curriculum. Assisting with LMS uploads and organization is now the responsibility of administrative assistants; however, not all have practiced this new skill. Surveys show residents feel the LMS is easy to navigate and beneficial for studying material. In one course, residents spent an average of 22 hours logged in to prepare for the final course quiz and practicum, showing the availability of this content was used and useful for resident education.

Lessons Learned: This project stresses the importance of any changes to TEL through a LMS requires a transitional team to create a foundation for usefulness and usability. However, limited recruitment of attending leads and administrative assistants comfortable with the technology will limit sustainability. The LMS could be a useful tool in postgraduate resident medical education to provide easily accessible educational materials.

Future Applications and Next Steps: Next steps include further integration of LMS into residency education with continued monitoring for usability, usefulness and sustainability. Future work will focus on building departmental infrastructure to help attending leads integrate interactive tools with their didactics and additional staff training.

Poster Not Available

812: Applying Plain Language Guidelines to Patient Education: Before and After

Authors: Karelyn Munro, Ruti Volk

Background: It is estimated that 36% of American adults, or close to 90 million people, have low health literacy(1). Health literacy is defined as “the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions(2)”. Research has shown that low health literacy is linked to increased mortality and poorer health status(3). There is also evidence that low health literacy is a significant financial burden, with one study(4) estimating that the annual costs associated with low health literacy to the U.S. economy are between \$106 to \$238 billion per year. Plain language is a key, proven strategy for clearly communicating health information and improving health literacy(5). The Centers for Medicare & Medicaid Services (CMS) published the TOOLKIT for Making Written Material Clear and Effective in 2010. The 11-part Toolkit provides a detailed and comprehensive set of guidelines to help clinicians make written educational materials easier for people to read, understand, and use.

Actions, Methods or Interventions: Based on the CMS Toolkit guidelines, Michigan Medicine developed standardized templates for print patient-education materials. The templates specify formatting and language standards to ensure materials are written in plain language. The Patient Education and Health Literacy Program reviews and edits written materials according to CMS Toolkit guidelines and also provides consultations and training to clinicians to help them master and adapt plain language writing.

Results: In FY 16-17 the PEHL program edited and revised 420 print materials. Since the program was established in 2010 over 2,500 print materials have been edited. Examples of typical edits and revisions needed to make materials easy-to-read include:

1. Converting material to standard institution-wide template with headers and footers to identify Michigan Medicine as the organization that produced the material, and include a publication date as a reminder for future updates. (Guidelines 1.7 and 2.5)
2. Converting headers to questions to actively engage readers and provide the answers they come looking for. (Guideline 4.2)
3. Converting header text to size 14 Sans Serif (Arial) to provide contrast between the body content and headers. Size 14 font also distinguishes headers from body text. (Guideline 6.2,6.4)
4. Converting body text to size 12 Serif font (Lucida Bright), which works better for extended amounts of text and has good contrast between bold and regular. (Guideline 6.1, 6.4)
5. Removing underlining that makes text hard to read and emphasized text with bolding instead. (Guideline 6.6)
6. Adding images that reflect the subject matter and reinforces the content. (Guideline 9.1)
7. Adding definitions to enhance understanding, most readers do not use glossaries. (Guideline 3.4)
8. Added white space and line spacing at 1.5 to make material look appealing and uncluttered and encourage the reader. (Guideline 5.2)
9. Defining acronyms that may be professional jargon and provide a definition (Guideline 3.7).

Lessons Learned: Clinicians need the help of a plain language writing professional to ensure their materials are understandable and actionable to patients with low health literacy. Hopefully the feedback provided to clinicians about why edits were necessary will help them learn plain language and apply the guidelines in future writings.

Future Applications and Next Steps: The Patient Education and Health Literacy Program (PEHL) at Michigan Medicine will continue to provide plain language reviews and consultations to ensure all educational material provided to patients follows plain language guidelines. The program will also continue to provide formal staff training on the CMS Toolkit and plain language guidelines via face-to-face classes, an electronic learning module on MLearning, presentations and educational events. (Bibliography)

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813: Linking education to patient outcomes: Funding innovation in research and education

Authors: Larry Gruppen, Steve Kasten, Russell Hathaway, Alena Stocking, Phil Hebert, Joseph Kolars, J. Sybil Biermann

Background: Among many others, the Institute of Medicine report “Graduate Medical Education That Meets the Nation’s Health Needs” calls for greater evidence that the multi-billion dollar national investment in residency education has contributed positively to the health of the nation. The current and future changes in the funding and structure of health care delivery and education will pose challenges to the historic models for education and funding. It is important to be proactive in identifying these challenges and in planning responses to them.

Actions, Methods or Interventions: In response to these national and state-level discussions, the Office of Graduate Medical Education has transformed its existing GME Innovations grant process into a new GME Innovations Center (GME-IC), with the mandate of identifying, supporting, and promoting innovation in GME education and outcomes research. The GME-IC continues to support research and development projects, but under an innovative “negotiated grant” model. Rather than the traditional investigator-initiated grant mechanism, the “negotiated grant” process works with the investigator to incorporate institutional needs and concerns about demonstrating clinical and patient outcomes. The negotiation marries the investigator’s innovation with larger goals to develop a project that has maximal potential for impact and significance.

Results: Several projects were developed in 2016-17:

- “ A competency-based approach to pediatric surgery training. Ronald B. Hirschl, PI
- “ Improving the UME to GME Continuum: The Need for High Quality, Trustworthy Competency Based Assessments. Helen K. Morgan & David Hughes, PIs
- “ Developing and Implementing a Multidisciplinary Lactation Core Curriculum. Katherine Pasque & Kate Stanley, PIs
- “ A Disruptive Exploration: Rigorous Assessment of Readiness of Internship and Starting When Ready. Sally Santen, PI
- “ Responsible Directed Handovers from UME to GME. Jocelyn Schiller, Heather Burrows, Sally Santen, PIs

Lessons Learned: The “negotiated grant” process has been effective in linking investigator innovations to institutional needs as well as in helping the investigators improve the project with additional resources. The GME-IC has also worked to develop a community of Innovation Grant recipients who can both learn from and advise each other in periodic “lab” meetings.

Future Applications and Next Steps: In addition to ongoing solicitations for proposals, the GME-IC will be developing strategies to promote creative problem identification and problem solving around the big challenges to health care education and clinical care delivery.



Linking Education to Patient Outcomes: Funding Innovation in Research and Education

Larry Gruppen, PhD; Steven Kasten MD, MHPE; Russel Hathaway, PhD; Phil Hebert; Alena Stocking, MBA; J. Sybil Biermann, MD; Joseph Kolars, MD

Background

Among many others, the Institute of Medicine report “Graduate Medical Education That Meets the Nation's Health Needs” calls for greater evidence that the multi-billion dollar national investment in residency education has contributed positively to the health of the nation. The current and future changes in the funding and structure of health care delivery and education will pose challenges to the historic models for education and funding. It is important to be proactive in identifying these challenges and in planning responses to them.

Intervention

- In response to these national and state-level discussions, the Office of Graduate Medical Education has transformed its previous GME Innovations Grant process into a new GME Innovations Center (GME-IC).
- The GME-IC has the mandate of identifying, supporting, and promoting innovation in GME education and outcomes research.
- The GME-IC uses an innovative “negotiated grant” model.
 - The “negotiated grant” process works with the investigator to incorporate institutional needs and concerns about demonstrating clinical and patient outcomes.
 - The negotiation marries the investigator’s innovation with larger goals to develop a project that has maximal potential for impact and significance.
- Once funded, each project is supported through regular consultations and advice from other investigators.
- An Advisory Board provides extended connections across campus to facilitate interdisciplinary collaborations.



Results

A variety of projects have been initiated or completed:

- “A competency-based approach to pediatric surgery training.” Ronald B. Hirschl, PI
- “Improving the UME to GME Continuum: The Need for High Quality, Trust Worthy Competency Based Assessments.” Helen K. Morgan & David Hughes, Pls
- “Developing and Implementing a Multidisciplinary Lactation Core Curriculum.” Katherine Pasque & Kate Stanley, Pls
- “A Disruptive Exploration: Rigorous Assessment of Readiness of Internship and Starting When Ready.” Sally Santen, PI
- “Responsible Directed Handovers from UME to GME.” Jocelyn Schiller, Heather Burrows, Sally Santen, Pls
- “Relationship between Surgical Trainee Competence and Early-Career Patient Safety.” Brian George, PI

Lessons Learned

- The “negotiated grant” process has been effective in linking investigator innovations to institutional needs.
- The collaborative process helps improve the project with additional resources and a focus on clinical outcomes.
- The GME-IC is working to develop a community of Innovation Grant recipients who can both learn from and advise each other in periodic “lab” meetings.

Future Application and Next Steps

- The GME-IC continues to solicit proposals for innovative projects and studies.
- Through discussion sessions, mini-conferences, and other methods for promoting innovative collaboration, develop strategies to promote creative problem identification and problem solving around the big challenges to health care education and clinical care delivery.

814: IPE Assessment: A Systematic Review of Qualitative Tools for Evaluating Competencies and Training

Authors: Nancy Allee, Beth Ammerman, Diane Chang, Jill Cherry-Bukowiec

Background: Our team's interests are focused on IPE assessment, and with our project, we will be exploring the published literature and conducting a systematic review to address the research question: "What qualitative assessment tools can faculty use to evaluate IPEC competencies in the interprofessional education training of their health professional students?"

There is a paucity of information in the literature describing concrete outcomes from IPE endeavors from different disciplines and how to best go about assessing IPE outcomes, particularly as it relates to impact on patient care. Compiling a review on this information on this topic will help us determine what the barriers are to assessing IPE outcomes, and what might be the critical factors for successfully implementing IPE assessments.

Actions, Methods or Interventions: Using specialized software, we conducted a systematic review of the published literature on IPE. We developed a search strategy of relevant terms, ran the strategy in premier health sciences literature databases, conducted title, abstract, and full-text review of the results, using our established criteria and protocol.

Results:

Lessons Learned: This is a complex method to apply to medical education as compared to clinical research questions.

Future Applications and Next Steps: We will be publishing an article on our findings. We have also applied for seed funding from the IPE Center to develop a web portal for accessing evaluative tools and resources.



IPE Assessment: A Systematic Review of Qualitative Tools for Evaluating Competencies and Training

Center for Interprofessional Education

Nancy Allee MLS, MPH, AHIP, Beth Ammerman DNP, FNP-BC,
Diane Chang DDS, Jill Cherry-Bukowicz MD, MS, PNS, FACS, FCCM

Background

In the past 10 years recognition of the importance for health care professionals to work in collaborative teams has led to an explosion of research surrounding Interprofessional Education (IPE). Despite the abundance of literature being published on the experiences, there is lack of consensus on how to best assess IPE. This is particularly true when performing qualitative assessments and evaluating for competencies.

Our team is conducting a systematic review to address the research question: *“What qualitative assessment tools can faculty use to evaluate IPEC competencies in the interprofessional education training of their health professional students?”*

Methods

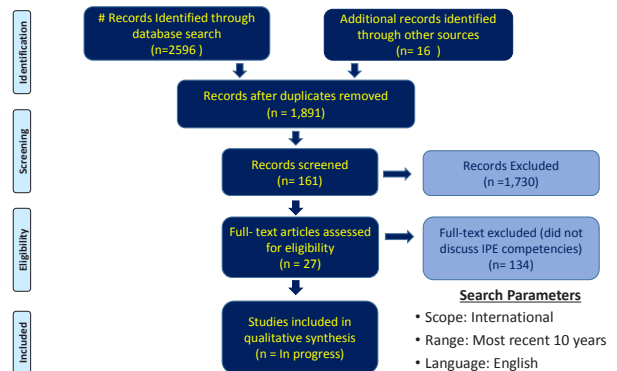
- Our research team was brought together as part of the Center for IPE 2017-18 Interprofessional Leadership Fellows Program.
- Team included members from the U-M Schools of Medicine, Nursing, Dentistry; and University Library, Taubman Health Sciences Library.
- A systematic review using DistillerSR ©, specialized software through Taubman Learning Health Sciences, was conducted.

| LEVEL 1 SCREENING | LEVEL 2 SCREENING | DATA EXTRACTION |
|---|---|---|
| Is the article about healthcare professionals of 2 or more disciplines? | Does the article discuss competencies? | Purpose of the Study |
| Is the article about IPE? | Should this article be included in the study? | Which health professionals were involved? |
| Does the article address an assessment tool? | | What IPE exercise /training was conducted? |
| Is the article a qualitative study? | | Which competencies were evaluated? |
| Is the setting an academic environment? | | What assessment tool(s) were used to evaluate the competencies? |
| Should this article be included in the study? | | What was the outcome or what conclusions were drawn from the IPE exercise/training? |

SAMPLE QUALITATIVE ASSESSMENT

- Student written reflections
- Pre-course and post-course evaluations of an online course
- Open-ended questionnaire

Results



IPEC COMPETENCIES

1. Values/Ethics
2. Roles/Responsibilities
3. Interprofessional Communication
4. Teams/Teamwork
5. Intercultural Intelligence

Note: a) 1-4 Interprofessional Education Collaborative (IPEC) Core Competencies for Interprofessional Collaborative Practice. b) 5 Additional competency for the University of Michigan.

Lessons Learned

- Reviewing articles in pairs increased communication, understanding, and accuracy of the literature review
- Professional team diversity greatly enhanced discussions
- Accountability to each other was key to motivation
- Choosing useful and interesting topics
- Narrowing keyword identifiers to refine search was critical
- Calibrating decisions at each level required multiple rounds

Next Steps

- Developing an IPE assessment resource web portal
- Planning for IPE assessment resource education programs (i.e. webinars, videos, courses, etc.)
- Submitting article to IPE focused journal for publication

815: Pearls and Pitfalls from 5 Medical School Leadership Programs

Authors: Keerthi Gondy, Heather Wagenschutz, David Fessell

Background: As healthcare has become increasingly complex, the demand for physicians to develop skills essential for leading change has grown. In response, leadership training is now becoming an important part of UME-undergraduate medical education. There is little data regarding how to best cultivate these skills in medical students or the current content or methods being used in medical schools. Therefore, we examined the curricula at schools with established programs to begin to identify effective practices for teaching, evaluating, and assessing leadership.

Actions, Methods or Interventions: Representatives from five medical schools, including the University of Michigan Medical School, USF Health Morsani College of Medicine, Duke University School of Medicine, Uniformed Services University of the Health Services, and Vanderbilt School of Medicine, provided an overview of their schools' leadership programs during an interactive session panel at the AAMC 2017 Annual Meeting. Each representative outlined how they teach, assess, and evaluate leadership. After hearing from each school, session attendees were asked to respond to common challenges programs face when attempting to integrate leadership into UME medical curricula.

Results: Four out of the five schools have required leadership programs, with one school having a "selective" program that encompasses half of their students. The curriculum at these 5 schools is longitudinal and extends over all 4 years. The content at the respective institutions involves a variety of topics with common elements of emotional intelligence, conflict resolution, and time management. Students are assessed via field exercises, a Leadership tracking & reflection tool, and by capstone projects. Three of the five schools evaluate their leadership programs via longitudinal methods, such as frequent session evaluations, extending over the 4 years of medical school, and in some cases after graduation. Panelists discussed common challenges they faced including integration of leadership content into increasingly intense medical school curriculums, faculty resistance to required leadership programs during medical school, and challenges in creating robust assessments of students.

Session attendees also offered the following responses to concerns held by students and faculty about the necessity of leadership programs. 1) While some may believe medical students have already demonstrated a degree of leadership and do not require further training, attendees responded that further developing leadership skills will serve students both during and beyond their four years. 2) Another prevailing sentiment was concern about the lack of space within an already packed curriculum. Representatives believed that leadership values including humility, teamwork and integrity are vital for success in any field of medicine and need to be stressed despite the time constraints in medical school. 3) Although some individuals may believe that it is most beneficial for students to learn solely from physicians, attendees responded that additional benefits can be derived from the world of business, engineering, and process improvement to help students become effective, agile leaders.

Lessons Learned: This panel provided insight into the strategies used by these 5 institutions to develop key leadership knowledge, skills, and behaviors. Responses from session attendees provided "wisdom from an experienced crowd." Despite the challenges, these 5 institutions are committed to leadership development to help equip the next generation of physicians with the skills to lead positive change.

Future Applications and Next Steps: Representatives of each of the 5 schools will attend an upcoming day-long conference at the Uniformed Services University in April 2018 to deepen this collaboration, increase sharing of specific curricular content and formulate strategies to address the common challenges of engagement and assessment. Attendees will also include an additional 10-15 medical schools from across the country who also have leadership training programs. Successful strategies will be shared with the goal of publishing for widespread dissemination.

Background

- As healthcare has become increasingly complex, the demand for physicians to develop skills essential for leading change has grown.
- In response, leadership training is now becoming an important part of UME- undergraduate medical education.
- There is little data regarding how to best cultivate these skills in medical students or the current content or methods being used in medical schools.

Methods

Goal: Examine leadership curricula at schools with established programs to begin to identify effective practices for teaching, evaluating, and assessing leadership.

Representatives from five medical schools gathered at a Leadership Panel at the AAMC 2017 Annual Meeting.

Panelists provided an overview of their schools' leadership programs.

Panelists responded to common challenges their programs face.

Results

| Institution | Required or Selective | Length of the Program | Content | Assessment Methods | Program Evaluation | Challenges |
|---|-------------------------------|-----------------------|--|---|--|--|
| University of Michigan Medical School in Ann Arbor, MI | Required | Longitudinal 4 years | <ul style="list-style-type: none"> Emotional Quotient Challenging Conversations Improvisations Distilling your message | <ul style="list-style-type: none"> 1 on 1 Leadership Development Sessions Leadership CV for Tracking and Reflection | <ul style="list-style-type: none"> Mid and end-of-the year course evaluations Frequent post-session feedback | <ul style="list-style-type: none"> Student engagement within an intense curriculum Relevance of the program now vs. later Robust assessment methods |
| USF Health, Morsani College of Medicine in Tampa, Florida | Selective | Longitudinal 4 years | <ul style="list-style-type: none"> Knowledge of leadership, health systems, and values-based patient centered care | <ul style="list-style-type: none"> Emotional Quotient Self Assessments Coaching Formative and summative comprehensive exam | <ul style="list-style-type: none"> Multiple longitudinal studies in progress | <ul style="list-style-type: none"> Resistance from faculty who know little about the program |
| Duke University School of Medicine in Durham, North Carolina | Required, Selective (for M3s) | Longitudinal 4 years | <ul style="list-style-type: none"> Emotional Intelligence Integrity Developing teams How to Give Feedback | <ul style="list-style-type: none"> Peer to Peer Interactions Teaching classmates Capstone Project | <ul style="list-style-type: none"> N/A | <ul style="list-style-type: none"> Faculty resistance Consistent integration within the course |
| Uniformed Services of the Health Services in Bethesda, Maryland | Required | Longitudinal 4 years | <ul style="list-style-type: none"> Critical Thinking Problem Solving Emotional Quotient Conflict Resolution | <ul style="list-style-type: none"> Quizzes/Exam Applied field exercises Capstone Project | <ul style="list-style-type: none"> Keep track of students' performance post-program from clerkship to residency | <ul style="list-style-type: none"> Insuring continued resources How to incorporate into students' schedules |
| Vanderbilt School of Medicine in Nashville, Tennessee | Required | Longitudinal 4 years | <ul style="list-style-type: none"> Time Management Questioning to Improve Learning Setting priorities Applying ethics | <ul style="list-style-type: none"> Preparation Participation Reflective Self-assessment Milestone assessments | <ul style="list-style-type: none"> N/A | <ul style="list-style-type: none"> Faculty resistance and engagement Robust assessment methods |

Challenges Raised by Students

- "I don't need any more leadership development. I had a lot prior to coming here."
- "There is no time to focus my energy on leadership. I need to focus on scientific sequences, clinical rotations, and Step 1."
- "What is this...business school? I am not interested in running a company or becoming a CEO."

Representatives' Responses

- Developing leadership skills will serve students beyond their four years.
- Leadership values including humility, teamwork and integrity are vital for success in any field of medicine and need to be stressed despite the time constraints in medical school.
- It is believed that it is beneficial for students to learn solely from physicians. However, additional benefits can be derived from the world of business, engineering, and process improvement for students to become effective, agile leaders.

Next Steps

- Representatives of each of the 5 schools will attend an upcoming day-long conference at the Uniformed Services University in April 2018 to:
 - 1) Deepen this collaboration
 - 2) Increase sharing of specific curricular content, and
 - 3) Formulate to address the common challenges of engagement and assessment.
- This collaboration will further provide a framework for other medical schools to begin to develop effective leadership curricula.

Acknowledgments

Thank you to the leadership representatives from the University of Michigan Medical School, USF Health Morsani College of Medicine, Duke University School of Medicine, Uniformed Services University of the Health Services, and Vanderbilt School of Medicine.

816: The Forgotten Fellow: A Pilot ICU Teaching Attending Program for Fellow-Specific Critical Care Education

Authors: Dru Claar, Jakob I. McSparron, Ivan Co, Anthony J. Courey, Niket Nathani, Rommel Sagana, Kevin M. Chan

Background: The medical ICU is a high intensity setting with diverse educational stakeholders. Attending physicians must balance teaching responsibilities for multiple learner levels with other clinical, administrative, and research obligations within and outside of the ICU. These competing responsibilities are often a barrier to delivering education specifically to fellows, who have a broad array of skill domains to master and apply in the ICU. In addition, the shift to competency-based assessment through milestones and entrustable professional activities necessitates direct observation of fellows, presenting another challenge for the busy faculty member. To address concerns about insufficient fellow-specific education in the ICU, we implemented a pilot ICU Teaching Attending (TA) program within our fellowship to improve fellow-level teaching and competency assessment practices.

There is a paucity of information in the literature describing concrete outcomes from IPE endeavors from different disciplines and how to best go about assessing IPE outcomes, particularly as it relates to impact on patient care. Compiling a review on this information on this topic will help us determine what the barriers are to assessing IPE outcomes, and what might be the critical factors for successfully implementing IPE assessments.

Actions, Methods or Interventions: The ICU TA program was implemented for the first 3 months of the current academic year and consisted of teaching sessions conducted by a TA. Sessions were 2-3 hours and scheduled several afternoons a week. TAs were chosen from a pool of procedural and critical care skilled faculty educators. The sessions specifically targeted the non-call ICU fellow. Educational topics were chosen at the time of teaching based on fellow request, attending expertise, and clinical scenarios present in the ICU. Data was collected using a mixed-methods approach with surveys, structured interviews, and focus groups of fellows, TAs, and primary ICU attendings.

Results: Five first-year fellows and two second-year fellows participated in this program. Fellows attended 17 sessions, and each fellow participated in an average of 2.4 sessions (range 1 - 5 sessions). Topics covered included right ventricular physiology, bedside echocardiography, thoracic ultrasound, ventilator management, tracheostomy, lung transplant, and extracorporeal membrane oxygenation. 86% of fellows rated the program as at least moderately important to their critical care education, and all fellows felt the program should be continued in the future. A majority of the primary ICU attendings did not feel that the TAs impacted their role as attending of record. Full qualitative analysis is ongoing; major themes expressed by learners included appreciation of fellow-level teaching, importance of bedside teaching, skill of dedicated teaching faculty, and standardization of educational topics.

Lessons Learned: An ICU TA program is feasible and well-received in the ICU. This pilot program improved fellows' educational experience in the ICU, and may provide an important platform for competency-based assessment in the future.

Future Applications and Next Steps: Full qualitative data analysis of this program is ongoing.

The Forgotten Fellow: A Pilot ICU Teaching Attending Program for Fellow-Specific Critical Care Education

Dru D. Claar^a, Jakob I. McSparron^a, Ivan Co^a, Anthony J. Courey^a, Niket Nathani^a, Rommel Sagana^a, and Kevin Chan^a
Department of Pulmonary and Critical Care Medicine, Department of Medicine, University of Michigan Medical School, Ann Arbor, MI^a

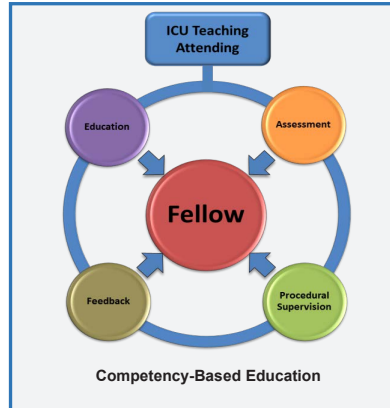
BACKGROUND

- The medical ICU is a high intensity setting with diverse educational stakeholders
- Attending physicians must balance teaching responsibilities for multiple learner levels with other clinical, administrative, and research obligations within and outside of the ICU
- The shift to competency-based assessment through milestones and entrustable professional activities necessitates direct observation of fellows, presenting another challenge for the busy faculty member

METHODS

- The ICU Teaching Attending (TA) program occurred during the first 3 months of the current academic year and consisted of teaching sessions conducted by a TA
- Sessions were 2-3 hours and scheduled several afternoons a week
- TAs were chosen from a pool of procedural- and critical care-skilled faculty educators
- Sessions specifically targeted the non-call ICU fellow
- Data was collected using a mixed-methods approach with surveys, structured interviews, and focus groups of fellows, TAs, and primary ICU attendings

GOALS OF ICU EDUCATOR PROGRAM



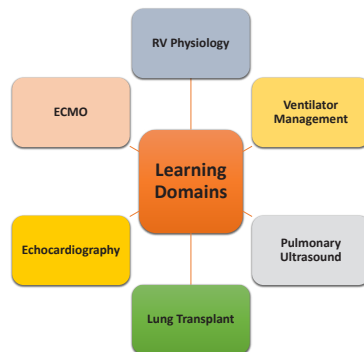
OBJECTIVE

- To address concerns about insufficient fellow-specific education in the ICU, we implemented a pilot ICU TA program within our fellowship to improve fellow-level teaching and competency assessment practices

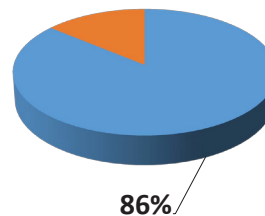
LESSONS LEARNED

- An ICU TA program is feasible and well-received by TAs and fellows in the ICU
- This pilot program improved fellow educational satisfaction in the ICU and may provide an important platform for competency-based assessment in the future

RESULTS



Fellows rating the program as at least moderately important to their critical care education



ADDED VALUE OF A DEDICATED ICU EDUCATOR

| Sub-Theme | Example Quotes |
|--|---|
| Value of fellow level learning | One of the best things we had was with [the attending], where in the afternoon, he would come back and afternoon round, and they were fellow rounds ... But that fact that you have dedicated attending, fellow time in the ICU to talk about advanced stuff like acute right heart failure, ECMO ... I think is critical. |
| Opportunity for Direct Observation and Assessment of Fellows in a Clinical Setting | If you are at bedside as a first year fellow and no one is guiding you in terms of the things you are seeing or things they are not seeing and going down the wrong path in terms of initial diagnostics, initial workup, what do you prioritize... then you essentially start learning bad habits. |
| Opportunity for high quality feedback from experienced educator | It's being present when there is an actual teaching opportunity there at bedside ... and someone is giving you feedback that yes I agree with that part of the assessment, no I don't agree you need to consider these other factors, you did a good job considering these things, and overall the management of the critically ill patient |
| Educator as a Role Model and Another Level of Supervision | I got answers to questions I thought about during rounds from someone who's been doing it for a long time that weren't easily found in a book, more like a thought experiment. How would you do this - you know in a complicated case? ... and then being able to listen to them walk through their reasoning ... you can't just google ... management of this weird organ failure. |
| Consistent skill set of educator | I think there are certain attendings that have the skill set that fellows need to pick up quicker in the unit than others do, as far as procedurally or like when you are in a tight situation ... But as your first time through the unit you need to be able to learn the skills quickly. |

FUTURE DIRECTIONS

- Define a set of core teaching topics and consider standardizing delivery
- Create an infrastructure for standardized work place-based assessment and feedback by TAs
- Integrate critical care ultrasound curriculum into program
- Adjust session timing and frequency to enable more consistent fellow participation
- Expand program to the Ann Arbor Veteran Affairs Hospital
- Clarify the role of the TA when discussing clinical cases under the care of the primary ICU attending

817: Creating Deliberate Access Guidelines for Accessing Student Data in Portfolios

Authors: Susan Hollar, Johmarx Patton

Background: As medical student education moves from time-based to competency-based curricula, more assessment data is being generated to provide supporting evidence to document the student's journey toward competence. To support this process, faculty are taking on new roles as coaches and advisors that require them to track student progress longitudinally over time.

In this new environment, tools like education portfolios are necessary to house the large volumes of data and provide students and faculty with a location to document learning, as well as receive appropriate feedback and assessment.

Actions, Methods or Interventions: In collaboration with faculty and administrators, we developed role-specific guidelines for access to student data. We engaged leadership from different areas of the curriculum and gathered student feedback. To ensure our guidelines were in alignment with student data access best practices, we examined existing University policies, engaged with other institutions, reviewed the AAMC Group on Student Affairs Member Handbook and consulted FERPA regulations. We also mapped faculty roles (coaches, advisors, competency committee members, etc.) to the specific student data they will need access to in order to perform their responsibilities. With this foundation, we are developing role-oriented "windows" to view student data using our Learner Portfolio.

Results: After guidelines were properly vetted, the HITS Software Development team implemented role-based access for medical education. The system has been in place since August 2017 and continues to be updated as needed, including adding additional faculty roles and new student data.

Lessons Learned: In this rapidly evolving curriculum, it is important to steward student data appropriately not only to maintain FERPA compliance, but also to maintain student trust and confidence in the medical school. Communication amongst faculty, administrators, and students regarding student data access is key to successful implementation of guidelines.

Future Applications and Next Steps: With the proliferation of data about student learning and the emergence of learning analytics, we need to continuously analyze and evaluate not only the access guidelines, but also the relevance and usefulness of this data in supporting student learning.

818: Ten years into the Integrated Residency Era: A Majority of Thoracic Surgeons Favor the Traditional Pathway

Authors: Charles Keilin, Gurjit Sandhu, Niki Matusko, Rishindra Reddy

Background: There are currently three different training pathways to becoming a cardiothoracic surgeon in the US. In the traditional pathway, medical students apply to and complete a five year general surgery residency program, before applying for a residency position in a two or three year cardiothoracic surgery program. In the 4+3 model, medical students apply to a general surgery residency program at an institution that offers this pathway. They complete 4 years of general surgery training before completing 3 years of cardiothoracic surgery training. In the integrated pathway, medical students apply directly to an integrated cardiothoracic surgery residency program and complete 6 years of dedicated cardiovascular and thoracic training. The first integrated thoracic surgery residents (I6) graduated in 2013. We aim to understand current opinions of academic thoracic faculty on the thoracic training models.

Actions, Methods or Interventions: An anonymous web-based survey was developed and distributed to all academic thoracic surgeons in the United States. Respondents were asked about their current perceptions of the various training models. Descriptive statistics, Fisher exact test and qualitative content analysis of free text responses were used to analyze the data.

Results: The response rate was 15.4% (111/719). 56 faculty were from traditional only programs, 13 from I6 only, and 42 from programs with both I6 and traditional pathways. 11.7% (13/111) were female. 23.4% (26/111) of faculty believe the I6 is superior to the traditional model, 31.5% (35/111) believe they are the same and 45.0% (50/111) believe the traditional model is better. When comparing faculty who had an I6 program (55) versus those who did not (56), 32.7% (18/55) vs 14.3% (8/56) favored the I6, while 38.2% (21/55) vs 51.8% (29/56) favored traditional ($p = 0.03$), respectively. Also, 51.4% (57/111) of faculty said they would still apply into a traditional fellowship, with 27.9% (31/111) picking an I6 program and 20.7% (23/111) picking a 4+3 model. When comparing I6 to non-I6 faculty, 49.1% (27/55) vs 53.6% (30/56) would choose a traditional path, 43.6% (24/55) vs 12.5% (7/56) would choose an I6 program, while 7.3% (4/55) vs 33.9% (19/56) would choose a 4+3 model ($p < 0.01$), respectively. Of all faculty, 40.5% (45/111) believe the I6 is good for the specialty and 55.0% (61/111) think the I6 attracts higher achieving applicants, but 73.9% (82/111) and 80.2% (89/111) don't believe it is improving training or increasing the scholarly activity of residents, respectively. Comparing between I6 and non-I6 faculty, 50.9% (28/55) vs 30.4% (17/56) believe the I6 is good for the specialty ($p = 0.03$), and 60.0% (33/55) vs 87.5% (49/56) don't believe it is improving training ($p < 0.01$), respectively. 60.0% (33/55) of I6 faculty think the quality of the I6 curriculum is better than that of the traditional curriculum with only 53.8% (7/13) of those with only an I6 program at their institution believing this to be true ($p = NS$). 56.4% (31/55) of I6 faculty feel there is bias against their residents on general surgery service, which some believe leads to poor educational outcomes for I6 residents. 58.2% (32/55) of I6 faculty admitted that they have changed their teaching style to accommodate junior residents. When responses were stratified by age or rank of faculty, there were no significant differences in responses.

Future Applications and Next Steps: The I6 represents a major shift in the way thoracic surgeons are trained. However, there is a high degree of variability amongst faculty nationally regarding the quality and effectiveness of the I6 model with most preferring the traditional model.



MICHIGAN MEDICINE
UNIVERSITY OF MICHIGAN

Ten years into the Integrated Residency Era: A Majority of Thoracic Surgeons Favor the Traditional Pathway

Charles A Keilin, Rishindra M Reddy, M.D., Niki Matusko, Gurjit Sandhu, Ph.D.

University of Michigan Medical School

BACKGROUND

- The three different current training pathways to becoming a cardiothoracic surgeon in the US:

| | | | |
|--------------------|---|---|--|
| Traditional | General Surgery Residency – 5 Years; 267 programs, 1,281 PGY1 spots 2-3 years optional research, ABS Board Eligible | CT “Fellowship” – 2 or 3 Years; 72 programs, 72-90 spots ABTS Board Eligible | Advanced Training* |
| Hybrid | General Surgery (4 Years) and CT Surgery (3 Years) – 7 Years total; 11 programs, 105 PGY1 spots in GS – apply to CT as PGY3 2-3 years optional research, ABS and ABTS Board Eligible | | Advanced Training* |
| Integrated | I6 Residency combines General Surgery and CT Surgery – 6 Years; 28 programs, 37 PGY1 spots 1-2 years optional research, ABTS Board Eligible | | Advanced Training* <small>*Congenital or Advanced Cardiac – 1+ year</small> |

- First integrated thoracic surgery residents (I6) graduated in 2013
- Aim:** Better understand current opinions of academic thoracic faculty on the value of the I6 training model compared to the traditional pathway

METHODS

- Anonymous web-based survey distributed to all academic thoracic surgeons in the United States
- Surveys focused on current perceptions of the various thoracic surgery training models
- Analysis included descriptive statistics, Fisher exact test and qualitative content analysis of free text response

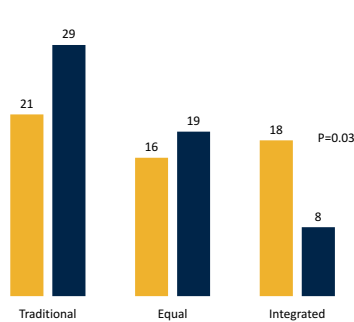
RESULTS

Demographics of Respondents

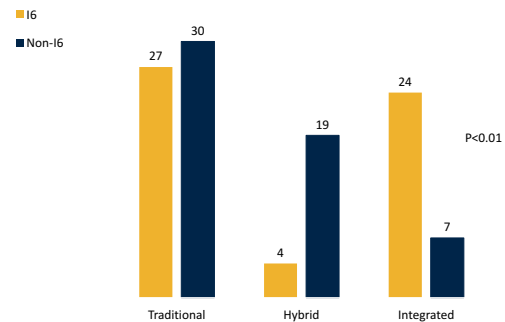
| | I6 Faculty | Non-I6 Faculty |
|----------------------|------------|----------------|
| Gender | | |
| Male | 47 | 49 |
| Female | 6 | 7 |
| Gender Neutral | 1 | 0 |
| Prefer not to say | 1 | 0 |
| TOTAL* | 55 | 56 |
| Age | | |
| 30-40 | 3 | 2 |
| 41-50 | 22 | 16 |
| 51-60 | 12 | 21 |
| 61-70 | 16 | 14 |
| 71 and older | 2 | 3 |
| Academic Rank | | |
| Assistant Professor | 13 | 10 |
| Associate Professor | 12 | 13 |
| Professor | 30 | 33 |

*15.4% response rate

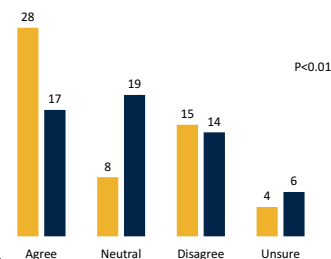
Which Model is Provides Superior Training?



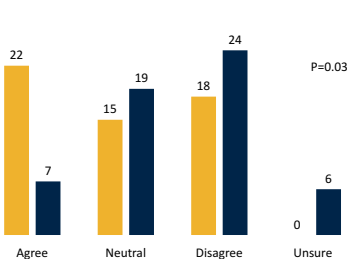
What Training Pathway Would You Choose if You Were Starting Again Today?



Is the I6 Having a Positive Impact on the Field of Thoracic Surgery?



Is the I6 Improving the Quality of Thoracic Surgery Training?



Selected Comments from Faculty:

Pros of choosing the traditional path:

- Best chance to obtain technical skill necessary to succeed.
- I felt like my general surgery training taught me to be a great doctor above all else. CT surg was finishing school.

Cons of the traditional path:

- Too many general surgery rotations are not relevant to thoracic surgery in the modern era.
- 3 years is barely adequate thoracic training.

Pros of an I6 program:

- More comprehensive training. More time spent in cardiothoracic surgery. Less time wasted in non-relevant rotations.
- The ability to immerse yourself in CT surgery and the opportunity to have rotations in echocardiography/catheterization/perfusion/bronchoscopy etc.

Cons of the I6 programs

- [I] don't think the integrated programs are training residents adequately, especially in operative skills.
- Six years is not enough time to assimilate the knowledge and technical skills necessary to be a successful CT Surgeon, especially in light of the 80 hour work week requirements.

CONCLUSIONS

The I6 represents a major shift in the way thoracic surgeons are trained. However, there is a high degree of variability amongst faculty nationally regarding the quality and effectiveness of the I6 model with most preferring the traditional model.