Health Education Professions Day Abstracts 2019

Archieved in Deep Blue
Compiled by Carena Townsend

Health Professions Education Day was held on April 2, 2019 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.

001: Reducing Central Line-Associated Bloodstream Infection in Pediatric Oncology Patients: A Pilot Interprofessional Experience

Authors: Danielle Furgeson, Elizabeth Duffy, Mary Eldredge

Background: Interprofessional collaboration (IPC) in the clinical setting is meant to provide the optimal provision of patient care via the contribution of areas of specialization. However, stereotyping in the healthcare field has been shown to impact both positive and negative relationships within group interactions. These stereotypes can interfere with productive interprofessional education (IPE), and eventually IPC if not overcome. Overcoming such barriers to IPE and IPC therefore requires careful socialization that will not only introduce the various roles and responsibilities of each discipline, but foster respect for the contributions each discipline can bring to comprehensive patient care. The treatment of pediatric oncology patients is one critical area that has the potential to benefit from IPE and IPC to improve patient outcomes and reduce cost. The prevention of central line-associated bloodstream infection (CLABSI) is a national priority. Unfortunately, children with cancer are disproportionately affected by CLABSI resulting in health care costs as high as $70,000 per infection, increased length of stay, and high mortality rates. Research shows that CLABSI infections are most frequently associated with oral bacteria. Developing a specialized interprofessional team consisting of medical, dental and social work professionals to address specific risk factors and caregiver education could potentially prove to be an effective intervention.

Actions, Methods or Interventions: Two IPE modules were created as an intervention to assist graduate social work, dental hygiene, and nursing students' understanding of roles/responsibilities and communication within interprofessional teams. Participants completed a pre-test consisting of the Student Stereotyping Rating Questionnaire (SSRQ) before completing an online IPE module in Canvas. The online module consisted of some key, introductory IPE readings and an online discussion. The second module consisted of a live, team-based, IPE case study session, and post-testing. Unfolding case studies allowed participants to review an initial piece of the case study, discuss as a team, and then the entire case study was provided to facilitate additional team discussion. Participants were divided into teams, ensuring equal distribution of each discipline. The SSRQ was used to assess participants' stereotypes regarding their own and the other participants' disciplines prior to Module 1 and post the live case-study module. Additionally, assessment data was collected via the Interprofessional Socialization and Valuing Scale (ISVS) as a post measure. The ISVS will provide information on the perceptions on the ability, comfort, and value in working with other disciplines in a clinical setting. The final step will be a self-evaluation by the project developers/facilitators.

Lessons Learned: We anticipate that lessons learned will center around three themes: Planning (in this instance, adding consultation from patient representatives), Content, and Implementation. Further, we anticipate that our lessons learned will be evidenced through pre-/post-test results and through the self-evaluation of the project team members.

Future Applications and Next Steps: In the future, the modules will be revised based on assessment data, which includes pre-/post-test data as well as participant and facilitator self-evaluation of experience. We anticipate modifications in planning/inclusion of patient representatives, content and implementation. Once these introductory modules are refined, an additional Standardized Patient Interview (SPI) module will be added. This SPI experience will consist of patient actors simulating a pediatric oncology patient who has had a VCL placed and their parents/caregivers. The long term goal is to have these modules culminate with the IPE groups treating patients together in the clinical setting.

Reducing Central Line-Associated Bloodstream Infection in Pediatric Oncology Patients: A Pilot Interprofessional Experience

Danielle Furgeson, RDH, MS, DHSc
School of Dentistry

Elizabeth Duffy, DNP, RN, CPNP
School of Nursing

Mary Eldredge, MSW, LMSW
School of Social Work

Background

Interprofessional collaboration (IPC) in the clinical setting is meant to provide the optimal provision of patient care via the contribution of areas of specialization. However, stereotyping in the healthcare field has been shown to impact both positive and negative relationships within group interactions, including interfering with productive interprofessional education (IPE), and eventually IPC.[1] Overcoming such barriers to IPE and IPC therefore requires careful socialization that will not only introduce the various roles and responsibilities of each discipline, but foster respect for the contributions each discipline can bring to comprehensive patient care.

The treatment of pediatric oncology patients is one critical area that has the potential to benefit from IPE and IPC to improve patient outcomes and reduce cost. The prevention of central line-associated bloodstream infection (CLABSI) is a national priority. Unfortunately, children with cancer are disproportionately affected by CLABSI resulting in health care costs as high as $70,000 per infection, increased length of stay, and high mortality rates.[2,3]

Evidence demonstrates that targeted interventions to minimize the bacterial load present in compromised skin and oral mucosal barriers can work synergistically with best practice central line maintenance bundles to reduce bloodstream infections in children and adolescents with cancer.[3] By carefully evaluating sources of evidence within the practice settings, we developed and implemented a targeted learning module for a specialized IPE team consisting of graduate nursing, dental hygiene, and social work students to address risk factors and caregiver education in pediatric oncology patients.

Interprofessional Education Collaborative Competencies

- Competency 1: Work with individuals of other professions to maintain the climate of mutual respect and shared values.[4]
- Competency 2: Use the knowledge of one's own role and those of other professions to appropriately address the health care needs of patients and to promote and advocate for the of populations (Roles/responsibilities).[4]

Objectives

- To understand the roles and objectives of other health disciplines.
- To engage parents in oral care regimes to prevent CLABSI in pediatric oncology patients

Methods

Respondents: Two IPE modules were created as an intervention to assist graduate nursing, dental hygiene, and social work, students' understanding of roles/responsibilities and communication within interprofessional teams.

Procedure: Participants completed a pre-test consisting of the Student Stereotyping Rating Questionnaire (SSRQ) before completing an online IPE module in Canvas. Module 1 consisted of some key, introductory IPE readings and an online discussion. Module 2 consisted of an in-person, team-based, IPE case study session, and post-testing. An unfolding case study allowed participants to review an initial piece of the case study, discuss as a team, and then the entire case study was provided to facilitate additional team discussion. Participants were divided into teams, ensuring equal distribution of each discipline.

Post-intervention assessments included a second SSRQ and the Interprofessional Socialization and Valuing Scale (ISVS) .

Table 1: Demographics

Discipline	N	Percent
Graduate Acute Care Pediatric Nurse Practitioner	6	38%
Graduate Dental Hygiene	5	31%
Graduate Social Work	5	31%
Female	15	94%
Male	1	6%

Results

Table 2: Self-perceived ability to work with others

Question	1	2	3	4	5	6	7	Mean SD
I feel comfortable in accepting responsibility delegated to me within a team	0 0%	0 0%	0 0%	0 0%	0 0%	4 25%	12 75%	6.75 0.43
I feel able to act as a fully collaborative member of the team	0 0%	0 0%	0 0%	0 0%	0 0%	4 25%	12 75%	6.75 0.43
I have gained a better understanding of my own approach to care within an interprofessional team	0 0%	0 0%	0 0%	0 0%	0 0%	5 31%	11 69%	6.69 0.46
I feel comfortable in being accountable for responsibilities I have taken on	0 0%	0 0%	0 0%	0 0%	0 0%	5 31%	11 69%	6.69 0.46
I am comfortable engaging in shared decision making with clients	0 0%	0 0%	0 0%	0 0%	0 0%	4 25%	12 75%	6.75 0.43
I am able to listen to other members of the team	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	16 100%	7.0 0
I have gained a better understanding of the client's involvement in decision making around their care	0 0%	0 0%	0 0%	0 0%	0 0%	3 19%	13 81%	6.81 0.39
I feel comfortable clarifying misconceptions with other members of the team about the role of someone in my profession	0 0%	0 0%	0 0%	0 0%	0 0%	5 31%	11 69%	6.69 0.46
I more highly value open and honest communication with team members.	0 0%	0 0%	0 0%	0 0%	0 0%	2 12%	14 88%	6.88 0.33

(*1 = Strongly Disagree, 7 =Strongly Agree)

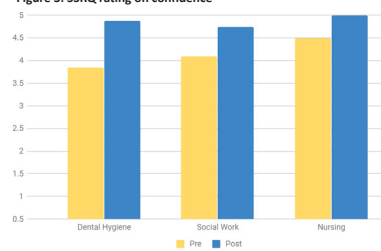**Figure 1: What was the most beneficial component of the experience?**
Open-ended responses

Figure 2: SSRQ rating on ability to be a team player

Pre / Post (Dental Hygiene, Social Work, Nursing)

Table 3: Value in Working with others

Question	1	2	3	4	5	6	7	Mean SD
I have gained more realistic expectations of other professionals on a team	0 0%	0 0%	0 0%	0 0%	0 0%	4 25%	12 75%	6.75 0.43
I have gained an enhanced awareness of the roles of other professionals on a team	0 0%	0 0%	0 0%	0 0%	0 0%	4 25%	12 75%	6.75 0.43
I see myself as preferring to work on an interprofessional team	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	16 100%	7.0 0
I have gained an appreciation for the benefits in interprofessional team work	0 0%	0 0%	0 0%	0 0%	0 0%	1 6%	15 94%	6.94 0.24
I have gained greater appreciation of the importance of a team approach	0 0%	0 0%	0 0%	0 0%	0 0%	1 6%	15 94%	6.94 0.24
I feel comfortable initiating discussions about sharing responsibility for client care	0 0%	0 0%	0 0%	0 0%	0 0%	2 12%	14 88%	6.88 0.33
I have gained an appreciation for the importance of having the client and family as members of a team	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	16 100%	7.0 0
I believe that interprofessional practice will give me the desire to remain in my profession	0 0%	0 0%	0 0%	0 0%	0 0%	1 6%	15 94%	6.94 0.24
I believe that interprofessional practice is not a waste of time	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	16 100%	7.0 0

(*1 = Strongly Disagree, 7 =Strongly Agree)

Table 4: Comfort in Working with others

Question	1	2	3	4	5	6	7	Mean SD
I feel comfortable debating issues in a team	0 0%	0 0%	0 0%	0 0%	4 25%	4 25%	8 50%	6.25 0.83
I am comfortable being the leader in a team situation	0 0%	0 0%	0 0%	0 0%	1 6%	7 44%	8 50%	6.44 0.61
I feel confident in taking on different roles in a team (i.e., leader, participant)	0 0%	0 0%	0 0%	0 0%	0 0%	5 31%	11 69%	6.69 0.46
I am able to share and exchange ideas in a team discussion	0 0%	0 0%	0 0%	0 0%	0 0%	1 6%	15 94%	6.94 0.24
I feel comfortable speaking out within the team when others are not keeping the best interest of the client in mind	0 0%	0 0%	0 0%	0 0%	1 6%	2 13%	13 81%	6.75 0.56
I believe that interprofessional practice is difficult to implement	0 0%	3 19%	0 0%	0 0%	1 6%	2 13%	10 62%	5.81 1.91

(*1 = Strongly Disagree, 7 =Strongly Agree)

Figure 3: SSRQ rating on confidence

Pre / Post (Dental Hygiene, Social Work, Nursing)

Lessons Learned

- Smaller groups are more conducive to. Engagement
- IPC practice interventions reduce the limiting stereotyping of disciplines (both own and others' discipline)
- Recognition of the value of input/knowledge from other disciplines and limitation of own knowledge empowers participants
- Genuine engagement from faculty is key to success of the student experience
- Perception that implementation of IPC is difficult but it does not have to be
- Participants find it empowering to have disciplines that aren't typically regarded at the top of the hierarchy of health care

"We have to make calls and actually talk to people. You call and call and call on behalf of your patients. You don't let it turn to a 'out of sight, out of mind' situation. Don't let patients leave the hospital until all the connections are made which means all the disciplines."

~ Participant

Next Steps

- Modules revised based on assessment data from participants and facilitators
- Inclusion of patient representatives in reviewing content and implementation.
- Addition of Standardized Patient Interview (SPI) module will be added. This SPI experience will consist of patient actors simulating a pediatric oncology patient with a central line and their parents/caregivers.
- The long term goal is to have these modules culminate with the IPE groups treating patients together in the clinical setting.
- Presentations and publication proposals, leading to greater dissemination.

References

1. Ateah CA, Snow W, Wener P et al. Stereotyping as a barrier to collaboration: Does interprofessional education make a difference. Nurse Education Today,2011, 31: 203-213, 2011.
2. Wilson MZ, Deeter D., Rafferty C, Comito MM, Hollenbeak CS. Reduction of central line associated bloodstream infections in a pediatric hematology/oncology population. American Journal of Medical Quality, 2014, 29: 484-490. doi:10.1177/1062860613509401
3. Linder LA, Gerdy C, Abouzelor R, Wilson A. Using practice-based evidence to improve supportive care practices to reduce central line-associated bloodstream infections in a pediatric oncology unit. Journal of Pediatric Oncology Nursing, 2016: 1-11
4. IPEC: Interprofessional Education Collaboration: Core competencies for interprofessional collaborative practice: 2016 Update

002: Inter-Professional Education: Developing Communication Competency Module

**Authors:** Reza Amini, Laura Power, Diane Asher, Carrie Bell

Background: While medical errors are the third most common cause of death, totaling more than motor vehicle accidents, firearms, suicide, and COPD combined, 70% of these errors are attributable to a failure in communication. The gaps in inter-professional training results in students being unable to engage in an effective communication working in multidisciplinary teams thereby contributing to suboptimal quality of care and patient safety.

Actions, Methods or Interventions: A new IPE online asynchronous foundational module will be created for all health professional students in the University of Michigan undergraduate and graduate communities such that by the end of the module, they will be able to demonstrate the knowledge necessary to function and communicate in a inter-professional team caring for a person with a health condition. This module contains four theory flashes employing different learning and teaching methods and styles. At the end of each activity, students' knowledge of communication competencies will be assessed by reflection notes, short quizzes and other standard tools.

Results: The module and the standard assessment tool are finalized. Since attending this module needs some preliminary knowledge, student should attend the introduction to IPE first. Therefore, the module will be tested with large number of students in May 2019. However, we will launch the pilot in February 2019 and collect the data, including: Pretest and post-test using the UWE Interprofessional Questionnaire and students evaluation. Considering the results, our team will modify the module for March and next year afterward.

Future Applications and Next Steps: The module will be tested in a pilot launch in which students will provide their constructive feedback on the learning and teaching method and content. Based on the feedback, the module will be modified.

Interprofessional Education: Developing Communication Competency Module

Reza Amini[1], Laura Power[2], Diane Asher[3], Carrie Bell[4]

[1]College of Health Sciences, University of Michigan-Flint (dramini@umich.edu)   [2]School of Public Health, [3]School of Nursing, [4]Michigan Medicine, University of Michigan

Background

Medical errors are the third most common cause of death, totaling more than motor vehicle accidents, firearms, suicide, and COPD combined, 70% of these errors are attributable to a failure in communication between healthcare professionals in different disciplines. Structured trainings in successful collaboration can not only decrease the burden on care providers and increase patient satisfaction, but have also been shown to increase patient safety and quality of care[1-3]. These gaps in inter-professional training have resulted in students being unable to engage in effective communication while working in multidisciplinary teams, thereby contributing to suboptimal quality of care and patient safety. According to the Institution of Medicine, communication, cooperation, coordination, and collaboration are the key components of teamwork. Improving communication would assist in preparing healthcare professionals for effective future collaborations with patients, families, communities, and other healthcare professionals, in the field[4]. Acquiring and employing the knowledge and skills to display interest, engage in active listening, express openness to discussions are both critical components for effective communication in a team[5]. Among eight sub-competencies of communication defined by the Interprofessional Education Collaboration[5], the following three are explored in a structured training to be delivered as an online asynchronous foundational module at the University of Michigan.

Code	Sub-competency
CC3	Express one's knowledge and opinions to team members involved in patient care and population health improvement with confidence, clarity, and respect, working to ensure common understanding of information, treatment, care decisions, and population health programs and policies.
CC4	Listen actively, and encourage ideas and opinions of other team members.
CC7	Recognize how one's uniqueness (experience level, expertise, culture, power, and hierarchy within the health team) contributes to effective communication, conflict resolution, and positive interprofessional working relationships (University of Toronto, 2008).

Purpose: A new online asynchronous foundational module was created for all health professional students in the University of Michigan undergraduate and graduate communities such that by the end of the module, they will be able to demonstrate the knowledge about communication in an interprofessional team. Specifically, they understand the importance of interprofessional communication, barriers, and facilitating factors.

Method

Theoretical framework: According to social constructivism, learning process is mediated and moderated by the social factors, which significantly influence the meanings of concepts as well as the understanding process[6]. In fact, research as shown that learner-learner and learner-instructor/facilitator collaboration can create an engaging learning environment[6]. As Vygotsky discussed, the collaboration between learners creates a Zone of Proximal Development (ZPD)[7] in which some learners with more knowledge and experience can help others assimilate the new knowledge. In this approach, working upon some hypothetical scenarios in collaboration with other learners prepare students and learners to become more independent and actively engaged in the learning process. Hence, students will be able to employ the acquired knowledge and skills to think critically, practice as a team member, and ultimately act as an effective member of the healthcare team in future clinical situations and professional positions.
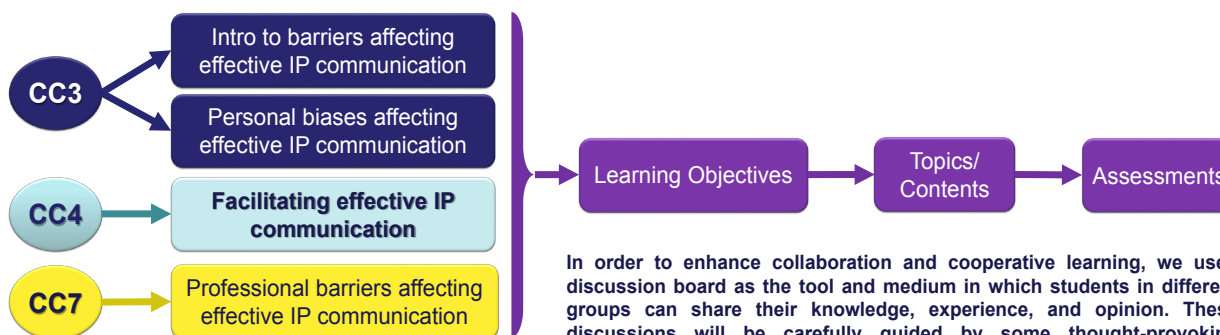
Learning Environment: Since the module is designed to be used across three campuses and engage students from different disciplines, we chose to use an asynchronous learning method. Canvas was used as the learning management system.

Content: We developed a list of learning objectives, which cover the main components of sub-competencies. For some of the topics, we also covered some basic concepts to help students from different disciplines and various levels understand the main concepts.

Teaching Method: In order to cover all learning styles, we used different teaching methods: slides (included text, graphs, pictures), lecture, and videos.

In order to enhance collaboration and cooperative learning, we used discussion board as the tool and medium in which students in different groups can share their knowledge, experience, and opinion. These discussions will be carefully guided by some thought-provoking questions.
Case scenarios were chosen as they can create experiential learning opportunities and increase the collaborative environment for students from different disciplines.

Assessments: Each submodule has different assessment tools, which examine the mastery level of students in regard to the learning objectives. "The UWE Interprofessional Questionnaire", which examines the communication competency in IPE, will be used before and after completing the entire module.

Next Step: We will run a pilot of the module first and then adjust further based on feedback we receive. Students who have completed the "Introduction to IPE" online module will be recruited to pilot this module. After the pilot, we will revise and modify all components and the final version will be ready by the end of June 2019.

References

1. Babiker A, El Husseini M, Al Nemri A, Al Frayh A, Al Juryyan N, Faki MO, et al. Health care professional development: Working as a team to improve patient care. Sudanese Journal of Pediatrics. 2014;14(2).
2. Wagner EH. Effective Teamwork and Quality of Care. 2004;42(11):1037-9.
3. Epstein NE. Multidisciplinary in-hospital teams improve patient outcomes: A review. Surg Neurol Int. 2014;5(Suppl 7):S295-S303.
4. Baggs JG, Schmitt MH. Nurses' and resident physicians' perceptions of the process of collaboration in an MICU. Res Nurs Health. 1997;20(1):71-80.
5. Collaborative. IE. Core competencies for interprofessional collaborative practice: 2016 update. Washington, DC; 2016.
6. Hean S, Craddock D, O'Halloran C. Learning theories and interprofessional education: a user's guide. Learning in Health and Social Care. 2009;8(4):250-62.
7. Vygotskii LS. Mind in Society: The Development of Higher Psychological Processes. London, England: Harvard University Press; 1978.

003: Integrating Interprofessional Education into a First-Year Undergraduate Pre-Health Learning Community

Authors: Adam Eichmeyer, Shanna Kattari, Elisabeta Karl, Jamie Park, Judy Haefner

Background: Interprofessional education has largely been focused on graduate-level health professions students, and much remains to be learned in undergraduate pre-health students. By introducing IPE concepts early in the undergraduate education experience, a culture of IPE may be cultivated, leading to more inclination toward IPE and interprofessional collaboration in graduate school. We sought to pilot an IPE intervention for first-year, pre-health students in the Health Sciences Scholars Program (HSSP), a living-learning community at the University of Michigan.

Actions, Methods or Interventions: HSSP students completed a Qualtrics-delivered survey in early September, which included a section to assess students' perceptions toward interprofessional education using the Attitudes Toward Health Care Teams Scale (ATHCTS). In October, all 116 HSSP students participated in an online module on IPE developed by the Center for Interprofessional Education. They completed a discussion-based activity in their HSSP course, and subsequently repeated the ATHCTS.

Results: Changes in attitudes toward IPE will be presented with sub-group analysis based on students' intended health profession career path.

Lessons Learned: Undergraduate students are eager to participate in IPE-related content. Careful attention must be paid in the development to IPE materials so that they are at an appropriate level for undergraduates, who may not necessarily have a professional identity yet, as health professions graduate students typically do.

Future Applications and Next Steps: HSSP students will complete additional qualitative and quantitative assessments in the Winter 2019 semester, which will allow us to have a more holistic understanding of their attitudes toward IPE and inform future programs.

Integrating Interprofessional Education into a First-Year Undergraduate Pre-Health Learning Community

Adam B. Eickmeyer, MPH; Jeong M. Park, MS, PharmD; Judy Haefner, DNP, RN; Elisabeta Karl, DDS, MS, PhD; Shanna Kattari, PhD, MEd

HEALTH SCIENCES SCHOLARS PROGRAM — UNIVERSITY OF MICHIGAN

FLINT — SCHOOL OF NURSING

COLLEGE OF PHARMACY — UNIVERSITY OF MICHIGAN
SCHOOL OF SOCIAL WORK — UNIVERSITY OF MICHIGAN
SCHOOL OF DENTISTRY — UNIVERSITY OF MICHIGAN

Background

- HSSP is a living learning community at the University of Michigan
- This program supports a diverse, multidisciplinary body of first-year, pre-health students as they transition from high school to university
- Students gain access to programs, resources, and mentors as they explore careers in the health professions
- HSSP students live together in Couzens Hall, take courses on the health care system together, partake in clinical observations, and participate in student-led programmatic committees
- HSSP offers in-house academic advising for all students, including alumni
- HSSP curriculum has a strong bent toward social determinants of health, health inequities, and health policy
- Before this year, no formalized interprofessional education / collaboration

Methods

- Attitudes Toward Health Care Teams Revised scale (ATHCT-R)
  - Three-factor, 21-item survey created to measure students' attitudes towards health care teams
  - Team value, team efficiency, and shared leadership constructs
- Pre-/post-test study design
  - Pre-test administered in Sept. 2018
  - Students participated in online Introduction to IPE module in Oct. 2018
  - Instructor-led discussion of IPE module in HSSP core course afterward
  - Post-test administered in Oct. 2018

Pre-Test	IPE Module	Post-Test
Sept. 2018	Oct. 2018	Oct. 2018
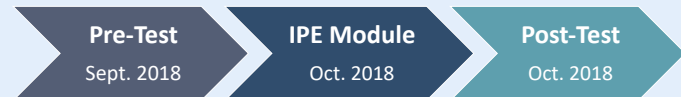
ATHCT-R Measures and Constructs

Team Value/Quality of Care (Cronbach's Alpha: 0.91)

Q	Wording	Factor Loading
1	The team approach permits health professionals to meet the needs of family caregivers as well as patients	0.709
2	Working on a team keeps most health professionals enthusiastic and interested in their jobs	0.616
3	Health professionals working on teams are more responsive than others to emotional and financial needs of patients	0.752
4	The team approach makes the delivery of care more efficient	0.731
5	Patients receiving team care are more likely than other patients to be treated as whole persons	0.664
6	Hospital patients who receive team care are better prepared for discharge than other patients	0.741
7	Having to report observations to the team helps team members better understand the work of other health professionals	0.677
8	The give and take among team members help them to make better patient care decisions	0.629
9	The team approach improves the quality of care to patients	0.764
10	Developing a patient care plan with other team members avoids errors in delivering care	0.717
11	Team meetings foster communication among team members from different disciplines	0.677

Team Efficiency/Costs of Team Care (Cronbach's Alpha: 0.75)

Q	Wording	Factor Loading
12	When developing interdisciplinary patient care plans, much time is wasted translating jargon from other disciplines	0.585
13	Developing an interdisciplinary patient care plan is excessively time consuming	0.657
14	In most instances, the time required for team meetings could be better spent in other ways	0.643
15	Working in teams unnecessarily complicates things most of the time	0.633
16	Patients are less satisfied with their care when it is provided by a team	0.469

Shared Leadership/Physician Centrality (Cronbach's Alpha: 0.60)*

Q	Wording	Factor Loading
17	Physicians have the right to alter patient care plans developed by the team	0.469
18	A team's primary purpose is to assist physicians in achieving treatment goals for the patient	0.573
19	The physician has the ultimate legal responsibility for decisions made by the team	0.602
20	The physician should not always have the final word in decisions made by health care teams*	0.023
21	Physicians are natural team leaders	0.340

*Question was removed from factor due to low loading and is not represented in the Cronbach's alpha coefficient.

Results

Team Value:
- Increases in sum score and 9 of 11 items

Team Efficiency:
- Increases in sum score and 4 of 5 items

Shared Leadership:
- Increases in sum score and 2 of 4 factors

Significant increase in total sum score across instrument

Pre-/Post-Test Means/SD for ATHCT-R Items and Factors

Factor	Q	Pre (n=116) Mean	Pre (n=116) SD	Post (n=104) Mean	Post (n=104) SD	T-test* (n=99)
Team Value (Quality of Care)	1	5.06	0.95	5.33	0.89	
	2	4.87	0.99	5.04	0.92	
	3	4.40	1.19	5.05	0.97	***
	4	4.94	1.12	5.25	0.87	**
	5	4.34	1.21	5.22	1.05	***
	6	4.44	1.12	5.17	0.90	***
	7	5.31	0.82	5.57	0.57	*
	8	4.98	0.94	5.34	0.73	**
	9	5.02	1.00	5.41	0.68	**
	10	5.09	1.01	5.34	0.76	**
	11	5.36	0.84	5.60	0.62	**
	T	53.81	8.06	58.31	6.43	***
Team Efficiency (Costs of Team Care)	12R	3.61	1.01	3.77	1.25	
	13R	3.83	1.04	4.15	1.11	**
	14R	4.27	1.04	4.53	1.01	*
	15R	4.53	1.15	4.84	0.98	**
	16R	4.71	0.98	5.03	0.99	**
	T	20.95	3.41	22.32	4.00	***
Shared Leadership (Physician Centrality)	17R	3.37	1.00	3.44	1.21	
	18R	2.49	1.13	2.90	1.31	**
	19R	2.78	1.33	3.30	1.23	***
	21R	3.62	1.20	3.45	1.24	
	T	12.26	3.05	13.10	3.47	*
Total Sum		87.02	8.91	93.72	9.31	*

* p<0.05; ** p<0.01; *** p<0.001; R = reverse-coded item

Discussion

- ATHCT-R reliably used with undergraduates
  - Team Value/Quality of Care and Team Efficiency/Costs of Team Care had strong reliability
  - Shared Leadership/Physician Centrality showed weaker reliability
- Overall high baseline attitudes related to interprofessional patient care
- Attitudes toward interprofessional patient care increased significantly after students completed an online IPE module and in-class discussion

Conclusions & Future Directions

- IPE is relevant to undergraduate pre-health students
- Introductory IPE module was successful in increasing undergraduate pre-health students' attitudes toward interprofessional patient care
- ATHCT-R can be reliably used with undergraduates
- Students will complete second post-test in late April 2019
- Will also complete qualitative paper illustrating connections between IPE and their shadowing experiences
- ATHCT-R reliability with undergraduate students will be examined further

Acknowledgements

Citation

Hyer, K., Fairchild, S., Abraham, I., Mezey, M., & Fulmer, T. (2000). Measuring attitudes related to interdisciplinary training: Revisiting the Heinemann, Schmitt and Farrell attitudes toward health care teams scale. Journal of Interprofessional Care, 14, 249–258. doi:10.1080/jic.14.3.249.258

004: Developing an online education module to enhance interprofessional teamwork focused on the interplay of movement and chronic disease

Authors: Peter Bodary, Tom Braun, Jaynee Handelsman, Amy Thompson

Background: The literature supporting the evidence between movement and the development and treatment of chronic disease is robust. However, the degree to which students are exposed to this literature is limited and varies widely within different health professions. The goal of this project is to use available evidence to inform effective teamwork and team-based practices about the impact of movement on chronic disease state management.

Actions, Methods or Interventions: Utilizing Canvas, we developed a module around the importance of movement for the management of diabetes. An introductory presentation around diabetes and movement was created via PowerPoint to provide some background into the disease and evidence. A patient case was created to allow for asynchronous discussion and development of a treatment plan. Students will complete a pre- and post-survey regarding their knowledge base on the subject matter and their interaction with other professions

Lessons Learned: Monthly meetings and informal delegation of responsibilities were both crucial for continued development of all aspects of this project. Our group benefited from the varied backgrounds of our four members. However, the path from initial concept to final project was circuitous, rather than linear, and our group underestimated the amount of time needed to create the final deliverable online module.

Future Applications and Next Steps: Once module build is complete, we will pilot with students within pharmacy and kinesiology. After pilot testing we hope to have this resource available to all health professional programs to utilize as a potential IPE experience.

Integrating Interprofessional Collaborative Practice into Occupational and Environmental Health and Safety Education

S. Batterman,[1,2] M.C. McCullagh,[3] R. Neitzel,[1] M. O'Neill,[1] C. D'Souza,[2] H. Zhen[1]

[1]University of Michigan School of Public Health, [2]School of Engineering, [3]School of Nursing

Background & Significance

There is a lack of information about the interprofessional collaborative practice competence of occupational health and safety students at the University. Few graduate-level students in occupational health (Public Health, Engineering, Nursing) have received content regarding interprofessional practice skills, particularly in the context of public health practice. Program graduates need to be prepared to function in interprofessional practice environments.

Aim

- To revise and deliver an occupational health and safety course for UM graduate students in occupational health (i.e., occupational epidemiology, industrial hygiene, industrial and operations engineering, and occupational health nursing), and test its effectiveness in enhancing student skills in interprofessional collaborative practice.

Selected Core Interprofessional Competencies

Domain 2: Roles/Responsibilities

- Engage diverse professionals who complement ones' own professional expertise, as well as associated resources, to develop strategies to meet specific health and healthcare needs of patients and populations
- Use unique and complementary abilities of all members of the team to optimize health and patient care
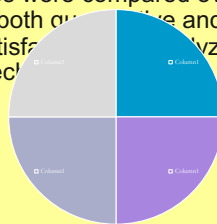
Methods

A team of faculty modified an existing course, EHS 668 / IOE 837 Current Issues and Interprofessional Perspectives in Occupational and Environmental Health and Safety, designed for a mix of students from multiple professions. The course design team selected one Core Competency on which to focus, based on their knowledge of the field and of student needs: Domain 2: Roles/Responsibilities. Changes were made in course learning objectives and strategies, consistent with interprofessional competency goals, and included primarily face-to-face learning, formation of stable interdisciplinary student teams, interactional, peer-to-peer learning (promoting students learning about, from, and with each other), teamwork, case studies, role modeling, and semi-structured discussions. Learning activities were aimed at increasing students' interprofessional competence in IPEC Core Competencies Domain 2: Roles/Responsibilities. The team-taught course included a variety of teaching methods (e.g., case studies, team-based learning).

Instruments and Procedures

In collaboration with the UM Center for Research on Learning and Teaching, measures were developed for assessment of student competencies in interprofessional collaboration, as well *as* faculty and student satisfaction. Competencies were measured at baseline and at course completion.

Data Analysis

Competencies were compared over two time points using both quantitative and qualitative methods. Satisfaction was analyzed using descriptive techniques.

Results

Sample Demographics

Mean age (years)	24.66 (SD 2.97)
Women	20 (56%)
Race	
White	15 (42%)
Black	1 (3%)
Am Indian	0 (0%)
Asian	15 (42%)
Other	3 (8%)
Hispanic	2 (6%)

The course objectives and teaching methods were implemented in winter semester, 2019. Students practiced interprofessional collaboration skills during face-to-face class meetings.

Lessons Learned

Complexities of modifying and obtaining approval of a cross-listed course became apparent early. The course leveraged advantages gleaned from modification of an existing course infrastructure. Frequent communication between team members responsible for implementing the course minimized conflicts and other problems. Results of analysis of assessments of student competencies and satisfaction are pending.

Summary & Conclusions

Results demonstrated the feasibility, effectiveness, and sustainability of the new course, and will be used as the foundation for future curriculum development. Enhanced interdisciplinary competency of students is expected to improve healthcare system functioning, quality of services to recipients of care, and the public health.

005: Integrating Interprofessional Collaborative Practice into Occupational and Environmental Health and Safety Education

Authors: Marjorie McCullagh, Stuart Batterman, Richard Neitzel, Marie O'Neill, Clive D'So

Background: There is a lack of information about the interprofessional collaborative practice competence of occupational health and safety students at the University. Few graduate-level students in occupational health (Public Health, Engineering, and Nursing) have received content regarding interprofessional practice skills. Students need to be prepared to function in interprofessional practice environments.

Actions, Methods or Interventions: A team of faculty modified an existing course, EHS 668 Current Issues and Interprofessional Perspectives in Occupational and Environmental Health and Safety. The course design team selected one Core Competency on which to focus, based on their knowledge of the field and of student needs: Domain 2: Roles/Responsibilities. Changes were made in course learning objectives and strategies, consistent with interprofessional competency goals, and included formation of stable interdisciplinary student teams, teamwork, case studies, role modeling, and semi-structured discussions. The focus of the course moved significantly from the science of selected occupational health disciplines to interprofessional skill development. In collaboration with the UM Center for Research on Learning and Teaching, measures were developed for assessment of student competencies in interprofessional collaboration, as well as faculty and student satisfaction.

Results: A sample of 31 enrolled students participated in a series of planned learning activities aimed at increasing their interprofessional competence in Domain 2: Roles/Responsibilities (Core Competencies https://www.ipecollaborative.org/resources.html). Results of analysis of assessments of student competencies and satisfaction are pending.

Lessons Learned: Complexities of modifying and obtaining approval of a cross-listed course became apparent early. The course leveraged advantages gleaned from modification of an existing course infrastructure. Frequent communication between team members responsible for implementing the course minimized conflicts and other problems.

Future Applications and Next Steps: Results demonstrated the feasibility, effectiveness, and sustainability of the new course, and will be used as the foundation for future curriculum development. Enhanced interdisciplinary competency of students is expected to improve healthcare system functioning, quality of services to recipients of care, and the public health.

Development of an interprofessional education curriculum for palliative care learners

Karen Harden DNP, RN[1,2], Lori-Jene Brazier[1],Adam Marks, MD[1,3], Michael A. Smith, PharmD, BCPS[1,4], Meghan Theil, MSW[1]

Michigan Medicine[1], University of Michigan School of Nursing[2], Medical School[3], College of Pharmacy[4]

Background

Palliative Care is interprofessional in nature, relying on a team approach to manage the complex physical, spiritual, and psychosocial needs of patients and families living with serious illness. Despite the interprofessional nature, many of our current educational initiatives remain discipline-specific.

Currently, resources exist to guide interprofessional and palliative care education to standardize learning. The guiding framework for Interdisciplinary work is **The Interprofessional Education Collaborative (IPEC)'s Core Competencies for Interprofessional Collaborative Practice** have been endorsed by IPEC member organizations as the agreed upon set of core competencies across disciplines.

Palliative care practices are guided by **the National Consensus Project (NCP) for Quality Palliative Care**. NCP describes 8 Domains of Practice that are used to provide a holistic foundation of palliative care for patients with serious illness. By implementing the IPEC and NCP standards together in one program, health professionals from all disciplines learn to grow with and from each other to provide the best quality of care to our patients and families.

Purpose

The goal of this project is to develop a curriculum in Palliative Care including online learning modules, reflective practices and clinical education/experience, all with an emphasis on interprofessional education (IPE).

IPE Grant Award

The interdisciplinary team was awarded an Interprofessional Education Exchange (IPEX) grant from the University of Louisville.

See www.ipexproject.org

IPEX Program:

The Interprofessional Education eXchange, which would provide support and guidance in creating an institution-specific interprofessional palliative care education curriculum.
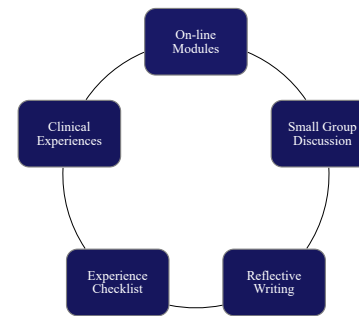
Accountability to IPEX program:

Michigan Medicine's 5-member interprofessional team completed pre-workshop assignments and learning, attended a 3-day "train the trainer" workshop in November 2018, and continues to engage in progress reports and check-ins with the IPEX faculty.

Outcomes of the Workshop:

Learning important interprofessional competencies

Learning palliative care core competencies and guidelines

Understanding the use of collaborative learning techniques

Engaging in curriculum development.

Curriculum Development

- On-line Modules
- Small Group Discussion
- Reflective Writing
- Experience Checklist
- Clinical Experiences

Outcome Measures
- Post-Test
- Reflection
- Faculty Evaluation

Development of our Team Framework

Curriculum development activities guided our thinking to develop our new model based on the 2016 Interprofessional Education Collaborative Core Competencies. The main themes that we developed include learning to "people," learning to "job," and learning to "respect". These helped to focus our curriculum learning objectives.
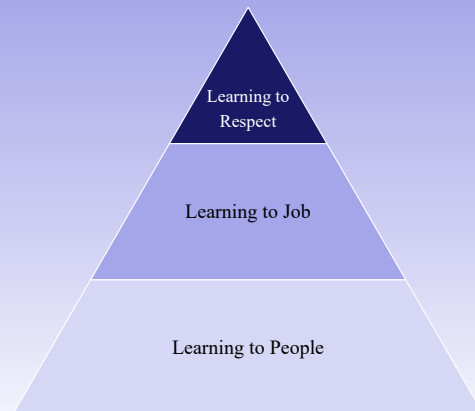
Themes	Interprofessional Education Collaborative (IPEC) Competencies	Curriculum Learning Objectives
Learning to People	Teams and Teamwork Interprofessional Communication	Apply relationship-building values and the principles of team dynamics to perform effectively in different team roles to plan, deliver, and evaluate patient and family centered palliative care. Communicate with patients, families, and professionals across disciplines in a responsive and responsible manner that supports a team approach to the promotion and maintenance of well-being as defined by the patients and families
Learning to Job	Roles and Responsibilities	Use the knowledge of one's own role and those of other professions to appropriately assess and address the needs of patients and families faced with serious illnesses
Learning to Respect	Values and Ethics	Work with individuals of other professions to promote the ongoing development of mutual respect and shared values

Pyramid: Learning to Respect / Learning to Job / Learning to People

Lessons Learned
- Providing flexibility to learners is essential due to limited time to impart content
- Some face-to-face discussion will be necessary to encourage the reflection needed for attitudinal skills
- Utilizing existing frameworks, curriculum, and validated evaluation tools provides efficiency and quicker development to achieving our goals
- Identifying key allies in the institution early will be crucial to our ongoing success
- Challenged by limited/no funding, but are working to create a sustainable program
- Essential to create a valuable and sustainable resource for learners

Future Application/Next Steps
- Continue to develop an online problem-based curriculum to train palliative care learners from various disciplines
- Focus learning on core elements of palliative care, including how to function as members of an interprofessional health care team
- Utilize Canvas learning management system for content to facilitate accessibility, independence and interactivity
- Develop pre- and post-tests to measure the knowledge, behavior, attitudes and skills
- Initial focus on those learners rotating with the Adult Palliative Care clinical team(s)
- Expand access to this curriculum to other areas of the hospital system that have identified needs for palliative care interventions (intensive care units, emergency departments, oncology, etc.)

100: Creating a Sustainable Palliative Care Education Program for Health Care Professionals

Authors: Karen Harden, Deborah Price, Christina Conrad, Diane Wyse

Background: Palliative care is, 'a person-centered, family-oriented approach that honors individual preferences and promotes quality of life though the end of life'. Several domains of care comprise the delivery of quality palliative care including decision-making, communication, continuity of care, emotional and practical support, symptom management, spiritual support, and emotional and organizational support for staff. The education of health professional specialists who provide palliative care has improved substantially in recent decades. However, palliative care specialists are usually a consult service in the acute care setting, and cannot manage all of the palliative needs of patients. Subsequently, there is a highly recognized need to improve basic palliative care skills of all clinicians caring for seriously ill patients. Interprofessional collaboration has been associated with improved quality of care, safety, increased patient/family satisfaction, and better continuity of care. Innovative strategies for inter-professional education have been developed to support collaborative palliative care education in the workplace. The purpose of this innovation was to develop an effective educational conference focused on developing basic palliative care competencies in health care professionals at a large academic institution.

Actions, Methods or Interventions: A baseline assessment of palliative care competencies was performed at this health care institution amongst inter-professionals who care for patients across the life-span with serious, life-threatening illnesses in order to identify self-perceived competencies in the delivery of palliative care. Significant differences were noted in decision making, communication, continuity of care, spiritual/emotional support and symptom management amongst the various disciplines. The results of the study were disseminated across the institution, and subsequently a multi-disciplinary committee was created to develop an inter-professional conference that addressed basic palliative care knowledge and skills. Members of the conference planning committee met monthly for one year prior to the conference, and included representation from the pediatric and adult palliative care service teams, social work, health system nursing educators and school of nursing faculty. The goal was to provide inter-professional team members basic palliative and end-of-life care competencies in all health care settings. Conference objectives were identified as 1. Equip health care providers with basic core competencies in palliative care; 2. Promote collaboration between inter-professional team members; 3. Improve the delivery of palliative care across the age-span and health care settings to meet the needs of patients and families. Conference topics were identified and included defining the difference between palliative and end-of-life care, describing the current state of palliative care world-wide, symptom management (pain, dyspnea, gastrointestinal), ethical decision making, best practices in communication between health care providers and with patients/family members, discussion of ethical dilemmas and spiritual/emotional support, values guided decision-making, grief loss and bereavement resources, and transitions in care. A conference logo and theme were developed and marketed. The two day conference was held off-site from the hospital.

Results: There were 158 participants who attended the inter-professional conference. Registered nurses were the primary attendee. Conference evaluations for meeting objectives and speaker evaluation from participants were completed electronically within one week post-conference. All 3 conference objectives were met by 97% of conference participants. The self-perceived competence in the delivery of palliative/EOL care of all registered participants was also measured using the End-of-Life Questionnaire (EOL-Q). Pre and Post EOL-Q mean scores were significantly different (p<0.0001) in total scores, knowledge, attitudes, behaviors in delivery of palliative and EOL care. Scores were also significantly different (p<0.05) in the following domains of palliative care: communication, decision making, continuity of care, emotional support for the family, symptom management and emotional support for staff. The conference impacted significantly participant's self-perceived knowledge, attitudes and behaviors within the domains of palliative/EOL care, appearing to increase the competence of bedside palliative care generalists.

Lessons Learned: The 'Power of Palliative/EOL Care Conference' appeared to generate momentum and interest at this large, mid-western academic institution, in the delivery of quality palliative/EOL care. Lessons learned include the awareness that there are many healthcare professionals interested in developing skills in palliative care, so there is a need for continued inter-disciplinary palliative care education activities. Our biggest challenge was operationalizing interdisciplinary participation. The conference setting appeared to be an effective educational strategy to achieve interdisciplinary participation and collaboration.

Future Application and Next Steps: Future goals for palliative care education include the development of quarterly forums in which to provide education focused on relevant palliative care issues and topics for self-identified palliative care unit champions. The forums will also provide a venue in which discussion and support for unit-based initiatives can occur. Conferences can provide the opportunity for learning and networking, and can inspire unit-based work. They need to be affordable, engaging and enjoyable for participants, and positively encourage development of champions who have increased knowledge to become a resource to their peers. The delivery of quality palliative/EOL care can then be facilitated by bedside care providers who have acquired generalist palliative care skills.

Creating a Sustainable Palliative Care Education Conference for Health Care Professionals

Karen Harden DNP, RN, AOCNS, Deborah Price DNP, RN, Diane Wyse MSN, RN-BC, Chris Conrad, MSN, RN, ACNS-BC, OCN
University of Michigan School of Nursing and Michigan Medicine

Purpose
The purpose of this project is to describe the development of a two-day inter-professional conference that engaged inter-professional participants in learning basic palliative care competencies, as well as facilitated inter-professional networking opportunities.

Background on Palliative Care
- An integrated, patient-centered care approach to the delivery of quality palliative care is recommended by the Institute of Medicine so as to promote the highest quality of life for patients with serious illness (IOM, 2014).
- The education of health professional specialists who provide palliative care has improved substantially in recent decades (IOM, 2104).
- Palliative care specialists are usually a consult service in the acute care setting, and cannot manage all of the palliative care needs of patients. Subsequently, there is a highly recognized need to improve basic palliative care skills of all clinicians caring for seriously ill patients (IOM, 2014; Weissman & Meier, 2011).
- Novel palliative care education programs have been implemented to improve inter-professional education including simulations, focused unit-based programs and workshops with varying rates of success (Bradway, et al, 2018; Price and Kocan, 2017; Price et al. 2017; Saylor, 2016; Sinya et al, 2015).
- Education Barriers
  - Lack of educational preparation
  - Misperception that palliative care means end-of-life
  - Fragmented structure of healthcare systems
  - Lack of funding for palliative care services
  - Regulatory constraints
  (Aldridge et al, 2016, Sommerbakk et al, 2016; Traverse and Taylor, 2016).

Needs Assessment
A baseline assessment of palliative care competencies was performed at this health care institution amongst inter-professionals who care for patients across the life-span with serious, life-threatening illnesses in order to identify self-perceived competencies in the delivery of palliative care (Montagnini et al 2018; Price et al, 2018).

Perceived concerns by health professionals:
- Need for clear and consistent communication
- Importance of realistic and timely prognosis discussions to support decision-making related to goals of care
- Necessity of education to patient/family members about the definitions of palliative and comfort care
- Need for provider education on how to have EOL discussions
- Delivery of care that honors the patient/family wishes
- Delivery of end-of-life care which addresses family support and is culturally sensitive

Method – '*Power of Palliative Care Conference*'
Conference Objectives
1. Equip health care providers with basic core competencies in palliative care;
2. Promote collaboration between inter-professional team members;
3. Improve the delivery of palliative care across the age-span and health care settings to meet the needs of patients and families.

Conference Topics

Day 1		Day 2	
Introduction to Palliative Care	Pain Management	Communication	Values-guided Decision Support
Symptom Management	Ethical Dilemmas	Grief, Loss and Bereavement	End of Life
	Care Transitions		What dying patients teach us

Conference Speakers
- Nurse Practitioners
- Physicians
- Nurses
- Social Workers
- Family Members
- Nurse Ethicists
- Nursing Faculty
- Director Employee Assistance

Teaching Methods
- Lecture
- Role Play
- Discussion
- Case Studies
- Video
- Simulation
- Gaming
- Culture development

Conference Details, Setting and Ambiance
- Venue: New School of Nursing building
- Continuing education credit offered
- Electronic poster viewing
- Planned networking time
- Box lunches for flexible indoor or outdoor eating locations
- Live music for lunchtime and breaks
- Soft beautiful music, pictures and quotes playing on arrival and during breaks
- Raffled items each day and gifts for speakers
- Color themed conference folders and handouts

Results
Achievement of objectives by the attendees:
1. Equip health care providers with basic core competencies in palliative care (100% met);
2. Promote collaboration between interdisciplinary team members (97.45% met);
3. Improve the delivery of palliative care across health care settings to meet the needs of patients and families (98.31 % met).

Results of End-of-Life Questionnaire (EOL-Q)
- Fifty-two participants (33%) completed both the pre and post EOL-Q surveys (See Table).
- Post EOL-Q mean scores were significantly higher than the pre EOL-Q scores for all the study variables (see table).
- Post EOL-Q scores were higher for total score, knowledge, attitudes, and behaviors pertaining to delivery of palliative/EOL care ($p<0.01$).
- Scores were also significantly higher ($p<0.05$) in the following domains of palliative/EOL care: communication, decision making, continuity of care, emotional support for the family, symptom management, and emotional support for staff.
- Twenty-three (44%) of the survey respondents identified that they would like to be palliative care champions for their units/departments.

EOL-Q Scale	# of items	Mean	Std Dev	P-value
Total Score	28			
Pre		3.45	0.64	<0.0001
Post		4.09	0.56	
Knowledge	12			
Pre		3.54	0.78	<0.0001
Post		4.32	0.5	
Attitudes	5			
Pre		3.74	0.58	<0.0001
Post		4.37	0.54	
Behaviors	11			
Pre		3.10	0.82	0.0002
Post		3.60	0.9	
Communication	7			
Pre		3.43	0.88	0.0006
Post		3.88	0.84	
Decision making	6			
Pre		3.28	0.83	<0.0001
Post		4.10	0.72	
Continuity of Care	2			
Pre		3.20	0.94	0.0208
Post		3.67	0.99	
Emotional Support Patient/Family	3			
Pre		3.67	0.82	<0.0001
Post		4.39	0.51	
Symptom Management	7			
Pre		3.47	0.89	<0.0001
Post		4.27	0.57	
Emotional Support Staff	2			
Pre		3.38	0.67	0.0001
Post		3.98	0.79	

Conference Committee Members
Nurses
Nurse Practitioners
Physicians
Social Workers
Family members
School of Nursing Faculty
Decedent Affairs
Professional Development and Education

Evaluation
- Conference evaluations for meeting objectives
- Pre and post conference use of End-of-Life Questionnaire (EOL-Q) (Montagnini et al., 2018).
  - Sent to participants via Qualtrics® before and after conference
  - 28 items which assess knowledge, attitudes, and behaviors in providing palliative and EOL care

Future directions
- Biennial Inter-professional '*Power of Palliative Care Conference*'
- Annual 8-hour Palliative Care Core Curriculum Class for Health Professionals
- Cultivate continued collaboration among disciplines

Conclusion
Conferences provide the opportunity for learning and networking, and *can* inspire delivery of quality palliative care through development of palliative care core competencies in health care professionals. Conferences also can provide a platform for collaboration and discussion of pertinent issues and topics in palliative care.

101: Development of an interprofessional education curriculum for palliative care learners

Authors: Karen Harden, Adam Marks, Megan Thiel, Mike Smith, Lori-Jene Brazier

Background: Hospice and palliative medicine (HPM) is interprofessional in nature, relying on a team approach to manage the complex physical, spiritual, and psychosocial needs of patients and families living with serious illness. Despite this focus, many of our current educational initiatives in HPM are designed for specific disciplines rather than for all members of the team. We find that the trainees who rotate with our Adult Palliative care consult service are often unsure how to work in a collaborative fashion with interprofessional team members to bring comprehensive, high-quality care to our patients and families.

Actions, Methods or Interventions: The goal of this project is to develop an interactive online curriculum in HPM with an emphasis on interprofessional education (IPE). Our development group includes representatives from the fields of Social Work, Pharmacy, Nursing, Medicine, and Spiritual Care. Our plan is to create an interprofessional, online curriculum that can be utilized by trainees from various disciplines to learn more about HPM, the roles of the different team members, and how to best utilize the myriad skills of these team members when caring for seriously ill patients and their families. To this end, our group applied for an Interprofessional Education Exchange (IPEX) grant from the University of Louisville, sponsored by the National Cancer Institute. We received the grant, and traveled to Chicago in November of 2018 to participate in a three-day training workshop aimed at developing the skills needed to design and implement comprehensive IPE tools for clinicians (nurses, social workers, physicians, chaplains, pharmacists, and others) who are training in the field of HPM.

Results: The outcomes of the IPEX training session included developing our team culture, learning important interprofessional and palliative care core competencies and guidelines, understanding the use of collaborative learning techniques, and engaging in curriculum development. As the team worked through our curriculum development activities, we established a new model that could guide our thinking. The core content of this new model included the 2016 Interprofessional Education Collaborative Core Competencies. The main themes that we developed include learning to "people," learning to "job," and learning to respect.

Lessons Learned: Working with the interdisciplinary team provided multiple lenses that were helpful for seeing the big picture along with developing the details of the curriculum. Through the course of developing our IPE learning map, we discovered that providing flexibility to learners was crucial given the limited time available to impart the content. At the same time, some face-to-face discussion was felt to be necessary to encourage the reflection needed for attitudinal skills. We established that utilizing existing frameworks, curriculum, and validated evaluation tools provided efficiency and quicker development to achieve our goals. We have learned that identifying key allies in the institution early will be crucial to our ongoing success. We continue to be challenged by limited/no funding but are working to create a sustainable program that will continue to be a valuable resource for learners.

Future Applications and Next Steps: The team will continue to develop an online problem-based curriculum to train learners from various disciplines in the core elements of HPM, including how to function as members of an interprofessional health care team. We will develop pre- and post-tests to measure the knowledge, behavior, attitudes, and skills needed for effective team work, and other core HPM competencies. While our efforts will focus initially on those learners rotating with the HPM clinical team(s), our hope is to expand access to this curriculum to other areas of the hospital system that have identified needs for palliative care interventions (intensive care units, emergency departments, oncology, etc.).

Development of an interprofessional education curriculum for palliative care learners

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Michigan Medicine[1], University of Michigan School of Nursing[2], Medical School[3], College of Pharmacy[4]

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Currently, resources exist to guide interprofessional and palliative care education to standardize learning. The guiding framework for Interdisciplinary work is **The Interprofessional Education Collaborative (IPEC)'s Core Competencies for Interprofessional Collaborative Practice** have been endorsed by IPEC member organizations as the agreed upon set of core competencies across disciplines.

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Purpose

The goal of this project is to develop a curriculum in Palliative Care including online learning modules, reflective practices and clinical education/experience, all with an emphasis on interprofessional education (IPE).

IPE Grant Award

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See www.ipexproject.org

IPEX Program:

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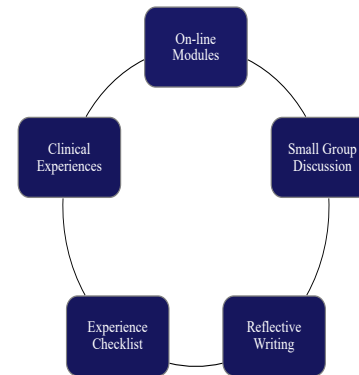
Accountability to IPEX program:

Michigan Medicine's 5-member interprofessional team completed pre-workshop assignments and learning, attended a 3-day "train the trainer" workshop in November 2018, and continues to engage in progress reports and check-ins with the IPEX faculty.

Outcomes of the Workshop:

Learning important interprofessional competencies

Learning palliative care core competencies and guidelines

Understanding the use of collaborative learning techniques

Engaging in curriculum development.

Curriculum Development

- On-line Modules
- Small Group Discussion
- Reflective Writing
- Experience Checklist
- Clinical Experiences

Outcome Measures
- Post-Test
- Reflection
- Faculty Evaluation

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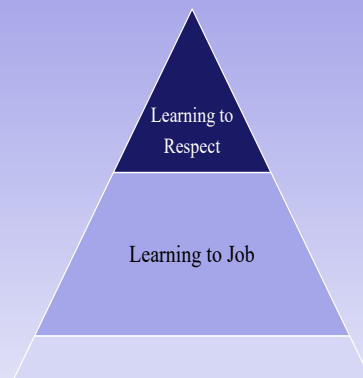
Learning to Respect

Learning to Job

Themes	Interprofessional Education Collaborative (IPEC) Competencies	Curriculum Learning Objectives
Learning to People	Teams and Teamwork 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 and family centered palliative care. Communicate with patients, families, and professionals across disciplines in a responsive and responsible manner that supports a team approach to the promotion and maintenance of well-being as defined by the patients and families

Lessons Learned

- Providing flexibility to learners is essential due to limited time to impart content
- Some face-to-face discussion will be necessary to encourage the reflection needed for attitudinal skills
- Utilizing existing frameworks, curriculum, and validated evaluation tools provides efficiency and quicker development to achieving our goals
- Identifying key allies in the institution early will be crucial to our ongoing success
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Future Application/Next Steps

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- Utilize Canvas learning management system for content to facilitate accessibility, independence and interactivity
- Develop pre- and post-tests to measure the knowledge, behavior, attitudes and skills
- Initial focus on those learners rotating with the Adult Palliative Care clinical team(s)
- Expand access to this curriculum to other areas of the hospital system that have identified needs for palliative care interventions (intensive care units, emergency departments, oncology, etc.)

102: Better Teamwork, Better Patient Outcomes: Inter-professional Simulation Education as a Strategy for Preparing Future Nurses

Authors: Cindy Fenske, Margaret McLaughlin, Anita Simmons, Joesph Yaksich, Mihaela Zegrean, Betsy Cambridge, Ben Oliver

Background: Despite longstanding efforts to strengthen communication skills for more effective teamwork, patient safety issues persist. Alarmingly, new graduate nurses are often reluctant to voice concerns about safe practice and patient care to other members of the care team, thereby devaluing their own expertise. TeamSTEPPS® teaches communication and advocacy skills. As a strategy that recognizes the value of each team member, simulation provides a safe, non-threatening environment for students to practice and learn skills while increasing confidence, competence, decision-making ability, and clinical judgment. Inter-professional simulation education involving various health professions and ancillary personnel, offers substantial evidence that such training contributes to the development of collaborative, highly functioning health care teams. Through simulation that uses role-playing, high-fidelity manikins, and debriefing, we sought to strengthen nursing students' individual and team competencies.

Actions, Methods or Interventions: The purpose of the study was to determine if the effect of TeamSTEPPS® training and weekly simulation practice would improve teamwork skill performance during simulation and attitudes towards teamwork in undergraduate nursing students. A convenience sample of 57 junior level students at a Midwestern school of nursing completed the TeamSTEPPS® Teamwork attitudes questionnaire (T-TAQ) and were rated on the TeamSTEPPS® Team Performance Observation Tool (TPOT) during a simulation involving teamwork, before and after receiving a total of 30 hours of TeamSTEPPS® training and simulation practice over 15 weeks.

Results: T-TAQ scores showed significant improvement in attitudes regarding team structure $t(56)$ = -4.084, $p=0.000$, team communication $t(53)$ = -4.918, $p= 0.000$, and leadership $t(56)$ = -2.349, $p=0,022$. TPOT scores showed significant improvement in all categories of team performance with the most significant changes in communication $t(55)$ = -5.401, $p=0,000$; situation monitoring $t(56)$ = -7.324, $p=0.000$; and mutual support $t(56)$ = -4.802, $p=0.000$.

Lessons Learned: The findings suggest intentionally integrating TeamSTEPPS® principles and reinforcing teamwork practices through simulation improved undergraduate nursing students' attitudes and performance. While learning to identify opportunities to support other team members, participants were better able to prevent errors during simulation. Notably participants appreciated their individual contribution to recognizing and signaling patient safety concerns.

Future Applications and Next Steps: Our intervention holds promise to as a strategy to improve health care teams and patient outcomes. This simulation intervention and TeamSTEPPS® training is now a mandatory component of the junior level adult illness nursing course.

Better Teamwork, Better Patient Outcomes: Inter-professional Simulation Education as a Strategy for Preparing Future Nurses

Cindy Fenske DNP, RN, CNE; Peggy McLaughlin PhD, RN; Anita Simmons MSN, RN; Joseph Yaksich MSN, RN, ACNP-BC, CHSE

Betsy Cambridge, BSN, RN; Mihaela Zegrean DNP, ACNP-BC; Ben Oliver AEMT-P I/C BS

Concordia University Ann Arbor School of Nursing

Objective

- Does TeamSTEPPS training and weekly simulation improve undergraduate nursing students' teamwork performance and attitudes?

Methods

- 57 Junior level nursing students
- 4 hours of TeamSTEPPS training
- 2 ½ hours of weekly simulation X 12 sessions
- **Pre-Post assessment:**
- Teamwork performance observation tool **(TPOT)**
- Teamwork attitudes questionnaire **(T-TAQ)**

Background

- **Concerns about new graduate nurses'**
  - Communication and teamwork skills
  - Readiness for entry-level practice

- **TeamSTEPPS training**
  - Valid and reliable training tool developed by AHR

- **Simulation**
  - provides a safe, non-threatening environment
  - improves confidence, competence, decision-making ability, and clinical judgment

Pre-intervention IPE simulation
- Patient with heart failure receiving a large amount of IV fluid.
- Required the use of a nurse tech and a HCP
- Received incorrect medical orders if the provider was called

Post-intervention IPE simulation
- Patient with an active GI bleed and dehydration
- Required the use of a nurse tech and a HCP
- Received incorrect medical orders if the provider was called
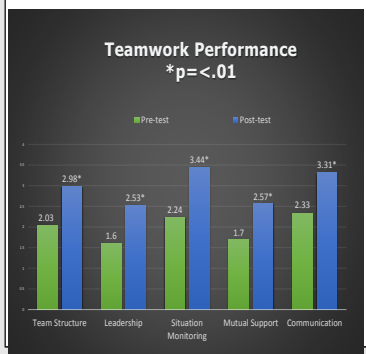
Implications

- Integrating TeamSTEPPS principles and reinforcing teamwork practices through simulation **improved attitudes and performance.**

- **Improvement was seen in error prevention.**

- Students **recognized their contribution to teamwork** and recognition of safety concerns

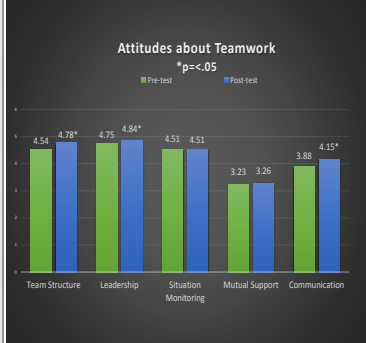- Promise seen as a strategy to **improve health care teamwork and patient outcomes**

Results

- **TPOT** scores were significant (p=.000) in all 5 categories of team performance.

Teamwork Performance
*p=<.01

Pre-test   Post-test

Category	Pre-test	Post-test
Team Structure	2.03	2.98*
Leadership	1.6	2.53*
Situation Monitoring	2.24	3.44*
Mutual Support	1.7	2.57*
Communication	2.33	3.31*

Results

- **T-TAQ** scores were significant in team structure (p=0.00), communication (p=.000) and leadership (p< .05)

Attitudes about Teamwork
*p=<.05

Pre-test   Post-test

Category	Pre-test	Post-test
Team Structure	4.54	4.78*
Leadership	4.75	4.84*
Situation Monitoring	4.51	4.51
Mutual Support	3.23	3.26
Communication	3.88	4.15*

103: Interprofessional education gaps in medical student education

Authors: Brittany Allen, Jocelyn Schiller, Anita Malone, Lauren Heidemann, Helen Morgan

Background: As medical practice becomes increasingly complex, the need for multidisciplinary care grows. It is increasingly important for new interns to participate in collaborative teams. Learners who do not utilize interprofessional collaboration may struggle when they transition to residency. We sought to assess learners' needs to inform the development of interprofessional education (IPE) content for medical school residency preparatory courses.

Actions, Methods or Interventions: Medical school graduates from the University of Michigan Medical School in 2016 and 2017 who entered Emergency Medicine, Internal Medicine, Pediatrics, Obstetrics-Gynecology, and Surgery residencies were surveyed regarding gaps in IPE knowledge and skills. The survey was an anonymous electronic survey that consisted of both multiple choice questions based on a Likert scale (0=no understanding, 5= neutral, 10= full understanding/extremely prepared) as well as free text questions. Questions were designed after literature review and consultation with residency preparatory course directors. Graduates were asked what provider roles and IPE scenarios they would have liked to learn about prior to graduation. They were asked if they had witnessed providers struggling to work with others respectfully and if so, what factors contributed.

Results: Survey response rate was 43.9% (54/123 graduates). Graduates were neutral in their understanding of other providers' roles (mean 5.70, SD 1.75), their preparedness for handling conflict with patients (mean 5.63, SD 2.07) and other providers (mean 4.78, SD 2.06), and their preparedness for relationship building/navigating team dynamics (mean 5.74, SD 1.98) The three provider roles they would have benefitted most from understanding were discharge planners, inpatient nurses and social workers. Graduates were most interested in learning more about interprofessional collaboration in discharge planning, "code blues" and admission processes. Thirty (55%) shared observations of disrespectful behaviors; most commonly cited contributing factors were lack of understanding of other providers' roles, miscommunication, stressful situations and overconfidence/entitlement.

Lessons Learned: This survey demonstrated that many medical school graduates do not feel prepared to address conflict with other providers and patients and they also do not have a strong understanding of other providers' roles. The observations that were shared demonstrate recognition that these difficulties may arise from lack of knowledge of provider roles, effective communication, and stress management across professions.

Future Applications and Next Steps: These findings reveal an important gap in interprofessional education and communication that should be addressed during the final phase of medical school. We plan to use this data as well as obtain data from Program Directors and other health professionals to fill these gaps by developing an interprofessional education and collaboration curriculum for senior medical students within our specialty-specific Residency Preparatory Courses.

Interprofessional Education Gaps in Medical Student Education

Brittany Allen MD, Jocelyn Schiller MD, Anita Malone MD,
Lauren Heidemann MD, Helen Morgan MD

University of Michigan Medical School

BACKGROUND

- Interprofessional collaboration is a exceedingly important aspect of medical care.
- We aim to create an interprofessional education (IPE) curriculum within the M4 Residency Preparatory Courses (RPCs) – 4-8 week specialty-specific courses taken in the spring prior to graduation.
- We sought to assess learners' needs to inform the development of this curriculum.

METHODS

- Anonymous Qualtrics Survey of recent graduates from the University of Michigan Medical School who entered residencies in Internal Medicine, Pediatrics, OB/Gyn, Emergency Medicine, or General Surgery.
- Graduates received at $15 gift card incentive for completing the survey.
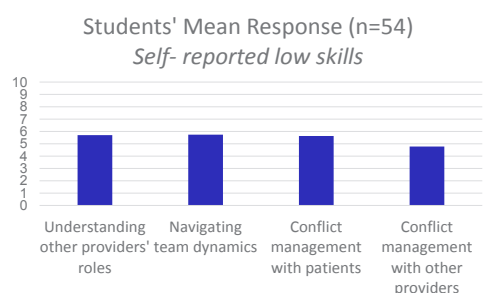- Funding: U-M CRLT Faculty Development Fund.

SURVEY QUESTIONS

1. Other roles in medical profession prior to med school?
2. Understanding of other providers' roles? (1-10 Likert)
3. Preparation for relationship building with other providers and navigating team dynamics? (1-10)
4. Preparation for difficult conversations and conflict management with other providers? (1-10)
5. With patients? (1-10)
6. What provider roles would you have benefitted most from understanding?
7. Others who have struggled with working with other professionals to maintain mutual respect and shared values- why?

8. Scenarios you would have liked to participate in, with focus on IPE, prior to graduation:
   - Discharge planning- barriers to discharge
   - Cardiac arrest/codes
   - Trauma
   - Intra-operative emergencies
   - Addressing psychosocial stressors
   - Medication errors/interactions
   - Admission process
   - Addressing/reporting abuse
   - Other:

RESULTS

54 of 123 (43.9%) graduates responded: 11 Pediatrics, 11 Internal Medicine, 7 EM, 16 Surgery, 12 OB/Gyn

Highest 3 Ranked Provider Roles Residents Wanted to Understand Better:

Pediatrics: Floor Nurse, Care Manager, RT
Internal Medicine: Care Manager, Floor Nurse, Social Work
EM: RT, Care Manager, Social Work
Surgery: ICU Nurse, Floor Nurse, Care Manager
OB/Gyn: Floor Nurse, Care Manager, Social Work

Students' Mean Response (n=54)
Self- reported low skills

(Bar chart with categories: Understanding other providers' roles; Navigating team dynamics; Conflict management with patients; Conflict management with other providers)

Highest Ranked Clinical Scenarios Which Residents Wanted Simulations:

Pediatrics: Discharge planning (medical and psycho-social barriers to discharge)
Internal Medicine: Discharge planning
EM: Mock Codes
Surgery: Discharge planning and Mock Codes (tie)
OB/Gyn: Discharge planning

Have you seen someone struggle with working with others of other professions to maintain a climate of mutual respect and shared values?

What do you think contributed to this difficulty?

"Lack of understanding of the other person's role/workflow/daily activities; workplace culture that perpetuates lack of respect of other professions/rank; high stress situations; difficult families"

"Misunderstanding the work flow of each departments staff ."

"Lack of understanding of role in patient care, scope of duties and unique challenges faced."

"Poor understanding of the limits of other providers roles."

"Most commonly issues were related to lack of knowledge regarding the role of the other professional"

"Communication errors or difficulties, attitude of disrespect, lack of team mentality and shared goals"

CONCLUSIONS

- Many graduates don't feel prepared ("neutral" on the scale) to address conflict with other providers and patients and they also do not have a strong understanding of other providers' roles.

- Difficulties in collaboration may arise from lack of knowledge of other provider roles, effective communication, and stress management across professions.

NEXT STEPS

- Currently completing analysis of program director interviews and focus groups of professionals regarding gaps in interprofessional education and how we can better prepare interns for this during medical school.

- Results will be used to inform curricula for the 2020 Residency Prep Courses

104: Identifying and Supporting Trafficked Youth: A Clinic-wide Approach

Authors: Jenni Lane, Maggie Riley, Lisa Markman, Dana Shin, Natalie Sochacki

Background: Human trafficking and commercial sexual exploitation is a significant public health concern that remains prevalent in the state of Michigan. According to the National Human Trafficking Hotline, Michigan ranks seventh in the country for the number of reported trafficking cases per year. Trafficking research shows that over 87% of survivors surveyed had contact with medical providers in primary care clinics, emergency departments, family planning clinics, or other health care settings while being trafficked. However, victims of trafficking report not disclosing their status to providers due to many obstacles including fear, shame, language barriers, and limited time during interactions with medical staff. Concurrently, training opportunities on identifying victims of trafficking remain limited for providers, and even more limited for all health center staff. In October, 2018, the Adolescent Health Initiative designed and delivered an innovative, multidisciplinary CME course on "Identifying Trafficked and Commercially Sexually Exploited Youth in Health Care Settings" to address this need. The event provided opportunities for health care professionals across the clinical setting to identify signs of trafficking and sexual exploitation among adolescent and young adult patients, strengthen practices, facilitate disclosure, and improve victim identification.

Actions, Methods or Interventions: AHI developed three components for this CME course.
Part I: A one-day, in-person training was held on October 30, 2018, including:
•	An interactive keynote presentation on trafficking research and opportunities for providers to identify victims in health care settings;
•	A panel discussion with survivors and experts from trafficking organizations;
•	Small group simulated patient interactions from the perspectives of providers, medical assistants, front desk staff, and other members of the health care team;
•	A train-the-trainer module on how to deliver a replicable, interdisciplinary "Spark training" on identifying victims of trafficking at participants' respective health care practices; and
•	Action planning to identify opportunities for practice improvements in the next 3-6 months.
Part II: Spark Training and Enduring Materials
•	Participants received a ready-to-use Spark presentation, script, and case studies to help facilitate discussion and "spark" practice change. The Spark training is now available for download on AHI's website for continued use among health care professionals.
Part III: Training Video
•	A video on "Voices of Trafficked Youth in Health Care" is being created and will be available for continued use, including content from panel discussions and interviews with survivors and experts in the field.

Results: The innovative, multidisciplinary CME course, "Identifying Trafficked and Commercially Sexually Exploited Youth in Health Care Settings," was held on October 30, 2018. Eighty-two health care professionals attended, including physicians, nurses, social workers, and clinic administrators. 70 evaluations were completed, with highlights below.
o	Conference objectives met – 3.77/4.0 scale
o	Overall evaluation of this conference – 3.73/4.0 scale
o	Intent to change/improve practice – 91.43% yes
o	"Previously, trainings that I attended did not have very much of a practical component. One of the many great things about this training is that it provided some concrete strategies for identifying and supporting youth. The panel was perfect and the survivor stories humanized the topic in a compelling way. Bravo!"

Lessons Learned: While the replicable Spark mini-training is an ideal format for engaging a multidisciplinary team of health center staff and providers, it may be challenging for health centers to deliver the Spark in a short period of time after the face-to-face training, particularly if they are asked to have participants to complete brief evaluations after as well as send in their own evaluation of the training.

Future Applications and Next Steps: AHI will build on the success of the trafficking CME offerings, and has applied for funding to follow a similar model, titled "Navigating Michigan's Legalization of Recreational Marijuana with Adolescent Patients: Effective Responses to a Rapidly Changing Landscape." This project will still provide a replicable mini-training for mini-conference attendees to disseminate among their home teams, but the format will be slightly different to make evaluation easier.

ADOLESCENT HEALTH INITIATIVE

IDENTIFYING AND SUPPORTING TRAFFICKED YOUTH: AN INTERDISCIPLINARY, CLINIC-WIDE APPROACH

Jenni Lane, MA; Lisa Markman, MD; Aisling Zhao; Natalie Sochacki; Dana Shin; Lauren Ranalli, MPH; Maggie Riley, MD

MICHIGAN MEDICINE
UNIVERSITY OF MICHIGAN

BACKGROUND

Human trafficking and commercial sexual exploitation of minors are significant public health concerns that remain prevalent in the state of Michigan. According to the National Human Trafficking Hotline, **Michigan ranks seventh in the country** for the number of reported trafficking cases per year.

87% of sex trafficking survivors have had contact with medical providers in primary care clinics, emergency departments, family planning clinics, or other health care settings while being trafficked.[1]

However, victims of trafficking report not disclosing their status to providers due to fear, shame, language barriers, limited time during interactions with medical staff, and many other obstacles. [1]

Training opportunities on identifying victims of sex and labor trafficking remain limited for providers and health center staff. Health care professionals have identified the greatest barriers to identification of victims as **lack of training** (34%) and **lack of awareness of sex trafficking** (22%). [2] In fact, 63% said that they had never received training on how to identify sex trafficking victims. [2]

When health care professionals did receive training, they were more likely to: [2]
• Report sex trafficking as a major problem locally ($P \leq .001$)
• Have encountered a victim in their practice ($P \leq .001$)
• Have greater confidence in their ability to identify victims ($P < .001$)

OBJECTIVES

Through support from Michigan Medicine's Office of Continuous Professional Development, the Adolescent Health Initiative developed an innovative, multidisciplinary CME course on "Identifying Trafficked and Commercially Sexually Exploited Youth in Health Care Settings" to address this need. Using an evidence-based, survivor-centered, and trauma-informed approach, this course focused on helping participants achieve these objectives:

Identify signs of trafficking and sexual exploitation among adolescent and young adult patients

Describe strategies for providers and staff to screen for, identify, and support trafficked and sexually exploited adolescent and young adult patients

Identify opportunities to provide additional training to providers and staff within their clinical setting

Participants at the one-day CME course, *Identifying and Supporting Trafficked Youth*, in October 2018. 95 people registered for the event.
Photo credit: Janine Driver

COURSE CONTENT

The course was conducted in a two-part format.

Part I: A one-day, in-person CME course delivered in October 2018

A keynote presentation on trafficking research and opportunities for providers to identify victims in health care settings

An audiovisual presentation of survivor perspectives, including audio and video clips

A panel discussion with experts from the field, including a pediatric child abuse specialist, a local FBI agent, representatives from two youth-serving community-based shelters, and a nurse practitioner

Small group discussions of cases from the perspectives of providers, social workers, medical assistants, front desk staff, and other members of health care teams

A train-the-trainer module on how to deliver a replicable "Spark training" on identifying victims of trafficking at participants' respective health care practices

Action planning to identify opportunities for practice improvements in the next 3-6 months

Part II: Spark Training and Enduring Materials

AHI's successful Spark training model format consists of a ready-to-use presentation, script, and supplementary handouts on a topic of clinical relevance to be delivered by a provider or staff member to their health center team. Trainings take only 15-30 minutes, making them accessible even for busy clinical teams.

During the one-day session, participants were trained to deliver an interactive Spark presentation on identifying and supporting trafficked youth to providers and staff at their clinical settings. The premise of this Spark is that every adult can play a part in identifying and supporting trafficked youth, from front desk staff to providers and social workers.

Participants received a ready-to-use presentation, script, and case studies to help facilitate discussion and "spark" practice change.

The Spark training was made available for free download on AHI's website for continued use among health care professionals.

Production began on a video called "Voices of Trafficked Youth in Health Care," including content from panel discussions and interviews with survivors and experts in the field, as a supplement to the Spark for continued learning.

1. Lederer LJ, Wetzel CA. The health consequences of sex trafficking and their implications for identifying victims in healthcare facilities. *Ann Health L.* 2014;23:61.
2. Beck ME, Lineer MM, Melzer-Lange M, Simpson P, Nugent M, Rabbitt A. Medical Providers' Understanding of Sex Trafficking and Their Experience With At-Risk Patients. *Pediatrics.* 2015;135(4):e895-e902. doi:10.1542/peds.2014-2814

www.adolescenthealthinitiative.org

EVALUATION AND RESULTS

AHI's novel "whole health center" approach for identifying trafficked and sexually exploited youth in health care settings has helped to fill a gap in professional development opportunities on this topic, which remain limited and focus mostly on provider interactions with patients. Evaluations assessed both course attendees as well as Spark participants.

Course Attendees

Day-of course evaluation
We developed a CME-compliant course evaluation survey to assess participants' perceptions (n=70) of course organization, clarity, relevance, and overall quality.

93% stated that organization, clarity, content relevance, and overall quality was "good" or "excellent."

Participants also demonstrated improvements in knowledge, attitudes, confidence, and awareness of trafficking topics in a retrospective pre-post questionnaire.

Agreed or strongly agreed:

70%→100% "I can define what 'human trafficking' means."

39%→100% "I can identify signs of trafficking, describe screening strategies, and support trafficked youth."

16%→91% "I feel prepared to train coworkers within my work setting."

65%→94% "I feel that human trafficking is a significant problem or priority."

Day-of action planning
We collected qualitative and quantitative data on practice changes attendees would make as a result of the training within the next 3-6 months. The top three were:

1. Generating a list of resources for staff to use when concerned about trafficking (50%)
2. Making a site-specific plan for suspected or identified trafficking cases (49%)
3. Delivering a Spark on Identifying and Supporting Trafficked Youth (47%)

Three-month post evaluation
We reassessed course attendees three months after the conference for knowledge, attitudes, and action plan follow through, using similar survey questions as the day-of evaluations in order to ensure comparability (n=17).

Almost all respondents at the three-month post felt they had changed or improved their practice because of the conference (94%).
• 35% had already generated a list of community resources (and 35% more planned to in the next 6 months)
• 35% had already made a site-specific plan (18% planned to)
• 18% had facilitated the Spark on trafficked youth (12% planned to).

"The conference opened my eyes to a problem I was previously only vaguely aware of. I will be much more alert for problems among patients in the future."

I was able to:
• "train other staff and made people more aware that it could be happening in our community"
• "implement screening questions into assessment"
• "write a protocol [for our system]"

Spark participants

Select course attendees facilitated the Spark training at their respective sites following completion of the CME course. Attendees disseminated course evaluations to their health center staff who participated in the Spark to measure knowledge and attitudes, again utilizing retrospective pre-post methodology (n=49).

Agreed or strongly agreed:

87%→98% "I can define what 'human trafficking' means."

63%→98% "I can identify signs of trafficking among adolescents and young adults."

49%→98% "I can describe strategies to support trafficked youth."

105: Examining Opportunities for IPE between a Associate Degree Granting Dental Hygiene and Nursing Program

Authors: Megan Bilbee, Jennifer Cullen, Tara Spencer

Background: To comprehensively address issues around access to affordable quality healthcare, today's healthcare system demands a collaborative, multidisciplinary approach. Yet, some allied health education programs struggle to incorporate interprofessional education (IPE) due to already burdened curriculums and limited faculty and student time to engage in true IPE activities. To deconstruct these barriers specifically, this study aimed to examine areas of curricular overlap between an associate degree granting dental hygiene program and nursing program at a community college. The second aim of this study was to assess the program directors' knowledge, experience, and concerns surrounding IPE.

Actions, Methods or Interventions: Quantitative data for the study were collected via syllabi for nineteen dental hygiene courses and nine nursing courses, which were obtained via e-mail and assessed for shared course objectives. Results of the syllabi analysis were tracked using an electronic spreadsheet. Qualitative data were collected via interviews held with the program directors of the dental hygiene and nursing programs.

Results: Twenty-two common topics were identified and evaluated for commonalities between the dental hygiene and nursing programs. Of the 22 topics evaluated, 20 had objectives addressed in both programs. The 20 learning objectives occurred simultaneously 37 times. The most frequent overlaps included the subjects of interprofessional communication skills (7), process of care (4), and ethical reasoning (2), among others. The program directors expressed positive attitudes toward IPE, however both acknowledged having little experience implementing activities between their respective disciplines.

Lessons Learned: The results of the syllabi analysis showed many commonalities between learning objectives and outcomes in the associate degree granting dental hygiene and nursing programs. These areas of curricular overlap have potential for future joint IPE activities. Based on the study findings, suggestions for specific IPE activities were made. Results of the interviews were consistent with previous research identifying specific barriers to IPE activities.

Future Applications and Next Steps: The findings of this study could assist allied health education program directors in identifying strategies for addressing known challenges with IPE implementation. Additional research is required to determine the real-world feasibility of implementing specific IPE activities into the separate curricula. Furthermore, inclusion of specific IPE language in the CODA and ACEN accreditation standards will be important in driving changes necessary for successful IPE implementation into dental hygiene and nursing educational programs.

EXAMINING OPPORTUNITIES FOR IPE BETWEEN AN ASSOCIATE DEGREE GRANTING DENTAL HYGIENE AND NURSING PROGRAM

MR Bilbee, TK Spencer, JL Cullen

M SCHOOL OF DENTISTRY — UNIVERSITY OF MICHIGAN

BACKGROUND

- Preparing future dental and medical providers requires innovative educational and practice strategies that recognize and promote the interrelationship between oral and systemic health.

- Research shows allied health education program directors place value on IPE, but struggle to implement specific IPE related activities into their respective programs.[1]

- Known barriers to implementation of IPE include:

  →Lack of understanding true IPE activities.
  →Lack of time to plan, implement, evaluate activities.
  →Coordination of schedules.
  →Already burdened curriculums.

- The methods used for this study are unique to the literature as no other study was found that specifically evaluated the parallels between learning objectives from allied health education programs of the same college.

- Suggestions for IPE activities between the two programs were made based on the study findings.
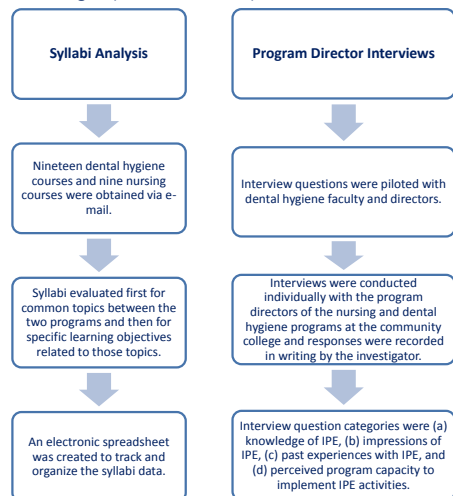
AIMS

The aims of the study were to:

1. Examine areas of curricular overlap between an associate degree granting dental hygiene and nursing program at a community college.

2. Assess the knowledge, experience, and barriers associated with IPE as perceived by the respective program directors.

METHODS

This study was determined to be exempt from oversight by the Institutional Review Board (IRB) for the Behavioral and Health Sciences at the University of Michigan (HUM#00145109).

Syllabi Analysis

↓

Nineteen dental hygiene courses and nine nursing courses were obtained via e-mail.

↓

Syllabi evaluated first for common topics between the two programs and then for specific learning objectives related to those topics.

↓

An electronic spreadsheet was created to track and organize the syllabi data.

Program Director Interviews

↓

Interview questions were piloted with dental hygiene faculty and directors.

↓

Interviews were conducted individually with the program directors of the nursing and dental hygiene programs at the community college and responses were recorded in writing by the investigator.

↓

Interview question categories were (a) knowledge of IPE, (b) impressions of IPE, (c) past experiences with IPE, and (d) perceived program capacity to implement IPE activities.

RESULTS

Syllabi Analysis

- Nineteen dental hygiene and nine nursing courses were evaluated.

- Twenty-two areas of study were identified. Twenty of the 22 areas had at least one common learning objective between the two programs.

Program Director Interviews

- Both directors expressed positive attitudes toward the importance of IPE.

- Director A was aware of related accreditation standards for her program. Director B was minimally aware of related standards.

- Director A's and B's perceived barriers included already burdened curriculum and limited faculty/student time. In addition, Director B noted lack of faculty and administration buy-in as a barrier.

Figure 1. Summary of syllabi topics and frequency of common objectives.
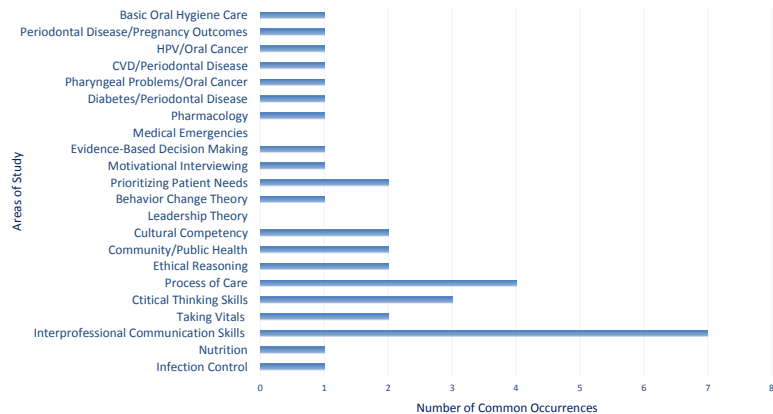

Table 1. Recommendations for joint IPE topics and activities.

Learning Level	Topics	Activities
First Year (foundational subjects that require application of skills)	• Nutrition • Vital signs • Infection control	• Joint simulation lab exercises • Guided online discussion board
Second Year (complex subjects that require higher order thinking)	• Oral-systemic link • Prioritizing patient needs • Ethical reasoning	• Case review • Clinical care planning • Clinical outreach experiences

LESSONS LEARNED

- Results of syllabi analysis showed areas of overlap that have potential for future joint IPE activities. Results of interviews were consistent with previous research that identified barriers to IPE activities.

- Accrediting bodies need to take the lead by incorporating meaningful and specific IPE language in their standards for academic progression.

- Limitations: differences in course sequencing; piloting of the interview questions included only dental hygiene professionals; number of courses (N=27), allied health programs (N=2), and program directors interviewed (N=2) were small.

SUMMARY

- This study's approach to deconstructing barriers to IPE was unique in that it shed light on commonalities between learning objectives in an associate degree granting dental hygiene and nursing program.

- Capitalizing on existing shared objectives and activities could conserve program resources and allow for opportunities for students to learn together during their professional training.

- Additional research is required to determine the real-world feasibility of implementing specific IPE activities into the separate curricula.

Reference: Furgeson D, et al. Interprofessional education in U.S. dental hygiene programs. J Dent Educ. 2015 Nov; 79(11):1286-94.

106: Improving Handoff From The Pediatric Emergency Department to Inpatient Services

Authors: Brandon Meyer, Elise Gross, Aaron Schuh, Natalie Schellpfeffer, Elaine Pomeranz, Brittany Allen, Naomi Wi

Background: Standardized handoff tools have been shown to decrease medical error rates and increase communication efficiency. At our institution, no standardized handoff exists for providers when a patient is admitted from the pediatric emergency department to inpatient medical services.

Actions, Methods or Interventions: An interdisciplinary group from the departments of emergency medicine and pediatrics created a modified I-PASS tool. Visual aids were placed in clinical workspaces and all providers received badge buddies depicting the tool. Education was provided at department conferences and a virtual lecture was also created for all providers rotating through the ED to view before the start of their rotation.

Results: Measures evaluated included: quality of handoff, as determined by inclusion of essential components of handoff based on published literature, provider satisfaction, and duration of handoff. The pre-intervention web based survey was completed by 87 providers representing all groups solicited; 69 providers completed the post-intervention survey. Post-intervention, most providers remained neutral or somewhat satisfied with current handoffs in regard to efficiency, detail, safety, and length. Results of post-intervention handoff assessments showed improvement in inclusion of nearly all essential handoff items. A physical exam was mentioned 84% of the time (N=77), up from 70% (N=82). Interventions performed were mentioned 90% of the time (N=77), up from 84% (N=81). Pending tasks and recommendations were discussed 78% (N=77) of the time, up from 65% of the time (N=81). Average time of individual handoffs remained similar (4.3 min vs 4.6 min). On a subjective rating scale of 1 (poor) - 5 (excellent), the average rating of handoffs increased to 4.0 (N=79) from 3.8 (N=56).

Lessons Learned: More providers are now "somewhat satisfied" with most aspects of handoffs, compared to before the handoff tool was implemented. Inclusion of essential patient care information, such as physical examination, interventions performed, and pending tasks, has increased, while still maintaining time efficiency. Amount of "signouts of signouts" decreased.

Future Applications and Next Steps: Will re-consider how best to teach IPASS mnemonic to providers (i.e. during orientation for new 1st year residents in Summer 2019), and will consider re-evaluating in the next academic year after implementing next round of QI improvements.

Improving Handoff From the Pediatric Emergency Department to Inpatient Services

Brandon Meyer, MD[1]; Elise Gross, MD[1]; Aaron Schuh, MD[1]; Naomi Williams, PA-C[2]; Natalie Schellpfeffer, MD[2]; Brittany Allen, MD[1]; Elaine Pomeranz, MD [1,2]

[1]Department of Pediatrics; [2]Department of Emergency Medicine; University of Michigan Medical School, Ann Arbor, Michigan

Background

- Handoffs occur when patient care transitions from one provider to another.
- Handoffs are a vulnerable time for error within the patient care timeline.
- Standardized handoff tools decrease medical error rates and increase communication efficiency.

Specific Aims

- Re-assess current state of patient handoffs from the Pediatric Emergency Department (PED) to Inpatient Medical Service (IMS) after implementation and education of a standardized IPASS tool, involving all PED provider groups, including residents (pediatrics, emergency medicine, family medicine), fellows, physician assistants and attendings
- Improve patient safety through the indirect measures of provider perception of handoff quality, efficiency, and completeness via individual handoff assessments
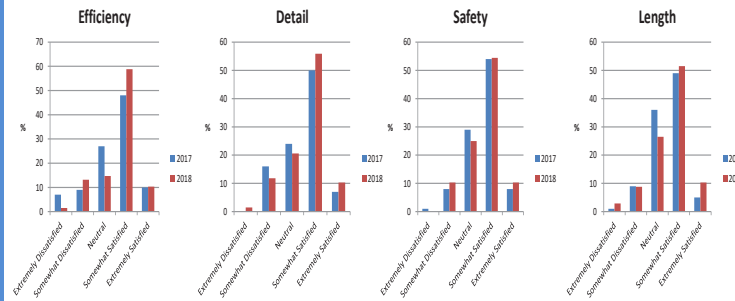
Methods

- A modified IPASS visual aid (Figure 1) was developed and introduced in May 2018 via work space posters, in-person and virtual lectures, and badge buddies
- A brief virtual lecture reviewed the tool and provided ideal patient handoff examples. It is emailed to all PED rotating residents before the start of each rotation
- Post-interventional survey was sent to all providers who rotate through PED in Fall 2018 regarding their perceptions on handoff practices (pre-intervention identical survey was distributed Fall 2017)
- Individual handoffs are assessed by inpatient teams on various measures, from October 2018- February 2019, using an assessment tool (Figure 2)

Figure 1

Results – Perception Survey

- A web-based survey completed by 68 providers (87 pre-interventions) representing all groups solicited.
- **61% of respondents have had handoff education (25% pre-interventions).**

Results – Individual Handoff Assessments

- Average length of handoff decreased from 4.6 min (N=77) to 4.3 min (N=79) and number of handoffs that were "signouts of a signout" decreased from 25% to 15%.
- The average rating of handoffs increased from 3.8 (N=56) to 4.0 (N=79), on a scale of 1 (poor) – 5 (excellent).

Figure 2

Essential Items of Handoffs:	% of Handoffs pre-intervention	% of Handoffs post-intervention
Name/Age/Gender	93	100
Reason for Admission	93	97
Patient Acuity	68	61
Focused Physical Examination	70	84
Interventions Performed in PED	84	90
Pending Tasks/Recommendations	65	78
Opportunities to Ask Questions	94	94

Select Survey Comments/Areas for Improvement

- "I find it frustrating that the receiving team often asks seemingly irrelevant questions … not everything needs to be figured out before a patient gets admitted"
- "Quality of handoff is HIGHLY variable, based on the training … Hopefully continued emphasis of IPASS will help to standardize/improve"
- "The worst handoffs I've received have been when the patient has been handed-off through multiple providers"
- "Keep teaching juniors IPASS, etc. Important to teach, reinforce, and reinforce again"

Conclusions

- More providers are now "somewhat satisfied" with most aspects of handoffs, compared to before the handoff tool was implemented
- Inclusion of essential patient care information, such as physical examination, interventions performed, and pending tasks, has increased, while still maintaining time efficiency
- Amount of "signouts of signouts" decreased, but remain an area with increased susceptibility for poor handoff communication

Next Steps

- We will continue to expect utilization of IPASS for all handoffs from PED to IMS
- Re-consider how to best teach IPASS mnemonic to providers (i.e. during orientation for new 1st year residents in Summer 2019)
- Consider re-evaluating next academic year after implementing next round of QI improvements

107: Improvement of Pregnant Prisoner Care Using an Interprofessional, Hospital-Based Training Approach

Authors: Deb Landis-Lewis, Emily Sluiter, Kelsey Behan

Background: Despite position statements of health and human rights organizations, accredited medical associations, and federal law that prohibits the use of restraints, women are routinely shackled in the peripartum period in states with and without anti-shackling legislation. Ambiguity in hospital policies demonstrates significant gaps in the understanding and practice of healthcare professionals surrounding the treatment of pregnant prisoners. To our knowledge, no standardized curriculum for healthcare professionals on perinatal units exists to inform or improve care for pregnant incarcerated women.

Actions, Methods or Interventions: After a three-year experience of directly observing the care of pregnant prisoners from the Women's Huron Valley Correctional Facility who were admitted to the Saint Joseph Mercy Hospital Ann Arbor, we began conducting a needs assessment in the fall and winter of 2018 with members of the direct patient care team. The team included OB residents, labor and delivery nurses, postpartum nurses, hospital security personnel, and licensed clinical social workers. We held group-led discussions about the state of our current care for pregnant prisoners.

Results: Responses of these sessions helped identify four primary content areas not currently met by any standardized training or educational curricula for healthcare staff:
1. Knowledge: Gaps in medical knowledge about high risk conditions and unique medical needs of pregnant prisoners.
2. Cultural sensitivity: Lack of understanding about prison culture and how it influences interactions between patients, guards, and healthcare professionals.
3. Advocacy/legislation: Lack of awareness of position statements by professional medical organizations (i.e. ACOG and AWHONN) and state legislation, and how to advocate for individual patient needs and legislative change.
4. Policy: Multiple interpretations of current hospital policy on prisoner care by members of the healthcare team, and an outstanding need for improved communication to address potential conflicts of interest among healthcare professionals during the peripartum period.

Lessons Learned: Healthcare professionals at a single institution vary widely in their understanding of the needs of pregnant prisoners. Team-based training has the potential to promote best practice and address discrepancies in care, specifically with regards to shackling in the peripartum period.

Future Application and Next Steps: We are developing an interactive workshop series for healthcare teams that care for incarcerated pregnant women on perinatal units, including attending obstetricians, OB/GYN residents, certified nurse midwives, perinatal nurses, licensed clinical social workers and hospital security. The goal of these workshops is to reduce stigma and provide education in areas where current gaps in knowledge and practice exist so that unbiased, informed, and evidence-based care can be confidently administered to patients. We anticipate that implementation of team-based training will not only increase knowledge but will also contribute to improved cultural competency, communication skills, and advocacy efforts of healthcare professionals who care for this vulnerable patient population.
Evaluation of the workshops will include a pre-and post-training survey comparing knowledge about incarcerated pregnant women, attitudes toward women prisoners and prison reform, knowledge about the medical risks of shackling pregnant and postpartum women, position statements, state legislation, and beliefs/personal practice (including history of or intent to advocate for an incarcerated patient). Development of this curriculum may be used as a model for dissemination and adaptation in hospitals/perinatal units that care for incarcerated pregnant women.

Curricula for healthcare professionals who care for birthing prisoners should address knowledge, structural sensitivity, advocacy/legislation and policy.

Improvement of Pregnant Prisoner Care Using an Interprofessional, Hospital-based Training Approach

Deb Landis Lewis MD, Emily Sluiter, Kelsey Behan MD

BACKGROUND
- Despite position statements of health and human rights organizations, accredited medical associations, and federal law that prohibits the use of restraints, **women are routinely shackled in the peripartum period** in states with and without anti-shackling legislation. Ambiguity in hospital policies demonstrates **significant gaps in the understanding and practice of healthcare professionals** surrounding the treatment of pregnant prisoners.
- To our knowledge, **no standardized curriculum** for healthcare professionals on perinatal units exists to inform or improve care for pregnant incarcerated women.

METHODS
- After a **3-year experience of directly observing the care** of pregnant prisoners from the Women's Huron Valley Correctional Facility who were admitted to Saint Joseph Mercy Hospital Ann Arbor, we began conducting a **needs assessment in the fall and winter of 2018** with members of the direct patient care team.
- The team included **OB residents and attendings, labor and delivery nurses, postpartum nurses, hospital security personnel, and licensed clinical social workers**.
- We held **group discussions** about the state of our current care for pregnant prisoners.
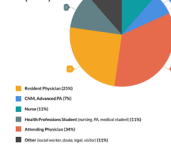
RESULTS
Responses of these sessions helped identify four primary content areas not currently met by any standardized training or educational curricula for healthcare staff:

- **Knowledge:** Gaps in knowledge about demographics, high risk conditions and unique medical needs of pregnant prisoners

- **Structural sensitivity:** Lack of understanding about prison culture and how it influences interactions between patients, correctional officers, and healthcare professionals

- **Advocacy/legislation:** Lack of awareness of position statements by professional medical organizations (i.e. ACOG and AWHONN) and state legislation, and how to advocate for individual patient needs and legislative change

- **Policy:** Multiple interpretations of current hospital policy on prisoner care by members of the healthcare team and an outstanding need for improved communication to address potential conflicts of interest among healthcare professionals during the peripartum period

CONCLUSIONS
- Healthcare professionals at a single institution vary in their understanding of the needs of pregnant prisoners.
- Team-based training has the potential to promote best practice and address discrepancies in care, specifically with regards to shackling in the peripartum period.

NEXT STEPS
- Curriculum development for healthcare teams on hospital perinatal units
- Implementation of team-based training
- Stigma reduction and education where current gaps in knowledge and practice exist
- Improved structural competency, communication skills, and advocacy efforts of healthcare professionals who care for this vulnerable patient population
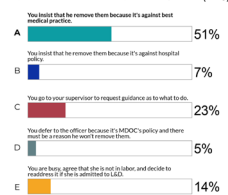
Reference:
Lorie S. Goshin et al. Perinatal Nurses' Experiences With and Knowledge of the Care of Incarcerated Women During Pregnancy and the Postpartum Period,
Journal of Obstetric, Gynecologic & Neonatal Nursing, 48:1, 2019, p 27-36.

Participant Breakdown (n=44)

- Resident Physician (23%)
- CNM, Advanced PA (7%)
- Nurse (11%)
- Health Professions Student (nursing, PA, medical student) (23%)
- Attending Physician (34%)
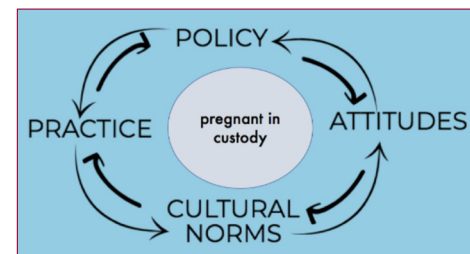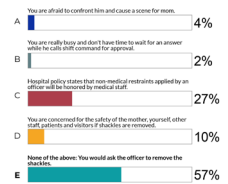- Other (social worker, doula, legal, visitor) (11%)

27% of **respondents believe** that hospital policy states that non-medical **restraints applied by an officer will be honored** by medical staff.

You are caring for a mom in triage who presents from WHV at 36 weeks with a headache and elevated BP. She arrives with shackles. You ask the officer to remove the shackles and he says "No," (because she's not in labor). What do you do? (n=43)

A	You insist that he remove them because it's against best medical practice. — 51%
B	You insist that he remove them because it's against hospital policy. — 7%
C	You go to your supervisor to request guidance as to what to do. — 23%
D	You defer to the officer because it's MDOC's policy and there must be a reason he won't remove them. — 5%
E	You are busy, agree that she is not in labor, and decide to readdress it if she is admitted to L&D. — 14%

You are caring for/rounding on a mother on the Mother-Baby Unit on postpartum day 1. As you move the sheets, you realize that she has leg irons on. The officer in the room is in the corner, on his phone. You don't ask the officer to remove the shackles because: (n=51)

A	You are afraid to confront him and cause a scene for mom. — 4%
B	You are really busy and don't have time to wait for an answer while he calls shift command for approval. — 2%
C	Hospital policy states that non-medical restraints applied by an officer will be honored by medical staff. — 27%
D	You are concerned for the safety of the mother, yourself, other staff, patients and visitors if shackles are removed. — 10%
E	None of the above: You would ask the officer to remove the shackles. — 57%

POLICY → ATTITUDES → CULTURAL NORMS → PRACTICE → POLICY

pregnant in custody

SAINT JOSEPH MERCY HEALTH SYSTEM

108: A Course to Advance Interprofessional Collaboration

Authors: Evelyn Clingerman, Gerry Terry

Background: Interprofessional collaboration (IPC) can be a formidable enterprise at best and at its low result in ineffective teams and disappointing or frustrated communication (Brandt, 2015; Hughes et al., 2016). Surrounding the challenges of advancing interprofessional work are persistent or chronic tensions and limited theoretical approaches. Persistent, chronic or reoccurring tensions, polarizing issues, competing values, or conflicts, indicate that there are poorly managed polarities, or interdependent pairs of values, beliefs or perspectives (Johnson, 1992; Johnson, In Press). Polarity Thinking™ is a systematic way of examining polarities within conflict, tension and polarizing situations and learning to manage polarities, rather than solving or resolving them, can offer sustainable solutions.

Actions, Methods or Interventions: To better prepare university professionals to advance interprofessional collaboration in healthcare, we designed a 15-week interprofessional course for undergraduate students that brings together teachers and professionals from multiple disciplines. This course meets our university criteria for a general education course and is offered in a hybrid format that integrates in-class (12 – 15 hours) and out-of-class learning. Local and regional professionals provide students with exposure to real-world polarities associated with working across disciplines. Students learn to quickly identify and differentiate problems from polarities and to apply the skills of polarity thinking to the challenges associated with interprofessional challenges. Students are expected to apply the skills of dialogue in teams as they work with one another to develop a final project that includes a sustainable. Learning strategies, include the use of video, social media, readings, community leader presentations, small and large group discussions, and research skills.

Results: Student course evaluations are 98% positive. Student comments identify the need to have this course content earlier in their programs or in middle or high school as a life-long skill set. Polarity assessment data indicated the top three student polarities included: Tasks AND Relationships; Activity AND Rest; Paying Bills AND Paying for Extracurricular Activities. Use of a live-time application to assess student application of the principles of polarity thinking indicated students could improve in their leveraging the tension between Feeling Competent AND Feeling Challenged. The assessment indicated they enjoyed challenges and could easily identify redundancy across curricula. Students reported that managing the Candor AND Diplomacy polarity was a high priority item for interprofessional work. Faculty reported positive interactions and "awakenings" to new and unexplored disciplines, interprofessional competencies and scopes of practice. Faculty also report significant challenges in teaching across unique and specific boundaries associated with accrediting bodies and university workloads.

Lessons Learned: Benefits outweigh the limitations from a faculty perspective. All disciplines bring valuable perspectives in working with real-world polarities. The skill of polarity thinking and polarity management can drive sustainable solutions. Generative and design thinking are helpful tools. A foundation in dialogue knowledge and skills are invaluable links with polarity thinking for professionals. Working in collaborative teams with real-world interprofessional concerns sets the stage for applying IPC post graduation.

Future Applications and Next Steps: Research around the use of polarity thinking and polarity management in academia is necessary. Applying and testing the principles of polarity thinking in teams is essential for advancing interprofessional collaboration with teams in academia and practice.

A Course to Advance Interprofessional Collaboration

E. Clingerman, PhD, RN, CNE, FNAP and G. J. Terry, MD, MSN, RN

GRAND VALLEY STATE UNIVERSITY
THE BONNIE WESORICK CENTER FOR HEALTH CARE TRANSFORMATION
Promoting Interprofessional Collaboration through the Kirkhof College of Nursing

Background

Persistent tensions, lack of theoretical approaches and competing demands can limit advancement of collective interprofessional work and result in ineffective, frustrated or disappointed teams (Brandt et al., 2014; Hughes et al., 2016). Johnson's (1992, 2014) Polarity Management™ methodology and Smith and Lewis's (2012) paradox theory provided a foundation to develop a course framed in an IPE context. The theory and method offered an opportunity for students to examine and manage polarities: values, tensions, conflicts and dilemmas that appear as opposites but actually need one another over time to achieve an outcome that neither could achieve alone. Many polarities are inherent in (IPE) making this course especially relevant as a general education course.

Paradox Theory Polarity Management™

Paradox theory (Smith & Lewis, 2011) and Polarity Management™(PM), a method developed by Johnson (1992), provided the framework to facilitate interprofessional learning for students across healthcare disciplines as they learned with, from and about one another (WHO, 2010). The PM methodology assisted students to identify, map, assess, learn and leverage the tensions and ambiguities that exist in healthcare. PM offers an opportunity for examining the greater purpose statement (GPS) that reflects the Triple Aim (Berwick & Whittington, 2008).

Interprofessional Course

We developed a three-credit interprofessional general education course to advance IPE and to specifically assist interprofessional healthcare students to unpack "wicked problems", dilemmas, conflicts and contradictions in healthcare (Wesorick, 2015). This course offers a positive environment for collaboration where group dynamics, team awareness and team-building values align with the Team and Teamwork Sub-competencies of IPEC (2016).

Polarity Map: A Wisdom Organizer

A polarity map is at the core of Johnson's (1992, 2014) methodology. A polarity map visually illustrates a dynamic flow of energy within a polarity tension (see loop on Figure 1). The map is a diagram with two poles that are further divided into halves, with the upper half representing the positive results of giving focused attention to the pole, while the lower half illustrates the negative results of over focusing on the pole and neglecting attention on its pair. The map also contains, a GPS that reflects the outcome that both poles can achieve together but are destined to lose alone because of their interdependency. The deeper fear reflects the loss of the GPS.

Students worked together to develop Action Steps maximize the positive results of each pole and to identify Early Warning signs as an early alert that a tension was being managed poorly and could lead to a loss of the GPS.
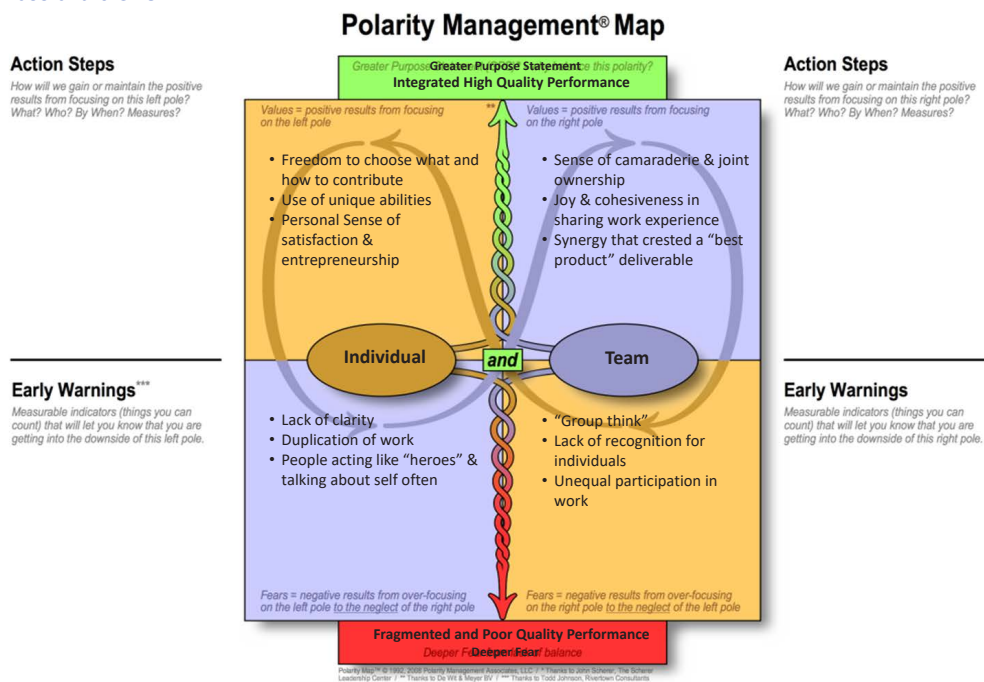

Figure 1: Polarity Map, Polarity Partnerships™

Interprofessional Polarity Examplar

Interprofessional students applied Johnson's (1992) PM method to leverage numerous polarities. Students developed: Individual AND Team that illustrates their use of the PM process. They defined the poles using IPEC (2016) core competencies. The GPS and Deeper Fear, as well as positive results of focusing on each pole, and the negative results of over focusing on each pole and neglecting the other, are listed in Figure 1.

Implications

To avoid wasted time, money, resources, energy and ricocheting between poles, students learned to leverage the dynamic tension between individual and team poles of this polarity by creating Early Warning signs (EWs) as cues to self-correct and Action Steps (AS) to maximize the positive effects of the two poles. Both EWs and AS create a plan to sustain the maximum energy in a polarity to achieve the GPS.

A polarity lens and PM™ offered direction in facilitating an IPE course for 146 undergraduate students. The course is scheduled for adoption as a general education elective within the university. A total of 5 disciplines have contributed to teaching and development.

Conclusions

Johnson's (1992,) polarity mapping methodology was an efficacious model for extending knowledge of IPE in an undergraduate university curriculum. Research to further develop paradox theory and test outcomes associated with the PM method could help to fill gaps in theoretical foundations and add to our ability to further advance IPE. There is good reason to believe that the PM may add to the ways teams function in IPCP as well.

References Available

109: Interprofessional Education in Practice: A Case Study with a Macro Master of Social Work Student

Authors: Emilee Coulter-Thompson, Robin Kocher, Gretchen Piatt

Background: The University of Michigan Medical School's Department of Learning Health Sciences (DLHS) is comprised of an innovative, interprofessional community of scientists with wide-ranging expertise, including biomedical informatics, behavior change, organizational change theory, systems science, quality and performance improvement methods, translational research, bioethics, educational assessment and evaluation, pedagogical innovation and clinical simulation. To continue cultivating a culture of interprofessional collaboration, we partnered with the Michigan Medicine Department of Social Work and the University of Michigan School of Social Work to offer our department's first Master of Social Work (MSW) field placement.

Actions, Methods or Interventions: In the fall of 2017, DLHS aimed to recruit a macro-focused social work student (studying Social Policy and Evaluation, Management or Community Organization) with experience in health care or public health, who was interested in a 24 hours/week field placement in an interprofessional setting with the culture of an academic start-up. Possible projects included a diverse array of interprofessional options, including: an NIH-funded diabetes pragmatic trial; diversity, equity and inclusion (DEI) initiatives; and Learning Health for Michigan (LH4M), a collaborative group which aims to utilize health analytics and knowledge infrastructure to build learning health systems across the State of Michigan.

Results: One MSW student was recruited and completed her macro field placement in Social Policy and Evaluation from March to December 2018. During the field placement, the student initiated and completed projects with diverse faculty and staff spanning multiple disciplines, including: public health, public policy, bioinformatics, pharmacy, and macro and clinical social work (as a Michigan Medicine intern she participated in clinical social work preceptorships and mini-courses). The student learned to analyze and present research data, developed departmental ground rules for discussion related to DEI initiatives, and contributed to an issue brief with policy recommendations for Learning Health for Michigan. Additionally, through her field placement, the student was exposed to new opportunities to explore her interests in informatics and develop foundational coding skills. These new interests and skills inspired the student to pursue further coursework in informatics and pursue the Health Informatics Certificate offered jointly by the School of Public Health and School of Information.

Lessons Learned: In our program, the MSW field placement provides the time and flexibility for social work students to immerse themselves in multifaceted interprofessional learning experiences, such as those offered in DLHS. This field placement offered wide-ranging exposure to multidisciplinary projects within a highly diverse department. One related challenge to offering many choices of projects is the need to prioritize and ensure that students acquire the appropriate depth as well as breadth of learning experiences. Exposure to interprofessional learning has the potential to change students' career trajectories. In this case study, as a result of participating in this DLHS field placement, the student is now on the forefront of the emerging discipline of social work informatics.

To our knowledge, no other basic science departments in the Medical School have offered MSW field placements. Anecdotal reports have shown that this intern's participation in the Michigan Medicine social work graduate education program helped to increase the visibility of DLHS among more clinical areas of the health system. Conversely, having a social work intern helped to increase the awareness of DLHS faculty and staff of macro social work practice and perspectives.

Future Applications and Next Steps: DLHS plans to offer MSW internships in the future, based on the availability of supervising staff and faculty. This field placement serves as an example for other departments interested in developing interprofessional education opportunities for macro social work students.

MICHIGAN MEDICINE
UNIVERSITY OF MICHIGAN

SCHOOL OF SOCIAL WORK
FIELD INSTRUCTION
UNIVERSITY OF MICHIGAN

Interprofessional Education in Practice:
A Case Study with a Macro Master of Social Work (MSW) Student

Emilee I. Coulter-Thompson, LMSW, Robin Kocher and Gretchen A. Piatt, MPH, PhD
Department of Learning Health Sciences, University of Michigan, Ann Arbor, MI

Background

- The Department of Learning Health Sciences (DLHS) is an interprofessional community of scientists specializing in:
    - Bioethics
    - Bioinformatics
    - Clinical simulation
    - Educational assessment and evaluation
    - Health system science
    - Implementation science
    - Infrastructure and systems design
    - Knowledge management systems
    - Organizational and behavior change theories
    - Quality and performance improvement methods

- DLHS partnered with the Michigan Medicine Department of Social Work and the U-M School of Social Work to offer DLHS' first MSW field placement.

- DLHS recognized an opportunity to engage a macro social work student in its work. Macro social workers interact with large scale systems and may be involved in policy, research, evaluation, community organizing, or management.

Objective

- Support a culture of interprofessional education and collaboration by hosting a macro MSW intern within DLHS.

Methods

- In fall 2017, DLHS posted a field placement description for a macro-focused social work student (studying Social Policy and Evaluation, Management or Community Organization) with health-related experience.

- Possible student projects included:
    - NIH-funded diabetes pragmatic trial
    - Diversity, equity and inclusion (DEI) initiatives
    - Learning Health for Michigan (LH4M) – a collaborative group that aims to build learning health systems across the State of Michigan

Results

- One MSW student was recruited and completed her macro field placement (24 hours per week) in Social Policy and Evaluation from March to December 2018.

- Internship projects:
    - Analyzed and presented research data from the Praise 2: Diabetes Self-Management Support in Church-based Settings research trial
    - Developed DEI-related departmental ground rules for discussion in DLHS
    - Contributed to an issue brief with policy recommendations for Learning Health for Michigan
    - Developed foundational coding skills

- The student deepened her interest in informatics and decided to pursue the Health Informatics Certificate (School of Information and School of Public Health).

Praise
DIABETES PROJECT

Robin Kocher and Emilee Coulter-Thompson at the Michigan Medicine Social Work Intern Graduation, December 2018

Department of Learning Health Sciences
Revolutionizing Learning, Transforming Health
https://medicine.umich.edu/dlhs

Lessons Learned

- This field placement offered wide-ranging exposure to multidisciplinary projects within a diverse, academic start-up culture.

- One challenge to offering many project choices is the need to prioritize the appropriate depth and breadth of student learning experiences.

- Exposure to interprofessional learning has the potential to change students' career trajectories.
    - As a result of participating in this DLHS field placement, the student is now on the forefront of the emerging discipline of social work informatics.

- To our knowledge, no other basic science departments in the U-M Medical School have offered MSW field placements.

- Anecdotal reports have shown that this intern's participation in the Michigan Medicine social work graduate education program helped to increase visibility of DLHS among more clinical areas of the health system.

- Conversely, having a social work intern helped to increase the awareness of DLHS faculty and staff of macro social work practice and perspectives.

- Mentorship and supervision are important supports for MSW students who pursue non-traditional, interdisciplinary work.

Future Application and Next Steps

- DLHS plans to offer MSW internships in the future, based on the availability of supervising staff and faculty.

- This field placement serves as an example for other departments interested in developing interprofessional education opportunities for macro social work students.

Acknowledgments

110: Development of a Community Health Education Partnership and Services Training Program

Authors: Kimberly Pais, Sarah E. Vordenberg, Antoinette B. Coe, Amber Dallwig, Karen Farris

Background: The Ann Arbor Housing Commission seeks to provide housing and supportive services for low-income individuals and families on a transitional or permanent basis. In 2018, the University of Michigan College of Pharmacy along with the University of Michigan School of Nursing began a partnership with one of its locations, Baker Commons. This partnership started off as a series of student supported interprofessional health fairs but aims to become an ongoing program to deliver health promotion programs that meet the needs of residents. The purpose of this project is to summarize the health needs of the residents with the goal of informing an educational training program for students.

Actions, Methods or Interventions: Data were gathered from health fairs to gain a better understanding of the needs of both residents and students. Stations at the health fairs included blood pressure and blood glucose measurement, interpretation, and education; nutrition education; residents self-identification of health needs; and determination of pharmacies utilized to obtain medications. Descriptive statistics were used to summarize resident and student participation. Debriefing sessions were conducted with students immediately after each health fair in order to gather information about strengths, concerns, and suggestions.

Results: Pharmacy (n = 5) and nursing (n = 9 over 3 health fairs) students provided four events between May to December 2018. Faculty from the College of Pharmacy (n=3) and the School of Nursing (n=1) served as preceptors. The number of residents who attended each event ranged from 13 - 45. Based on the information gathered during the initial health fairs, one formal training session focused on the needs of the population and event logistics was held for students in fall 2018. Residents have indicated that they would like to have services focused on mental health, specifically post-traumatic stress disorder and trauma. We have also found that education on general health guidelines such as blood sugar, blood pressure, medication reviews and nutrition have found to be important topics that residents can benefit from. Finally, from debriefs after the health fairs, students have indicated that it is important to have an understanding of the population they will be working with before they provide services.

Lessons Learned: Based on the information gathered from health fairs at Baker Commons, a 1-2 hour online training program that focuses on an overview of Baker Commons, mental health resources and guidelines, and a clinical skills refresher (e.g., obtaining and interpreting blood glucose and blood pressure measurements) will be created. It is also expected that this program will equip students with the tools they need to successfully work with the residents at Baker Commons.

Future Applications and Next Steps: The information gathered is extremely important because it can help begin a long-lasting partnership between the University of Michigan and Baker Commons. By using the information gathered to create a training program, students will be able to confidently provide services at Baker Commons. They will also have the training required beforehand to help the residents improve their overall health while also improving their own clinical skills.

Initiating a long–term community partnership to improve health: University of Michigan health profession students and the Ann Arbor Housing Commission

Kimberly Pais[1], Sarah E. Vordenberg[1], PharmD, MPH, Antoinette B. Coe[1], PharmD, PhD, Amber Dallwig[2], MSN, RN, Karen B. Farris[1], PhD
[1]College of Pharmacy, [2]School of Nursing

COLLEGE OF PHARMACY — UNIVERSITY OF MICHIGAN

SCHOOL OF NURSING — UNIVERSITY OF MICHIGAN

STUDENT LIFE — EDWARD GINSBERG CENTER

Background

- Ann Arbor Housing Commission (AAHC) provides housing and supportive services for low-income individuals and families on a transitional or permanent basis. AAHC has 16 properties in Washtenaw County.
- The Edward Ginsberg Center connected the College of Pharmacy and School of Nursing with AAHC in 2017.
- The first AAHC location we have partnered with is Baker Commons.
- Our long-term goal is to build a mutually beneficial partnership between the AAHC and University of Michigan health professional schools that will
  - meet the needs of AAHC clients
  - provide opportunities for the delivery of inter-professional care for students, including health assessments, health education, primary care and referrals.
- Training is needed for students before they enter AAHC and interact with clients.

Objective

- Summarize the health needs of the residents with the goal of informing an educational training program for students

Methods

- Training sessions with students were held before the events to discuss procedures and experiences.
- Health fairs were conducted with the following stations:
  - Resident reporting of health needs
  - Blood pressure measurement, interpretation, and education
  - Blood glucose measurement, interpretation, and education
  - Nutrition education
  - Pharmacies utilized to obtain medications
  - "Ask a health related question"
- Data collected included:
  - Number of participants
  - Self-reported health needs
  - Number of participants obtaining
    - Blood pressure and blood pressure measurement
    - Blood glucose and blood pressure measurement
  - Number and discipline of students
  - Number and discipline of preceptors
- Descriptive statistics were used to summarize resident and student participation
- Debriefing sessions were conducted with students immediately after each health fair in order to gather information about strengths, concerns, and suggestions.

Preliminary Results

- Four health fairs were conducted between May – November 2018.

Preliminary Results (continued)

Students

- Students and faculty from the College of Pharmacy and School of Nursing participated (Table 1)
  - Most students and faculty participated in more than one health fair
  - During debriefing sessions, students stated that learning about the residents and reviewing relevant clinical guidelines (e.g., blood pressure and blood glucose) was necessary before the event

Table 1. Student & preceptor disciplines

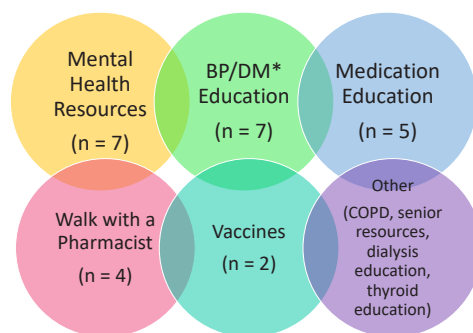| Discipline	# of students	# of preceptors
Pharmacy	5	4
Nursing	9	1

Residents

- The number of residents who attended each event ranged from 13 – 45 (Table 2)
  - An average of 24 residents obtained a blood pressure measurement at each health fair where the service was offered
  - An average of 19 residents obtained a blood glucose measurement at each health fair where the service was offered
- Residents indicated that they would like to have services focused on mental health, specifically post-traumatic stress disorder and trauma, in addition to other health topics (Figure 1)

Table 2. Health Fair Attendance

Date	Topics	# of residents
5/16	Nutrition, blood pressure screening, medication-related questions, self-identification of health needs	25
8/21	Blood pressure screening	13
10/9	Blood pressure screening, blood glucose screening, nutrition	27
11/15	Blood pressure screening, blood glucose screening, nutrition	45

Figure 1. Self-Reported Health Needs

Mental Health Resources (n = 7)

BP/DM* Education (n = 7)

Medication Education (n = 5)

Walk with a Pharmacist (n = 4)

Vaccines (n = 2)

Other (COPD, senior resources, dialysis education, thyroid education)

*Blood pressure and diabetes mellitus

Lessons Learned

- A 1-2 hour online student training program will be developed and delivered using Canvas.
- Topics will include
  - An overview of Baker Commons
  - A video including:
    - Short interviews with health fair participants including: AAHC staff, UM faculty, Baker Commons resident, Pharmacy student and Nursing student
    - Clinical skills refresher related to blood pressure and blood glucose
    - Documents used to obtain a medication history
    - Tips for communicating with patients with low health literacy
- Participation will be assessed via
  - Pre-test: 5-10 question multiple-choice quiz before the health fair
  - Post-test: 2-3 question short-answer quiz for students to complete after the health fair

Future Applications & Next Steps

- The health fairs and information gathered to date are important because it can help begin a long-lasting partnership between the University of Michigan and AAHC. By creating a training program, students will be able to confidently provide services at AAHC properties, including Baker Commons.
- This training will allow us to standardize our processes and help expand and sustain these interprofessional education and interprofessional care activities.
- Next steps include (1) development of a resident advisory board, (2) establishment of standard monthly activities/fairs, and (3) expansion of health professional students who participate in our activities.
- Future work may include partnering with providers (social workers, resident managers, etc) at AAHC property to consider if dissemination/implementation grants that focus on evidence-based health promotion and/or primary care can be submitted.

Acknowledgements

111: Academic Service-Learning Partnership for a Community-Based Stroke Preparedness Intervention in Flint, MI

Authors: Casey L. Corches, Maria Cielito Robles, Lesli Skolarus, Jori July

Background: Academic service-learning (ASL) is an experiential learning approach used to address community needs through a set of intertwining criteria: relevant and meaningful service with the community, enhanced academic learning and purposeful civic learning. Stroke Ready, a community-based participatory research (CBPR) project to improve stroke-preparedness in Flint, MI, and the University of Michigan (UM)-Flint Bachelor of Science in Nursing (BSN) program initiated a reciprocal ASL partnership. The aim of this partnership was to promote the health and well-being of the Flint community while promoting students' deeper understanding of course content and involvement with the community being served.

Actions, Methods or Interventions: The Stroke Ready program partnered with the UM-Flint BSN program to pilot a stroke-preparedness education ASL initiative in Flint, MI. Students from the Community Health Nursing course were selected to participate as health educators in the Stroke Ready program. Academic requirements for the nursing course included completion of 64 hours of community and population activities, creation of a community teaching plan, and a summative reflection of their experience.

Results: Three nursing students were trained as Stroke Ready health educators for the 3-month class term. Each student created and executed a community teaching plan based on the established needs of the community. Stroke-preparedness educational sessions were performed by students in a variety of community venues, equaling a total of 700 brief education sessions implemented, 846 program materials distributed, and completion of one 30-minute workshop. Additionally, nursing students assisted in the development of a 15-minute workshop version.

Future Applications and Next Steps: Incorporating an ASL model enabled Stroke Ready to attempt innovative means of health-education and was integral to the success of dissemination of stroke-preparedness education throughout the Flint community. Moving forward, Stroke Ready will be accepting 3 additional BSN students from UM-Flint. Additionally, we anticipate expanding the ASL initiative to incorporate students from other health and social science programs.

Academic Service-Learning Partnership for a Community-Based Stroke Preparedness Intervention in Flint, Michigan

Casey L. Corches, MPH, MSOTR/L[1], Maria Cielito Robles, BS[1], Lesli Skolarus, MD, MS[1], Jori July, MSN, RN, ANP-BC[2]

[1]University of Michigan – Ann Arbor, [2]University of Michigan – Flint

Background

- The Stroke Ready program and the University of Michigan (UM)-Flint Bachelor of Science in Nursing (BSN) program initiated a reciprocal academic-service learning (ASL) partnership.

- The aim of this partnership was to promote the health and well-being of the Flint community while promoting students' deeper understanding of course content and involvement with the community being served.
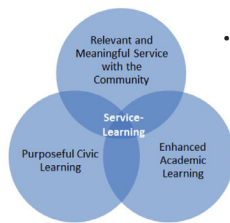
(Image obtained from servicelearning.utk.edu)

- **Academic service-learning (ASL)** is an experiential learning approach used to address community needs through a set of intertwining criteria: relevant and meaningful service with the community, enhanced academic learning and purposeful civic learning.

- **Stroke Ready** is a community-based participatory research (CBPR) project to improve stroke preparedness in Flint, MI.

- The Stroke Ready team is comprised of a multidisciplinary group of health practitioners, health service researchers, and community partners including:
  - a stroke neurologist,
  - a stroke occupational therapist with training in public health,
  - research specialist,
  - research assistants/interns from the Department of Public Health and Health Sciences at UM-Flint and the School of Public Health, UM-Ann Arbor, and
  - Community Advisory Board from Flint-area community and faith-based organizations

Actions, Methods, or Interventions

- In coordination with the Community Health Nursing course instructor, students were selected to participate as health educators in the Stroke Ready program.

- Academic requirements for the nursing course included:
  - completion of 64 hours of community and population activities
  - creation of a community teaching plan, and
  - a summative reflection of their experience.

Results

Term; Length of Term:	Fall 2018; 3 months
ASL Participants:	3 Community Health Nursing students
ASL Competencies:	▪ Creation & execution of a community teaching plan ▪ Delivery of stroke preparedness educational sessions ▪ Collection of process measures for evaluation

Process Measures	
Educational sessions delivered:	700 brief sessions; one 30-minute workshop
Materials disseminated:	846
Community sites:	13

- In response to community stakeholder request, nursing students worked cooperatively as integrated members of the Stroke Ready team to assist in developing a 15-minute workshop version.

- Students reported in their reflections, which included IPEC Core Competencies (CC) for Interprofessional Education Collaborative Practice, that through the experience of working with Stroke Ready, they gained:
  - a greater understanding of their professional role in community health (CC2-Roles/Responsibilities), and as part of a multidisciplinary team (CC1-Values/Ethics for Interprofessional Practice),
  - fulfillment in having the opportunity to play a direct role in delivering program content (CC3-Interprofessional Communication), and
  - the ability to directly impact program improvement (CC4-Teams and Teamwork).

Lessons Learned

- This partnership proved effective in that it promoted the personal and professional development of students involved through learning to work as part of a diverse team of professionals toward the same goal: improving the health and well-being of the Flint community.

Future Applications & Next Steps

- Incorporating an ASL model enabled Stroke Ready to attempt innovative means of health-education and was integral to the success of dissemination of stroke preparedness education throughout the Flint community.

- Stroke Ready has since accepted 3 additional BSN students from UM-Flint.

- Additionally, we anticipate expanding the ASL initiative to incorporate students from other health and social science programs.

Acknowledgements

References

1. Cashman, S.B., & Seifer, S.D. (2008). Service learning: An integral part of undergraduate public health education. *American Journal of Preventive Medicine; 35*(3), 273-278. doi:10.1016/j.ampere.2008.06.012

2. Interprofessional Education Collaborative. (2016). Core competencies for interprofessional collaborative practice: 2016 update. Washington, DC: Interprofessional Education Collaborative.

112: A Peer Leader Training Program for Community Based Stroke Preparedness Education

Authors: Avonlea Rickerson, Maria Cielito Robles, Casey L. Corches, A. Camille McBride, Alison O'Brien, Lesli E. Skolarus

Background: A core tenant of community based participatory research (CBPR) is increasing community capacity. Stroke Ready is a community-based health promotion program that aims to educate and empower members of the Flint community to recognize signs of a stroke and to call 911 as soon as stroke symptoms start. A peer educator is a person from the same community or social group who can explain the concepts in ways that participants can relate to which may enhance the effectiveness of health promotion. In this context, we describe the role of peer educators in Stroke Ready.

Actions, Methods or Interventions: Stroke Ready recruits and hires peer educators in the Flint community to lead Stroke Ready workshops. This face-to-face training led by the academic and community partners takes about 6-8 hours over 1-2 days. To start, the peer leaders go through a 60-minute workshop, led by the Stroke Ready research team, to provide context of what a workshop involves. Peer educators are then trained in public presentation strategies, and other practices, to build and strengthen skills in facilitating an open environment for learning and discussion. Peer leaders are paid an hourly wage.

Results: Five peer leaders were trained initially, however, additional peer educators are hired on a rolling basis and trained to ensure adequate availability to meet the needs of the community. To date we have trained 18 peer educators, which include lay members of the community and local public health and nursing students, who have provided 143 hours over 6 months of Stroke Ready education. Peer educators have also been instrumental in identifying organizations interested in workshops.

Future Applications and Next Steps: The peer educator in training program educates and empowers peer educators to deliver the Stroke Ready workshops. We believe that peer educators are important to building community capacity and to the sustainability of Stroke Ready.

A Peer Educator Training Program for Community Based Stroke Preparedness Education

Avonlea Rickerson, MPH Candidate, Casey L. Corches, MPH, MSOTR/L, Maria Cielito Robles, BS, A. Camille McBride, BS, Alison O'Brien, BA, Narmeen A. Rehman, Lesli E. Skolarus, MD, MS

MICHIGAN MEDICINE
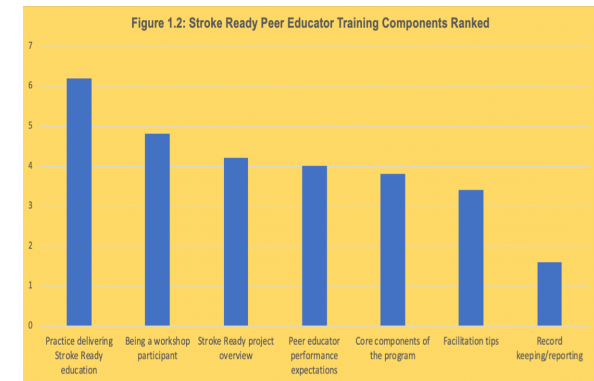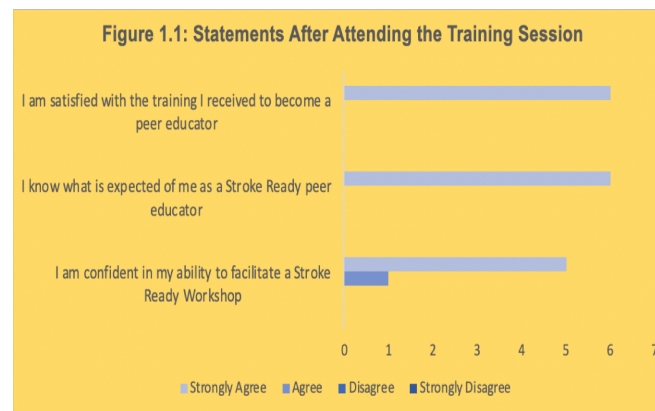UNIVERSITY OF MICHIGAN

STROKE READY

Background

- Community Capacity is a core component in Community Based Participatory Research(CBPR)
- Stroke Ready is a community-based health. promotion Program aimed to educate and empower members of the Flint community to recognize signs of a stroke and seek emergency treatment.
- Peer Educators are used to enhance the effectiveness of health promotion to explain concepts in ways that participants can relate and to build community capacity.

Methods

- Peer educators go through an intensive face-to-face training led by the academic and community partners that takes about 6-8 hours over 1-2 days.
- Training begins with peer educators going through a 60-minute workshop led by the Stroke Ready research team.
- Peer educators are trained in public presentation strategies, and other practices, to build and strengthen skills in facilitating an open environment for learning and discussion.

Results

- To date, we have trained 18 peer educators.
- Based on satisfaction surveys feedback, peer educators are satisfied with training sessions.
- Peer educators were confident in their ability to facilitate a Stroke ready workshop following the training (Figure 1.1)
- Peer educators found that practice delivering the Stroke Ready material most useful (Figure 1.2)

Figure 1.2: Stroke Ready Peer Educator Training Components Ranked

Figure 1.1: Statements After Attending the Training Session

- I am satisfied with the training I received to become a peer educator
- I know what is expected of me as a Stroke Ready peer educator
- I am confident in my ability to facilitate a Stroke Ready Workshop

■ Strongly Agree ■ Agree ■ Disagree ■ Strongly Disagree

Conclusion

- Peer educators are trained to deliver Stroke Ready workshops through methods designed to enhance self-efficacy of delivering educational content.
- We will continue to assess and adapt Stroke Ready content and methods based feedback of trained peer educators.

Acknowledgements

Contact Information

Avonlea Rickerson: avonlear@umich.edu

113: Large Scale IPE Experience – A Model Presentation

Authors: Laura Smith, Debra Mattison, Olivia Anderson, Karen Farris, Mark Fitzgerald, Mengyuan Gao, Laurel Moore, Ghaidaa Najjar, Vani Patterson, Peggy Ursuy, Melissa Gross

Background: IPE in Action brought together over 1100 students from the 10 health sciences schools across U-M's three campuses. The purpose of the event was to build upon the knowledge gained during the Introduction to IPE online module and allow students to experience IPE in person via face to face contact and the opportunity to problem solve a real case scenario.

Actions, Methods or Interventions: The goal of the event was to have students experience IPE and the benefits provided by having different perspectives at the table when assessing and providing care to complex patients. Interprofessional groups of 9-13 students plus a faculty facilitator were assigned. A scripted program to guide groups through the activities including an ice breaker, small group discussion of a case scenario, and larger group discussions of team process. Facilitators were given specific instructions to ensure that all students participated in the discussions.

The program had discussion questions that were intentionally developed to initiate dialogue between students and allow each student to offer their own unique perspective. Faculty facilitators also had scripted probing questions and guidance so that they could facilitate this exchange if needed. The case discussion and interprofessional roles were then illustrated by the actual interprofessional team who provided care for this patient, sharing their roles and interventions and ultimately illustrating the effectiveness of Interprofessional Care.

The experience was 2 hours in duration and a traditional pre- and post-test assessment was used. The experience was rooted in the IPEC competencies of Roles/Responsibilities and Teams/Teamwork at the exposure level. The instrument used to assess student progress toward the aforementioned competencies was the SPICE-R2.

Results: One hundred eighteen faculty and 1163 students from 10 different health professional units participated in the event. About 72% (837) students consented to have their responses on the SPICE-R2 inventory used for research purposes. Students' attitudes about IPE were positive after the event, with the majority of students in agreement with the teams and teamwork items (95.5%), the roles and responsibilities items (71.3%) and the patient outcomes items (88.7%) on the SPICE-R2 inventory.

Lessons Learned: A strong infrastructure from both University and individual units is needed to execute this type of event. The IPE in Action event is multifaceted, and requires intentional assessment to be sure that learning objectives, IPE competencies, and expectations are met. Furthermore, requiring attendance as part of a course was likely a contributing factor to the number of participants.

Future Applications and Next Steps: The IPE Center for Interprofessional Education is committed to implementing this experience again.   We plan to analyze the data and disseminate this project in the format of a peer reviewed manuscript.

Large Scale IPE Experience - A Model Presentation

Laura J. Smith, Debra Mattison, Olivia S. Anderson, Tazin Daniels, Karen Farris, Mark Fitzgerald, Mengyuan Gao, Laurel Moore, Ghaidaa Najjar, Vani Patterson, Peggy Ursuy, and Melissa Gross

CENTER FOR INTERPROFESSIONAL EDUCATION
UNIVERSITY OF MICHIGAN

Background

Purpose: To enable students to build upon the knowledge gained during the Introduction to IPE online module and allow students to experience IPE in person via face to face contact with the opportunity to problem solve a real case scenario.

Intervention

Event Design:
The 2-hour event consisted of a complex case presentation followed by interprofessional team discussions. Interprofessional groups consisted of 9-13 students plus a faculty facilitator.

Case Presentation - Interprofessional Care Team
The case was presented by the actual interprofessional team who provided care for this patient, sharing their roles and interventions and ultimately illustrating the effectiveness of Interprofessional Care.

Faculty Facilitated Interprofessional Team Discussions
- Groups were guided through interactions using an ice breaker, small group discussion of a case scenario, and larger group discussions of team process.
- Scripted discussion questions were used to initiate dialogue between students and allow each student to offer their own unique perspective.

Learning Goals & Assessment
- Pre- and post-test assessments were conducted
- Interprofessional Education Collaborative (IPEC) competencies were assessed at exposure level: Roles/Responsibilities and Teams/Teamwork
- A validated instrument was used: SPICE-R2
- Facility Facilitator Post-Event Survey

Results

- 119 faculty and 1163 students from 10 different health professional units on all 3 U-M campuses participated in the event.
- Preliminary analysis for students from the Ann Arbor campus indicated that student attitudes towards IPE were significantly more positive after the event than before (n=458; $p<.001$).
- The effect size was larger for Roles/Responsibilities ($d=0.67$) than for Teams/Teamwork items ($d=0.29$), suggesting that the impact of the intervention was particularly useful for students' learning about each other's roles in a collaborative team-based setting.
- Faculty Facilitator Survey: Most faculty reported that the event was valuable, however several did not feel prepared to facilitate. Also, the narrow focus of the case was another common theme.

Lessons Learned

- A large scale, face to face event is possible!
- Requiring attendance as part of a course was likely a contributing factor to the number of participants.
- Impact on student learning was demonstrable and positive, especially for Roles/Responsibilities in a collaborative team-based setting.
- The role of the facility facilitator needs to be further developed and the case presented should encompass a broad scope of interprofessional health issues.

Next Steps

- The Michigan Center for Interprofessional Education is committed to implementing this experience again.
- We plan to analyze the data and disseminate this project in the format of a peer reviewed manuscript.

114: Educational Development and Considerations of an Advanced Pediatric Fellowship Simulation Course

Authors: Brian Chang, Allison Powell, Tatum Zurawski, Chelsea Reighard, Susan Ellsperman, Daniel Wehrmann, Noel Jabbour, Steven Goudy, David Zopf

Background: In head and neck anatomy, cleft lip, cleft palate, microtia, and laryngotracheal stenosis are among the most common pediatric conditions requiring surgical repair. However, training surgeons have limited opportunities to practice them outside of the operating room, as few models are commercially available with high degrees of realism. Further exacerbating the situation, animal models cannot fully emulate these congenital anomalies and cadaveric models do not exist for childhood diseases.

3D printing has emerged as a promising tool for surgical education because it is accurate, reproducible, and can create nearly unlimited geometric shapes necessary for complex anatomy. Our group has expanded the use of this technology with the creation of variety of simulators of head and neck conditions since 2015. We have held numerous courses with a variety of our 3D printed simulators and have built our experience in holding courses for medical education. In October of 2018, we held an Advanced Fellowship Prep Course in collaboration with multiple academic institutions, unveiling models for cleft lip, cleft palate, and microtia repairs and laryngotracheal reconstruction to a group of residents and fellows from across the nation. We detail the unique process of developing a curriculum for teaching common Pediatric Otolaryngology procedures using 3D-printed models, from the design of simulators and surveys to the didactics presented during this event.

Actions, Methods or Interventions: Briefly, anatomically accurate models were derived from de-identified imaging of the head, neck, and thorax. Models were then created using Computer Aided Design (CAD) software. Molds were 3D printed and filled with dyed laboratory-grade silicone to create the simulators. Additional materials, such as 3D printed PLA to emulate bone, and higher shore silicone to emulate muscular structures were incorporated into the design.

35 copies of each of the four models were then created for the course, and instructional worksheets for participants including paper handouts and videos were assembled from pre-existing educational material, collected from participating institutions. These materials were distributed to participants approximately two weeks prior to the session.

To evaluate the efficacy of the course, pre- and post-surveys were developed. Specific domains that were ultimately included in the surveys are discussed in the Results section. Pre-surveys were sent to all participants by e-mail. The course was held in a preclinical testing services lab in Atlanta, Georgia. The day of, residents and fellows were assigned to groups of approximately six participants. Groups rotated through stations at 45-minute intervals, with each station including instruction from at least two attending physicians from the University of Michigan, Emory University, or the University of Pittsburgh. Post-surveys were administered at the very end of the course after participants had rotated through all the models.

Results: A total of 27 training surgeons participated in our Advanced Fellowship Prep Course, with 1 third year resident, 18 fifth year residents, and 8 fellows.

Regarding our "end products," the pre-surveys we developed requested ratings of confidence and expertise in each of the procedures prior to instruction, along with general attitudes towards 3D printing and its use in surgical education. The post-surveys assessed the same measures after instruction, but also queried the relevance of the models to surgeons' practice as well as general feedback about the course and its usefulness compared to other didactic modalities. The rational for including those domains are discussed in the Lessons Learned section, and pre- and post-surveys will be available for review. Course pre- and post survey data suggests an increase in proficiency and confidence. Further analysis of these quantitative results has been submitted to ASPO, while further analysis of the development of medical education criteria and outcomes are presented here.

Beyond the surveys, physical models will also be made available for examination, along with instructional materials presented during the course.

Lessons Learned: 1) Scaling up operations is an effort-intensive endeavor that requires interdisciplinary collaboration

Expanding from smaller scale courses to a larger course or multiple courses in a short timeframe challenged us to manufacture in larger numbers. To fulfill this goal, we employed the services of the 3D printing company Thingsmiths because of their familiarity with the technology and ability to produce models quickly, reliably, and economically. Additionally, we originally attempted to paint cleft lips with commercially available materials, but these did not adhere adequately to the silicone. With assistance from Stephanie Kline, an anaplastologist with the Department of Prosthetics, we determined the best material with which to use and refined our coloration to optimize anatomical accuracy. Finally, we needed to ensure our work followed institutional standards around human subjects in education. We consequently developed an IRB exemption for educational purposes with Ms. Malinda Matney, a

consultant with the Center for Research on Learning and Teaching.

Prior to and during the day of the simulation session, we worked closely with Dr. Goudy of Emory Medicine and Dr. Jabbour of the Children's Hospital of Pittsburgh to properly manage our interinstitutional effort. We were also in constant contact with all other contributing attending surgeons to obtain a variety of perspectives on medical education, including specific insights into what different institutions' students would need. As compared to creating a single model, it becomes clear that creating and running an entire educational course requires many different contributors, each taking responsibility over different components of the session. This point is particularly salient when collaborating between academic institutions.

2) The process of surveying physicians prior to and following didactic sessions must be done intentionally.

Prior to this course, the cleft lip model had been used in an educational session for residents with the Department of Otolaryngology at Michigan Medicine. Although the model was well received, the number of post-surveys returned was significantly less than the number of pre-surveys, resulting in poor statistical power. Thus, to ensure we collect enough data to best understand attendee experience, we aimed for a response rate during this course of at least 75%.

Furthermore, we know of no validated survey that has been created to evaluate 3D-printed simulators. Thus, after reviewing literature on other established educational evaluation tools, we endeavored to the best of our abilities to consider each of the ways in which these models may be evaluated, in an attempt to maximize qualitative over quantitative validity. To this end, we formulated our surveys to fulfill three distinct purposes.

First, we wanted to allow for direct statistical comparison. By comparing the same participants before and after the course, we could easily employ a two-tailed paired t-test to determine statistical significance of differences. Second, we sought to detect the presence or absence of confounding factors, including how often the surgeons performed each procedure or how they felt about 3D-printing in general; for instance, we might expect a positive correlation between satisfaction with the course and relevance of the procedures to surgeons' practice, and this bias – if present – might skew interpretation of data. Finally, we wrote surveys to allow for application to surgical models at large, incorporating and encompassing the general domains of medical education. Through this course, we came to better understand the process by which formal evaluation tools could be created, along with the many unique considerations that went into their formulation.

Future Applications and Next Steps: Our next steps are three-fold. We first hope to continue to increase the anatomical and biomechanical accuracy of our models. We have already begun to incorporate such elements as nerves and vasculature to emulate landmarks surgeons must consider during procedures. We have also found that some of the simulators on the market today simply do not feel like human tissue. Therefore, we consistently seek to optimize the realism of our models by adjusting the types and quantities of synthetic materials used.

We would also like to expand the repertoire of training tools made available to practicing surgeons in Otolaryngology as well as in other specialties. To this end, we have worked in conjunction with physicians from within and outside of the University of Michigan to identify what procedures trainees need additional preparation in, and we have continued to design and manufacture models for exactly these surgeries.

Lastly, we look to validate pre- and post-surveys to assess our simulators. As mentioned previously, no validated tool has been created for the evaluation of 3D-printed simulators. Thus, although we can utilize the same surveys for each of our models, we cannot ensure their dependability. Going forward, we would like to collaborate with the Clinical Simulation Center and the Center for Research on Learning and Teaching to develop such a tool not only to facilitate the ease of our own work, but to establish a benchmark by which future simulators may be appraised and compared to one another.

Use of 3D-Printing for Development of High-Fidelity Surgical Simulators in an Advanced Pediatric Otolaryngology Simulation Course

Brian Chang[1], Allison Powell, MS[1], Tatum Zurawski[1], Chelsea Reighard MD[2], Susan Ellsperman MD[3], Daniel Wehrmann MD[4], Noel Jabbour MD MS FACS[5], Steven Goudy MD[6], David Zopf MD MS[4,7]

University of Michigan Medical School, 1500 East Hospital Drive, Ann Arbor, MI 48109, United States of America[1]
Department of Ophthalmology and Visual Sciences, 1000 Wall Street, Ann Arbor, MI 48105, United States of America[2]
Department of Otolaryngology-Head and Neck Surgery, 1500 E. Medical Center Dr, Ann Arbor, MI 48109, United States of America[3]
Department of Pediatric Otolaryngology, Mott Children's Hospital, 1540 E Hospital Dr, Ann Arbor, MI 48109, United States of America[4]
Division of Pediatric Otolaryngology at Children's Hospital of Pittsburgh, 4401 Penn Ave, Pittsburgh, PA 15224, United States of America[5]
Department of Otolaryngology-Head and Neck Surgery at Emory Medicine, 201 Dowman Drive, Atlanta, Georgia 30322, United States of America[6]
University of Michigan Biomedical Engineering Department, 2200 Bonisteel Blvd, Ann Arbor 48109, United States of America[7]

Background

- There currently exist limited opportunities to practice pediatric head and neck procedures outside of the operating room, with constraints on commercial, animal, and cadaveric models
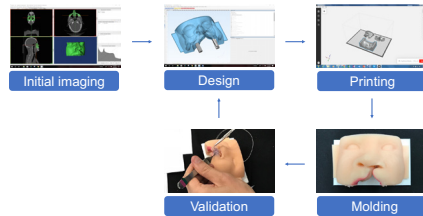- 3D printing represents a promising tool for surgical education


Figure 1. Iterative process of 3D printing.

- Our group has previously created simulators for head and neck conditions, along with didactic courses employing these models
- We detail the process of developing a curriculum for teaching common Pediatric Otolaryngology procedures using 3D-printed models, from the design of simulators and surveys to the didactics presented during this event.
- Specifically, we held an Advanced Fellowship Prep Course in October 2018 for residents and fellows in collaboration with multiple academic institutions, teaching cleft lip, cleft palate, and microtia repairs among other procedures.

Methods

1) Model design and formation
   - Cleft lip, cleft palate, and microtia repair model development per Figure 1
2) Model production
   - Molds 3D printed in polylactic acid (PLA)
   - 2-part silicone dyed with intrinsic coloring, poured into molds, and cured
   - Models de-molded, trimmed, and painted, along with addition of anatomical components as necessary
   - Base components designed to hold cleft lip and cleft palate models
3) Instructional material assembly/distribution
4) Pre- and post-survey development
   - Pre-surveys
     - Prior exposure to the procedure
     - Learning modalities used to train for the procedure
     - Expertise in performing the key components of the procedure
     - Confidence in performing the procedure
     - General attitude towards 3D printing and simulators
   - Post-surveys
     - Same as pre-surveys, plus rating quality of the module content, instructional experience, and simulator itself.
   - Biases
5) Pre-survey administration
6) Course
   - In collaboration with T3 Labs in Atlanta GA, Emory Medicine, University of Pittsburgh Children's Hospital
   - 45-minute stations with instruction from two attending surgeons per station
7) Post-survey administration and analysis
   - Matched two-tailed t-tests
   - Qualitative analysis of narrative feedback

Course
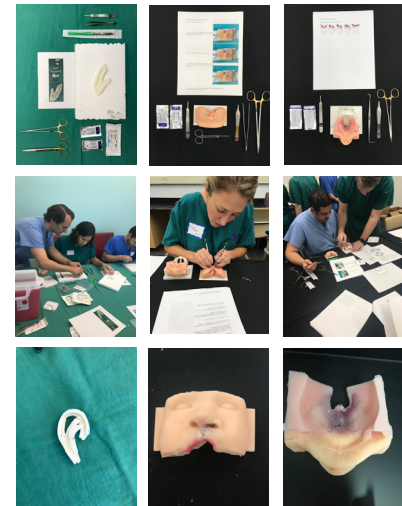
Results

17 surgical residents and 9 pediatric otolaryngology fellows participated in the course. A total of 26 pre-surveys and 25 post-surveys were returned for a response rate of 96%. Major categories analyzed included prior exposure, self-rated expertise, confidence, and attitudes towards 3D printing. Nearly all categories revealed statistically significant differences between the pre- and post-surveys.

The most consistent feedback we received was that the stations should have been held for longer periods of time, with fewer simulators per station. Additional feedback commented on the realism of the "tissue," as it was relatively easy to tear.

Lessons learned

1) Scaling up operations is an effort-intensive endeavor that requires interdisciplinary collaboration
   - Mass manufacturing
   - Prosthetics assistance
   - Educational IRB
   - Surgical collaborators
2) The process of surveying physicians prior to and following didactic sessions must be done intentionally.
   - Pre- and post-survey statistical power
   - Creation of surveys
   - Confounding factors
   - Generalizability
   - Validation of surveys

Next steps

1) Continue to increase the anatomical and biomechanical accuracy of our models.
   - Anatomic landmarks
   - Realism
   - Materials
2) Expand the repertoire of training tools
   - Use in otolaryngology
   - Use in other surgical subspecialties
   - Interinstitutional efforts
3) Validation of surveys
   - Importance
   - Collaborations with the Clinical Simulation Center and the Center for Research on Learning and Teaching

Acknowledgements

References

1. Berens AM, Newman S, Bhrany AD, Murakami C, Sie KC, Zopf DA. Computer-Aided Design and 3D Printing to Produce a Costal Cartilage Model for Simulation of Auricular Reconstruction. *Otolaryngol Head Neck Surg.* 2016;155(2):356-359.
2. Ha JF, Morrison RJ, Green GE, Zopf DA. Computer-Aided Design and 3-Dimensional Printing for Costal Cartilage Simulation of Airway Graft Carving. *Otolaryngol Head Neck Surg.* 2017;156(6):1044-1047.
3. Zopf DA, Flanagan CL, Mitsak AG, Brennan JR, Hollister SJ. Pore architecture effects on chondrogenic potential of patient-specific 3-dimensionally printed porous tissue bioscaffolds for auricular tissue engineering. *Int J Pediatr Otorhinolaryngol.* 2018;114:170-174.
4. Reighard CL, Green K, Rooney DM, Zopf DA. Development of a Novel, Low-Cost, High-fidelity Cleft Lip Repair Surgical Simulator Using Computer-Aided Design and 3-Dimensional Printing. *JAMA Facial Plast Surg.* 2018.
5. Hong CJ, Giannopoulos AA, Hong BY, et al. Clinical applications of three-dimensional printing in otolaryngology-head and neck surgery: A systematic review. *Laryngoscope.* 2019.
6. Zopf DA, Hollister SJ, Nelson ME, Ohye RG, Green GE. Bioresorbable airway splint created with a three-dimensional printer. *N Engl J Med.* 2013;368(21):2043-2045.

115: Interprofessional Code and Rapid Response Course for Medical Students

Authors: Lynze Franko, Becca E. Pilkerton, David T. Hughes

Background: Medical students at the University of Michigan have limited formal exposure to code and rapid response teams. Additionally, medical students have few opportunities to become more familiar with the function of the different team member roles, ACLS treatment algorithms, and code equipment utilized. Members of the multidisciplinary code and rapid response team have immense expertise and experience in responding to these events. Because collaboration and building of a strong team environment can improve patient outcomes, a novel 2-hour course was developed in order to increase medical student understanding of code and rapid response team functions and support interprofessional team building.

Actions, Methods or Interventions: A novel course was developed that focused on improving student understanding of code and rapid response teams, the importance of interprofessional team building, and ACLS treatment algorithms. The course included 2 sessions. The first session comprised of 4 small groups didactics focusing on 1. Introduction to the Rapid Response Team, 2. Roles of the Code Team, 3. Cardiac Defibrillator Monitor and Code Cart Equipment, and 4. Respiratory Therapist Role and Respiratory Equipment. The second session included 5 separate simulated codes of pulseless electrical activity, supraventricular tachycardia, ventricular tachycardia, status epilepticus, and bradycardia. Simulated code instructors were asked to specifically focus on understanding of the code team roles, code communication techniques, and basic ACLS treatment algorithms.

Results: Sixty second year medical students in the procedural branch attended the course in two sets of 30 students. The students were then divided into smaller groups of 4-7 students. Faculty involved in teaching the course included 3 registered nurses, 1 respiratory therapist, 3 surgical residents, 1 emergency medicine resident, and 4 attending physicians from surgery, neurology, and emergency medicine. The medical students and interprofessional lecturers reported valuing the experience. Initial inquiry of the course's impact led to statements from medical students that the course helped to increase understanding of team member roles, communication techniques, and familiarity with code equipment and ACLS cards.

Lessons Learned: Interprofessional lecturers suggested adding more guidance on topics to cover and more time for students to explore code equipment. Additional time for questions and conversations would have been beneficial in order to further support interprofessional team building exercises.

Future Applications and Next Steps: In the future, it would be ideal to expand interprofessional courses such as these to all students making the transition from core clerkships to the branches curriculum prior to their final year of medical school. Broadening this course to include interprofessional learners in the nursing, pharmacy, and respiratory therapist schools in addition to instructors would be beneficial and further support team building between professions. Future courses should also include pre and post course assessments to better understand its impact on student knowledge of code and rapid response team member roles as well as student interest in future team building exercises.

# Interprofessional Code and Rapid Response Course for Medical Students

Lynze R. Franko, BSN, Becca E. Pilkerton, BS, BA, and David T. Hughes, MD

University of Michigan Medical School

Background

Medical students have limited formal exposure or education regarding code and rapid response team utilization and function. They also have few opportunities to become more familiar with the function of the different interprofessional member roles and ACLS treatment algorithms. Nurses and respiratory therapists on the multidisciplinary code and rapid response teams have immense expertise and experience. An interprofessional 2-hour course was developed to bring nursing and respiratory therapist expertise together to teach medical students a critical skill.
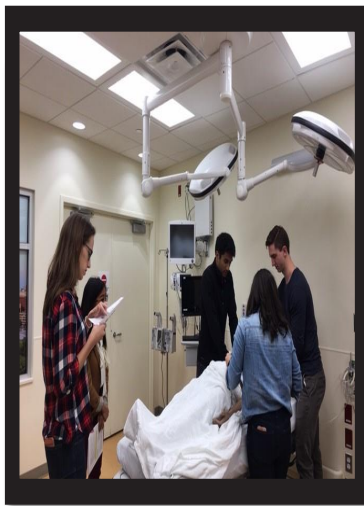
Objectives

1). Improve understanding of code and rapid response team utilization, function, and team member roles.

2). Learn about effective code communication techniques, including closed loop communication.

3). Support developing the essential habit of learning from interprofessional colleagues.

4). Become familiar with ACLS treatment algorithms for common in-patient emergencies.

Intervention

A 2-hour course, which included 2 phases, was developed. The first phase comprised of 4 small groups didactics led by experienced interprofessional team members. The second session included 5 separate simulated codes, focusing on understanding of the code team roles, code communication techniques, and basic ACLS treatment algorithms.

Phase 1
Four 15 minute sessions in groups of 4-6

- Cardiac defibrillator monitor and code cart equipment
- Roles of the code and team communication
- Introduction to the rapid response team and clinical utilization
- Respiratory therapist role and respiratory equipment

Phase 2
15-20 minutes per mock simulation

- Pulseless electrical activity
- Supraventricular tachycardia
- Ventricular tachycardia
- Status epilepticus
- Bradycardia
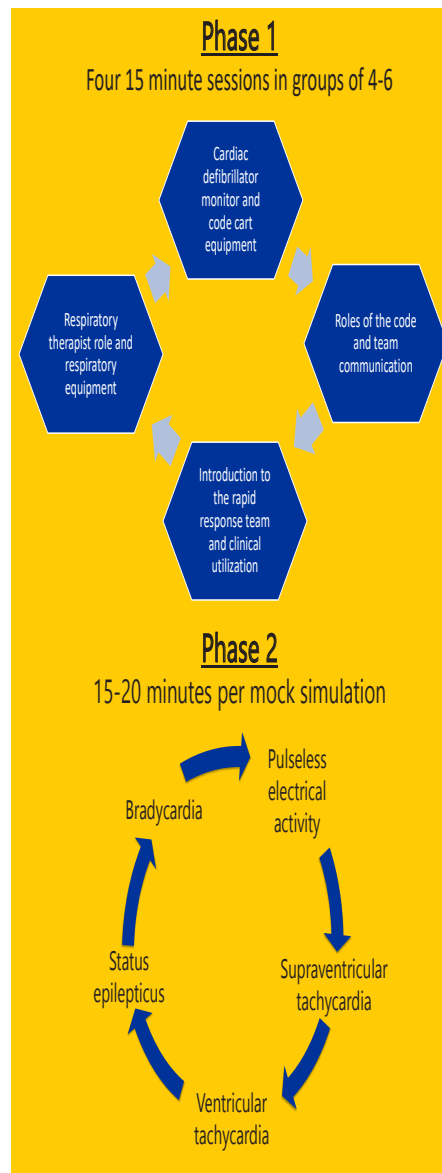
Results

Sixty second-year medical students in the procedural branch attended the course. Faculty involved in teaching the course included 2 rapid response registered nurses, 1 ICU registered nurse, 1 respiratory therapist, 3 surgical residents, 1 emergency medicine resident, and 4 attending physicians from surgery, neurology, and emergency medicine.

Initial anecdotal inquiry of the course's impact led to statements from medical students that the course helped to increase understanding of team member roles and familiarity with code equipment and ACLS algorithms.

Future Directions

1). Increase the number of second-year medical students transitioning to the clerkships who attend the course.

2). Expand to include interprofessional learners in order to model the clinical multidisciplinary rapid response and code teams and bring students in all professions together for a joint learning experience.

3). Include a pre and post-course evaluation assessing the impact of the course and opportunities for improvement.

116: Building a Community of Interprofessional Leaders: Reflections from Cohort 1 and 2 Faculty Fellows

Authors: Ghaidaa Najjar, Caren Stalburg, Tazin Daniels, Vani Patterson, Frank Ascione

Background: Participants at the 2015 Health Professions Education Day reported on a post-event survey that the opportunity to network with other health professionals was one of the most useful aspects of the event; further, they indicated that they would value additional opportunities for networking and collaboration. In addition, there was a clear recognition by IPE Center and other key stakeholders that the success for IPE at U-M would require the development of faculty leaders or "champions" in each of the schools and colleges, as well as the development of concrete, cross-school, collaborative projects that would serve as proofs of concept for IPE on campus.
To meet these goals, the University of Michigan's Center for Interprofessional Education in collaboration with CRLT launched a new Interprofessional Leadership Fellows program (IPL) based on a faculty learning community model. This program was developed so that health science professionals with a strong interest in Interprofessional education and practice might become change agents for IPE efforts on campus and beyond.
The use of a learning community model is supported by a wide body of research in educational development scholarship suggests that more sustained communities of practice are one of the most effective ways to prompt long-standing change (Chism, Holley & Harris, 2012; Stes, Min-Leliveld, Gijbels, & Pategem, 2010). Similarly, organizational change literature indicates that an emphasis on creating networks and sustained personal interaction, often sparked through vehicles like external speakers or lunch discussions, are key to fostering faculty-driven change. For example, Kezar's (2011, p. 12) study of campus grassroots leaders found that "sustained opportunities [like lecture series, periodic forums or luncheon groups] provide a way for people to become informed of research that can be used to make a compelling argument for their change initiative, as well as to craft a vision..[and] allow people to come together and form loose networks and meet allies."

Actions, Methods or Interventions: The goals and objectives of IPL fellows program for cohort 1 and 2:
•	Gain a foundational knowledge about IPE
•	Integrate IPL fellows into broader IPE community at UM
•	Design and implement valuable IPE experiences for students at UM
•	Develop leaders who can move culture toward IPE within their unit and university-wide
To meet these goals, the following activities were required of all participants.
1.	Attendance at one of several national Interprofessional Faculty Development Program workshops, which were developed with support from the Josiah Macy Jr. Foundation. These three-and-a-half day trainings are designed expose faculty to a national network of peers and leaders helping to develop faculty as change agents, and position the university as an emerging leader in Interprofessional education.
2.	Development and implementation of Interprofessional education or practice projects relevant to their respective units, in collaboration with a multidisciplinary team of fellows.
3.	Participation in monthly learning community meetings in the winter term to hear from guest speakers with insight into national Interprofessional education efforts, to learn more about techniques and strategies for enhancing student learning in IPE courses.
To date, there have been four cohorts of faculty that have been recruited into the IPL fellows program, with the fourth cohort launching in January 2018. This brings the total number of faculty fellows to 68. A post-program evaluation survey was sent to the first two cohorts of IPL fellows utilizing Qualtrics. The survey encompassed reflecting questions about the IPL fellows' program. Those questions explored the IPE gains and achievements of the program such as IPL fellows' engagements in IPE activities, IPE, teaching skills' enhancement and IPL fellows' accomplishments. Fellows were given X weeks to complete the survey. No incentive was provided for completion of the survey.

Results: The survey was emailed to 33 IPL fellows who participated in the IPL fellow program from cohort 1 & 2. Twenty three respondents provided their feedback. There were 11 respondents from cohort 1 and 12 respondents from cohort 2.
Benefits from the IPL Fellows Program

Benefits	Yes	No	%
Gaining better understanding of Interprofessional team approach to health care.	22	1	95%
Identifying possible funding sources for IPE activities.	17	6	73%
Connecting with other potential IPE collaborators.	23	0	100%
Communicating effectively within own unit and/or across units about IPE.	20	3	87%
Improving general negotiation skills and conflict management.	17	6	73%
Empowering general leadership and team collaboration skills.	20	3	87%

Enhancing the teaching skills needed to create and/ or teach IPE courses.   20   3   87%
Prioritizing and setting goals for IPE within your unit.   16   7   69%
Becoming an IPE advocate within your unit.   21   2   91%

IPE Involvement/ Engagement

IPE Involvements	yes	no	% yes		
IPE commit/work gp	18	5	78%		
Clinical focused IPE activity linking practice to patient outcomes			12	11	52%
Applying what you gained from IPL fellow program within your unit/ in your setting			20	3	87%

IPE Accomplishments

IPE Accomplish.	Total number	Status	Respondents #
Course Offerings	9	7 Ongoing/ 2 others	9
Presentations	19	presented	9
Publications	5	2 published	
2 submitted			
1 in review	4		
Funds Internal only	4	1 funded	
2 in process			
1 approved	4		

Lessons Learned: 1- IPL fellows program enhanced IPE teaching skills
2-   IPL fellows program provided IPE connections and networking across disciplines
3-   T3 was a positive experience
4-   IPE engagements and productivity was improved

Future Applications and Next Steps: Using measures for outcomes and utilizing a pre-program assessment when building team members collaborators.

Building a Community of Interprofessional Leaders: Reflections from Cohort 1 and 2 Faculty Fellows

Ghaidaa Najjar[1], Caren M. Stalburg[2], Tazin Daniels[3], Malinda Matney[3], Vani Patterson[1], and Frank Ascione[1]

[1] Center for Interprofessional Education, [2] Department of Learning Health Sciences, [3] Center for Research on Learning and Teaching

CENTER FOR INTERPROFESSIONAL EDUCATION
UNIVERSITY OF MICHIGAN

Background

This study explores the impacts of the Interprofessional Leadership (IPL) Fellows program on faculty from cohorts 1 and 2, 2016-2018. The IPL Fellows program is a collaboration between The University of Michigan's Center for Interprofessional Education and the Center for Research on Teaching and Learning (CRLT). The learning community was designed to advance the professional development and networking of health sciences faculty interested in professional education and practice. The IPL program included monthly learning community dinners, participation in the Train-the-Trainer (T3) Interprofessional Team Development program, and the development of a team project geared towards the advancement of IPE at U-M.

Method

- A Qualtrics online survey was emailed to 33 IPL fellows who participated in the IPL program from cohorts 1 & 2.
- Survey questions asked participants to reflect on the IPE gains and achievements they received as a result of participating in the program including continued engagements in IPE activities, enhancement of IPE teaching skills, and accomplishments such as publications and presentations.
- No incentive was provided for completion of the survey.

Survey Findings

Responses

- 23/33 fellows responded (70% response rate). 11 respondents cohort 1 and 12 from cohort 2 with equal distribution across schools/units.
- 16/23 respondents had previous IPE experiences. The previous IPE experiences were describes by the fellows as the following:
    - 8 respondents from previous clinical work
    - 6 respondents from previous teaching/ facilitating/ implanting IPE
    - 2 respondents served on the EC committee before IPL fellows program
- When the respondents were asked whether or not they knew their collaborator before the IPL, only 2 knew previously one of their team members through professional connection and informal networking.

Unit Involved	Total #s	Responses	Academic Appointment
Dentistry	4	3	2 Clinical, 1 Tenure
Kinesiology	4	3	1 Clinical, 2 Tenure
Medicine	4	3	3 Clinical
Nursing	4	3	3 Clinical
Pharmacy	4	2	1 Clinical, 1 Tenure
Public Health	4	3	1 Clinical, 1 Tenure, 1 Staff
Social Work	4	3	3 Clinical
Flint Campus	4	3	1 Clinical, 2 tenure

Results

Without the IPL Fellows program, how likely would it have been for you to collaborate with other IPL fellows team members in an IPE activity/ Collaborative Practice (PC)?
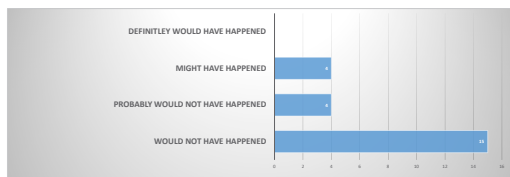
Without the IPL Fellows program, how likely would it have been for your IPE project to become a reality?
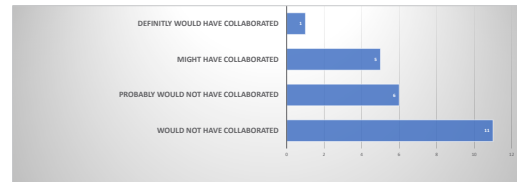
Have you experienced any of the following benefits from collaborating with other IPL Fellows? How, Why or why not?

- Connecting with other potential IPE collaborators 23/23
- Gaining better understanding of IP team approach to health care 22/23
- Becoming an IPE advocate within your unit 21/23
- Communicating effectively within own unit and/or across units about IPE 20/23
- Empowering general leadership and team collaboration skills 20/23
- Enhancing the teaching skills needed to create and/ or teach IPE courses 20/23
- Improving general negotiation skills and conflict management 17/23
- Identifying possible funding sources for IPE activities 17/23
- Prioritizing and setting goals for IPE within your unit 16/23

Other benefits as cited by respondents

"Building partnerships and collaborative opportunities across campus and nationally."

"Continued work with one of my IPE fellows in community health."

"This initiative brings people together to help patients/clients by providing better Interprofessional health care."

What challenges have you worked through as an IPL team? (Select all that apply)
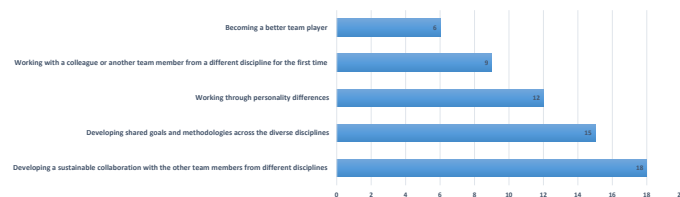
Lessons Learned

- Organizing teams by areas of interest may alleviate one of the most commonly mentioned challenges.
- Encouraging participation of faculty in higher academic ranks may reduce the "risk" for junior faculty and lead to more sustainable teams.
- Greater focus on team process and group behavior may help build the skill sets of faculty to create high functioning teams.

Next Steps

Cohorts 3 and 4 of IPL fellows are currently underway. The program has undergone continuous quality improvement to address many of the challenges and optimize many of the benefits found in this study. Future evaluation needs to explore the long-term impacts of the IPL program on faculty. Measures might include publications, funding, promotion and tenure, changes in practice, IPE collaborations after the program.

117: IPE in Action: Faculty Perceptions

Authors: Ghaidaa Najjar, Melissa Gross, Olivia Anderson, Karen Farris, Mengyuan Gao, Debra Mattison, Laurel Moore, Vani Patterson, Peggy Ursuy, Laura Smith, Mark Fitzgerald

Background: In the fall of 2018 the University of Michigan completed its first "IPE in Action" event. This foundational IPE Experience was designed to further students' abilities to work in teams, with the ultimate goal of improving patient and health system outcomes, as well as population health. Over 1200 students formed into over 110 interdisciplinary discussion groups facilitated by 120 faculty. Faculty perceptions of the effectiveness of the event were collected using a post-event survey containing closed- and open-ended questions. Analysis of the survey included quantitative and qualitative findings.
The IPE in Action event was offered to students either as part of a course or as part of a program. Student participation was required in courses/sections in the Schools of Dentistry, Kinesiology, Medicine, Nursing, Pharmacy, Public Health, Social Work, and the College of LSA on the Ann Arbor campus, in the College of Health Sciences on the Flint campus, and in the College of Education, Health and Human Services on the Dearborn campus. Student participation was required as part of a program in the School of Public Health.

Actions, Methods or Interventions: The Qualtrics survey "Faculty Perceptions of Foundational IPE Experiences" was sent to all faculty who offered the IPE in Action event in a course or program or who facilitated at the IPE in Action event (n=120). Of these faculty, 85 responded to the survey and 6/ 85 didn't provide any open-ended answers to the qualitative questions. The qualitative analysis was derived from the answers of 79/85 participants. Schools represented by these respondents included all of the health science schools at U-M on the Ann Arbor, Dearborn and Flint campuses.

Results: The themes that emerged from the qualitative analysis were: the value of the event, Aha moments, challenges, and recommendations. The qualitative analysis was derived from the answers of 79/85 respondents. The facilitators' units' participation were as follow School/Discipline representation in the survey was:
•   Ann Arbor campus: (17/79) PH, (15/79) Nursing, Kinesiology (2/79), Pharmacy (8/79), Medicine (12/79), Dental (10/79), and Social Work (8/79).
•   Flint campus: (5/79) HS, and (3/79) Nursing
•   Dearborn campus: (4/79) HS
The emerged themes from the qualitative narratives were as follows:
Code   Theme References
Event Value   IPE Context & Interaction   41/79
Acknowledging the importance of other disciplines contributions and their roles in the case   29/79
Group discussion   9/79
Aha Moment   No Aha Moment   16/79
No aha but gaining deeper understanding   5/79
Patient-Centered care discussion   5/79
Necessity to involve patient   5/79
Missing others 'roles   10/79
Appreciating roles of others   30/79
Challenges   Venue, space, lights, parking, etc..   26/79
Engaging students/ stimulating discussion   21/79
Variances in the levels of education & experiences 21/79
Managing 2 teams at the same time 11/79
Students' attitude   10/79
Material and case management   10/79
Recommendations   Venue change 40
        Material/ guide/ more prompts   20

Lessons Learned: 1-A one day IPE would provide a rich IPE experience at the exposure level
2-   Faculty attitudes were positive about the rich IPE environment
3-   The comfort level at the venue was challenging and affected the perceptions of some faculty

Future Applications and Next Steps: The IPE in Action day is an annual event every October. With the

results of this study, the event planning team can better prepare and recruit faculty for the 2019 event. Items for consideration are:
1. Use multiple cases to involve different health care professionals
2. Involving the patient and family/ care giver in the cases
3. Ensure the venue seating arrangement can accommodate the number of learners and faculty
4. Provide a training for facilitators on how to overcome challenges such as students' engagement.
5. Start the event with an inspiring speaker and few reminders for facilitators
6. Add ethics as a measurable competency from cases into the large group discussion

IPE in Action: Faculty Perceptions

Ghaidaa Najjar, Peggy Ursuy, Olivia Anderson, Tazin Daniels, Karen Farris, Mengyuan Gao, Melissa Gross, Debra Mattison, Laurel Moore, Vani Patterson, Laura Smith, and Mark Fitzgerald

CENTER FOR INTERPROFESSIONAL EDUCATION
UNIVERSITY OF MICHIGAN

Background

- *IPE in Action*, one of the largest educational event in U-M history, took place in Fall 2018.
- Over 1200 students formed into over 110 interdisciplinary discussion groups facilitated by 119 faculty.
- Student participation was required in courses/sections in the Schools of Dentistry, Kinesiology, Medicine, Nursing, Pharmacy, Public Health, Social Work, and the College of Literature, Science, and the Arts (LSA) on the Ann Arbor campus, in the College of Health Sciences on the Flint campus, and in the College of Education, Health and Human Services on the Dearborn campus.
- The purpose of this study was to explore faculty perceptions about the *IPE in Action* event and to assess the students' interprofessional education (IPE) learning experience from a faculty perspective.

Method

A Qualtrics online survey was designed to assess faculty perceptions about the value of the IPE experience for student learning and effectiveness of its implementation. The survey was sent to the 119 faculty from the health science schools on all three U-M campuses who facilitated the student discussions during the event.

Results

Quantitative Analysis: Most of the faculty facilitators (n=83; 69%) responded to the Likert scale items on the survey. Faculty agreed or strongly agreed that students at their table:
- demonstrated active engagement and communication of interprofessional perspectives for patient-centered and population-based problem solving (93%)
- articulated the value of working with an interprofessional team to impact patient care and population health (87%)
- identified potential barriers that might impact an interprofessional team providing care to complex patients (67%)

Most of the faculty facilitators (82%) agreed or strongly agreed that *"My experience as a facilitator increased my interest in engaging with IPE in the future."*

Qualitative Analysis: Many of the faculty facilitators (n=79; 66%) responded to the open-ended survey questions. Themes arising from the qualitative analysis were divided into three main categories with sub-themes emerged from each of the following: 1) the value of "IPE in Action", 2) "Aha" moments, and 3) challenges.

Most valuable aspect of the event for students' learning:
- IPE context and interaction (41)
  "Introduction to the concepts, potential value, overall process and basic understanding of IPE"
- Acknowledging the importance of other disciplines' contributions and their roles in the case (29)
  "Opportunities to learn from others' perspectives"
- Group discussion (9)
  "Case study small group discussions"

Observations of "Aha" moments among the students:
- Appreciating roles of others (30)
  "They gained insight into the roles of a pharmacist, social worker and public health professionals"
- Missing others roles (10)
  "We did not have a pharmacy student at our table"
- Necessity to involve patient (5)
  "Students realized that the patient is an important member of the team"
- Patient-centered care discussion (5)
  "When each student brought their own perspective others recognized the importance of treating the entire patient"
- No "Aha" but gaining deeper understanding (5)

Challenges of facilitating interprofessional discussion:
- Venue, space, lights, parking, etc. (26)
  "Bleachers, lighting, group space"
- Engaging students and stimulating discussion (21)
  "Trying to keep the students engaged"
- Variances in levels of education and experiences (21)
  "Widely disparate levels of education and experience"
- Managing two teams at the same time (11)
  "It was difficult to keep track of both small group"
- Students' attitude (10)
  "Some students were engaged and got a great discussion going right away, but others seemed to see the event as just a box to check and it was a bit of a struggle to get them to contribute at all"
- Material and case management (10)
  "Using the script provided seemed unnatural"

Lessons Learned

Although *IPE in Action* was designed as a large scale event for students, it was also successful in engaging a large number of faculty in leading an IPE experience.
"Just the fact of doing it once will help me share my experience with others and I will know what to expect in the future"
Faculty attitudes were positive about student learning in the IPE in Action event. Faculty experienced challenges when guiding interprofessional discussions, suggesting a need for more faculty/ facilitators' guidance.

Next Steps

Observations made by faculty facilitators about aspects of the event design that were valuable for student learning as well as their suggestions for how to improve the event will be incorporated in planning for future *IPE in Action* events.

118: Medical Education Outcomes of CAD and 3D Printed Nasopharyngoscopy Model Experience in First Year Medical Student Course

Authors: Djordje Jaksic, Sudharsan Srinivasan, Allison Powell, Glenn Green, David Zopf

Background: Many procedures that medical trainees are taught, including nasopharyngoscopy, primarily stem from a "see one, do one, teach one" process. When first learning how to use the nasopharyngoscopy tools, trainees often require a step wise approach on easier adult patients before attempting to perform the techniques on pediatric patients and are prone to make the procedure physically uncomfortable for the patient. Not only are pediatric nasopharyngeal airways smaller and therefore more difficult to scope, children are more likely to try and move when in discomfort. To allow for trainees to practice pediatric airway nasopharyngoscopy prior to performing on pediatric airway, we have designed and manufactured a range of high fidelity surgical simulators for hands on education without the drawbacks associated with practicing a procedure on a patient. Specifically, we have made an anatomically correct nasopharyngeal airway model, which was expertly validated by physicians at multiple institutions, used for simulation of a nasopharyngoscopy.

Actions, Methods or Interventions: Our nasopharyngeal airway model was implemented as a training tool at an acute airway course where 10 first year medical students used the simulator. They were given a pre-survey to gauge their current knowledge and understanding of the procedure. They also received a post-survey to gather their subsequent nasopharyngoscopy knowledge. The domains that were studied were overall experience before and after use of the simulator, improvement in anatomical knowledge, and overall value of simulation based education. The surveys used a 5 point scale with 1 representing "None", "Not effective", "No improvement", or "Strongly disagree" depending on the domain in question. A 5 was "Significant", "Significantly effective", "Significant improvement", or "Strongly agree" depending on the domain.

Results: The pre-survey items ranked the medical student overall experience through four categories; expertise, comfort, understanding, and confidence in the procedure, with mean [SD] values being 1 [0], 1 [0], 1.1 [0.32], and 1 [0] respectfully. This strongly indicates that the students had no prior knowledge of how to perform a nasopharyngoscopy. The same items were ranked again in the post-survey with mean values being 2.9 [0.99] for expertise, 3.2 [0.92] for comfort, 3.6 [0.97] for understanding, and 3.1 [0.99] for confidence. This shows a clear improvement in all four categories, and indicates that our simulator was a beneficial learning tool. Additional questions on the post-survey gauged the simulators effectiveness as a training tool (mean of 4.3 [1.06]), improvement of the trainees knowledge of the anatomy of the nasopharyngeal airway (mean of 4.4 [0.7]), and improvement of the trainees ability to locate anatomical abnormalities within the nasopharyngeal airway (mean of 3.4 [1.17]). The final part of the survey asked the trainees if they believe there is an important role for simulation in medical education (mean of 5 [0]), if they would like more training with simulators (mean of 5 [0]), and if they thought the course was beneficial (mean of 5 [0]).

Lessons Learned: Overall, the pre and post-survey scores indicate that our nasopharyngeal airway simulator based education increases the trainees expertise, comfort, understanding, and confidence, making it an effective training tool. The survey also shows that medical students believe that simulation based education is a capable and effective method of learning. Furthermore, 7 out of 10 of the students wrote in the comments section that they enjoyed the "hands on" experience of our simulator. In addition, our course curriculum could be improved to not only obtain better data, but so that the trainees can have a more enriching experience. For example, we wanted to time the students the first and second time they tried to perform the procedure, to see if our model would facilitate a shorter procedure time during the second attempt. However, due to a lack of personnel and errors in course setup, it was not logistically possible. If the course was setup in a more ordered manner where every student attempted the procedure twice, it would make the course more streamline providing a better experience to both the trainees and educators, while providing better data at the same time.

Future Applications and Next Steps: Next steps and future application include working with the Clinical Simulation Center at the University of Michigan Hospital in order to hold more courses with not only our nasopharyngeal airway model, but with all of our surgical simulators. This will help trainees get hands on experience in a variety of procedures that they may not otherwise be able to get hands on experience with before performing on a patient. In addition, we will design and manufacture more novel simulators so that a greater number of surgeries and procedures can have simulation based training as an educational tool.

Djordje Jaksic[1]; Sudharsan Srinivasan, M.S.E.[2]; Allison Powell, M.S.E.[2]; David A. Zopf, MD, MS[3,4]; Glenn Green, MD[3]

1. Department of Biology, University of Michigan, Ann Arbor, Michigan, USA
2. Medical School, University of Michigan, Ann Arbor, Michigan, USA
3. Otolaryngology – Head and Neck Surgery, Pediatric Division, University of Michigan Health Systems, CS Mott Children's Hospital, Ann Arbor, Michigan, USA
4. Department of Biomedical Engineering, University of Michigan, Ann Arbor, Michigan, USA

MICHIGAN MEDICINE

Medical Education Outcomes of CAD and 3D Printed Nasopharyngoscopy Model Experience in First Year Medical Student Course

Background

- Nasopharyngeal complications are common among patients who present to primary care.[1]
- Flexible nasolaryngoscopy (FNL) is an essential diagnostic tool used in Otolaryngology for visual evaluation of the upper airway.[2]
- Trainees would benefit from a realistic, simulation based, training experience in order to develop the necessary knowledge to perform a FNL.

Abstract

- Trainees often require a stepwise approach on adult patients when learning the procedure
- Pediatric patients are more difficult to scope due to their smaller airway and tendency to move.
- To allow trainees to practice pediatric FNL, we designed and manufactured a high fidelity nasopharyngeal airway model, which was expertly validated (Figures 6-9).
- Additionally, we held a pilot course with our simulator consisting of 10 first year medical students (M1) and gathered data about its efficacy as a training tool, and the value of simulation based education via a pre and post course survey.

Objective

We aimed to study educational outcomes of first year medical students completing a FNL course to understand the impact of simulator use in FNL education.

Methods

Design and Production

- Airway anatomy was isolated and designed as an insert into an exterior mold through computer aided design (CAD) using Materialise Mimics and 3-Matic software (Figure 1).
- Mold components were 3D printed with polylactic acid (PLA) (Figure 3).
- Silicone was mixed, dyed, and poured in the mold.
- The mold was cured at 50°C for 4 hours.
- Silicone removed and insert was cut out.
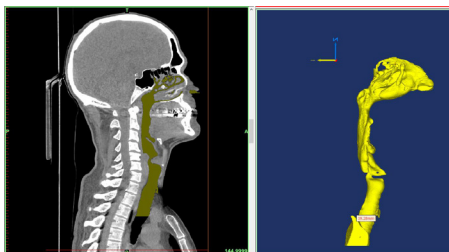- Model was put in mannequin head for course (Figure 5).

Figure 1: CAD of nasopharyngeal airway in Materialise Mimics

Figure 2: MakerBot Replicator Plus 3D Printer

Figure 3: Nasopharyngeal airway mold 3D printed in PLA

Validation

- Expert Otolaryngology – Head and Neck Surgeons completed FNL evaluation of the model.
- Realism, value as a training tool, relevance, and overall performance were evaluated.

Course Design

- Didactic lecture and instruction by two faculty Otolaryngologists.
- Pre course survey gauged prior FNL experience.
- A post course survey was used to monitor changes in FNL experience scores.
- Domains for both surveys were based on a 5 point Likert scale.

Pilot Course

- The Otolaryngology Department at the University of Michigan provided space and equipment for the course.
- Course participants were first year medical students.
- All participants completed the pre and post surveys.
- Two faculty members from the Otolaryngology department were course instructors.

Figure 4: Medical student utilizing the simulator

Figure 5: Close-up of the simulator in the mannequin head

Data Analysis

- Pre and post-module data was compiled and analyzed using paired t-tests and answer means.
- Scores were used to evaluate improvement and monitor feedback in regards to the simulator.

Figure 6: Posterior view of airway lumen

Epiglottis

Figure 8: Close-up of epiglottis and vocal cords

Vocal cords

Figure 7: Superior view of supraglottic and glottic anatomy

Inferior turbinate   **Eustachian tube**
Middle turbinate
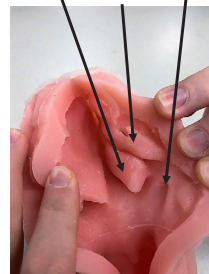
Figure 9: Close-up of nasal turbinate anatomy

Results

Table 1: Means for Domains From the Pre Survey

Domain or characteristic	Mean (N=10)	Std Dev.
Overall previous experience		
Expertise	1	0
Comfort	1	0
Understanding	1.1	0.32
Confidence	1	0

Table 2: Means for Domains and Individual Items From the Post Survey

Domain or characteristic	Mean (N=10)	Std Dev.
Overall current experience		
Expertise	2.9	0.99
Comfort	3.2	0.92
Understanding	3.6	0.97
Confidence	3.1	0.99
Fidelity: Value as a training tool	4.3	1.06
Anatomy		
Improvement in knowledge	4.4	0.70
Improvement in locating abnormalities	3.4	1.17
Role of simulators in medical education	5	0
More training with simulators	5	0
Course was beneficial	5	0

Table 3: Paired Samples Test Between Overlapping Domains for the Pre and Post Survey (df=9)

	t-value	p-value	95% CI
Expertise	6.042	<0.0001	1.19-2.61
Comfort	7.571	<0.0001	1.54-2.86
Understanding	7.319	<0.0001	1.73-3.27
Confidence	6.678	<0.0001	1.39-2.81

Discussion

- There was a statistically significant increase in scores after simulator use.
- The scores between the pre and post surveys suggests that the simulator was an effective learning tool.
- Course participant's starting knowledge level was low.
- Time to locate an abnormality was intended to be another data point.
- Evaluation of students visualizing abnormalities could not be completed as expected.
- In the future, we plan to test individuals separately, or have the video screens be only visible to instructor and student being tested.

Acknowledgements

- University of Michigan Department of Otolaryngology – Head and Neck Surgery
- University of Michigan Clinical Simulation Center

References

1. Y. Nakao, R. Shibata, T. Murohara, T. Tanigawa (2016). Primary nasopharyngeal tuberculosis: a case report. BMC Infectious Diseases, 16, p. 121
2. O'Sullivan, B., Finger, L., & Zwerdling, R.G. (2004). Use of nasopharyngoscopy in the evaluation of children with noisy breathing. Chest, 125 4, 1265-9 .

119: Improving Health Equity by Strengthening Medical-legal Partnerships: The Advocacy Letter Project

Authors: Kayla Phelps, Leah Rappaport, Priyanka Rao, Debra Chopp

Background: Many medical problems intersect with unmet legal needs. While medical providers may screen for social determinants of health, they often lack the time, knowledge, tools and agency to play an active role in advocating for their patients. The University of Michigan has a medical-legal partnership between Michigan Medicine and the Law School's Pediatric Advocacy Clinic (PAC). Physicians, nurses, and social workers can refer low-income patients with legal needs to the lawyers and law students in the PAC. Unfortunately, the PAC has limited capacity and many patients cannot get legal representation through the clinic. The inability of patients to access legal advocacy around social determinants of health contributes to health inequities. The Advocacy Letter Project builds on the relationship between UM physicians and PAC lawyers/law students and expands the reach of much-needed advocacy to vulnerable patients.

Actions, Methods or Interventions: The Advocacy Letter Project worked with the Pediatric Advocacy Clinic (PAC) at the University of Michigan Law School to identify important medical-legal issues and to build capacity among community providers by giving them advocacy letter templates and training for their ideal utilization. The Project incorporates the IPE core competencies of working with individuals of other professions to maintain a climate of mutual respect and shared values as well as using the knowledge of one's own role and those of other professions to appropriately assess and address the health care needs of patients. This project is supported by an American Academy of Pediatrics CATCH grant.
An initial needs assessment identified common medical-legal issues patients face. The interdisciplinary team, which includes physicians, an attorney, and a law student then developed advocacy letters. The team will work with the EMR (Epic) to track utilization and will present workshops for medical providers to optimize utilization of the letters.

Results: Pre and post implementation provider survey data will assist with monitoring perceived efficacy and usefulness of the letter templates. EMR review of letter utilization to identify the most and least commonly used notes will also be done.
Final results are still pending as the project is progressing. Preliminary data suggests a significant need to better identify and intervene on patient's behalf regarding medical legal needs to improve health equity Letter templates are being created, reviewed by PAC, and implemented into the EMR. Data and statistical analysis will be available in March."

Lessons Learned: Medical providers often struggle to identify and intervene on legal issues affecting patient's health. Strengthening an existing medical legal partnership and making patient advocacy letters easily accessible allows physicians to better address their patients' needs.

Future Applications and Next Steps: The next step is broadening access to and utilization of these letter templates in our community. This is a part of a larger effort to strengthen the Medical Legal Partnerships between Michigan Medicine and the University of Michigan Law School by jointly addressing social determinants of health.

Improving Health Equity by Strengthening Medical-Legal Partnerships: The Advocacy Letter Project

Leah Rappaport MD[1], Kayla B Phelps MD[1], Debra Chopp JD[2], Kate Orringer, David Fegley JD[2], Priyanka Rao MD[1]

[1]Michigan Medicine, University of Michigan, Ann Arbor [2]University of Michigan Law School, Ann Arbor

Background

Many medical problems intersect with unmet legal needs. While medical providers may screen for social determinants of health, they often lack the time, knowledge, tools and agency to play an active role in advocating for their patients. The University of Michigan has a medical-legal partnership between Michigan Medicine and the Law School's Pediatric Advocacy Clinic (PAC). Physicians, nurses, and social workers can refer low-income patients with legal needs to the lawyers and law students in the PAC.

Unfortunately, the PAC has limited capacity and many patients cannot get legal representation through the clinic. The inability of patients to access legal advocacy around social determinants of health contributes to health inequities. The Advocacy Letter Project builds on the relationship between UM physicians and PAC lawyers/law students and expands the reach of much-needed advocacy to vulnerable patients and their families.

Purpose

Eliminate barriers through collaboration between the Pediatric Advocacy Clinic at the University of Michigan Law School to identify important legal issues that intersect with medical needs.

Collaborate on building capacity amount community pediatric providers by giving them a tool kit (specifically letter templates) to improve their advocacy for their patients.

Methods

The Advocacy Letter Project worked with the Pediatric Advocacy Clinic (PAC) at the University of Michigan Law School to identify important medical-legal issues and to build capacity among community providers by giving them advocacy letter templates and training for their ideal utilization. A needs assessment identified common medical-legal issues patients face. The interdisciplinary team, which includes physicians, an attorney, and a law student then developed advocacy letters. The team will work with the EMR (Epic) to track utilization and present workshops for medical providers to optimize utilization of the letters. This project is supported by an American Academy of Pediatrics CATCH (Community Access to Child Health) grant.

Results of Needs Assessment

The survey had a 92% response rate (N=11 out of 12 outpatient providers completed the survey)

Percentage of PCPs Identifying Medical-Legal Needs in Patients and Families

Frequency of PCPs encountering patients with legal problems negatively impacting their health or lives

Rarely 18%
4-6 times a week 27%
Once a week 9%
2-3 times a week 46%

Tools used by PCPs to Address Patient's Medical Legal Issues

Referral to Social Work · Referral to GAP · Try to address them myself · Referral to Pediatric Advocacy Clinic

Do you believe these hardships could be alleviated by legal advocacy or representation? **100% YES**
If there were legal resources available in your clinic, would you refer you patients to this resource? **100% YES**

Examples of Letter Templates

Results

Statement	Result
I have adequate tools to help my patients deal with medical legal issues effectively.	81% Disagree
I have adequate tools to help my patients deal with such issues in a timely fashion.	81% Disagree
Having pre-written advocacy letters for medical legal issues would be useful for patients.	81% Agree
Having pre-written advocacy letters for medical legal issues would improve efficiency for providers.	90% Agree

Conclusions

Outpatient pediatricians frequently identify medical legal issues affecting patients including financial, educational, and transportation concerns. Pediatricians believe access to legal representation would help patients and would refer their patients if these resources were available. A majority of providers believe having Advocacy Letter Templates would be useful for patients and improve efficiency for providers.

Next Steps

- Expand training workshops and letter templates to multiple clinic sites across Michigan Medicine.
- Develop additional letter templates for other medical legal issues patients face.
- Continue to develop the medical legal partnership between C.S. Mott Children's Hospital and the Pediatric Advocacy Clinic.

Contacts

Leah Rappaport, MD, Michigan Medicine
lrapp@med.umich.edu
Kayla Bronder Phelps, MD, MPH, Michigan Medicine
kbronder@med.umich.edu
Debra Chopp, JD, University of Michigan
dchopp@umich.edu

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

Authors: Debra Mattison, Donna Fox, Heather Rye, Elizabeth Kuzma, Amy Thompson, Daniel Fischer, Erin Khang, Kuanwong Watcharotone, Erin Stanley, Brent C. Williams

Background: Interprofessional Education has often occurred in a classroom setting. This innovative learning experience sought to move IPE beyond the classroom into clinical practice contexts and the community. A central tenet of this IPE experience acknowledged the reality that most interprofessional care (IPC) is provided asynchronously across time and settings rather than in specialized, team-based settings (e.g., geriatrics or HIV clinics, ICUs). Further, providing students with the opportunity to work with patients with complex needs in community and outpatient settings offered opportunities to witness and evaluate the strengths and challenges of IPC through the eyes of our most vulnerable patients.

Actions, Methods or Interventions: Interprofessional groups of students of at least 2 different disciplines (Medicine, Nursing, Pharmacy, and Social Work) were placed for four half-days over a month with Michigan Medicine's Complex Care Management Program which coordinates and guides care for patients with complex medical, behavioral, and social health needs. We hypothesized that students could learn to recognize indicators that both positively and negatively impact team functioning while also identifying interventions to improve Interprofessional Teams (IPTs) through direct observation guided by faculty and care managers and informed by peer interactions. Foundational learning included pre-rotation readings on cultural, historical, and political roots of today's health professions and their interactions. Faculty facilitated group discussion on the assigned readings, personal values and experiences, and tools and concepts from the literature useful in diagnosing and improving team function. Experiential learning included students accompanying Complex Care Managers during patient encounters in a variety of settings including patients' homes, clinics, and hospital. Care Managers served as system and clinical guides and sought to increase students' awareness of the number and types of people involved in caring for the patient, whether present or not at an individual observed encounter. The rotation ended with a faculty-facilitated small group debriefing discussion that included student evaluation and IPE action planning for the future.

February through May, 2018, the rotation was mandatory for students on selected rotations, and 24 students participated. August through December, 2018, the rotation was voluntary without credit for students in Nursing, Pharmacy, and Social Work (Medicine did not participate), and required for specific 4th year pharmacy students; in all, 3 students participated. Students completed the Attitudes Toward Interprofessional Healthcare Teams Survey before and on the last day of the rotation. Students' written 'take-away' messages from the readings, reflections and feedback on the rotation, IPE Action Plans were also recorded.

Results: Results are reported for the 24 students who completed the rotation between February and May, 2018. Students entered the rotation with relatively high positive attitudes towards IPC. No statistically significant differences were observed in students' attitudes towards IPTs before and after the rotation, arguably due to a "ceiling" effect. Due to small numbers and to protect individual identification, within-discipline analyses were not performed.
Students found the readings on the cultural, historical, and political roots of IPC informative. Discussions of the readings were lively, interactive, and were viewed as relevant to real life team practice which involves challenging communication and at times contentious power dynamics.
In written reflections, students found value in the IPX-CCMP experience and highlighted lessons about their own strengths and weaknesses as interprofessional team members. Common themes included challenges when some team members are disengaged, the importance of communication among team members, and the positive impact of team care on health care providers. Students nearly universally reported finding the rotation valuable. Several students were dissatisfied that the rotation was required and that it was not for credit.
It was encouraging to see that 22 of the 24 students submitted Education Action Plans related to continue to expand their IPE knowledge with 18 students committed to additional reading in IPE, several committing to volunteering or shadowing a clinician in an IPC setting, taking additional coursework in IPC and/or other activities.
The academic faculty enjoyed the challenge and dynamic context of the rotation, but felt significant strain on their already full schedules. The Complex Care Managers, while enjoying the time with students and

opportunity to teach, felt responsible for ensuring a positive patient experience in an unpredictable clinical context; and for teaching while doing their clinical work which was a new, and at times stressful task.

Lessons Learned: The IPX-CCMP pilot carries implications in at least the following areas:
• Historical, cultural, and structural influences in IPC were evident in the learners' preconceptions and biases about IPE. Beginning discussions about these were triggered by the readings and more depth should be pursued in future iterations of IPE.
• Students carried the traditional model of IPE (a stable, small set of providers with equality among members, working together over time) into the experience, and were challenged to switch to more realistic paradigms that include power dynamics, cultural factors (training biases, perception lenses), and systemic influences (malpractice, legal requirements, organizational structure) IPE.
• Incremental administrative time was substantial. To maintain an IPE educational experience, support and/or incentives for faculty and staff time managing rotation logistics are needed.
• Students are much more interested in IPE experiences when they receive academic credit, have clear understanding from and support of their academic program faculty and advanced notice of the IPE expectations.
• Faculty were stretched to develop and implement the rotation over and above current responsibilities. If faculty are to effectively promote and be involved in IPE, issues of administrative valuing of IPE engagement along with workload/protected time/ percent effort must be addressed.

Future Applications and Next Steps: This IPE experience validates the need to continue to look for creative approaches to teaching IPE principles and providing spaces for interprofessional students to learn from, with and about each other beyond the classroom. This experience was received well by students with positive learning outcomes. However, issues related to time intensive structural coordination, staff and faculty time and recruitment of students needs further exploration to identify supports and reward structures to ensure

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

Debra Mattison (School of Social Work); Donna Fox, Heather Rye (Complex Care Management Program {CCMP}); Erin Stanley (Wayne State University); Elizabeth Kuzma (School of Nursing); Amy Thompson (College of Pharmacy); Erin Khang, Daniel Fischer (School of Social Work); Kuanwong Watcharotone, (Michigan Medicine); Brent C. Williams, (Medical School, CCMP).

Background

Interprofessional Education has often occurred in a classroom setting. We sought to move IPE beyond the classroom into clinical practice contexts and the community. Learning experiences focused on interdisciplinary groups of students interacting with patients with complex needs in community and outpatient settings, offering opportunities to witness and evaluate the strengths and challenges of Interprofessional Care (IPC) through the eyes of some of our most vulnerable patients.

Learning environment

Interprofessional groups of students of at least 2 different disciplines (Medicine, Nursing, Pharmacy, and Social Work) were placed for four half-days over a month with Michigan Medicine's Complex Care Management Program (CCMP) which coordinates and guides care for patients with complex medical, behavioral, and social health needs.

Hypotheses

We hypothesized that students could learn to recognize indicators that both positively and negatively impact team functioning while also identifying interventions to improve Interprofessional teams (IPTs) through direct observation guided by faculty and care managers and informed by peer interactions.

Structure of IPE Learning

• Pre-rotation readings on cultural, historical and political roots of health professions and interdisciplinary interactions
• Faculty facilitated group discussion on personal values and concepts on identifying and improving various levels of team functioning
• Experiential learning shadowing Complex Care Managers during patient encounters
• Faculty facilitated end of training discussion, student evaluation and IPE action plan development

24 students from Medicine, Nursing, Pharmacy and Social Work spent 4 half-days at CCMP from February thru May, 2018.

22 of 24 students submitted an IPE Education Action Plan to continue some type of IPE activity in their academic training.

"I will be sure to consciously incorporate interprofessional communication whenever I work on a team and strive to learn each member's area of expertise so we can use the team to its whole potential."   -- Student

Future Steps

Continue using 'real-world' clinical sites for IPE that reveal:
• Current challenges and missed opportunities for IP care
• Function of IPC from patients' point of view

Explore:
• Reward structures in IPE for both students and staff
• Include skills development in evaluating and improving IPC in common clinical settings in IPE curricula
• Advance planning for schedule coordination across schools

Outcome Measures and Results

Attitudes Toward Interprofessional Healthcare Teams Survey (ATHCTS*)

No significant differences in pre-post testing likely due to "ceiling effect" with strong positive pre-existing IPE attitudes

Qualitative Student Feedback: Themes

- *Universally reported IPE rotation as valuable*
- *Clear recognition of importance of team communication*
- *Awareness of challenges with team dynamics and responding to unengaged team members*
- *Dissatisfied that the rotation was required and not for credit*

Lessons Learned

1. Students came with traditional model of ideal IPE teams and experienced real world exposure to power dynamics, differing professional engagement and other team challenges

2. Students may need encouragement, requirement and academic credit to engage in IPE learning given multiple demands

3. If faculty are to engage and maintain IPE activities, protected time and workload credit will be necessary

*Adapted from Heinemann GD, Schmitt MH, Farrell MP. Attitudes toward health care teams. In: Heinemann GD, Zeiss AM (Eds). Team performance in health care: Assessment and Development (pp. 155-159). New York: Kluwer Academic/Plenum Publishers, 2002.

121: Peeling Back the Layers: Unexpected Findings Facilitate Process Improvements in Simulation Enhanced Interprofessional Educational Experiences (Sim-IPE)

Authors: Amy Yorke, Carman Turkelson, Megan Keiser, Leslie Smith

Background: Simulation enhanced interprofessional educational experiences (Sim-IPE) are commonly used in education to promote students from varying professions to practice interprofessional communication and teamwork. Video review is one method of evaluating student performance after participating in Sim-IPE. The purpose of this project was to further explore the unexpected findings of a Sim-IPE and offer strategies for developing best practices, evaluating, and sustaining high quality Sim-IPEs.

Actions, Methods or Interventions: A quasi-experimental design was used to evaluate a Sim-IPE experience on team communication and performance. Using video coding software, 58 Sim-IPE videos were reviewed by two faculty utilizing a standardized protocol with operational definitions focusing on utilization of structured communication tools and teamwork behaviors. During the review, unanticipated findings occurred that prompted utilization of a quality improvement process.

Results: While errors in communication and teamwork were expected and observed, students from all professions also demonstrated inconsistent utilization of critical safety behaviors (e.g. hand hygiene and two patient identifiers). Additionally, patient deterioration occurred at different times during the simulation providing student groups varied opportunities for demonstration of IPE behaviors identified for coding. At times, the simulation scenario was outside of the level of the learner.

Lessons Learned: Video review post Sim-IPE allowed faculty to not only observe student behaviors but also evaluate the overall learning experience. During this project video review to confirm IPE behaviors identified several gaps within the Sim-IPE design that were not expected. These findings facilitated development of a structured process to identify areas within the learning experience requiring additional focus and improvement.

Future Applications and Next Steps: Continue to engage in refining the Sim-IPE and investigate methods to ensure consistent behaviors expected from the learners.

Peeling Back the Layers: Unexpected Findings Facilitate Process Improvements in Simulation Enhanced Interprofessional Educational Experiences

Carman Turkelson, DNP, RN, CCRN, CHSE; Amy Yorke, PT, PhD;
Megan Keiser, DNP, RN, CNRN, ACNS-BC-NP-C; Leslie Smith, PT, DPT

Background and Purpose

- While studies clearly indicate the importance of improving future health care providers interprofessional communication and collaboration skills, the best way to develop such skills remains unknown.
- Simulation enhanced interprofessional educational experiences (Sim-IPE) are commonly used in education to provide students from varying professions to practice interprofessional communication and teamwork.
- Research is abundant describing improvement in student attitudes after participating in a Sim-IPE however, the effectiveness of Sim-IPE on student behaviors related to achievement of core IPEC competencies is sparse.
- Video review is one method of evaluating student performance after participating in Sim-IPE.
- The purpose of this project was to explore the unexpected findings of a Sim-IPE.

Methods

- A quasi-experimental design was used to evaluate a Sim-IPE experience on team communication and performance.
- Fifty-six health care student teams (BSN, DPT, and DNP) participated in a series of three sessions.
  - Pre-simulation education: All students completed an online learning module introducing basic teamwork and communication strategies.
  - Deliberate practice: BSN and DPT students were placed into teams of 4-5 and completed a 2.5 hour deliberate practice session to practice teamwork and communication tools with patient case exemplars.
  - Sim-IPE: Multi-patient team simulation based learning activity.
- Using video coding software, 56 Sim-IPE videos were reviewed by two faculty utilizing a standardized protocol focusing on utilization structured communication tools and teamwork behaviors.

Results

- 50 videos were included for final review.
- While not a focus of the original review, utilization of common patient safety procedures (e.g. 2 patient ID) were commonly missing.
- DNP students did not consistently introduce themselves to the team or utilize team members names during the Sim-IPE.
- The identification of structured communication tools used among team members was not always possible.
- Potential safety concerns were not identified in the BSN-DPT briefings.
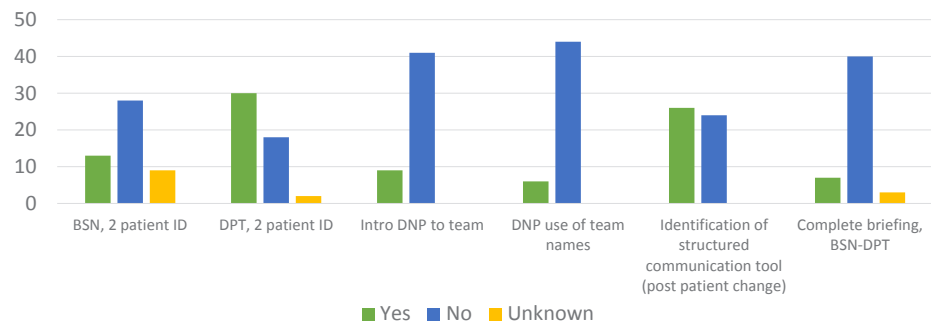
Discussion and Conclusion

- While errors in communication and teamwork were expected and observed, students from all professions also demonstrated inconsistent utilization of critical safety behaviors (e.g. two patient identifiers).
- Patient deterioration occurred at different times during the simulation providing student groups varied opportunities for demonstration of IPE behaviors identified for coding.
- At times, the simulation scenario was outside of the level of the learner(s).
- Video review post Sim-IPE allowed faculty to not only observe student behaviors but also evaluate the overall learning experience.
- While the video review was originally used to confirm IPE behaviors, it identified several gaps within the Sim-IPE design that were not expected.
- These findings allowed faculty to identify and make improvements in the Sim-IPE for all learners in future iterations.

References

- Agency for Healthcare Research and Quality (AHRQ). Section 4: Ways to approach the quality improvement process. The CAHPS Ambulatory Care Improvement Guide. May 2017. https://www.ahrq.gov/sites/default/files/wysiwyg/cahps/quality-improvement/improvement-guide/4-approach-qi-process/cahps-section-4-ways-to-approach-qi-process.pdf
- Salas E. Team training essential. A research guide. 2015 New York NY: Routledge.
- TeamSTEPPS®. Agency for Healthcare Research and Quality website. https://www.ahrq.gov/teamstepps/index.html. Accessed March 31, 2019
- U.S. Department of Health and Human Resources and Services Administration Quality Improvement. https://www.hrsa.gov/quality/toolbox/508pdfs/qualityimprovement.pdf. Accessed March 31, 2019.
- West C, Graham L, Palmer RT, et al. Implementation of interprofessional education (IPE) in 16 U.S. medical schools: Common practices, barriers and facilitators. Journal of Interprofessional Education & Practice. 2016;4:41-49.

Acknowledgements

122: Impact of an Online Module on Student Attitudes about IPE Across Health Profession Programs

Authors: Melissa Gross, Olivia Anderson, Tazin Daniels, Karen Farris, Mark Fitzgerald, Mengyuan Gao, Debra Mattison, Laurel Moore, Ghaidaa Najjar, Vani Patterson, Peggy Ursuy, Leslie Smith

Background: Students in a variety of health professions need to learn fundamental concepts about interprofessional education (IPE) early in their programs. At the University of Michigan, this need is shared by 10 different health profession programs across the three campuses. The purpose of this project was to determine whether an introductory online module could meet the need for a foundational experience in IPE for students enrolled in a range of health profession programs.

Actions, Methods or Interventions: An online module was created in Canvas with content elements that introduced students to concepts about the health care system and the role of IPE in preparing them to practice in patient-centered, collaborative care settings and communities. Learning activities were embedded in the module to help students engage with the material and learn from students in other health professions. Students from 10 different health profession programs across all three University of Michigan campuses enrolled in the course either as a required part of a course or as a required part of their program. Student attitudes about IPE were assessed before and after completing the module using a validated instrument (SPICE-R2). Student agreement was calculated as the percent of students responding "agree" and "strongly agree" to SPICE-R2 items in each of three domains: (1) teams and teamwork (4 items), (2) roles and responsibilities (3 items), and (3) patient outcomes (3 items).

Results: An online module was created in Canvas with content elements that introduced students to concepts about the health care system and the role of IPE in preparing them to practice in patient-centered, collaborative care settings and communities. Learning activities were embedded in the module to help students engage with the material and learn from students in other health professions. Students from 10 different health profession programs across all three University of Michigan campuses enrolled in the course either as a required part of a course or as a required part of their program. Student attitudes about IPE were assessed before and after completing the module using a validated instrument (SPICE-R2). Student agreement was calculated as the percent of students responding "agree" and "strongly agree" to SPICE-R2 items in each of three domains: (1) teams and teamwork (4 items), (2) roles and responsibilities (3 items), and (3) patient outcomes (3 items).

Lessons Learned: An online module can be effective in helping students from a variety of health profession programs learn about the value of IPE at the exposure level. Although student agreement with statements about IPE increased in all three domains, the biggest increases were in the areas of roles and responsibilities, and patient outcomes in a collaborative care setting.

Future Applications and Next Steps: In the future, the impact of the online module on student attitudes about IPE will be analyzed separately for each of the participating 10 health profession schools and colleges. In addition, qualitative analysis of student responses to open-ended questions about the module will be combined with the quantitative results to gain insight into any school-specific differences in the response patterns.

Impact of an Introductory Online Module on Student Attitudes about IPE

Melissa Gross, Olivia Anderson, Tazin Daniels, Karen Farris, Mark Fitzgerald, Mengyuan Gao, Debbie Mattison, Laurel Moore, Ghaidaa Najjar, Vani Patterson, Peggy Ursuy and Laura Smith

Background

Health professions students need to learn fundamental concepts about interprofessional education (IPE) early in their programs. Our purpose was to determine whether an online module could meet the needs for a foundational IPE experience for health profession students across the ten health profession programs on the three U-M campuses.

Intervention

An online module was created in Canvas that introduced students to concepts about the health care system and the role of IPE in preparing them to practice in patient-centered, collaborative care settings and communities. Embedded learning activities helped students engage with the material and learn from students in other health professions.
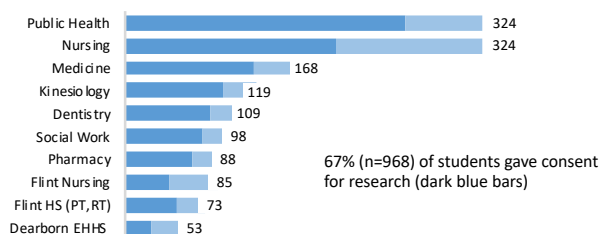
- **1-Pre-Course Survey**
  Due Mar 22 at 11:59pm | 10 pts | 10 Questions
- **2-Patients, Families, Providers, Systems: Where Does It Hurt?**
  Due Mar 22 at 11:59pm | 10 pts | 3 Questions
- **3.1-Interprofessional Education - Part 1**
  Due Mar 22 at 11:59pm | 5 pts | 2 Questions
- **3.2-Interprofessional Education - Part 2**
  Due Mar 22 at 11:59pm | 5 pts | 5 Questions
- **4-Six words about your health profession**
  Due Mar 22 at 11:59pm | 10 pts | 1 Question
- **5.1-Other health profession you know least about or want to know more about**
  Due Mar 22 at 11:59pm | 5 pts | 1 Question
- **5.2-Other health profession you are most likely to work with in the future**
  Due Mar 22 at 11:59pm | 5 pts | 1 Question
- **6-How will you engage with IPE at U-M?**
  Due Mar 22 at 11:59pm | 10 pts | 2 Questions
- **7.1-Post-Course Survey**
  Due Mar 22 at 11:59pm | 10 pts | 10 Questions
- **7.2-Course Evaluation Survey**
  Due Mar 22 at 11:59pm | 10 pts | 9 Questions

Student attitudes about IPE were assessed before and after the module using a validated instrument (SPICE-R2).

Results

1441 health profession students from all three campuses completed the online module.
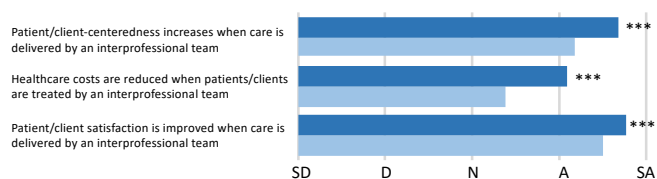

Program	Value
Public Health	324
Nursing	324
Medicine	168
Kinesiology	119
Dentistry	109
Social Work	98
Pharmacy	88
Flint Nursing	85
Flint HS (PT,RT)	73
Dearborn EHHS	53

67% (n=968) of students gave consent for research (dark blue bars)

Student attitudes about teams/teamwork were even more positive after completing the module.

- Health professional students should be involved in teamwork with students from different disciplines in order to understand their respective roles — ***
- Health professional students from different disciplines should be educated to establish collaborative relationships with one another — ***
- Participating in educational experiences with students from different disciplines enhances my ability to work on an interprofessional team — ***
- Working with students from different disciplines enhances my education — ***

(SD, D, N, A, SA)

Student attitudes about roles/responsibilities were especially impacted by completing the module.

- I understand the roles of other health professionals within an interprofessional team — ***
- I have an understanding of the courses taken by, and training requirements of, other health professionals — ***
- My role within an interprofessional team is clearly defined — ***

(SD, D, N, A, SA)

Student attitudes about patient outcomes in collaborative care settings were also more positive after the module.

- Patient/client-centeredness increases when care is delivered by an interprofessional team — ***
- Healthcare costs are reduced when patients/clients are treated by an interprofessional team — ***
- Patient/client satisfaction is improved when care is delivered by an interprofessional team — ***

(SD, D, N, A, SA)

Lessons Learned

An online module can be effective in helping students from a variety of health profession programs learn about the value of IPE at the exposure level.

The impact of the module on student attitudes about IPE were greatest for roles and responsibilities and patient outcomes in a collaborative care setting.

Next Steps

In the future, we plan to analyze the impact of the online module on student attitudes about IPE separately for each of the participating 10 health profession programs.

We also plan to conduct qualitative analysis of student responses to open-ended questions to gain insight into observed differences in response patterns.

123: Community Partners in a Diabetes Education Program: An Interprofessional Educational Project with Lessons Learned and Moving Forward

Authors: Leslie Smith, Carman Turkelson, Suzanne Trojanowski, Michelle Sahli, Carol Vos, Amy Yorke

Background: Diabetes is a health epidemic that affects over thirty million Americans. In addition, over 23 million adults over the age of 65 years have prediabetes. Current best practice to address the needs of those with diabetes is best conducted by an interprofessional team. Research supports the use of an interprofessional team to provide comprehensive diabetes education which includes: diet and nutrition, exercise, medications, vision care, dental care, foot care, and mental health services. Identification or development of community resources to support healthy lifestyles is a core element of the continuous care model as part of The American Diabetes Association (ADA) "Standards of Medical Care in Diabetes".

Actions, Methods or Interventions: A total of 23 (n=23) students participated in a feasibility study for Community Partners in a Diabetes Education Program, including ten Bachelor of Science in Nursing (BSN) Students, eight Doctor of Physical Therapy (DPT) students, and five Master of Public Health (MPH) students.   The Interprofessional Socialization and Valuing Scale (IPSVS) was completed prior to and after the experience. Prior to the launching of the program in the Fall 2018, the DPT students, as part of their service learning requirement, completed a literature search and developed an exercise program. The program's official kick off began with an interprofessional dinner, meet and greet, and an explanation of the program with faculty, community partner, and students present. An online meeting was facilitated 4 weeks into the program to allow students to ask questions, clarify expectations, and provide feedback. At the conclusion the program, students participated in focus group interviews, and the post-survey of the Interprofessional Socialization and Valuing Scale.

Results: Sixteen students (5 BSN, 3 MPH, and 8 DPT) completed the IPSVS prior to and after the experience. A Wilcoxon Signed Ranks test was used to compare average pre- and post-IPSVS scores and found no significant difference (p=0.816) between pre (M=109.1, SD=17.7) to post (M=108.7, SD=26.4). Eleven students (1 BSN, 2 MPH, and 8 DPT) participated in the focus group interviews. Results from the focus group indicated that all students reported that IPE should be taught during formal education since that is how they believe they will practice once they are out in the clinic. However, consistently, the students reported that they did not believe they worked together as a team during the program. The following themes were recognized as challenges to the program: scheduling, assessments, lack of communication, and a lack of understanding of who the leader was. Students strongly believed that this program was beneficial to the participants and should be continued.

Lessons Learned: For IPE success, students need to be provided with clear expectations of teamwork in order to assist with interprofessional collaboration and dedicated time must be integrated for team discussions, and other socialization. With these teams, a clear role for all students is necessary. In addition, clear expectations on communication are imperative. For example, students need to know which faculty member to contact in regards to a variety of questions that come up during the program. Regular debriefing and feedback is necessary to determine what went well and what could be improved.

Future Applications and Next Steps: Delivery of the Community Partners in a Diabetes Education Program with older adults in independent living was found to be acceptable and feasible. However, this project did not improve the interprofessional education (IPE) competencies. Moving forward, more time and deliberate planning needs to go into the planning of teams, scheduling of team discussions, debriefings, and socialization.

Community Partners in a Diabetes Education Program: An Interprofessional Educational Project with Lessons Learned and Moving Forward

Smith LM , Trojanowski S, Yorke A, Sahli M, Vos C, Turkelson C
University of Michigan Flint

Background

- Diabetes is a health epidemic that affects over thirty million Americans.[1]
- Over 23 million adults over the age of 65 years have prediabetes.
- Current best practice to address the needs of those with diabetes is best conducted by an interprofessional team.[2]
- Research supports the use of an interprofessional team to provide comprehensive diabetes education which includes: diet and nutrition, exercise, medications, vision care, dental care, foot care, and mental health services.[3]
- Identification or development of community resources to support healthy lifestyles is a core element of the continuous care model as part of The American Diabetes Association (ADA) "Standards of Medical Care in Diabetes".[4]

Purpose

The purpose of this study was to identify if use of an interprofessional approach increase students' understanding of the roles they and other professionals play in the delivery of care to individuals with diabetes?

Actions, Methods or Interventions

- A total of 23 (n=23) students participated in a feasibility study for Community Partners in a Diabetes Education Program.
- All students signed a written consent to participate.
- An exempt status was granted from the UM-Flint IRB (HUM00147637)
- Ten Bachelor of Science in Nursing (BSN) Students (n=10), eight Doctor of Physical Therapy (DPT) students (n=8), and five Master of Public Health (MPH) students (n=5).

5
10
8

■ BSN ■ DPT ■ MPH
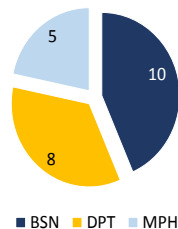
- The Interprofessional Socialization and Valuing Scale (IPSVS) was completed by all students prior to and after the experience.
- Prior to the launching of the program in the Fall 2018, the DPT students, as part of their service learning requirement, completed a literature search and developed an exercise program.
- The program's official kick off began with an interprofessional dinner, meet and greet, and an explanation of the program with faculty, community partner, and students present.
- An online meeting was facilitated 4 weeks into the program to allow students to ask questions, clarify expectations, and provide feedback.
- At the conclusion the program, students participated in focus group interviews, and the post-survey of the Interprofessional Socialization and Valuing Scale.

Results

- Sixteen students (5 BSN, 3 MPH, and 8 DPT) completed both the pre and post-test of the IPSVS.
- A Wilcoxon Signed Ranks test was used to compare average pre- and post-IPSVS scores and found no significant difference (p=0.816) between pre (M=109.1, SD=17.7) to post (M=108.7, SD=26.4).
- Eleven students (1 BSN, 2 MPH, and 8 DPT) participated in the focus group interviews.
- Main Themes from the focus group interviews:
    1. Students strongly believed that this program was beneficial to the participants and should be continued.
    2. Students reported that IPE should be taught during formal education since that is how they believe they will practice once they are out in the clinic.
    3. Students reported that they did not believe they worked together as a team during the program.
    4. The following themes were recognized as challenges to the program:

Scheduling   Assessments   Communication   Unclear Leader

Lessons Learned

- For IPE success, students need to be provided with clear expectations of teamwork in order to assist with interprofessional collaboration and dedicated time must be integrated for team discussions, and other socialization.
- With these teams, a clear role for all students is necessary.
- In addition, clear expectations on communication are imperative.
    - For example, students need to know which faculty member to contact in regards to a variety of questions that come up during the program.
- Regular debriefing and feedback is necessary to determine what went well and what could be improved.

Future Application and Next Steps:

- Delivery of the Community Partners in a Diabetes Education Program delivery with an IPE team with older adults in independent living was found to be acceptable and feasible.
- However, this project did not improve the interprofessional education (IPE) competencies.
- Moving forward, more time and deliberate planning needs to go into the planning of teams, scheduling of team discussions, debriefings, and socialization.

Acknowledgements

References

1. Centers for Disease Control and Prevention. National Diabetes Statistics Report, 2017. Atlanta, GA: Centers for Disease Control and Prevention, U.S. Dept of Health and Human Services; 2017.
2. National Center for Chronic Disease Prevention and Health Promotion: At a glance 2016 Diabetes. https://www.cdc.gov/diabetes/library/factsheets.html
3. Segal L, Leach M, May E, Turnbull C. Regional primary care team to deliver best-practice diabetes care: A needs-driven health workforce model reflecting a biopsychosocial construct of health. Diabetes Care. July 2013;36(7):1898-1907.
4. American Diabetes Association. Improving care and promoting health in populations: Standards of medical care in diabetes – 2018. Diabetes Care. 2018; 41(Suppl. 1):S7–S12 | https://doi.org/10.2337/dc18-S001 .

200: A simulation procedure curriculum to increase pediatric resident exposure to procedures rarely performed in clinical practice

Authors: Meera Meerkov, Jason Fischer, Thomas Saba

Background: Pediatrics residents are expected by the Accreditation Council for Graduate Medical Education to competently perform 13 procedures. However, residents are graduating with poor self-perceived competency for these procedures.

Actions, Methods or Interventions: We developed a curriculum using simulation training at the beginning of internship and "refresher" workshops throughout the year in order to increase procedure exposure and improve self-perceived competency.

Procedural workshops were taught during intern orientation and to all pediatrics residents throughout the academic year. Residents provided a quantitative competency self-assessment before and after each workshop; interns provided an additional self-assessment at the end of the intern year.

Results: The curriculum was well-liked and led to more procedural experience. Mean competency self-assessment scores improved immediately after almost every procedure workshop. Mean scores were retained at the end of intern year for most procedures. However, end-of-year mean competency self-assessment and procedural experience on actual patients was similar to interns from a previous year that had not participated in the curriculum.

A pre-internship workshop coupled with longitudinal workshops is a feasible way to improve intern exposure to pediatric procedural training. However, it was not sufficient to improve mean competency self-assessments compared to a traditional model of bedside procedural training.

Lessons Learned: An orientation procedural curriculum with periodic "refresher" workshops was not sufficient to improve pediatric resident competency self-assessment but did increase resident's exposure to procedures not frequently performed in a clinical setting.

Future Applications and Next Steps: We would like to determine if competency self-assessment scores correlates with procedural competency for neonatal intubation, when evaluated using a validated procedural checklist.

A simulation procedure curriculum to increase pediatric house officer exposure to procedures rarely performed in clinical practice

Meera S. Meerkov MD, Jason B. Fischer MD, MSEd, Thomas G. Saba MD

Department of Pediatrics, University of Michigan Medical School

BACKGROUND

- The American College of Graduate Medical Education (ACGME) requires pediatric residents to be competent in 13 different procedures prior to residency graduation.
- Faculty and residents perceive resident procedure competence to be poor due to insufficient procedure experience.
- We developed a novel, longitudinal, simulation-based procedure curriculum to teach procedure technique to pediatric house officers.

OBJECTIVES

- Determine if instituting a didactic and simulation based procedure curriculum improves pediatric interns competency self-assessment (CSA) score.
- Ascertain if pediatric house officers perform more procedures in the clinical setting following the initiation of this curriculum.
- Evaluate the feasibility of implementing a procedure curriculum for pediatric house officers and measure learner's satisfaction.

CURRICULUM

Intern Orientation Procedure Workshop*

| Day 1 (30 minutes per station)	Day 2 (30 minutes per station)
Venipuncture and Peripheral IV Placement	Laceration Repair
Bag-Mask Ventilation	Abscess Incision and Drainage
Endotracheal Intubation	Bladder Catheterization
Umbilical Line Placement	Lumbar Puncture

* Competence required by the ACGME

Longitudinal Procedure Workshop*

Workshop	Procedure 1	Procedure 2
1	NG Tube Insertion	NI Tube Bridling
2	Lumbar Puncture	Laceration Repair
3	G-Tube Management	Tracheostomy Mgmt.
4	Fracture Splinting	Reduction of Dislocation
5	Intubation	Bag-Mask Ventilation
6	Abscess I&D	Foreign Body Removal
7	Intraosseous Line Placement	Intravenous Line Placement

METHODS

- **Intern Orientation Procedure Workshop:** Nine ACGME-required procedures were taught over two half-day sessions during intern orientation.
- **Longitudinal Procedure Workshops:** 1-hour workshops during pediatric resident noon conference.
- Teaching methods included procedure summary checklists, videos, knowledge assessments and simulation.
- CSA score defined as: 1 = not competent, 2 = competent with supervision, 3 = competent with indirect supervision, 4 = competent to teach.
- CSA scores were evaluated before and after the workshops and at the end of the academic year, compared to interns from previous academic year who had not participated in a procedure curriculum.
- Number of procedures performed in the clinical and simulation settings were tracked.

RESULTS

Procedures Performed by Pediatric Interns
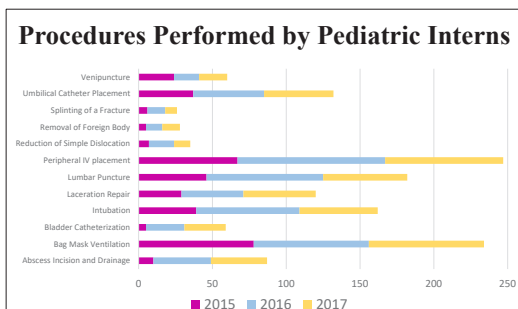
Curriculum Evaluation

Percentage of Interns That Agree/Strongly Agree with the Statement Regarding the Orientation Procedure Curriculum:	
Positive overall experience	97%
Didactic educational content was helpful	71%
Simulation models were helpful	90%
The instructor was a good teacher	97%

End of Year Mean CSA Score

* p<0.05. End of Year 2015 compared to End of Year 2016
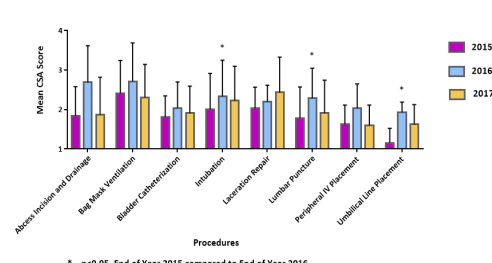
CONCLUSIONS

- Simulation-based procedure workshop is a feasible and practical way to increase exposure to procedure experiences among pediatrics interns.
- Interns gained exposure to procedures that, prior to this curriculum, some house officers had never performed during residency.
- CSA scores at end of intern year were similar for interns who had participated in the curriculum (2016-2017) and those who had not (2015).

NEXT STEPS

- Further studies are needed to determine the applicability of this model to medical learners at different educational levels and specialties.

201: Number of operative performance ratings needed to reliably assess the difficulty of surgical procedures

Authors: Kenneth Abbott, Xilin Chen, Michael Clark, Nikki L. Bibler Zaidi, David B. Swanson, Brian C. George

Background: Procedure difficulty has been investigated for only 5 of the 127 SCORE-defined "Core" general surgery procedures. This paucity of evidence complicates attempts to align surgical curricula with resident learning needs. Comparisons of trainee operative performance ratings may help establish the relative difficulty of the remaining 122 Core procedures, but first we must understand how many trainees' assessments are needed to reliably estimate the procedures' difficulty.

Actions, Methods or Interventions: Using the SIMPL smartphone application from the Procedural Learning and Safety Collaborative (PLSC), 402 attending surgeons directly observed and provided workplace-based assessments for 488 categorical residents after 5,259 performances of 87 Core surgical procedures performed at 14 institutions. We used these faculty ratings to construct a linear mixed model with resident performance as the outcome variable and multiple predictors including, most significantly, operative procedure as a random effect. We interpreted the variance in performance ratings attributable to the procedure, after controlling for other variables, as the "difficulty" of performing the procedure. We conducted a generalizability analysis and decision study to identify the minimum number of SIMPL performance ratings needed to reliably estimate the expected procedure random effect coefficient (i.e., difficulty) on any given Core procedure.

Results: Fifteen faculty ratings of resident operative performance were necessary to reliably estimate the mean SIMPL score for a resident performing a typical Core surgical procedure (mean generalizability statistic 0.81, 95% CI 0.74-0.87).

Lessons Learned: At least 15 operative performance ratings are required to reliably estimate how difficult it is for a resident to perform a typical Core surgical procedure.

Future Applications and Next Steps: Future research using performance ratings to establish procedure difficulty should include adequate numbers of ratings given the high-stakes implications of those results for curriculum redesign and policy.

Assessing Surgical Difficulty

How Many Observations Are Needed for Reliable Estimates?

Kenneth L. Abbott, MS[a]; Xilin Chen, MPH[b]; Michael Clark, PhD[c]; Nikki L. Bibler Zaidi, PhD[d]; David B. Swanson, PhD[e]; and Brian C. George, MD, MAEd[f]

[a] Talented Medical Student; [b] Who Did the Statistical Analysis [c] Master Mind Behind the Analysis; [d] G Theory Expert; [e] Who Works for The Board; [f] The Boss and Surgical Education Researcher

Objectives

Determine the number of assessments needed to reliably estimate a procedure's difficulty

- Align surgical curricula with resident learning needs
- Establish the relative difficulty of "Core" procedures
- Use workplace-based assessments to establish surgical procedure difficulty

Introduction

- Are residents ready at end of training?
- Operative experience may be *inadequate*
- Understand alignment between procedure *difficulty* and *curriculum*
- Promote competency-based education

Data Sources

- 5,259 Evaluations
- 14 Institutions
- 402 Attendings
- 488 Residents
- 87 procedures

Important Result

Fifteen faculty ratings of resident operative performance were necessary to reliably estimate the difficulty of procedures.

Conclusion

- At least **15 operative performance ratings** are required to reliably estimate procedures
- **22 operative performance ratings** are needed for exceptional reliability (95% confidence interval)
- Future research using performance ratings to establish procedure difficulty should include adequate numbers of ratings
- Implications of results apply for curriculum redesign and policy.

Method

Linear Mixed Model

- Performance as the outcome, operative procedure as a random effect
- PGY etc. as fixed effects, faculty, residents and program as random effects
- Calculated reliability based on estimated variance components

Generalizability (G) theory and decision (D) study

- Determined the number of observations to achieve reliability of mean ratings

Bayesian Analysis

- A Bayesian mixed model to generate 95% credible intervals for the G coefficients in the D study
- Allowed for straightforward calculation of the uncertainty in G coefficient
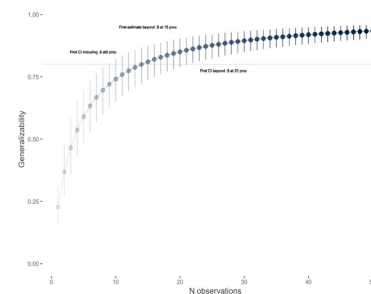
Mathematical Section

G coefficient is calculated as follows:

$$Generalizability = \frac{\sigma^2_{procedure}}{\sigma^2_{procedure} + \frac{\sigma^2_{residual}}{n_{observation}}}$$

Increasing $n_{observations}$ increases the generalizability.

D study increases n is increased until generalizability is suitably high (at least 0.8)

Results

Acknowledgements

CENTER FOR SURGICAL TRAINING AND RESEARCH
MICHIGAN MEDICINE

SIMPL

Contact Information

- 🌐 : https://xilinchen.github.io/
- ✉ : xilinc@umich.edu

300: Teaching Musculoskeletal Anatomy Through Yoga to First-Year Medical Students

Authors: Anita Vasudevan, Suzy McTaggart, Sandra Hearn, Kathleen Alsup

Background: Experiential learning can offer a multi-modal dimension to obtaining and synthesizing information. A survey of first-year medical students demonstrated that students prefer incorporating multiple learning styles, rather than learning exclusively with one (Lujan, 2006). At the University of Michigan Medical School (UMMS), the first-year musculoskeletal anatomy curriculum has been centered on cadaveric dissection, small-group teaching sessions, lectures, and peer teaching. For this diverse curriculum, a next step in experiential learning may include the opportunity for students to use their own bodies to understand muscle attachments and actions.

Yoga is an ancient mind-body exercise that engages various muscle groups through specific postures called asanas. The ability of yoga poses to isolate muscles through stretch and contraction offers a unique modality for students to explore musculoskeletal anatomy and remember key concepts through direct experience of muscle stretch and dynamics within their own bodies.

Actions, Methods or Interventions: A yoga-based anatomy workshop was developed and taught by the first author, who is a both a medical student who has previously completed the traditional musculoskeletal curriculum at UMMS, and a certified yoga instructor. The workshop focused on muscles of the extremities with emphasis on attachment sites and muscle actions. The workshop was offered to all first-year medical students as an optional but strongly encouraged session for reinforcement of material taught in the core anatomy curriculum. Three questions were included in the Musculoskeletal sequence assessments based on material emphasized in the workshop, although the material was also made available in other course materials.

Evaluation of the workshop's impact and value was evaluated by three methods: (1) immediate educational impact was objectively assessed with a knowledge quiz, consisting of five multiple-choice musculoskeletal anatomy questions administered immediately before and after the workshop; (2) medium-term educational impact of the workshop was evaluated with three conceptual questions on the Musculoskeletal sequence assessments administered the week of and the week following the workshop, with performance of workshop participants compared to those who did not; and (3) participants' confidence in their musculoskeletal anatomy knowledge and their self-perceived mental well-being was assessed with a retrospective pre-post survey administered after the workshop. Given that the workshop sessions were optional and, thus, students self-selected into the intervention group for this study, a comparison of the self-selected intervention group versus the entire class was performed to assess for intergroup differences in medical school performance as defined by mid-year cumulative score across the first year curriculum.

Results: Short-Term Understanding and Retention - Pre/Post Knowledge Quiz Results:
Post-workshop, the percentage of students who answered correctly increased for all five questions compared to pre-workshop. Change in the percentage who answered correctly ranged from +10.8% to +86.0%, with a mean percent increase of 45.9%.

Long-Term Understanding and Retention - Results from Multiple-Choice Questions on MSK Sequence Exam:
ANCOVA was used to compare performance of students in the 2017-2018 MSK sequence who attended a Teaching Anatomy with Yoga workshop to those who did not. No significant difference was found for overall performance in the sequence between the 2 groups (p >0.13), nor for overall first-year curriculum performance comparing the workshop attendees to the first-year student body. However, students who attended the workshop performed better on the 3 questions that specifically tested session content (p<0.02).

Self-Perceived Student Confidence:
The mean of students' self-perceived confidence in their musculoskeletal anatomy knowledge, as measured by a retrospective pre-post survey (n=43), increased for all of the above parameters after participating in the session, with an average percent increase of 66.9% in confidence ratings across all domains.

Student Perception on the Value of the Workshop & Impact on Well-Being:
The majority of students who completed the post-session survey (n=43) agreed (55.81%) or strongly agreed (37.21%) that the session was valuable for their education on musculoskeletal anatomy. Furthermore, students' self rated levels of calmness, clear-headedness, and awareness showed an increase post-workshop (mean rating 3.43 out of 5) compared to pre-workshop (mean rating 2.35 out of 5).

Lessons Learned: Overall, the results of this study indicate that movement-based teaching of musculoskeletal anatomy, such as the Anatomy through Yoga sessions conducted at UMMS, provides a valuable adjunct to the traditional Musculoskeletal anatomy curriculum. The session demonstrated improvement in short-term

understanding and application of Musculoskeletal anatomical knowledge among participants. Although overall test performance on the Musculoskeletal sequence assessments was not significantly different between session participants and non-participants, the participant group showed significantly improved performance on the three multiple-choice questions testing the concepts emphasized in the session, possibly suggesting improved long-term understanding and retention of these concepts through experiential learning. Moreover, self-reported perceptions on confidence with musculoskeletal anatomy among session participants showed improvement in confidence ratings after the session, in addition to improved self-perceived mental well-being.

Future Applications and Next Steps: Looking forward, our goal is to include this experiential method of learning musculoskeletal anatomy as an optional portion of the annual curriculum. Since the session was designed and led by a current medical student, we are working on translating the lesson plan into a reproducible session guide that may be taught by an instructor who is familiar both with anatomy and yoga. Eventually, we may be able to create this into a tool that is available to medical educators nationally. To this end, the first author is collaborating with medical students at Vanderbilt University, who designed and led a similar program in Spring 2018.

Teaching Musculoskeletal Anatomy through Yoga to First-Year Medical Students

Anita Vasudevan, B.S.[1], Beth Holman, Dr.P.H.[2], Suzy McTaggart[2], Sandra Hearn, M.D.[3]*, B. Kathleen Alsup, Ph.D., M.A.[4]*

[1]UMMS, [2]UMMS Office of Evaluation & Assessment, [3]Michigan Medicine Dept of Physical Medicine and Rehabilitation, [4]Michigan Medicine Division of Anatomical Sciences, *co-senior author
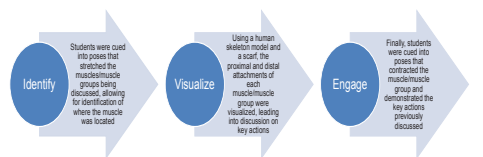
Background

Experiential learning can offer a multi-modal dimension to obtaining and synthesizing information. A survey of first-year medical students demonstrated that students prefer incorporating multiple learning styles, rather than learning exclusively with one (Lujan, 2006).

At the University of Michigan Medical School (UMMS), the first-year musculoskeletal anatomy curriculum has been centered on cadaveric dissection, small-group teaching sessions, lectures, and peer teaching. For this diverse curriculum, a next step in experiential learning may include the opportunity for students to use their own bodies to understand muscle attachments and actions.

Yoga is an ancient mind-body exercise that engages various muscle groups through specific postures called *asanas*. The ability of yoga poses to isolate muscles through stretch and contraction offers a unique modality for students to explore musculoskeletal (MSK) anatomy and remember key concepts through direct experience of muscle stretch and dynamics within their own bodies.

Methods

A yoga-based anatomy workshop was developed and taught by the first author, who is a certified yoga instructor and a medical student who had completed the first-year MSK anatomy curriculum prior to workshop development. The yoga-based workshop focused on muscles of the extremities with emphasis on attachment sites and muscle actions, and followed the instructional model shown below.

Identify — Students were cued into poses that stretched the muscle/muscle groups being discussed, allowing for identification of where the muscle was located

Visualize — Using a human skeleton model and a scarf, the proximal and distal attachments of each muscle/muscle group were visualized, leading into discussion on key actions

Engage — Finally, students went into poses that contracted the muscle/muscle group and demonstrated the key actions previously discussed

The workshop was offered to all first-year medical students as an optional session for reinforcement of material taught in the core anatomy curriculum. Three questions were included in the MSK sequence assessments based specifically on the workshop content. It is important to note that the concepts covered in these test questions were presented in other required teaching modalities.

Evaluation of the workshop's impact and value was measured on four domains, as shown on the right.

Immediate Educational Impact — A five-question multiple-choice quiz was administered immediately before and after the session

Intermediate-Term Educational Impact — Three conceptual multiple-choice questions were included on the MSK sequence quiz and exam in the week following the session

Participant Confidence in MSK Anatomy — A retrospective pre-post survey was administered immediately after the session, and participants were asked to evaluate their confidence with MSK anatomy using a Likert-type scale

Participant Self-Perceived Well-Being — A retrospective pre-post survey was administered immediately after the session and participants were asked to (1) evaluate their well-being using a Likert-type scale and (2) qualitatively describe their mental state

Results

Short-Term Understanding and Retention: Pre/Post Knowledge Quiz Results

Post-workshop, the percentage of students who answered correctly increased for all five questions compared to pre-workshop, as shown in Table 1. Calculation of the mean score and percent increase for the overall quiz was limited to students who completed both the pre- and post-session quiz.

Question Number	% Correct Pre-Workshop (n=63)	% Correct Post-Workshop (n=40)	% Change ([Post - Pre]*100/Pre)
1	40.32	75.00	86.7%
2	50.00	69.44	28.0%
3	40.32	63.89	36.9%
4	49.18	66.67	26.2%
5	42.62	47.22	9.7%
Total	43.75	63.13	44.3%

Table 1: The same five questions were asked before and after the session, with an increase in the percentage of students who answered correctly across all five questions after the session.
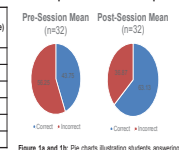
Figure 1a and 1b: Pie charts illustrating students answering the majority of questions (56.25%) incorrectly before the session and answering the majority of questions (63.13%) correctly after the session.

Self-Perceived Retrospective Pre-Post Confidence (n=43)

The mean of students' self-perceived confidence in their musculoskeletal anatomy knowledge increased for all of the four evaluated parameters after participating in the session, with an average percent increase of 66.9% across all domains.

Domain 1	I felt confident naming the proximal and distal attachments of major lower extremity muscles and muscle groups, including thigh extensors, thigh flexors, hip abductors, hip adductors, and medial/lateral thigh rotators.
Domain 2	I felt confident naming the proximal and distal attachments of major upper extremity muscles and muscle groups, including arm extensors, arm flexors, arm abductors, arm adductors, and medial/lateral arm rotators.
Domain 3	I understood and could explain how the specific proximal and distal attachments of a muscle/muscle group made its action possible.
Domain 4	I understood which muscles/muscle groups serve as agonists and antagonists for specific actions.

Table 2 (above): Students were asked to retrospectively assess their confidence level on four different knowledge and comprehension domains after the session.
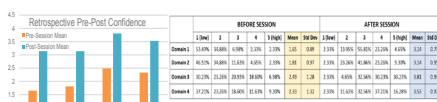
Retrospective Pre-Post Confidence (Pre-Session Mean / Post-Session Mean)

	BEFORE SESSION							AFTER SESSION						
	1 (low)	2	3	4	5 (high)	Mean	Std Dev	1 (low)	2	3	4	5 (high)	Mean	Std Dev
Domain 1	53.49%	16.28%	6.98%	2.33%	2.33%	1.61	0.89	2.33%	13.95%	55.81%	23.26%	4.65%	3.14	0.79
Domain 2	46.51%	34.88%	11.63%	4.65%	2.33%	1.81	0.97	2.33%	23.26%	41.86%	23.26%	9.30%	3.14	0.95
Domain 3	30.23%	23.26%	39.35%	18.60%	6.98%	2.49	1.28	2.33%	4.65%	32.56%	30.23%	30.23%	3.81	0.99
Domain 4	20.93%	23.26%	34.88%	20.93%	2.33%	2.51	1.32	2.33%	11.63%	32.56%	37.21%	16.28%	3.53	0.97

Table 3 (above): Raw data showing percentage of participants along the full spectrum of a Likert-type scale. Mean confidence ratings increased across all domains after the session. Areas that showed a less significant change was largely due to a higher baseline confidence level before the session, as illustrated in **Figure 4** on the left.

Long-Term Understanding and Retention: Results from Multiple-Choice Questions on MSK Exam

ANCOVA was used to compare performance of students in the 2017-2018 MSK sequence who attended a Teaching Anatomy with Yoga workshop to those who did not. No significant difference was found for overall performance in the sequence between the 2 groups (p >0.13), nor for overall first-year curriculum performance comparing the workshop attendees to the first-year student body.

	Mean	Std. Deviation	N
Students who did not attend	2.20	.724	84
Students who did attend	2.47	.634	94
All students	2.34	.689	178

However, students who attended the workshop performed better on the 3 questions that specifically tested session content (p<0.02).

Impact on Perceived Student Well-Being

Students' self-rated levels of calmness, clear-headedness, and awareness also showed an increase post-workshop (mean rating 3.43 out of 5) compared to pre-workshop (mean rating 2.35 out of 5). Qualitative descriptors of participants' mental state showed a shift from themes of "stress" and "tired" prior to the workshop to "relax" and "better" after the workshop, as shown in the word clouds to the right.

Figure 5a: Before Session

Figure 5b: After Session

Figure 5 (above): Word clouds generated using Qualtrics showing predominant themes in one-word qualitative descriptors used to describe mental state

Table 5 (left): Distribution along Likert-type scale for domains assessing perceived well-being and workshop value.

	BEFORE SESSION							AFTER SESSION						
	1 (low)	2	3	4	5 (high)	Mean	Std Dev	1 (low)	2	3	4	5 (high)	Mean	Std Dev
I thought of my body as a resource for learning musculoskeletal anatomy	15.16%	20.93%	21.58%	32.95%	16.28%	2.79	1.27	8.86%	2.33%	25.98%	33.22%	43.46%	4.12	0.87
I felt calm, clear-headed, and aware of my body and breath	30.23%	38.23%	16.28%	20.93%	2.33%	2.35	1.18	9.52%	9.52%	20.57%	53.55%	19.05%	3.43	1.18

Student Perception on the Value of the Workshop

The majority of students who completed the post-session survey (n=43) agreed (55.81%) or strongly agreed (37.21%) that the session was valuable for their education on MSK anatomy.

Lessons Learned

Overall, the results of this study indicate that movement-based teaching of musculoskeletal anatomy, such as the Anatomy through Yoga sessions conducted at UMMS, provides a valuable and effective adjunct to the traditional Musculoskeletal anatomy curriculum. The session demonstrated improvement in short-term understanding and application of MSK anatomical knowledge among participants. Although overall test performance on the Musculoskeletal sequence assessments was not significantly different between session participants and non-participants, the participant group showed significantly improved performance on the three multiple-choice questions testing the concepts emphasized in the session, possibly suggesting improved long-term understanding and retention of these concepts through experiential learning. Moreover, self-reported perceptions on confidence with musculoskeletal anatomy among session participants showed improvement in confidence ratings after the session, in addition to improved self-perceived mental well-being.

Future Applications & Next Steps

Looking forward, our goal is to include this experiential method of learning musculoskeletal anatomy as an optional portion of the annual curriculum. Since the session was designed and led by a current medical student, we are working on translating the lesson plan into a reproducible session guide that may be taught by an instructor who is familiar both with anatomy and yoga. Eventually, we may be able to create this into a tool that is available to medical educators nationally.

References

Lujan, HL, DiCarlo, SE. (2006). First-year medical students prefer multiple learning styles. Adv Physiol Educ, 30,13-16.

McCulloch, C., et al. (2010). Living AnatoME: Teaching and learning musculoskeletal anatomy through yoga and Pilates. Anatomical Sciences Education, 3(6), 279-286. doi:10.1002/ase.181

301: Social Work and Pharmacy Students Learning Together About Death, Loss and Grief: An Innovative IPE Course

Authors: Debra Mattison

Background: Teamwork, interprofessional education and collaborative practice are becoming integral in the training of the next generation of practice-ready healthcare providers (Jones & Philips, 2016; Mattison, et al., 2017). It is no longer adequate to have a team of experts. The new standard of care is a collaborative practice done by an expert team with interprofessional members who share a clear understanding and knowledge of how to collaboratively use each other's roles and skills (Angelini, 2011; Youngwerth & Twaddle, 2011). State-of-the-art education and training of health professionals across disciplines requires an integrated approach, emphasizing skills and teamwork needed to engage in shared decision making and joint accountability for client care (Sweet, et al., 2017; Horevitz & Manoleas, 2013). These skills are often best learned and practiced in an interprofessional learning environment. But too often we are blind to potential collaborators and IPE partners and opportunities that are all around us. We are often not only siloed in our teaching but in our thinking and perception of who might be appropriate partners. This course implemented curricular innovations that moved beyond existing silos of seemingly unrelated learning opportunities for these two disciplines of Social Work and Pharmacy related to helping patients cope with death, loss and grief.

Actions, Methods or Interventions: A three-credit, semester long course was taught twice with approximately 28 students each term with approximately 50% MSW students and 50% first and second year pharmacy students in each course.

The goals of the course included: learning about each discipline's role and contribution to service to clients; developing knowledge about the training, expertise, skills, values and of each other's professions; practicing skills needed to articulate and represent one's profession in case discussion while remaining open to and considering differing points of view; and participating in exploration of social justice issues, policy decisions and social determinants which impact the loss and grief process of clients. Various forms of team-based activities and assignments exposed students to each other's professional ethics and values and created spaces to see commonalities as well as valued diversity that could be utilized in service to clients.

Results: Students from both disciplines in both terms of this course overwhelming reported that learning from interprofessional colleagues improved the quality of their training for practice in their own field as well as being more likely to interact and collaborate with the other discipline in future patient care. Attitudes toward interprofessional health care teams were also measured pre and post course and showed positive shifts in valuing and appreciating the roles of the other discipline. Qualitative comments also indicated positive impact on clarity about each others roles which would enable them to utilize each other's expertise more effectively in future patient care.

Lessons Learned: How will it be relevant for pharmacy students to learn about death, loss and grief with social work students?   What might social workers learn from pharmacy students that would assist them in serving grieving clients? Will these students even want to learn together about this topic? The answers to these questions were our lessons learned. Innovative course assignments, team based activities and exposure to each other's world view affirmed that there was much to be learned in this futile IPE environment. Successfully adapting existing siloed courses into collaborative learning IPE courses, while exploring partnerships that may appear seemingly unlikely, led to meaningful learning and a model that can be adopted and replicated by others.

Future Applications and Next Steps: This course implemented curricular innovations that moved beyond existing silos of seemingly unrelated learning opportunities for these two disciplines, to provide intentionally focused, specialized interprofessional coursework that explored mutual interest, challenges, practice experience and each discipline's role in assisting clients with death, loss and grief. This model can be utilized to seize opportunities to convert existing siloed courses into meaningful IPE experiences to effectively promote behavior change in students supporting them in evolving from interprofessional learners to skilled interprofessional practitioners of the future.

M | SOCIAL WORK

Background

It is no longer adequate in health care delivery to have **a team of experts.** The new standard of care is collaborative practice done by an **expert team of** interprofessional members who share a clear understanding and knowledge of how to collaboratively utilize each other's roles and skills (Angelini, 2011; Youngwerth & Twaddle, 2011).

Interprofessional education that provides skill development in teamwork and collaborative practice are integral in the training of the next generation of practice-ready healthcare workers (Jones & Philips, 2016).

Introduction

The University of Michigan School of Social Work and the College of Pharmacy partnered in an innovative collaboration to implement an IPE-focused master's level course on death, loss and grief.

This course implemented curricular innovations that moved beyond existing silos of seemingly unrelated learning opportunities within these two disciplines, to provide intentionally focused, specialized interprofessional coursework.

This course explored mutual interests, challenges, practice experience and each discipline's role in assisting clients with death, loss and grief as a topic of relevance for both disciplines.

Selected References

Angelina, D. (2011). Interdisciplinary and interprofessional education: What are the key issues and considerations for the future? *Journal of Perinatal & Neonatal Nursing, 25*(2), 175-179.
Heinemann, G., Schmitt, M. & Farrell, M. (2002) Attitudes toward health care teams. In Heieneman and Zeiss (Eds.) Team performance in health care: Assessment and development. New York: Kluwer Academic/Plenum Publishers.
Jones, B. & Phillips, F. (2016). Social work and interprofessional education in health care: A call for continued leadership. *Journal of Social Work Education, 52*(1), 18-29.
Sargeant, J., Loney, E. & Murphy, G. (2008). Effective interprofessional contact: Contact is not enough to build a team. *Journal of Continuing Education in Health Professions, 28*(4), 228-234.
Youngwerth, J. & Twaddle, M. (2011). Cultures of interdisciplinary teams: How to foster good dynamics. *Journal of Palliative Medicine, 14*, 650-654.

Social Work and Pharmacy Students Learning Together: An Innovative IPE Course

Debra Mattison, LMSW
Clinical Assistant Professor
School of Social Work

From Silos to IPE Team

> "I gained a better appreciation for what they do, so I will better be able to work with them in the future."

> "A space to engage and interact to prepare for work teams/situations in the future."

Student Voices....

> "Having that mutual understanding and respect in the classroom environment will promote effective professional collaboration in the future and better patient care."

> "Realistic preparation for real life experience in working in an interdisciplinary team."
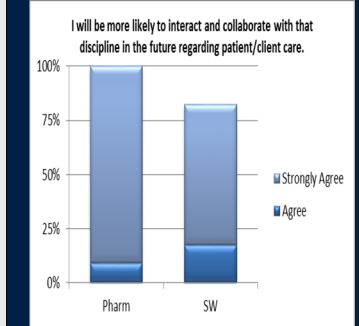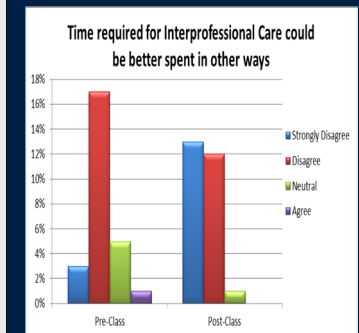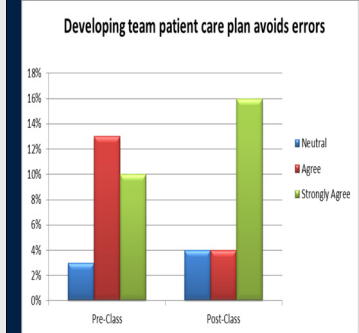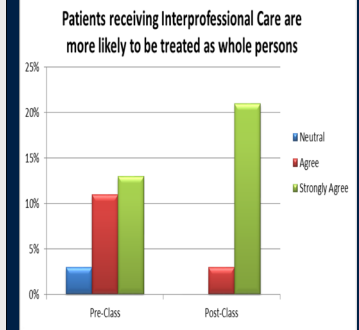
Teaching Methods

- ❏ Team-based Interprofessional Learning activities
- ❏ Interprofessional group assignments focused on each discipline's professional ethics, values and skills
- ❏ Recognize and discuss commonalities as well as valued interdisciplinary diversity

Take-Aways

- ❏ Explore IPE collaborations in seemingly unrelated disciplines
- ❏ Contact is not enough. IPE must involve meaningful learning opportunities to learn from, with and about other disciplines' values, perspectives and roles
- ❏ IPE has potential to impact future practice and patient care

M PHARMACY

Changes in Student Attitudes toward Interprofessional Healthcare Teams (ATHCTS)

Patients receiving Interprofessional Care are more likely to be treated as whole persons

Developing team patient care plan avoids errors

Time required for Interprofessional Care could be better spent in other ways

I will be more likely to interact and collaborate with that discipline in the future regarding patient/client care.

302: Dental, Dental Hygiene and Undergraduate College Students' Attitudes Towards Group Work: Who Wants to Work with Whom and How,

Authors: Yunus Al-Garadi, Marita Rohr Inglehart

Background: Healthcare providers need to be optimally prepared during their professional education for interprofessional collaboration. Working on group assignments could be one way to socialize future dentists and dental hygienists for these skills. The objectives were to explore dental, dental hygiene and undergraduate students' attitudes towards group work, esp. who wants to work with whom and how, when and where.

Actions, Methods or Interventions: Survey data were collected from 48 college students, 120 dental and 55 dental hygiene students. While some students responded to paper-pencil surveys that were distributed at the end of regularly scheduled classes, other students received a recruitment email that allowed them to respond to an anonymous web-based survey.

Results: The responses to general attitudinal questions such as how much students like working in groups and how much they learn when working in groups showed that undergraduate students' attitudes were more positive than dental and dental hygiene students' attitudes. Concerning the characteristics that these three groups of respondents evaluate as important in a group member, dental hygiene and dental students were more likely to want to work with persons they already know, they choose themselves, and who would work on their own after the work was divided compared to undergraduate students. When asked how important certain group characteristics were, all students valued being part of a group with good communication, positive respect for all group members, and with members who contribute equally. All groups valued to have explicit task information and clear explanations why the group has to work together. Having sufficient resources to support group work was also highly valued by all groups.

Lessons Learned: These findings provide first insights into the importance that dental, dental hygiene and undergraduate students place on group work, and their preferences for particular group members, group characteristics and group tasks.

Future Applications and Next Steps: Given that healthcare professionals' collaborations with others are crucial for assuring the best possible patient care, future research should focus on gaining a better understanding of how to best educate future healthcare providers about working with others in groups.

Undergraduate college students, dental hygiene and dental students' attitudes towards group work: Who wants to work with whom, how, when and where?

Yunus A. Al-Garadi & Marita R. Inglehart
University of Michigan - School of Dentistry, Ann Arbor, MI

ABSTRACT

Objectives: The objectives were to explore (a) students' attitudes towards group work, (b) which characteristics these students value in group members/groups, (c) which group processes they see as important, (c) how they would like assignments to be organized, and (d) when and where they like to engage in group work. The responses of undergraduate college students, dental hygiene and dental students will be compared to gain a better understanding of their considerations.

Methods: Survey data were collected from 48 college students, 120 dental and 55 dental hygiene students.

Results: The responses to general attitudinal questions showed that undergraduate students' attitudes were more positive than dental and dental hygiene students' attitudes. Concerning the characteristics that these three groups of respondents evaluate as important in a group member, dental hygiene and dental students were more likely to want to work with persons they already know, they choose themselves, and who would work on their own after the work was divided than undergraduate students. When asked how important certain group characteristics were, all students valued being part of a group with good communication, positive respect for all group members, and with members who contribute equally. All groups valued to have explicit task information and clear explanations why the group has to work together. Having sufficient resources to support group work was also highly valued by all groups.

Discussion: These findings provide first insights into the importance that dental, dental hygiene and undergraduate students place on group work. Given that healthcare professionals' collaborations with others are crucial for assuring the best possible patient care, future research should focus on gaining a better understanding of how to best educate future providers about working in groups.

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 becomes very relevant when group work is required for their future careers, especially for those who are required to work in groups in the health profession. One interesting question is which attitudes and suggestions for working in interprofessional groups. Research showed that In health care "it is generally believed that collaborative efforts yield better health services and outcomes for the populations that are served."[1] In addition, further results suggest that "collective leadership takes pressure off any one individual and disperses it throughout the group." [2] furthermore, other research shows that some "health care teams may lack the capacity to function at a level that enhances the individual contributions of their members and team effectiveness."[3]

AIMS

The objectives were to explore
(a) students' attitudes towards group work,
(b) which characteristics students value in group members/groups,
(c) which group processes they see as important,
(d) how they would like assignments to be organized, and
(e) when and where they like to engage in group work; and
(f) To compare the responses of undergraduate college students, dental hygiene and dental students to gain a better understanding of their considerations.

METHODS

Institutional Review Board (IRB) approval was obtained from the Health Sciences and Behavioral Sciences IRB at the University of Michigan, Ann Arbor, MI.

Respondents: Survey data were collected from 48 college students, 120 dental and 55 dental hygiene students. (See Table 1).

Procedure: The students responded to paper-pencil or web-based surveys. The data were analyzed with SPSS (Version 22).

Table 1: Respondents' background characteristics

Background characteristics	Frequencies	Percentages
Gender:		
- Male	70	31%
- female	153	69%
Age	Mean: 22.84	SD: 3.196 Range:18-40
Program:		
- Dental school	97	44%
- Dental hygiene	78	35%
- LS&A	38	17%
- other	10	5%
Year of program:		
1	114	63%
2	19	11%
3	19	11%
4	28	16%
5	1	1%

RESULTS

Objective a was to explore students' attitudes towards group work. **Table 2** provides an overview of the responses concerning the students' general attitudes towards group work.

Table 2: Attitudes towards group work

Statements	1[1]	2	3	4	5	Mean SD
Working in groups takes too much time.	4%	11%	22%	37%	25%	3.68 1.091
I like to work in IPE groups.	8%	13%	28%	42%	8%	3.29 1.069
I like the outcomes of group work.	11%	16%	40%	26%	8%	3.04 1.084
I like working in groups.	18%	23%	29%	26%	5%	2.78 1.159
I enjoy working in groups.	17%	23%	31%	26%	4%	2.77 1.119
I prefer working in groups.	22%	31%	31%	14%	3%	2.46 1.077
I learn a lot when working in groups.	14%	25%	31%	25%	5%	2.28 1.121

Legend:
1 Answers ranged from 1 = disagree strongly to 5 = agree strongly

Objective b was to explore students' attitudes related to group member characteristics. **Table 3** shows that students value group members who are responsible and do what they say they will do, are committed to group work, work well with others, work hard and contribute to the group work.

Table 3: Attitudes related to group member characteristics

It is important to me that other group members:	1[1]	2	3	4	5	Mean SD
- do what they say they will do.	1%	1%	6%	25%	67%	4.78 3.459
- are dedicated/ committed to the group work.	0%	4%	6%	33%	58%	4.47 0.766
- work well with others.	0%	1%	11%	35%	52%	4.373 0.766
- are from a different background than I am.	5%	15%	42%	21%	17%	3.30 1.083
- have different experiences than I have.	4%	11%	34%	35%	17%	3.49 1.013
- are persons I know already.	3%	15%	33%	31%	18%	3.46 1.047
- are chosen by myself.	4%	10%	30%	34%	23%	3.61 1.066
- work hard and contribute to the group work.	1%	2%	7%	30%	60%	4.46 0.809

Legend:
1 Answers ranged from 1 = disagree strongly to 5 = agree strongly

Objective c was to explore students' attitudes towards group characteristics/processes. **Table 3** shows the most highly rated group characteristics.

Table 4: Attitudes related to group characteristics

It is important to me that a group:	1[1]	2	3	4	5	Mean SD
- has group members with different experiences.	1%	8%	30%	34%	28%	4.79 0.980
- has good communication.	1%	1%	7%	33%	59%	4.50 0.961
- is cooperative.	0%	0%	6%	36%	57%	4.49 0.670
- divides the work and everybody does work on their own.	1%	7%	18%	37%	38%	4.03 0.963

Legend:
1 Answers ranged from 1 = disagree strongly to 5 = agree strongly

Objective d was to explore students' attitudes towards how group assignments should be organized. **Table 5** shows the criteria that students value when given a group assignment.

Table 5: Attitudes related to group assignments

It is important to me that a group assignment:	1[1]	2	3	4	5	Mean SD
is well explained.	0%	2%	8%	27%	64%	4.51 0.738
has a well explained grading system.	0%	1%	6%	34%	59%	4.50 0.672
lets group members choose the topic.	1%	7%	30%	40%	23%	3.78 0.895
comes with examples from past classes.	0%	3%	15%	38%	43%	4.20 0.842

Legend:
1 Answers ranged from 1 = disagree strongly to 5 = agree strongly

Objective e was to explore students' attitudes towards project scheduling. **Table 6** an overview of responses toward project time.

Table 6: Attitudes concerning when and where the group project should be done

It is important to me that a group assignment:	1	2	3	4	5	Mean SD
- is done with group members with similar schedules.	0%	5%	15%	42%	39%	4.14 0.846
- gives time to get to know each other.	2%	15%	36%	29%	19%	3.48 1.018
- can be done at a time that is convenient for all members.	0%	2%	9%	47%	42%	4.29 0.718
- can be done in a provided meeting space.	2%	4%	24%	44%	25%	3.86 0.919

Legend:
1 Answers ranged from 1 = disagree strongly, 2 = disagree, 3 = neutral, 4 = agree to 5 = agree strongly.

Table 7 shows the results concerning objective f which was to compare the responses of undergraduate college students, dental hygiene and dental students.

Table 7: Comparison of average responses of the three groups of students

Statements	Dental students	Dental hygiene	LS&A	p
I learn a lot when working in groups.	2.65	2.74	3.24	0.015
I enjoy working in groups.	2.67	2.48	3.16	0.045
I like the outcome of group work.	2.86	2.83	3.39	0.030
It is important that group members:				
- are dedicated / committed to group work.	4.41	4336	4.68	0.015
- work well with others.	4.31	4.23	4.62	0.003
- are from a different background than I am.	3.14	3.64	2.89	0.001
- have different experiences than I have.	3.43	3.71	3.11	0.019
- are persons I know already.	3.39	3.79	3.14	0.008
- are chosen by myself.	3.53	3.91	3.40	0.027
- work hard and contribute to the group work.	4.48	4.27	4.57	0.024
It is important that group/group work:				
- have group members with different experiences.	3.69	4.63	3.49	<0.001
- divide work and everybody does work on their own.	3.97	4.27	3.63	0.009
- is well explained.	4.57	4.31	4.67	0.016
- lets group members choose the topic.	3.74	4.12	3.25	<0.001
- has a well explained grading system.	4.54	4.35	4.61	0.042
- is done during class time.	3.96	4.06	3.38	0.001
- is done with members with similar schedule.	4.20	4.29	3.57	<0.001
- gives time to get to know each other.	3.24	3.86	3.24	<0.001
- can be done at a time that is convenient for all members.	4.15	4.31	4.54	0.013
- can be done in a provided meeting space.	3.79	4.12	3.62	0.018

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

DISCUSSION

- These findings show that students are slightly negative to neutral concerning being engaged in group work.
- It is important to change these less positive attitudes and to assure that ample opportunities are given for students to learn how to best function in group work situations.
- Findings related to which preferences students have concerning group work characteristics could potentially help faculty members to create assignments according to students' preferences.
- Given that healthcare professionals' collaborations with others are crucial for assuring the best possible patient care, future research should focus on gaining a better understanding of how to best educate future providers about working in groups.

CONCLUSIONS

- These findings provide first insights into the importance that dental, dental hygiene and undergraduate students place on group work.
- And on which characteristics of group members, group processes and assignment characteristics they value.
- Faculty members might be able to utilize to more optimally structure group work in their classes.

REFERENCES

1.Green, Bart N and Claire D Johnson. "Interprofessional collaboration in research, education, and clinical practice: working together for a better future" Journal of chiropractic education vol. 29,1 (2015): 1-10.

2. Bosch, Brennan and Holly Mansell. "Interprofessional collaboration in health care: Lessons to be learned from competitive sports" Canadian pharmacists journal : CPJ = Revue des pharmaciens du Canada : RPC vol. 148,4 (2015): 176-9.

3. Sargeant, J. , Loney, E. and Murphy, G. (2008), Effective interprofessional teams: "Contact is not enough" to build a team. J. Contin. Educ. Health Prof., 28: 228-234. doi:10.1002/chp.189

ACKNOWLEDGEMENT

303: Independent learning curriculum with video capture of suturing skills for Family Medicine residents

Authors: Scott Kelley, Sahoko Little, Deborah Rooney

Background: Interns begin residency with a wide range of clinical skills, and suturing ability is no exception. In the University of Michigan Family Medicine Residency, there is a review of suturing skills during the first month of residency, but most residents require significant additional instruction during their experiences with perineal and skin closure. We propose that clinical simulation would permit residents to practice on their own and receive asynchronous faculty feedback, which can improve suture skills without risk of harm to patients.

Actions, Methods or Interventions: We developed an online learning curriculum in Canvas that includes essential suture information i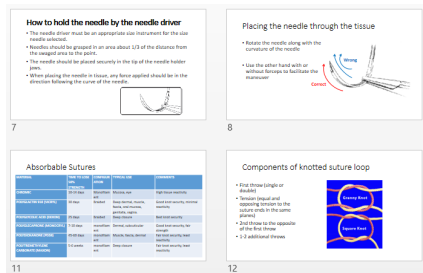n a Powerpoint presentation, as well as video demonstration. After reviewing materials, residents practice independently and video record their own performance to be evaluated and receive feedback from a local expert in laceration repair technique. In addition to this video evaluation, they complete a knowledge pre-test and post-test.

Results: The program is still in pilot phase, so no one has completed it entirely, but six residents have completed the pre-test, started the didactics, and recorded videos of their own performance for review by Dr. Little. The median pre-test score in this group is 5 out of 15 (range 3-6 out of 15), so there is substantial room for improvement at baseline. After reviewing an online Powerpoint presentation, demonstration videos, and independent practice, three residents submitted videos for simple interrupted and simple running sutures so far. They were then evaluated on a 25-point scale, adapted from the American College of Surgeons, and based on this n of three, the mean score for simple interrupted was 22.67 (range 22-23) and mean for running suture was 22.33 (range 22-23), suggesting good skill acquisition after the didactics.

Lessons Learned: Independent learning and asynchronous feedback of suturing is feasible, and there is good reason to continue this pilot, based on our experience so far. Challenges include one resident who used white-colored suture that did not show up well on video for review. Another resident used her own device for capturing videos, rather than those provided in the simulation center, and those videos did not transfer correctly, requiring re-do.

Future Applications and Next Steps: We intend to continue this pilot and assess learner and faculty satisfaction with the curriculum. Dr. Little has been, and will continue to be, responsible for a large portion of the resident education on wound care, but we anticipate including other instructors and assessing interrater reliability. Based on these results, the curriculum could be rolled out to other learners and educators within the University of Michigan and beyond.

Independent learning curriculum with video capture of suturing skills for Family Medicine residents

Scott Kelley MD[1], Sahoko Little MD[1], Deb Rooney PhD[2]
[1]Department of Family Medicine, University of Michigan, Ann Arbor, MI
[2]Department of Learning Health Sciences & Clinical Simulation Center, University of Michigan, Ann Arbor, MI

Background

Interns begin residency with a wide range of clinical skills, and suturing ability is no exception. In the University of Michigan Family Medicine (FM) Residency, there is a review of suturing skills during the first month of residency, but most residents require significant additional instruction during their experiences with perineal and skin closure. We propose that clinical simulation would permit residents to practice on their own and receive asynchronous faculty feedback, which can improve suture skills without risk of harm to patients.

Methods

In this pilot study, we developed an online learning curriculum in the Canvas learning management system that includes essential suture information in a Powerpoint presentation, as well as video demonstration (Figure 1).

Figure 1. Sample educational content

After reviewing materials, residents were requested to complete the modules. They were to independently practice and video record their own performance, to be evaluated and receive feedback from a preceptor experienced in skin surgery (SL), using a performance checklist (Figures 2, 3).

Figure 2. Screenshot of videotaped demonstration of suturing skills

Methods, continued

Figure 3. Performance checklist, 5-point rating scales

In addition to this video evaluation, they completed a knowledge pre- and post-intervention 15-item test (Figure 4)

Figure 4. Samples of knowledge test items

Learners were also asked to complete 4 survey questions regarding their comfort toward specific suturing aspects.

Results

The program is still in pilot phase, but eight residents have begun the module and three residents have completed it entirely.

Knowledge. Seven residents completed the 15-item pre-test, with an average score of 37% (range 26-46%), showing much room for improvement at baseline. Three residents completed the post-test, with an average score of 68% (range 46-93%).

Results

Skills. Five residents have recorded videos of their own performance for review by Dr. Little. They were then evaluated on a 25-point scale, adapted from the American College of Surgeons. Based on this n of five, mean score for simple interrupted was 23.0 (range 22-25) and mean for running suture was 21.6 (range 19-23). Residents received this feedback, followed by more directed instruction in clinic. Other skills can be reported more thoroughly as more data are available.

Comfort. The 3 residents who completed the modules rated their comfort on a four point scale (1 = very uncomfortable, 4 = very comfortable). Mean comfort ratings range between 2.33 (One-handed tie) to 3.33 (Simple interrupted suture) Figure 5.

Figure 5. Mean self-reported comfort scores

Conclusions

Independent learning and asynchronous feedback of suturing is feasible, and may improve on the current state of suturing education. Challenges include one resident who used white-colored suture that did not show up well on video for review. Another resident used her own device for capturing videos, rather than those provided in the simulation center, and those videos did not transfer correctly, requiring re-do.

We intend to continue this pilot and assess learner and faculty satisfaction with the curriculum. Dr. Little has been, and will continue to be, responsible for a large portion of the FM resident education on wound care, but we anticipate including other instructors and assessing interrater reliability.

Based on these results, the curriculum could be rolled out to other learners and educators within the University of Michigan and beyond.

304: Implementation of a "Flipped Classroom" Model for Ophthalmology Resident Education

Authors: Tatiana Deveney, Gale Ore, Kathy Whitney, Shahzad Mian

Background: The concept of a "flipped classroom" for education has gained popularity and attention in the last few years in both medical student and resident teaching. In brief, the model involves preparation of material (ex: recorded video lectures) to be reviewed in advance. In-person teaching time is then devoted to discussion and case-based presentations rather than to traditional lectures. This model has not been previously investigated for ophthalmology resident education.

Actions, Methods or Interventions: The University of Michigan Ophthalmology residency education transitioned to a flipped classroom model in the 2017-2018 academic year. We systematically evaluated the first year of this implementation from both the resident and faculty perspective. Objective measures included percentage of residents viewing online video podcasts, percentage of residents downloading cases for discussion and results on post sub-specialty teaching block quizzes. Subjective information from residents and faculty was also obtained by survey.

Results: Results from 21 residents (7 per training year) were analyzed. All ophthalmology sub-specialties with the exception of neuro-ophthalmology (which runs a separate 2-day educational course each year) participated in the flipped classroom. On average, 71.8% of online video podcasts were watched by the residents. Online viewing dropped over the course of the academic year (92% of videos reviewed in the first block versus 53.7% for the last block of teaching, $p < 0.0016$). 1st year residents viewed more videos on average (81.1%) compared to 2nd year (69.9%) and 3rd year (65.4%) residents. The average post sub-specialty quiz score was 83.1%. Completion of the quizzes dropped over the course of the year (100% of residents for the first block versus 68% for the last block, $p < 0.0136$). Faculty participation in the flipped classroom was high (75.6% of all lectures video were recorded in advance). Subjective feedback from residents was positive.

Lessons Learned: A flipped classroom model for ophthalmology residency education can be successfully implemented. Online viewing of material by residents declined over the course of the year and continued engagement is likely required to maintain active participation.

Future Applications and Next Steps: The flipped classroom model has been continued into this academic year. We are continuing to review how this model is functioning and where improvements and changes can be made.

IMPLEMENTATION OF A FLIPPED CLASSROOM MODEL FOR OPHTHALMOLOGY RESIDENT EDUCATION

Tatiana Deveney, Gale Oren, Kathy Whitney and Shahzad Mian

Department of Ophthalmology and Visual Sciences, University of Michigan, Ann Arbor, MI

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UNIVERSITY OF MICHIGAN HEALTH SYSTEM

INTRODUCTION

- Flipped classroom model gaining popularity in medical education
- Focus on active learning with advanced preparation and review of lecture materials followed by in person sessions with interactive discussion
- Extensive literature on implementation of model for medical student education, including some recent work on ophthalmology medical student education
- Flipped classroom has not been evaluated for ophthalmology resident education

TRANSITION

- University of Michigan ophthalmology residency transitioned to a flipped classroom model for resident lectures in the 2017-2018 academic year
- 3 year educational lecture cycle – goal to transition all lectures

FLIPPED CLASSROOOM DETAILS

- For Each Lecture:

1) Video recording of traditional powerpoint narrated by faculty and posted online (at least 1 week before live session)
2) Faculty preparation of questions and cases for discussion
3) Multiple choice questions for end of block quiz

- Assistance in recording each lecture from librarian and a college student

CANVAS ONLINE PLATFORM

EVALUATION OF TRANSITION
(1ST YEAR OF IMPLEMENTATION)

BASELINE:
- 21 ophthalmology residents (7 per year, PGY2-PGY4)
- All residents attend same lectures and participated in the transition
- 45 total lectures

PARTICIPATION:
- 76% (34/45) of lectures were compliant with the flipped classroom model

RESIDENT FEEDBACK:
- 78.6% responded that the flipped classroom provided educational benefit
- Sample Comments:
- Platform easy to use
- More discussion, easier to review at own speed, "real world"

FACULTY FEEDBACK:
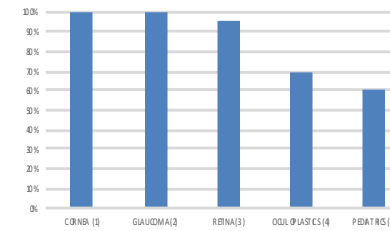- More advanced work required, but In-person sessions more interactive

% VIDEOS WATCHED BY CLASS
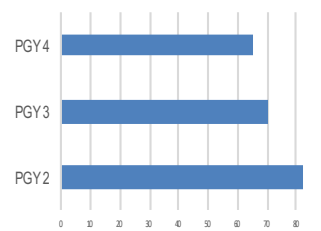
* PGY2 WATCHED SIGNIFICANTLY MORE VIDEOS VS PGY4, P < 0.05

% QUIZ COMPLETION BY BLOCK

* SIGNIFICANT DIFFERENCE BETWEEN FIRST AND LAST BLOCK, P < 0.05

- AVERAGE OF 71.8% VIDEOS WATCHED
- SIGNIFICANT DROP IN VIEWING OVER THE YEAR (92% FIRST BLOCK VS 53.7% LAST BLOCK)

- AVERAGE POST BLOCK QUIZ SCORE: 83.1%
- NO CORRELATION WITH ANNUAL IN TRAINING EXAM (OKAP)

YEAR 2: 2018-2019

- Currently in Year 2 of flipped classroom transition
- Similar viewing percentages for lectures
- Similar quiz scores
- More faculty participation (95% of lectures in flipped classroom model)

DISCUSSION

- Flipped classroom relatively easy to implement
- Exisiting software and resources are available
- Positive feedback from participants
- Online resource (available to residents at any time)
- Analytics easily obtained
- Drop in participation over the course of the year → still requires continued enagement to maintain active participation

SELECT REFERENCES

- Chen et al. A systematic review of the effectiveness of flipped classrooms in medical education. Med Educ (2017). 51 (6): 585-597
- Tang et al. Comparison between flipped classroom and lecture-based classroom in ophthalmology clerkship. Medical Education Online (2017); 22
- Swadron et al. Does the flipped classroom improve learning in graduate medical education?. J Grad Med Educ (2017), 9(4): 491-496

305: Improving medical students' performance on outpatient telephone encounters

Authors: Jacob Mack, Eric Walford, Lauren Heidemann

Background: Medical students typically receive no training on handling outpatient phone encounters, yet this is a critical skill upon entering residency. Communication with patients over the phone is a complex task that requires many unique skills, including appropriately triaging patient concerns and communicating with patients and other health professionals who are involved in the patient's care. Residency Preparation Courses (RPCs) at the end of medical school intend to better prepare medical students for residency. We have developed an educational intervention within the RPCs that focuses on important aspects of outpatient telemedicine. The goal of this intervention is to improve medical student confidence and performance on outpatient phone calls, assessed using a pre-existing simulated paging curriculum.

Actions, Methods or Interventions: We will develop a brief educational video to teach for fourth year medical students about the essential skills of telephone medicine, which will be viewed during their RPC. The content of this video will be decided based on input from outpatient experts using theDelphi technique.

The Delphi technique was used to elicit physicians' opinions on the essential skills for effective interaction with outpatients remotely (i.e. via telephone). Physician participants were faculty and residents in both surgical and non-surgical fields. The responses from the first Delphi round were analyzed qualitatively and collated. Next, the second Delphi round will be sent to participants to rank the importance of each skill elucidated in the first round. The results will be used to create a brief educational video. The trial will be of the Stepped-Wedge design with two clusters. All of the medical students in the RPCs in the spring of 2019 will be randomized to two clusters. Cluster A will receive the video via email while Cluster B acts as control. Both clusters will receive a mock page on which they will be evaluated. Then Cluster B will receive the video via email. Again both clusters will receive a new mock page on which they will be evaluated. A pre/post survey will be distributed electronically to participants to gauge confidence with outpatient telephone medicine. We will also assess performance on the mock pages, which will be scored using a predefined scoring rubric.

Results: The first Delphi round was sent to 18 physicians (both faculty and residents) in the fields of Internal Medicine, Internal Medicine-Pediatrics, Obstetrics and Gynecology, Pediatrics, and Surgery. 12 physicians (67%) responded. Responses were categorized by the study team into 50 categories which were grouped further into 9 main skill subsets: communication, documentation, follow-up, gathering information, logistics, medical knowledge, prescribing, resources (including utilizing other health professionals), triage. Further results are pending.

Lessons Learned: The Delphi Technique is helpful for both (1) soliciting unique ideas for and (2) building consensus in the development of an educational intervention.

Future Applications and Next Steps: Next steps include sending the second Delphi round, development of the educational video, and conduction of the trial (which will take place in February and March 2019).

Improving Medical Students' Performance on Outpatient Telephone Encounters

Jacob Mack, MD, Eric Walford, MD, Lauren Heidemann, MD
Department of Internal Medicine, University of Michigan, Ann Arbor, MI

BACKGROUND

- New interns find it challenging to respond to outpatient clinic phone calls and many have not received specific training in medical school. Further, no known guidelines exist to guide education in this area.
- Senior medical students at UM participate in Residency Preparation Courses (RPCs) to address such gaps in education.
- The RPCs include a Mock Paging Curriculum in which students must respond to simulated patient telephone encounters.

PROBLEM
Students in past RPCs have performed poorly on simulated outpatient telephone encounters.

PURPOSE
(1) Determine which factors are important when interacting with outpatients over the telephone.
(2) Design and implement a curriculum to improve medical students' performance on simulated outpatient telephone medicine encounters.

METHODS

Figure 1 (Above): Delphi Method to determine video content. The Delphi Method uses several rounds of structured questionnaires to solicit consensus from a panel of experts. Faculty and residents were surveyed on skills necessary for physicians when interacting with outpatients over the phone. The results were used to create content for an educational video.
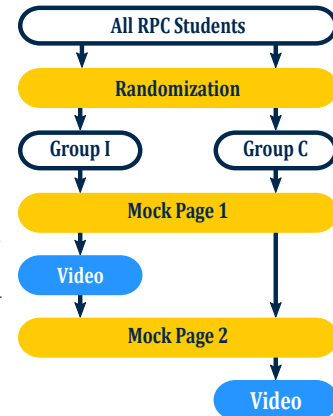
Figure 2 (Right): Trial design. All RPC students (n ≈ 100) were randomized into an intervention and a control group (Group I and Group C, respectively). Baseline performance was measured on Mock Page 1. Group I then received the intervention video. Performance was subsequently measured on Mock Page 2.

DELPHI RESULTS

- Survey sent to 7 faculty and 11 residents.
- 4 faculty and 8 residents from 4 specialties responded.
- Delphi Part 1 identified 119 unique ideas collated into 39 skills.
- Delphi Part 2 identified the importance of these skills.
- The majority of the 39 skills were included in an 8-minute video and distributed to students. 7 of the 39 skills were unanimously "very important" or "extremely important" and were included in the video.
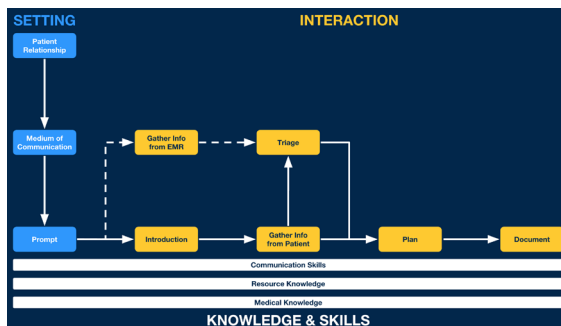

Figure 3: Printscreen of video showing an approach to a telephone call with an outpatient. Content was based on Delphi results. Each image was revealed and explained in turn.

STUDENT FEEDBACK

Question: "What did you learn from this video that you did not learn previously during medical school?"
- "[I] learned a general outline for handling outpatient calls."
- "The typical questions that need to be asked during a phone call w/ an outpatient."
- "The structured way of approaching an outpatient, out of office interaction was very helpful and novel..."
- "I didn't think about asking the patient if they are able to take freely or if this is a good time to talk. A lot of the information in this video seems like it should be common sense, but it's something we never learn about or really even discuss at all in school so I really appreciate having it all laid out so clearly."

CONCLUSIONS & NEXT STEPS

- The Delphi Method identified 39 skills that were important for interacting with outpatients over the phone, of which 7 were unanimously considered "very" or "extremely" important.
- A brief educational video intervention was well received by medical students. Next steps include completing data collection and analyzing results to determine effectiveness of this intervention.

Contact Jacob Mack at mackja@med.umich.edu

306: Integration of Trauma-Informed Care Principles in Nursing Education: Results from Focus Groups and a Pilot Integration Project

Authors: Elizabeth Coolidge, Lindsay M. Cannon, Mariel Arbogast-Wilson, Emily Chapin, Katrina Coley, Courtney Buckley, Megan Harris, Julianne Legierse, Yael Moskowitz, Chloe Marie Velasquez, Meg Warren, Elizabeth K. Kuzma

Background: Nurses provide care to vulnerable patients and families, many of whom have experienced adverse childhood events (ACEs). Approximately two-thirds of adults report at least one ACE. ACEs 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, trauma-informed care (TIC) content and concepts need to be integrated throughout nursing curriculums. Although other health professions have developed best practices for their students, there are none in nursing. The purpose of this project is to fill the gap in nursing education related to TIC.

Actions, Methods or Interventions: Three focus groups were conducted, one with nursing faculty and two with nursing students (both undergraduate and graduate). During the focus groups, participants were asked for feedback on standardized content related to trauma, ACEs, TIC, and vicarious trauma. Participant feedback was integrated following the focus groups. The updated content will be pilot tested in three courses (one graduate and two undergraduate) in January 2019. The content will be evaluated with pre- and post-test surveys assessing knowledge, attitudes, and skills related to TIC. Student feedback on the content and presentation style will also be collected.

Results: Focus group participants reported that the content was relevant to nursing students and easily understandable. Participants stressed that the material lays the groundwork for future nursing professionals to provide care that is trauma-informed. Further, the participants reported that the material is relevant and appropriate for both undergraduate and graduate students. However, content on trauma-informed organizations was deemed most appropriate for graduate nursing students. The pilot integration portion of the study is still in progress and will be completed at the end of January 2019.

Lessons Learned: Content laying the ground work for understanding trauma and trauma-informed care is appropriate for both undergraduate and graduate nursing students.

Future Applications and Next Steps: This work is foundational for the creation of a standardized TIC curriculum in nursing education. Further work is needed to fully integrate TIC content and principles throughout the nursing curriculum, from matriculation to graduation.

Integration of Trauma-Informed Care Principles in Nursing Education: Results from Focus Groups and a Pilot Integration Project

Elizabeth Coolidge, BSN Honors Student, Lindsay M. Cannon, MPH, MSW, Mariel Arbogast-Wilson, BSN Student, Emily Chapin, BSN, RN, DNP Candidate, Katrina Coley, BSN Honors Student, Courtney Buckley, BSN Student, Megan Harris, MSN, RN, CPNP, DNP Candidate, Julianne LeGierse, BSN, RN, DNP Candidate, Yael Moskowitz, BSN Student, Chloe Marie Velasquez, BSN Student, Megan Warren, BSN, RN, DNP Candidate, & Elizabeth K. Kuzma, DNP, RN, FNP-BC

M | SCHOOL OF NURSING
UNIVERSITY OF MICHIGAN

BACKGROUND & SIGNIFICANCE

- Nurses play a vital role in caring for vulnerable populations, many of whom have experienced adverse childhood experiences (ACEs).
- About two thirds of adults report at least one ACE.[1]
- ACEs effect cumulative health and development and are associated with negative health outcomes.[1]
- Although other health professions have developed best practices for educating their students on trauma and trauma-informed care (TIC), there are none in nursing.[2]
- Nursing students must be trained to provide TIC to ensure that patients receive holistic care.[2]

PURPOSE

- The purpose of this study is to create and pilot test nursing curriculum content on TIC and trauma.

METHODS

- Content from NCTIC and CAsCAid's didactic presentations for community organizations working with trauma patients was adapted to nursing context
- Conducted three focus groups: one with nursing faculty (n = 5) and two with nursing students (n = 6)
- Content tailored to focus group feedback and class context
- Content pilot tested in an undergraduate (n=67) and a graduate (n=41) nursing course
- Further pilot testing conducted in a non-nursing course on gender-based violence (n = 20) to assess transferability
- Pre- and post-test data collected on TIC knowledge, attitudes, and skills
- Post-test data collected on appropriateness, safety, and comfort with content

DATA ANALYSES

- Focus group data were analyzed using thematic analysis[3,4]
- Pilot data were analyzed using descriptive statistics and t-tests in SPSS version 25; p-values were set at $p < .05$

FOCUS GROUP RESULTS

Positive Feedback	• Logical format with good flow and visuals • Pre-reading articles will help lay foundation • TED Talk engaging, gives an overview of ACEs, and grabs attention • Mandatory reporting information helpful - not taught comprehensively elsewhere • Self-care and vicarious trauma information is critical • Neurobiology content at appropriate level
Suggested Changes/Additions	• Add suggestions for how to implement with children versus adults, and throughout lifespan • Develop quiz/assessment questions • Add discussion questions after TED Talk • Create a list of resources for further information • Content on TIC at organizational level should be targeted toward graduate students • Change case study from diagnostic to practicing TIC both with patients and co-workers

Final Content

- **Nadine Burke Harris TED Talk:** *How childhood trauma affects health across a lifetime*
- **What is Trauma?**
- **Adverse Childhood Experiences (ACEs)**
- **Neurobiology of Trauma**
- **Trauma-Informed Care Principles**
- **Resilience**
- **Trauma-Informed Organizations (graduate level only)**
- **Mandatory Reporting in Nursing**
- **Vicarious Trauma & Self-Care**
- **Case Study**
- **Quiz questions to be used by instructor for assessment**
- **Resources related to self-care, mental health, and trauma**

PILOT TEST RESULTS

Paired *t*-test comparisons for pre-test and post-test scores.

	Full Sample (n = 128)	Undergraduate Pediatric Nursing (n = 67)	Graduate Acute Care Nursing (n = 41)	Undergraduate Gender-Based Violence (n = 20)
Confident in understanding of TIC	15.20***	13.94***	6.95***	4.68***
Can define TIC	16.57***	13.03***	8.53***	6.31***
Can identify triggers & trauma symptoms	14.59***	11.91***	8.35***	3.82**
Understands neurobiology of trauma	22.64***	18.41***	15.32***	5.46***
Important to practice TIC	3.78***	2.57*	1.64	2.88*
TIC relevant to patients	2.92**	1.82	1.71	1.92
Patients will benefit from TIC	2.34*	1.52	1.00	1.92
TIC will improve patient outcomes	3.17**	2.44*	1.28	1.90
TIC will improve staff/patient communication	3.43**	2.20*	1.78	2.31*
Prepared to respond to all patients as possible survivors of trauma	10.07***	8.06***	5.79***	3.19**
Plan to use TIC strategies	2.43*	1.86	1.15	1.47
Confident in ability to provide TIC	13.40***	12.16***	5.74***	4.32*

*$p < .05$, **$p < .01$, ***$p < .001$

Practical Applications

- Students discussed how they can apply TIC in patient settings:
  - Recognize signs and symptoms
  - Respond to all patients sensitively and non-judgmentally
  - Universal screening
  - Knowledge of abuse and mandatory reporting responsibility
  - Provide interventions to help patients recover, heal, and cope
  - TIC as "Standard Precaution"
  - Provide resources to patients
  - Recognize how organizational environment and culture may impact trauma survivors
  - Create a safe space for patients

"I understand how important it is to treat trauma informed care like standard precautions - to air on the side of assuming people may have sustained a trauma in their life because of how common it is."

"I will be more prepared to identify signs of abuse in patients and am more aware of the steps to take and laws of reporting."

Content/Presentation Suggestions

- Include more research on TIC and ACEs
- More interaction and engagement (i.e., videos, graphics)
- Include more neurobiology
- Add examples from practice, more case studies, and how to respond
- Add time for Q&A and discussion
- Allow more time for presentation
- Add more breaks
- Add perspective of trauma survivors (i.e., panel, videos)

"I think more examples of how a nurse would interact with a traumatized patient would be helpful."

"It would be interesting to hear stories from survivors of human trafficking or police/healthcare providers who have worked closely with human trafficking."

APPROPRIATENESS, SAFETY, AND COMFORT

- Students at all levels reported that the content and teaching method were appropriate.
- Students at all levels reported that they felt safe learning about the content and comfortable engaging in discussion.

CONCLUSIONS

- TIC nursing education is essential to building a workforce equipped to provide sensitive care to trauma victims.
- TIC content is appropriate for both undergraduate and graduate nursing students.
- UMSN students believe this education is fundamental to improving their awareness of trauma and their ability to provide specialized care to patients.
- Standardized TIC nursing education is foundational for the future of trauma-informed nursing care.
- Further work needed to incorporate TIC content throughout nursing curriculum.

ACKNOWLEDGEMENTS

307: Cognitive Theory Integration for Optimal Learning in Medical Education: A New Educational Process to Accelerate the Novice-to-Expert Transformation of Healthcare Professionals

Authors: Adam Kilian, Laura Uptown

Background: There is a general consensus that medical education - based largely on an educational model more than a century old - needs to change in order to address significant gaps in health professional training and prepare new providers to practice effectively in our 21st century health systems. Many cognitive theories applicable to adult learning and clinical reasoning have emerged in past years, some of which include Information Processing Theory (Miller 1956), Experiential Learning (Rogers 1969), Script Theory (Schank 1977), Structural Learning Theory (Scandura 1977), Hypothetico-Deductive Reasoning (Elstein 1978), Modes of Learning (Norman 1978), Characteristics of Adults as Learners Model (Cross 1981), Component Display Theory (Merrill 1983), Cognitive Load Theory (Sweller 1988), Andragogy (Knowles 1988), Minimalism (1990), and Situated Learning (Lave 1991). While none of these theories singularly explains the whole of adult learning, each has inspired unique instructional design principles and strategies. Identifying methods to integrate and translate these theories and their inspired instructional design principles and strategies into a coherent and practical framework for the education of health professionals is an area of great interest in the medical education landscape. Because of the complex multi-systemic nature of rheumatologic diseases, the field of rheumatology is well-positioned for trialing novel instructional design frameworks and to lead medical education innovation.

Actions, Methods or Interventions: The author aims to introduce an educational process that integrates the aforementioned cognitive theories of learning into a consistent and generalizable instructional framework that promotes medical knowledge delivery and acquisition in the health sciences. Through the integration of multiple design principles (i.e. use of schema construction, simple-to-complex sequencing of learning tasks, effective multimedia use, decreasing guidance at each level of complexity, promotion of new information through self-explanation, questioning, and group discussion, and others) this process aims to accelerate the natural progression in clinical knowledge structures from a novice to an intermediate to an expert. In addition to promotion of medical knowledge and clinical reasoning, this instructional design can also foster core facets necessary for competent providers such as leadership, ethics, health systems science, cost-effective care, interdisciplinary teamwork, patient safety, teaching skills, social determinants of health, and evidence-based medicine. The authors build on the current paradigm in medical education by introducing a generalizable process that optimizes learning and is intentionally designed to accelerate the novice-to-expert transformation in rheumatology.

We are proposing a pilot study, currently being developed as part of a project associated with the Medical Education Scholars Program (MEPS) aimed at investigating the experiences, perspectives, and subjective learning progress of participants in a workshop that teaches aspects of clinical rheumatology utilizing the educational process. This will be an exploratory prospective observational mixed-methods study at an academic medical center in the United States. The participants will evaluate teaching methods using retrospective pre-post comparisons and semi-structured interviews. Measures will comprise of retrospective pre-post surveys using 5-point Likert-type scales to rate their experiences, perspectives, and subjective learning progress utilizing the process, as well as open-ended comments. Participants will also rate items reflecting their opinions regarding medical knowledge and clinical reasoning teaching at their institution. Quantitative assessment will include measuring participants' cognitive load while engaging in the educational process using the NASA Task Load Index and knowledge assessment.

Results: Research in progress. This study is in its preliminary stages and the results are expected to be available in 2020. A schematic illustrating this educational process will be shared.

Lessons Learned: Thoughtful integration of cognitive theories using the new educational process described by the authors can promote learning and novice-to-expert transformation in the health professions.

Future Applications and Next Steps: The new educational process described has an intentional design that is generalizable and adaptable across all health professions and teaching institutions. This process may be utilized to help promote the education of new healthcare professionals and correct the anticipated gap in the healthcare workforce, including in the field of rheumatology. This exploratory prospective observational mixed-methods study aims to lay the groundwork for subsequent studies to test the hypothesis that this educational process improves knowledge acquisition, clinical reasoning, and accelerates the novice-to-expert transformation for health providers.

Learning Theory Integration in MedEd

An Exploratory Educational Process that Aims to Accelerate the Novice-to-Expert Transformation of Healthcare Professionals

Adam Kilian[1] & Laura Upton[2]
[1]University of Michigan Medical School, Ann Arbor, MI
[2]Georgetown University School of Medicine, Washington, DC

INSTRUCTIONAL DESIGN

Background
- We are facing a **workforce shortage** at a time of **accelerating discovery**.
- One approach to **meet society's demand** for healthcare *experts* includes **adapting our education system.**

### What is Instructional Design?
- **Systematically designing and delivering** *educational experiences* in a fashion *towards* **efficient and effective** acquisition of knowledge and skills (i.e. **expertise**).

Our Aim
- Develop an educational **process** that *synergistically* **integrates multiple principles of complex learning into a generalizable and adaptable instructional framework** to efficiently promote expert-level knowledge structures and reasoning strategies. This work remains exploratory.
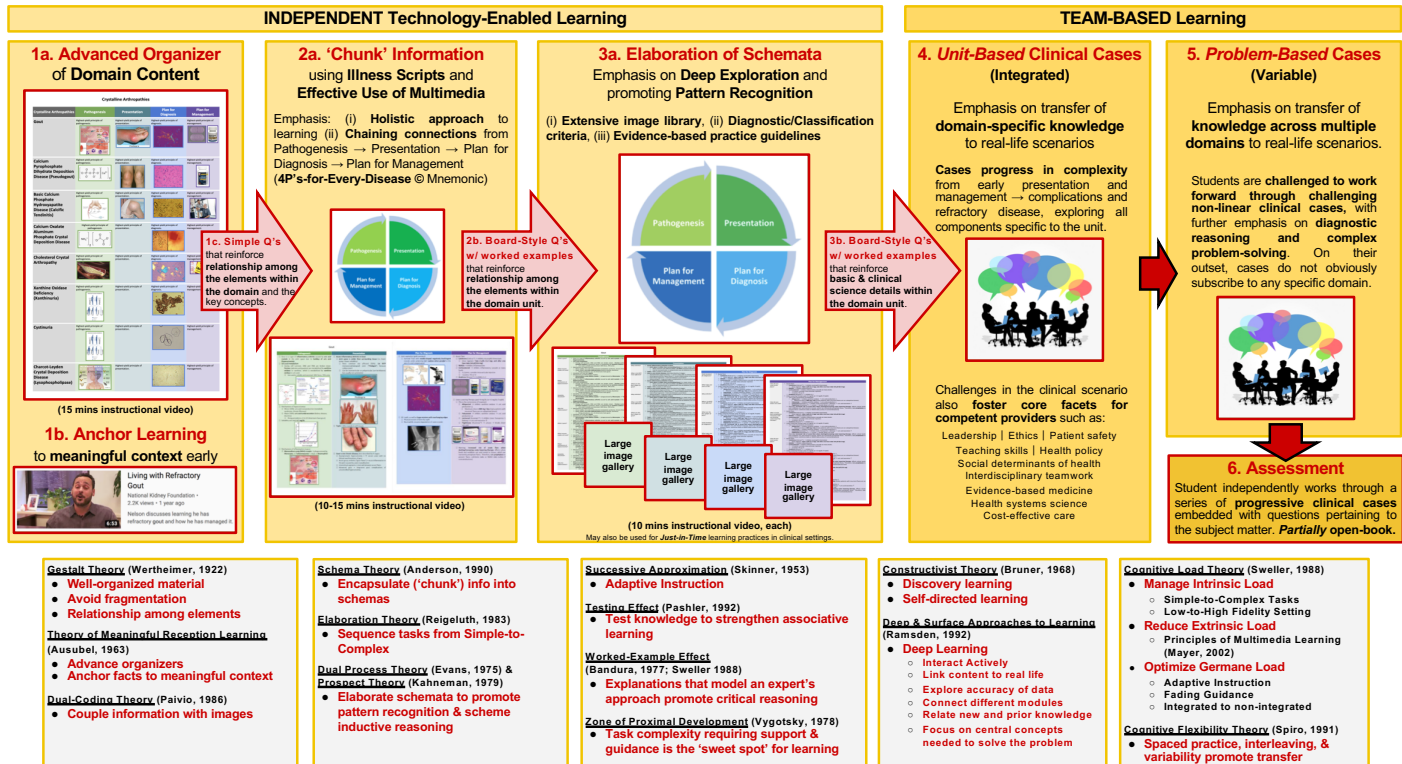
NOVICE-TO-EXPERT
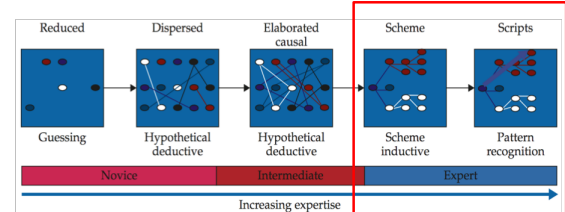
Instruction can facilitate development of cognitive architecture and reasoning strategies used by experts. Many theories and principles of learning underpin the transformation from novice to expert, yet many are often neglected by educators. **Tech-enabled MedEd opens doors to blended learning strategies that may accelerate this transformation.**

THE CLIMATE MODEL © & ITS PEDAGOGICAL UNDERPINNINGS

'Cognitive Science and **Learning** Theory **Integration** Model for *Accelerating* **Transformation** from Novice-to-**Expert'**

An exploratory blended learning process rooted in pedagogy for 21st Century MedEd

INDEPENDENT Technology-Enabled Learning

1a. Advanced Organizer of **Domain Content**

(15 mins instructional video)

1b. Anchor Learning to **meaningful context** early

Living with Refractory Gout
National Kidney Foundation
2.2K views • 1 year ago
Nelson discusses learning his has refractory gout and how he has managed it.

1c. Simple Q's that reinforce **relationship among the elements within the domain** and the key concepts.

2a. 'Chunk' Information using **Illness Scripts** and **Effective Use of Multimedia**

Emphasis: (i) **Holistic approach** to learning (ii) **Chaining connections** from Pathogenesis → Presentation → Plan for Diagnosis → Plan for Management **(4P's-for-Every-Disease © Mnemonic)**

(10-15 mins instructional video)

2b. Board-Style Q's w/ worked examples that reinforce **relationship among the elements within the domain unit.**

3a. Elaboration of Schemata Emphasis on **Deep Exploration** and promoting **Pattern Recognition**

(i) **Extensive image library**, (ii) **Diagnostic/Classification criteria**, (iii) **Evidence-based practice guidelines**

Large image gallery | Large image gallery | Large image gallery | Large image gallery

(10 mins instructional video, each)
May also be used for *Just-in-Time* learning practices in clinical settings.

3b. Board-Style Q's w/ worked examples that reinforce **basic & clinical science details within the domain unit.**

TEAM-BASED Learning

4. *Unit-Based* **Clinical Cases** **(Integrated)**

Emphasis on transfer of **domain-specific knowledge** to real-life scenarios

Cases progress in complexity from early presentation and management → complications and refractory disease, exploring all components specific to the unit.

Challenges in the clinical scenario also **foster core facets for competent providers** such as:

Leadership | Ethics | Patient safety
Teaching skills | Health policy
Social determinants of health
Interdisciplinary teamwork
Evidence-based medicine
Health systems science
Cost-effective care

5. *Problem-Based* **Cases** **(Variable)**

Emphasis on transfer of **knowledge across multiple domains** to real-life scenarios.

Students are **challenged to work forward through challenging non-linear clinical cases,** with further emphasis on **diagnostic reasoning and complex problem-solving.** On their outset, cases do not obviously subscribe to any specific domain.

6. Assessment
Student independently works through a series of **progressive clinical cases** embedded with questions pertaining to the subject matter. *Partially open-book.*

Gestalt Theory (Wertheimer, 1922)
- **Well-organized material**
- **Avoid fragmentation**
- **Relationship among elements**

Theory of Meaningful Reception Learning (Ausubel, 1963)
- **Advance organizers**
- **Anchor facts to meaningful context**

Dual-Coding Theory (Paivio, 1986)
- **Couple information with images**

Schema Theory (Anderson, 1990)
- **Encapsulate ('chunk') info into schemas**

Elaboration Theory (Reigeluth, 1983)
- **Sequence tasks from Simple-to-Complex**

Dual Process Theory (Evans, 1975) & **Prospect Theory** (Kahneman, 1979)
- **Elaborate schemata to promote pattern recognition & scheme inductive reasoning**

Successive Approximation (Skinner, 1953)
- **Adaptive Instruction**

Testing Effect (Pashler, 1992)
- **Test knowledge to strengthen associative learning**

Worked-Example Effect (Bandura, 1977; Sweller 1988)
- **Explanations that model an expert's approach promote critical reasoning**

Zone of Proximal Development (Vygotsky, 1978)
- **Task complexity requiring support & guidance is the 'sweet spot' for learning**

Constructivist Theory (Bruner, 1968)
- **Discovery learning**
- **Self-directed learning**

Deep & Surface Approaches to Learning (Ramsden, 1992)
- **Deep Learning**
  - Interact Actively
  - Link content to real life
  - Explore accuracy of data
  - Connect different modules
  - Relate new and prior knowledge
  - Focus on central concepts needed to solve the problem

Cognitive Load Theory (Sweller, 1988)
- **Manage Intrinsic Load**
  - Simple-to-Complex Tasks
  - Low-to-High Fidelity Setting
- **Reduce Extrinsic Load**
  - Principles of Multimedia Learning (Mayer, 2002)
- **Optimize Germane Load**
  - Adaptive Instruction
  - Fading Guidance
  - Integrated to non-integrated

Cognitive Flexibility Theory (Spiro, 1991)
- **Spaced practice, interleaving, & variability promote transfer**

NEXT STEPS: PILOT STUDY

Future directions include developing a **flipped classroom rheumatology workshop** based on this process and its evaluation using an observational mixed-methods study at an academic medical center.

This process may be utilized to help promote the education of new healthcare professionals and correct the anticipated gap in the healthcare workforce.

ACKNOWLEDGEMENTS & REFERENCES

Sweller, J. (1988). Cognitive load during problem solving: Effects on learning. Cognitive Science, 12, 257–285.
Elstein AS: What goes around comes around: return of the hypothetico-deductive strategy. Teach Learn Med 1994, 6(2):121–123.
Kaufman, D. (2003). Applying educational theory in practice. British Medical Journal, 326, 213–216.
Harasym FM, Tsai TC, Hemmati P. Current trend in developing medical students' critical thinking abilities. Kaohsiung J Med Sci July 2008: 24(7): 341-355.
Patel VL, Yoskowitz NA, Arocha JF. Towards effective evaluation and reform in medical education: a cognitive and learning sciences perspective. Adv in Health Sci Educ (2009) 14:791-812.
Top-right 'Novice-to-Expert Image' Credit: Harasym, 2008. For additional references, please email Adam Kilian MD at adkilian@med.umich.edu.

400: An (un)surprising result? Participation rates, perspectives, and outcomes from a novel student-led and institution-supported USMLE Step 1 Near-Peer Mentorship Program

Authors: Nonie Arora, Sally Salari, Seetha Monrad, Daniel Cronin

Background: All medical students are required to take the United States Medical Licensing Exam (USMLE) Step 1 prior to applying for residency. This is a high-stakes assessment which often serves as a gatekeeper into competitive medical specialties, and thus it is a source of anxiety and stress for many students. In 2017, the University of Michigan Medical School changed the timing of Step 1 to occur after students completed their core clinical clerkships, rather than before, when it is traditionally taken. Among the resources offered to support students preparing for this exam, we noticed there were no formal opportunities fostering direct student-to-student support. Many studies have shown near-peer teaching to be non-inferior to faculty teaching, but fewer studies have looked at the effect of near-peer mentorship and support on student well-being and stress management, particularly during the high-stress USMLE Step 1 study period.

Actions, Methods or Interventions: A near-peer mentorship program was implemented for the 2018 cohort of Step 1 exam takers. The program was designed to be optional, flexible, and tailored to student needs. First, we generated a database of volunteer mentors from the 2017 Step 1 cohort by soliciting information from potential mentors regarding their strengths and goals for Step 1. Then, we connected mentors and potential mentees in an informal networking meet-and-greet event. Finally, mentees were provided with a list of all potential mentors and their information. Mentees were able to independently contact any mentor from the list according to their preferences. We designed a survey for the mentees to evaluate the results of this program. The survey addressed utilization rates for the program, whether participants found the program helpful, topics discussed with mentors, and reasons why non-participants abstained.

Results: The overall survey response rate was 73.5% (108 of 147 students). Overall, 13.0% (14 of 108 students) contacted a near-peer mentor. Among those who did not use the program, 12.2% contacted other support systems provided by the medical school (i.e. counselors), 34.5% utilized non-medical school support systems (i.e. family, friends), and 29.5% did not need additional assistance (not mutually exclusive). Students (n=12, 85.7% response rate among participants) primarily contacted near-peer mentors for study planning (83.3%), study resources (66.6%), challenges that arose during study period (66.5%), and wellness (41.7%). Overall, 63.6% of participants rated the program as "Very Good" or "Excellent" and 45.5% would actively promote the program to others. In contrast, common themes among non-participants were previously established connections with senior students that were able to act as mentors and lack of time to develop a new relationship during the study period.

Lessons Learned: Despite the low overall utilization rate, this student-led and institution-supported program had similar utilization as other medical school resources. Importantly, many students were able to rely on preexisting support networks with fourth year students, friends, and family. Encouraging students to devote time to cultivate these relationships earlier, for example during the core clinical year of medical school, could help alleviate the stress burden during the Step 1 study period.

Future Applications and Next Steps: We plan to develop focus groups to detail characteristics of effective near-peer mentors to improve future iterations of this mentorship program.

401: Breaking Down IPE Barriers through the Use of an IPE Course Adaptor Toolkit

Authors: Emily Hogikyan, Colleen Macke, Jocelyn Schiller, Rana Kabeer

Background: Medical students often report dissatisfaction with the quality and quantity of feedback they receive during clinical rotations. Previous work indicates that students found peer feedback on brief clinical exams with standardized patients and video encounters to be helpful in their learning (Burgess et. al. 2013). Further research indicated that peer feedback was valued for certain domains (professionalism, communication) but was viewed as less valid for domains like medical knowledge (de la Cruz et. al. 2015). Similarly, studies have shown that students have concerns about providing negative or corrective feedback to their peers for fear of social implications (Cushing et. al. 2011). Given the student desire for additional feedback and the importance of learning to give quality feedback, a pilot study was designed to determine the feasibility and utility of a peer feedback mechanism for clinical students.

Actions, Methods or Interventions: Second year medical students at the University of Michigan Medical School were provided with an introduction to the project at their required pediatric clerkship orientation including brief instruction on providing quality feedback. Following the rotation, they were invited to provide feedback to peers who they had recently rotated with using Qualtrics. Respondents answered, "What should this student continue doing?" and "What should this student start doing?" Receiving students then received an e-mail with the feedback they were given. A follow-up survey was distributed asking students about their experience giving, receiving, and utilizing feedback. They were also asked to rank which areas they felt most and least comfortable providing feedback on, and had an opportunity to provide additional thoughts on the program in a free text response.

Data analysis is ongoing. Basic quantitative analysis utilizing Microsoft Excel has been performed. Qualitative analysis has begun with the development of codes and themes.

Results: Our assessment began in July 2018 and since that time 48 students have participated and generated 136 pieces of feedback. General themes of "keep doing" feedback include: patient interactions, team-oriented nature, and patient presentations. General themes of "start doing" feedback include: improved confidence, efficiency, and professionalism.

The follow-up survey has received 16 responses thus far. Students rated the usefulness of feedback they received at a 3.22 + 0.92 on a Likert scale of not at all useful (1) to extremely useful (5). 66% of students felt that the feedback they received from peers was unique compared to faculty and house officer feedback, and they especially noted students' ability to comment on teamwork and specific details of patient care. Students reported feeling most comfortable providing feedback on interpersonal skills and least comfortable providing feedback on medical knowledge.

Lessons Learned: This pilot project reveals that peer feedback can serve as a low stakes, low time commitment endeavor which can provide meaningful feedback for students. While some concerns remain about the social barriers involved in providing peer feedback, the feedback provided included some constructive criticism. Students generally provided encouraging and constructive feedback for peers and felt favorably about the program. Many students commented not only on the benefits of providing feedback at this stage for their classmates, but also for developing their own feedback-giving skills.

Future Applications and Next Steps: Future plans for this project include expanding the tool to other clinical rotations and creating unique feedback forms for sub-interns and other levels of learners. Discussion about the benefits and drawbacks of anonymous feedback should continue, and we are pursuing the possibility of an in-person debriefing opportunity. Additionally, we would like to study the differences between faculty, resident, and peer feedback in qualitatively (themes, language) and quantitatively (amount, length, inter-rater reliability).

Peer-to-Peer Feedback for Clerkship Medical Students

Emily Hogikyan, BS[1], Colleen Macke, MS[1], Jocelyn Schiller, MD[2], Rana Kabeer, MPH[1]
[1]University of Michigan Medical School, [2] C.S Mott Children's Hospital

MEDICAL SCHOOL
UNIVERSITY OF MICHIGAN

C.S. MOTT CHILDREN'S HOSPITAL
MICHIGAN MEDICINE

Abstract

Who: Second-year medical students in clinical rotations

What: Providing written feedback to peers

Where: Inpatient portion of the required Pediatrics Clerkship

Why: Students report dissatisafaction with the quantity and quality of feedback they receive on clinical rotations, and research suggests that peer feedback can provide unique insights.

Results: Students can provide positive and constructive feedback, and overall they found the experience to be positive.

Introduction

- Medical students often report dissatisfaction with the quality and quantity of feedback they receive during clinical rotations.
- Previous work indicates that students found peer feedback on brief clinical exams with standardized patients and video encounters to be helpful in their learning (Burgess et. al. 2013). Further research indicated that peer feedback was valued for certain domains (professionalism, communication) but was viewed as less valid for domains like medical knowledge (de la Cruz et. al. 2015).
- Studies have shown that students have concerns about providing negative or corrective feedback to their peers for fear of social implications (Cushing et. al. 2011).
- Given the student desire for additional feedback and the importance of learning to give quality feedback, a pilot study was designed to determine the feasibility and utility of a peer feedback mechanism for clinical students.

Methods and Intervention

- Second year medical students at the University of Michigan Medical School were provided with an introduction to the project at their required pediatric clerkship orientation including brief instruction on providing quality feedback.
- Following the rotation, they were invited to provide feedback to peers who they had recently rotated through a Qualtrics survey (see below).
- Students then received an e-mail with the feedback they were given.
- A follow-up survey was distributed asking students about their experience giving, receiving, and utilizing feedback.
  - Students were asked to rank which areas they felt most and least comfortable providing feedback on.
  - Free-text feedback section was included as well.

Feedback Instrument

What should this student continue doing?

What should this student start doing?

Results

- 48 clerkship students have generated 136 pieces of feedback
- General themes of Peer Feedback:
  - "Keep doing" feedback included: patient interactions, team-oriented nature, and patient presentations.
  - "Start doing" feedback included: improve confidence, efficiency, and professionalism.
- Follow-up survey has received 16 responses
  - Usefulness of feedback they received at a 3.22 ± 0.92 on a Likert scale of not at all useful (1) to extremely useful (5).
  - 66% of students felt that the feedback they received from peers was unique compared to faculty and house officer feedback.
    - Specifically, students' ability to comment on teamwork and specific details of patient care.
  - Students reported feeling most comfortable providing feedback on interpersonal skills.
  - Students reported feeling least comfortable providing feedback on medical knowledge.

Example Response

Q: *What should this student start doing?*
A: *I noticed that you had good relationships with your patients when you interacted with them during your presentations. I would encourage you to show this more.*

Lessons Learned

- This pilot project shows that peer feedback can be a low stakes, low time commitment meaningful endeavor for students
- Social barriers to peer feedback were less prominent than expected.
- Students generally provided encouraging and constructive feedback for peers and felt favorably about the program.
- Many students appreciated the opportunity to develop their own feedback-giving skills.

Next Steps

- Expand pilot to other clinical rotations
  - Explore possibilities in outpatient rotations
- Create unique feedback forms for clerkship students, sub-interns, and other upper level students
- Explore the possibilities of named feedback and in-person feedback sessions
  - Analysis of student preferences and differences in feedback given
- Further analysis of the differences between faculty, resident, and peer feedback
  - Qualitative analysis: themes, language used
  - Quantiative analysis: amount, length, interrater reliability

References

Burgess, A., Clark, T., Chapman, R., & Mellis, C. (2013). Senior medical students as peer examiners in an OSCE. *Medical teacher*, *35*(1), 58-62.

de la Cruz, M. S. D., Kopec, M. T., & Wimsatt, L. A. (2015). Resident perceptions of giving and receiving peer-to-peer feedback. *Journal of graduate medical education*, *7*(2), 208-213.

Cushing, A., Abbott, S., Lothian, D., Hall, A., & Westwood, O. M. (2011). Peer feedback as an aid to learning–What do we want? Feedback. When do we want it? Now!. *Medical teacher*, *33*(2), e105-e112.

Levine, R. E., Kelly, P. A., Karakoc, T., & Haidet, P. (2007). Peer evaluation in a clinical clerkship: Students' attitudes, experiences, and correlations with traditional assessments. *Academic Psychiatry*, *31*(1), 19-24.

Calhoun, J. G., Woolliscroft, J. O., Haken, J. D. T., Wolf, F. M., & Davis, W. K. (1988). Evaluating medical student clinical skill performance: Relationships among self, peer, and expert ratings. *Evaluation & the Health Professions*, *11*(2), 201-212.

402: Breaking Down IPE Barriers through the Use of an IPE Course Adaptor Toolkit

Authors: Melissa Gross, Debra Mattison

Background: Faculty interested in Interpersonal Education often face structural, pedagogical, and personal barriers. The lack of knowledge, skill and confidence to develop an IPE course or turn an existing course into one that meets IPE competencies can be initial barriers that prevent one from implementing an IPE course. To achieve the goal of supporting expansion of Interprofessional Education (IPE) and to address the lack of centralized resources to obtain information and skills to develop and effectively implement IPE courses, a Course Adaptor Toolkit was launched in April, 2017. The toolkit focused on assisting UM instructors in converting existing courses into IPE courses through a web-based toolkit with relevant information and resources in a step-wise structure. This abstract focuses on data from a recent 2 year period of toolkit use by local, national and international users.

Actions, Methods or Interventions: The Course Adaptor Toolkit provides easily accessible tools to address administrative, instructor, and course-related aspects of converting a class to an IPE offering. The Toolkit consists of four main areas: Implementation Tools, Course Tools, Instructor Tools and IPE Scholarship. It is structured and populated with content for users at various levels. Faculty who are new to IPE can begin by watching an intro video on the website's landing page, and then grounding themselves in IPE definitions and background. Those ready to get going on a course conversion can work through a timeline with links to resources, IPE course elements, and the Michigan Center for IPE's opportunity proposal form.

Results: From April, 2017 through December, 2018, the IPE Course Adaptor Toolkit has been used by 370 U. S. users and 83 international users from 34 countries, in 796 sessions with 2,385 page views. From the landing page, most users' first interaction is with the Toolkit section, followed by the What is IPE? section of the site. Within the Toolkit section, users interacted most with the Implementation and Course Tools pages.

Lessons Learned: It is clear that this online toolkit offers assistance in providing information and addressing barriers that exist for faculty embarking on teaching IPE courses. The impact of the number of faculty who utilize the toolkit is potentially exponential considering the number of possible students who may be exposed to IPE learning by individual users. The use of the toolkit internationally was somewhat unexpected and opens new opportunities to promote IPE learning in a broader sphere.

Future Applications and Next Steps: Further analysis of the data is needed to further understand which users are best assisted by this toolbox and patterns of use which can inform potential future modifications and expanded use of the toolbox.

Breaking Down IPE Barriers Through the Use of a Course Adaptor Toolkit

Melissa Gross and Debra Mattison

M
CENTER FOR INTERPROFESSIONAL EDUCATION
UNIVERSITY OF MICHIGAN

IPE Course Adapter Toolkit
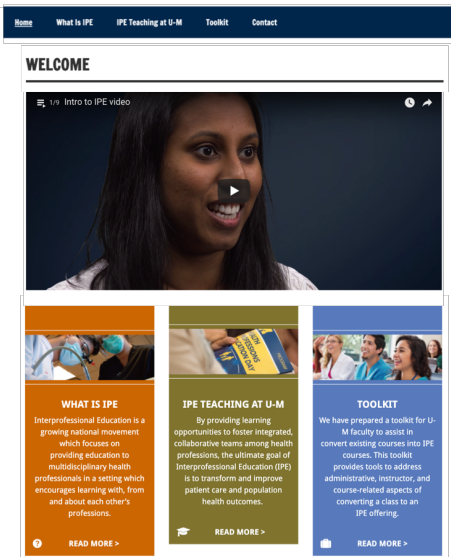
The IPE Course Adaptor Toolkit website was launched in April, 2017 to support faculty interested in developing or converting a course into a learning experience that meets interprofessional education (IPE) competencies. Our purpose was to evaluate its usefulness by investigating usage patterns over the last 2 years.

Page Views

- 2,683 total pageviews
- 20 average views/month
- 1:57 average time/page
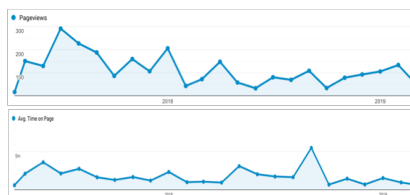
Users

- 508 users (22% in AA)
- 35 countries (US 83%)
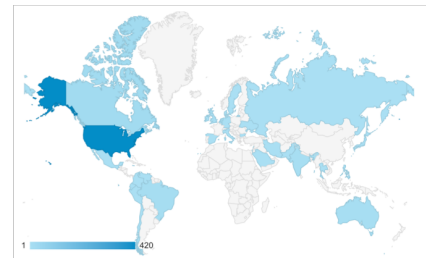
Usage Patterns: Users and Time Per Page

TOOLKIT Pages

Org/Admin Checklist – 121 users / 1:03
Participating Schools – 98 users / 1:19
Course Listing – 49 users / 0:34

Collaboration Checklist – 78 users/0:42
Co-Teaching Checklist – 63 users/1:30
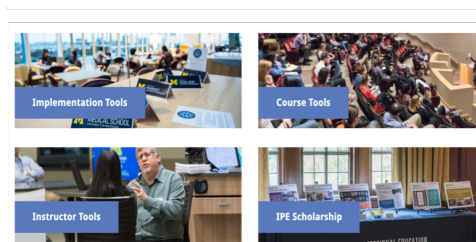
Syllabus – 148 users / 4:56
Assessment/Eval – 89 users / 2:42
Active Learning – 63 users / 1:20
Community Engage – 36 users / 1:20

Publication Venues – 68 users / 1:31

WHAT IS IPE? Pages
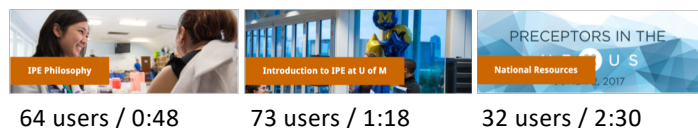
64 users / 0:48   73 users / 1:18   32 users / 2:30

IPE TEACHING AT U-M Pages

35 users / 1:48   103 users / 1:30

Lessons Learned

- Website has been useful for early adopters of IPE and continues to be a useful resource for ongoing expansion of IPE
- Toolkit specific pages are used most, especially Implementation and Course Tools

Next Steps

- To improve the website, collecting direct user feedback will be useful

ipetoolkit.umich.edu

501: Evaluating the implementation and effects of a novel curriculum for residency sick call

Authors: Leigh Morrison, Anna McEvoy, Margaret Dobson

Background: Educational and clinical opportunities are lost when residents are called out of their assigned rotations to cover for co-residents in need of sick call. The decision to call for coverage, even when appropriate, can adversely affect resident wellness. The objective of our study is to evaluate the implementation and effects of a novel curriculum for residency sick call.

Actions, Methods or Interventions: The Flex Teacher Curriculum was implemented in August 2018 as a novel approach to providing sick call for family medicine residents training at the University of Michigan. During this two-week rotation, residents have no assigned clinical duties, and are on call to cover inpatient services if needed. When sick call is not utilized, the on-call resident has time for administrative duties and required scholarly work, which was limited prior to the implementation of the curriculum. The on-call resident is expected to prepare and lead educational sessions for their peers as part of the rotation. Six months after implementation of this novel curriculum, a post-intervention survey will be given to family medicine residents to measure the impact of the curriculum with regard to clinical experiences, educational experiences, and wellness. Additionally, quantitative changes in clinical and education time, as well as teaching experience feedback will be assessed.

Results: This study is ongoing. We will show the design of the Flex Teacher Curriculum. Initial data for HPE Day will include post-intervention survey results of residents' perceptions of the curriculum, as well as an analysis of changes to clinical and educational time, effects on wellness, and teaching experiences with the implementation of the curriculum.

Lessons Learned: Pending study completion. We anticipate that residents will gain both clinical and education time through the implementation of the Flex Teacher Curriculum, in addition to formalization of a "resident as teacher" curriculum through required peer-teaching experiences. We anticipate that the Flex Teacher Curriculum will improve resident wellness in two ways: first, by making it easier to call for coverage, as the on-call resident will no longer be pulled from clinical rotations; and second, by meeting the request of residents in our program to increase educational administrative time.

Future Applications and Next Steps: Pending study completion.

600: Dental and Dental Hygiene Students' Considerations Concerning Gender Inequity in Dental Hygiene Programs - A National Survey

Authors: Mohammed Said Al-Jazaeri, Marita Inglehart

Background: In 2016, the United States Department of Labor reported that only 2.9% of dental hygienists in the U.S. were men and that less than 3% of male students were enrolled in dental hygiene programs in the U.S. Gaining a better understanding of dental and dental hygiene students' thoughts related to this imbalance can provide a basis for considering ways to change this situation. The objectives were to explore how (a) dental and dental hygiene students and (b) male vs. female dental hygiene students perceive this gender imbalance.

Actions, Methods or Interventions: Data were collected from 668 dental hygiene students in the U.S. and from 237 dental students at the University of Michigan - School of Dentistry.

Results: Independent sample t-tests showed that dental students agreed more that male dental hygiene students would be perceived more negatively (5-point scale with 1 = "disagree strongly": 2.56 vs. 2.28; $p<0.001$), would encounter more difficulties in general (2.79 vs. 2.45; $p<0.001$) and more difficulties with finding a job (2.56 vs. 2.28; $p<0.001$) than dental hygiene students. Male dental hygiene students agreed more that they would be perceived more negatively (2.60 vs. 2.25; $p=0.03$), would encounter more difficulties in general (2.60 vs. 2.25; $p=0.03$) and more difficulties with finding a job (2.93 vs. 2.40; $p<0.001$) than female dental hygiene students.

Lessons Learned: Future dentists considered male dental hygienists to be perceived negatively by female dental hygienists, patients and dentists. Male dental hygiene students had less positive expectations concerning their role than female dental hygiene students. Being a solo person in dental hygiene programs might have resulted in experiences that shaped these students' expectations for the future.

Future Applications and Next Steps: Sharing these findings with dental hygiene program directors who are responsible for recruiting and admitting students into their programs is an important first step towards raising awareness about these issues. In addition, surveying dental hygiene faculty members about their thoughts concerning increasing the number of male dental hygiene students is also a crucial next step.

Dental and Dental Hygiene Students' Considerations of Gender Inequity in Dental Hygiene Programs: A National Survey

Said Al-Jazaeri ; Mentor: M.R. Inglehart
University of Michigan - School of Dentistry, Ann Arbor, MI

SCHOOL OF DENTISTRY — UNIVERSITY OF MICHIGAN

ABSTRACT

Objectives: In 2016, the United States Department of Labor reported that only 2.9% of dental hygienists in the U.S. were men and that less than 3% of male students were enrolled in dental hygiene programs in the U.S. The objectives were to explore how (a) dental and dental hygiene students and (b) male vs. female dental hygiene students perceive this gender imbalance.

Methods: Data were collected from 668 dental hygiene students and 237 dental students.

Results: Dental students agreed more that male dental hygiene students would be perceived more negatively, would encounter more difficulties in general and more difficulties with finding a job than dental hygiene students. Male dental hygiene students agreed more that they would be perceived more negatively, would encounter more difficulties with finding a job, but had a more positive attitude towards including more male dental hygiene students than female dental hygiene students.

Discussion: Future dentists considered male dental hygienists to be perceived negatively by dental hygienists, patients and dentists. Male dental hygiene students had less positive expectations concerning their own role than female dental hygiene students. Being a solo person in dental hygiene might have resulted in experiences that shaped these students' expectations for the future. Educational interventions are needed to improve future dentists' and dental hygienists' acceptance of male dental hygienists.

INTRODUCTION

In 2000, the first ever Surgeon General Report on Oral Health was published in the United States. This report drew attention to the fact that certain groups of persons in the US such as individuals from socio-economically disadvantaged and/or ethnic/racial minority backgrounds or patients with special health care needs suffer from high levels of oral disease, but have challenges accessing dental care services. The dental hygiene profession responded to this need for an increase in oral health care services for underserved populations. It advocated for direct access models of dental hygiene care which implies that dental hygienists can initiate patient treatment based on their own assessment of a patient's needs without having a dentist authorize the treatment, and can treat patients without the presence of a dentist. This model is currently endorsed in different ways by 35 U.S. states. One question is whether increasing the number of male dental hygienists in the US would contribute to improving this situation.

AIMS

The objectives of this study were to explore how

(a) dental and dental hygiene students and

(b) male vs. female dental hygiene students

perceive the gender imbalance among dental hygienists in the U.S.
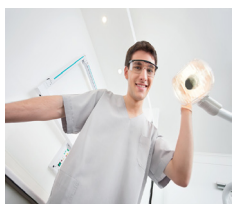
METHODS

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

Respondents: Data were collected from
➢ 668 dental hygiene students and
➢ 237 dental students

Procedure: The dental student data were collected at the University of Michigan School of Dentistry. The dental hygiene student data were collected by emailing a recruitment email to the dental hygiene program directors and asking them to inform their students about the study and respond to an anonymous web-based survey.

Table 1: Respondents' background characteristics

Background characteristics	Dental hygiene students N = 668	Dental students N = 237
Gender:		
- male	9%	48%
- female	91%	52%
Age:		
- Mean	25.06	24.46
- SD	5.797	2.791
- Range	18-63	21-37
Year in program		
- 1	34%	35%
- 2	47%	33%
- 3	11%	25%
- 4	9%	6%

RESULTS

The **first objective** was to explore how dental vs. dental hygiene students perceive the gender imbalance. Table 2 provides an overview of the overall responses to seven sets of items. Indices were constructed by averaging the responses to the items in each of the seven sets. Table 3 compares the average responses of dental vs. dental hygiene students to these seven indices. The data showed that for 2 of the 7 indices significant differences between dental and dental hygiene students were found: Dental students agreed more that male dental hygiene students would be perceived more negatively, and would encounter more difficulties with finding a job than dental hygiene students.

Table 2: Responses to the attitudinal items

Statements: Positive personal attitudes	1	2	3	4	5	Mean
I would like to see more male students enrolled in dental hygiene programs.	2%	1%	47%	37%	12%	3.56
I would like to see more male dental hygienists practicing in the U.S.	1%	2%	40%	45%	12%	3.65
Dental hygiene students would have a better educational experience if classes would have equal numbers of male and female students.	3%	9%	51%	31%	7%	3.31
It would be better for dental hygiene profession if there were more male dental hygienists.	1%	8%	53%	32%	6%	3.34
Having less than 2% of dental hygienists in the US being male is not a problem.	9%	41%	35%	12%	3%	2.58
Statements: Be perceived positively:	1	2	3	4	5	Mean
- by male instructors.	3%	18%	53%	24%	2%	3.04
- by female instructors.	3%	17%	53%	24%	2%	3.06
- by male dental students.	3%	24%	51%	20%	1%	2.92
- by female dental students.	3%	18%	53%	25%	2%	3.07
Statements: Positive experience	1	2	3	4	5	Mean
Dentists would respect dental hygienists more if there were more male dental hygienists.	16%	35%	34%	13%	2%	2.49
Be perceived to be a better leader.	6%	27%	45%	21%	2%	2.86
Be perceived to be more knowledgeable.	7%	30%	44%	18%	1%	2.77
Male dental hygienist interest						
Graduate from the program in a timely fashion.	6%	15%	60%	17%	3%	2.97
Enroll in dental school after graduation from the dental hygiene program.	4%	14%	54%	25%	3%	3.10
Statements: Male performance	1	2	3	4	5	Mean
Apply to dental hygiene programs.	15%	47%	32%	4%	2%	2.29
Have better grades in classroom-based education.	10%	29%	59%	3%	4%	2.56
Do better academically than female dental students.	14%	33%	51%	2%	0%	2.42
Do better clinically than female dental hygiene students.	14%	45%	40%	2%	0%	2.30
Statements: Negative consequences Be perceived negatively:	1	2	3	4	5	Mean
- by female dental hygiene students.	8%	39%	39%	13%	1%	2.60
- by male patients.	6%	36%	39%	18%	0%	2.70
- by female patients.	6%	44%	41%	9%	0%	2.52
- by male dentists.	5%	40%	40%	15%	0%	2.65
- by female dentists.	5%	46%	43%	5%	0%	2.49
- by male dental hygienists.	15%	46%	37%	2%	0%	2.25
- by female dental hygienists.	9%	42%	43%	5%	0%	2.43
Statements: Difficulties finding jobs	1	2	3	4	5	Mean
Would have tougher time finding jobs in dental offices than female dental hygiene students.	9%	32%	32%	22%	4%	2.79
Have problems with finding a job.	8%	38%	36%	17%	0%	2.63

Table 3: Responses of dental vs. dental hygiene students

Indices	Dental hygiene students	Dental students	p
Positive Attitude Index (N=9; alpha=0.812)	3.24	3.28	.735
Positive Image of Male Dental Hygienists Index (N=4; alpha=0.870)	3.36	3.02	.081
Positive Male Dental Hygiene Student Experience Index (N=6; alpha=0.727)	2.74	2.71	.839
Interest in Going to Dental School Index (alpha=0.585)	3.09	2.87	.118
Male do better Index (N=4; alpha=0.786)	2.26	2.40	.271
Negative Consequences Index (N=7; alpha =0.893)	2.21	2.56	.001
Difficulties Finding Job after Graduation Index (N=2; alpha=0.749)	2.07	2.76	.000

The **second objective** was to explore how male vs. female dental hygiene students perceive the gender imbalance. Table 4 shows that male dental hygiene students agreed more that they would be perceived more negatively, would encounter more difficulties with finding a job, but had a more positive attitude towards including more male dental hygiene students than female dental hygiene students.

**Table 4: Responses of male vs. female dental hygiene students**

Indices	Male dental hygiene students	Female dental hygiene students	p
Personal Positive Attitude Index (alpha=0.812)	3.85[1]	3.46	<0.001
Positive Image of Male Dental Hygienists Index (alpha=0.870)	3.48	3.04	0.115
Positive Male Dental Hygiene Student Experience Index (alpha=0.727)	3.14	3.22	0.165
Interest in Going to Dental School Index (alpha=0.585)	3.05	2.92	0.239
Male Do Better Index (alpha=0.786)	2.47	2.30	0.528
Negative consequences Index (alpha =0.893)	2.59	2.25	0.005
Difficulties Finding Job after Graduation Index (alpha=0.749)	2.96	2.39	<0.001

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

DISCUSSION

Two findings deserve further attention.
➢ First, the fact that future dentists were more negative concerning male dental hygienists' chances for employment than dental hygiene students shows the potential discrimination that male dental hygienists might face.
➢ Second, male dental hygiene students had less positive expectations concerning their own role than female dental hygiene students. Being a solo person in dental hygiene might have resulted in experiences that shaped these students' expectations for the future.
➢ Educational interventions are needed to improve future dentists' and dental hygienists' acceptance of male dental hygienists.
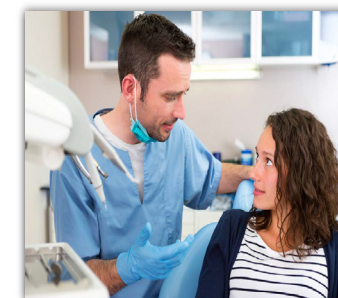
CONCLUSIONS

Based on these data, it can be concluded that educational interventions are needed

➢ to create experiences that improve future dentists' and dental hygienists' acceptance of male dental hygiene students and dental hygienists.

➢ to support male dental hygiene students in their solo role to allow them to have positive expectations for their future professional lives.

ACKNOWLEDGEMENT

601: Voices of Underrepresented in Medicine and First-Generation College Students: Campus Experiences that Influence Persistence on Pre-Medical Career Path

Authors: Marquise Singleterry, Adrianne N. Haggins, Ebony White

Background: Despite decades of national initiatives to address compositional diversity of medical students there have been marginal gains in racial and ethnic representation in medical school matriculants. Much of the health care pipeline research has focused on factors associated with attrition and achievement gaps of minority students. However, little attention has been given to understanding the experience of pre-medical students from backgrounds underrepresented in medicine (URiM) and/or first-generation college students and their interactions within the larger institutional environment. We sought to examine the undergraduate experience in effort to inform strategies to increase racial, ethnic, and socioeconomic diversity in the physician workforce. The objective of this study was to explore formal and informal undergraduate experiences that increased persistence on the pre-medical career path of students from backgrounds URiM or first-generation in college.

Actions, Methods or Interventions: We conducted semi-structured interviews of medical and pre-medical students at the University of Michigan from November 2015 to May 2016 to elicit perceptions of: climate, coursework, academic advising, research, mentorship, student organizations, and how these experiences affected their motivation to pursue a career in medicine. Interviews were audio taped, transcribed, and analyzed using systematic and iterative coding methods. Students were recruited if they self-identified as URiM ((i.e., African-American, Mexican-American, Native American, Alaskan, Native Hawaiians, and mainland Puerto Ricans) or the first in their family to attend college. Demographic data such as age, gender, race, ethnicity, year in school and first-generation in college status were collected from all participants. Pre-med student experiences were compared with medical students to assess for commonalities in successful strategies for pre-medical achievement.

Results: Our study included 25 pre-med, and 5 medical students. Twenty-four of the thirty participants self-identified as URiM (19 pre-med and 5 medical students). Thirty-six percent of the students who were interviewed identified as a first-generation college student. The analysis revealed that students who described positive interpersonal experiences, where their personal values and interests were affirmed, were motivated to continue on toward the medical school pathway. For example, students described influential mentoring interactions as those where mentors demonstrated a genuine interest in what the student valued and were inspired by mentors openly sharing difficulties they faced, "[A mentor] who has a lot of compassion… does not tell [the student] what they should do but encourages them to do what they want to do; who has had their own struggle in one way or another… that everything wasn't just a cakewalk...Being vulnerable really." Other students commented on the importance of having mentors that were willing to challenge them academically and who valued the perspective the student brings, "[A mentor] asking the right questions, helping me ask myself the right questions.… getting that reassurance of potential and not giving up on yourself; understands that all our paths are different and creates opportunities." Students also expressed how their identity/background and the ability to serve as a role model to others was self-motivating, "As a first generation college student I'm recognizing how much of an impact I have on my family just from the sight of us; being a part of this university may help others be motivated to pursue the careers they want and to not be uncomfortable because of their race and ethnicity; I want to be that example… to go back to communities and say, 'You all can do this too.' "

Lessons Learned: Developing a more granular understanding of the factors that influence academic persistence, inside and outside of the classroom setting, can illuminate areas for improvement of pre-medical student experiences. Our findings demonstrate the importance of students creating connections with mentors that affirm their personal values, foster openness between both parties, and push the students to rise to their potential. Underrepresented and first-generation students also view their low numbers on campus as an intrinsic motivator to accomplish their career pursuits and seek opportunities to "pay it forward." Professional development to help faculty and peers create supportive environments where all students feel supported, valued, and capable of excelling are critical to promoting student achievement and persistence during the pre-medical pathway.

Future Applications and Next Steps: Faculty and peer mentorship practices that promote more inclusive campus experiences for students underrepresented in medicine and first-generation in college may improve these students' sense of belonging, cultivate more effective and supportive relationships, and facilitate positive changes in the broader campus climate.

Voices of Underrepresented in Medicine and First-Generation College Students: Campus Experiences that Influence Persistence on Pre-Medical Career Path

Marquise Singleterry, BS[1] Ebony White, MPH, BS[2] Adrianne N. Haggins, MD, MS[3]
[1]University of Michigan Medical School, [2]Wayne State Medical School, [3]Department of Emergency Medicine, University of Michigan

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Background

Much of the health care pipeline research has focused on factors associated with attrition and achievement gaps of minority students. However, little attention has been given to understanding the experience of pre-medical students from backgrounds underrepresented in medicine (URiM) and/or first-generation college students and their interactions within the larger institutional environment.

Objective

This study explored undergraduate experiences that increased persistence on the pre-medical career path of students from backgrounds URiM or first-generation in college.

Methods

- Current and former pre-medical undergraduate students and medical students at the University of Michigan were recruited to participate in the study.

- In-person, semi-structured interviews (n=28) and one focus group (n=2) were conducted from November 2015 to May 2016.

- Interview questions focused on interviewees' academic and non-academic experiences on campus (i.e., course work, academic advising, research, mentorship, student organizations, etc.).

- Analyzed transcripts iteratively and categorized students' statements into meaningful experiences and themes across all participants.

Participant Characteristics	N (%)
Gender	
Male	12 (40%)
Female	18 (60%)
Student Status	
First-Generation College Student only	6 (20%)
URiM College Student only	16 (53%)
First-Generation and URiM	8 (27%)
Medical Student Status	
Pre-Med	23 (77%)
Former Pre-med	2 (7%)
Medical Student	5 (17%)

Please contact ahaggins@med.umich.edu for more information

Results

The analysis revealed three primary themes:

Identity/background and ability to serve as a role model to others was an intrinsic motivator

"As a first generation college student I'm recognizing how much of an impact I have on my family just from the sight of us; being a part of this university may help others be motivated to pursue the careers they want and to not be uncomfortable because of their race and ethnicity; I want to be that example... to go back to communities and say, 'You all can do this too.' "

Students valued mentors who demonstrated a genuine interest in them and willingness to be vulnerable and disclose difficulties they faced

"[A mentor] who has a lot of compassion... does not tell [the student] what they should do but encourages them to do what they want to do; who has had their own struggle in one way or another... that everything wasn't just a cakewalk...Being vulnerable really."

Students preferred mentors who helped them challenge their ideas and re-affirmed their potential to succeed

"[A mentor] asking the right questions, helping me ask myself the right questions.... getting that reassurance of potential and not giving up on yourself"

Discussion

Students with mentors who affirmed their personal values, fostered openness between both parties, and pushed students to rise to their potential demonstrated persistence inside and outside the classroom. Students were able to channel their low numbers on campus into self- motivation to accomplish their career pursuits and sought opportunities to "pay it forward."

Conclusions

Faculty and peer mentorship practices that promote more inclusive campus experiences for students underrepresented in medicine and first-generation in college may improve these students' sense of belonging, cultivate more effective and supportive relationships, and facilitate positive changes in the broader campus climate.

602: Fostering experiential-based learning opportunities to increase participation of underrepresented minorities in medicine: a qualitative study of the Doctors of Tomorrow Summer Internship Program

Authors: Lulia Kana, Carol Noronha, Sarah Diamond, Matthew Pun, Michael Broderick, Jonathan Finks, Gurjit Sandhu

Background: Doctors of Tomorrow (DoT) is a pipeline program between the University of Michigan Medical School and Cass Technical High School in Detroit. The goal of DoT is to encourage youth from communities that are underrepresented in medicine (URM) to pursue careers in healthcare. Freshman high school students are selected through a yearly application process. Participants visit the University of Michigan Medical School (UMMS) throughout the year and engage in mentoring, professional development, and clinical experiences. Between the summer of their freshman and sophomore year, students also have the opportunity to participate in a summer internship program to foster community engagement in an area of their interest. We believe that experiential-based learning opportunities are imperative for building a holistic understanding of community health and are vital for preparing students to enter the healthcare field. In this qualitative analysis, we aimed to elicit themes from the students' weekly responses in order to see how and if students' participation in the program influenced the development of professional skills and ability for self-reflection. We hope that by providing opportunities for community engagement early on that students of color will have an enhanced skill set and be encouraged to pursue careers in healthcare.

Actions, Methods or Interventions: A qualitative study was conducted using responses from students who participated in the DoT summer internship program between 2014-2018. These students were selected by an application process for a paid eight-week experience. Students had the opportunity to select from a variety of internship sites near the Detroit Metropolitan area, such as American Indian Health and Family Services, Artesian Farms, and Central Detroit Christian Community Development Center. During the internship experience, students were asked to engage in self-reflection through the form of weekly surveys. Using a qualitative interpretive description approach, data from the surveys was analyzed through an inductive process by coding and thematic analysis.

Results: Preliminary analysis of the data indicates strongest codes as: community engagement, completing goals, and learning research skills. Emerging themes reflect: experiential-based learning opportunities and professional skills development. The former theme revealed various opportunities where students were able to learn about research skills, technology, and how to work on a team. This theme can be illustrated by the following quote: "While organizing the data in the excel sheets, I learned new techniques on excel. I know how to easily filter out and categorize data by just clicking a few buttons, instead on counting each row." In the latter theme, it was evident that students felt important and had a sense of duty while working alongside their co-workers. This theme can be illustrated by the following quote: "I wore an abundance of different hats today. Caterer, delivery girl, assistant, and custodian. Perhaps that's what being an intern is; learning how to do a lot of things and trying to find some meaning, hoping one resonates with you. I am waiting to see what resonates with me."

Lessons Learned: The students engaged in a variety of different community experiences. Through this internship, students were able to immerse themselves in their respective communities and take on various responsibilities that helped them engage in self-reflection and develop professional skills. Emerging themes include experiential-based learning and responsibility.

Future Applications and Next Steps: Moving forward, we hope to reach out to students who have completed the internship to assess the impact of their summer internship experience on their desire to pursue healthcare-related fields, and what specific tools the internship provided them to help them achieve their professional goals. In addition, we also plan to reach out to the internship sites in order to understand in what ways they believe the students' participation was beneficial to their program.

Fostering experiential-based learning opportunities to increase participation of underrepresented minorities in medicine: a qualitative study of the Doctors of Tomorrow Summer Internship Program

Lulia Kana[1], Carol Noronha[1], Sarah Diamond[1], Matthew Pun[1], Michael Broderick[1], Jonathan Finks[2], Gurjit Sandhu[2]

University of Michigan Medical School[1], University of Michigan Department of Surgery[2]

INTRODUCTION

Mission Statement:
To encourage youth from communities that are underrepresented in medicine to pursue careers in healthcare

Background
- Doctors of Tomorrow (DoT) is a pipeline program between the University of Michigan Medical School and Cass Technical High School in Detroit
- Freshman high school students are selected through a yearly application process and paired with first-year medical student mentors
- Students engage in mentoring, professional development, and clinical experiences
- Students have the opportunity to apply for a summer internship between freshman and sophomore year of high school to foster community engagement

Hypothesis
We believe experiential-based opportunities are imperative for building a holistic understanding of community health and are vital to preparing students to enter the healthcare field.

MATERIALS AND METHODS

- A qualitative study was conducted using responses from 27 students who participated in the DoT summer internship program between 2014-2018.
- Students were selected by an application process for a paid eight-week experience.
- Internship sites near the Detroit Metropolitan area, included:
  - American Indian Health and Family Services
  - Artesian Farms
  - Central Detroit Christian Community Development Center
  - Project Healthy Community
  - Henry Ford Health System: Generation with Promise
- Students were asked to engage in self-reflection through the form of weekly surveys.
- Data from the surveys were analyzed through an inductive process by coding and thematic analysis.

RESULTS

27 reflections
↓
Interpretive descriptive coding
↓
>50 sub-codes
Thematic analysis
↓
4 Overarching themes
↓

1. Experiential Learning Opportunities
2. Professional Skills Development
3. Self-Reflection/Actualization
4. Barriers and Challenges

Pictures from a summer intern's experience at Henry Ford Health System: Generation with Promise (2017)

Experiential Learning Opportunities
"What really stood out to me was the lecture…because it gave lots of information about diversity…I learned that majority Caucasian people live in Livonia, I did not know that before."

Barriers and Challenges
"A challenge that I experienced this week was having great cooperation within my group. There was a little tension at first but once we sat down and talked it over as a whole everything went well."

Professional Skills Development
"A success I experienced was just finishing all the paperwork. There was so much of it, but I worked through it by taking my time and reading it all. I asked questions when I needed to. […]My supervisor would always tell us workers would go out on break and return late, but I return within good timing."

Self-Reflection/Actualization
"I found that I was successful in the creative aspect of things. I have always loved drawing and acting so creating posters and commercials were two things that were right up my alley. I was excited to find out that those talents are used/needed in the medical field."

LESSONS LEARNED

- The students engaged in a variety of different community experiences.
- Through this internship, students were able to immerse themselves in their respective communities and take on various responsibilities that helped them engage in self-reflection and develop professional skills.

FUTURE STEPS

- Reach out to past summer interns to assess the impact of their summer internship experience on their desire to pursue healthcare-related fields, and what specific tools the internship provided them to help them achieve their professional goals.
- Survey the internship sites in order to understand in what ways they believe the students' participation was beneficial to their program.

DoT Entering Cohort (2016 – 17)

One intern took on a leadership role within Project Healthy Community's summer camp (2018)

An intern presenting a marijuana prevention workshop at the Boys & Girls Club of America (2017)

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Doctors of Tomorrow
Inspiring the Future Leaders in Healthcare

603: 2nd Annual Future Physician Summit: Strategically Strengthening the Pipeline through a Train-the-trainer Pedagogy

Authors: Chevaz Thomas, Nicole White, Jolyna Chiangong, Jasmyne Jackson, Hamilat Olaniyan, Reginald Wilburn, Alana Lay-Phillips, Eliyas Asfaw, Maya Millette

Background: Background: While African Americans are 12% 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 "Ready or Not, Here College Comes", clinical skills sessions, and lunch with interactive focus sessions with a pre-medical students, medical students, residents, and physicians, as well as a tour of the newly renovated simulation center. They day will end a mission and vision workshop followed by a debrief. The Summit is scheduled for February 23rd, 7th from 8am-3:30pm. Wolverine Pathways will provide transportation for 70 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 undergraduate 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, Focus Session Coordinator, and Media 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 and catering. 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 Focus Coordinator created questions for the volunteers 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 February 23rd 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 February 23rd, 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 February 23rd, the second 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 Physician Summit cultivates opportunities to strengthen the pipeline, increase diversity in medicine and develop future physician leaders.

Future Physicians Summit 2: Strategically Strengthening the Pipeline Through a Train-the-trainer Pedagogy

Nicole White[*1], Jolyna Chiangong[*1], Hamilat Olaniyan[1], Reginald Wilburn[1], Alana Lay-Phillips[1], Eliyas Asfaw[1], Maya Millette[1], Chevaz Thomas[2], Marquise Singleterry[2], Jasmyne Jackson[2], Kristian Black[2].

[1]University of Michigan, [2]University of Michigan Medical School

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BACKGROUND & METHODS

BACKGROUND: While African Americans are 12% 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 for 6th-12th graders on the University of Michigan Medical School campus.

METHODS:

1. **MIDDLE & HIGH SCHOOL STUDENTS** Gain exposure to medicine, improve college readiness and learn the value of diversity to the health system

2. **UNDERGRADS** Advance medical knowledge, cultivate leadership skills and inspire younger students

3. **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, Panel Coordinator, Media Coordinator, and Survey Manager. An application process for each position was conducted, and students were selected based upon experience, qualification, and potential to further the vision of initiative. Co-chairs led bimonthly meetings with the leadership team to assess progress on their deliverables, create content and problem solve.

ACTIONS & INTERVENTION

FUNDING SOURCE

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

BLACK UNDERGRADUATE MEDICAL ASSOCIATION

Clinical Sessions: BUMA & BMA pairs were created for the following stations: pulmonary, & cranial nerves. During the pulmonary session, attendees learned basic human anatomy and physiology first, followed by a crash course in cardio pulmonary resuscitation (CPR) utilizing infant, child, and adult mannequins. The cranial nerves session was similar in design, with an initial crash course followed by a hands on activity where students tested recently acquired knowledge by matching pathological states with anatomical structures. Each session contained a clinical correlate specifically related to the Black community. BUMA students lead the sessions with the BMA students as supporting figures.

TIME		FPS Itinerary
8:30- 9:00	AM	Arrival & Pre-Survey
9:00- 9:30	AM	Welcome Ceremony & Icebreaker
9:30- 10:15	AM	College Readiness Game: College Life Jeopardy
10:15- 11:15	AM	Clinical Skills Session
11:20- 12:00	AM PM	Lunch: Fresh Corner Cafe
12:00- 1:00	PM	"Meeting the Steps" Breakout Sessions:
1:10- 2:10	PM	Clinical Untour
2:15- 2:30	PM	Post-Survey
2:30- 3:00	PM	Closing Ceremony

DEVELOPMENT MODEL

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.

BLACK MEDICAL ASSOCIATION

Closing Ceremony: Summit directors highlighted the important takeaways of the day and emphasized the theme of diversity in medicine. This was followed by a certificate ceremony paralleling the traditional medical school "White Coat" ceremony. This was done in a symbolic manner to represent the student's commitment to addressing healthcare inequalities stemming from a lack of diversity in medicine, by one day becoming of one the many solutions to the problem .

RESULTS & LESSONS LEARNED

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

- Gather feedback from summit attendees, leadership team and key stakeholders.
- Development of a 'how-to' manual that will be distributed to student organizations resulting in continued impact.
- Publish manuscript on development model in hopes that other institutions adopt strategy.
- Survey results will be analyzed to inform future summits, secure additional funding and synthesize a publication

604: Increasing Diversity in Ophthalmology: a Multi-Year Mentorship Pipeline Program

Authors: Mason Shaner, Kevin Heinze, Rahul Iyengar, Charles Frank, Ariane Kaplan, Angela Elam, Alan Sugar, Katherine Whitney, Lauren Prisk, Shahzad Mian

Background: Currently, 6% of practicing ophthalmologists and 7.7% of ophthalmology residents identify as coming from minority communities underrepresented in medicine (URM) while the national prevalence of these minorities in the US is about 30%. Lack of ophthalmologists in underserved communities, financial disparity, and patient mistrust of physicians present significant barriers to care. These barriers are reduced when physician and patient come from similar ethnic backgrounds. Patients receiving care from physicians of the same race/ethnicity report greater satisfaction with communication and treatment outcomes.

Actions, Methods or Interventions: In an effort to enhance ophthalmologist diversity and thereby improve healthcare delivery to underserved communities, we designed a longitudinal one-on-one mentorship-led pipeline program between medical students and ophthalmology residents to inspire and to support URM medical students in pursuing a career in ophthalmology. In the fall of 2017, nine first year medical students (M1s) were assigned to seven first year ophthalmology residents (PGY2s) from the UM Ophthalmology Residency Program. We arranged a clinical mentorship program including clinical skills night, educational sessions, networking, and shadow experiences in the OR and clinic setting.

Results: Mid Year feedback showed an overall positive response to program with 8 out of 9 students indicating that ophthalmology was either their top choice of future specialty or of primary interest to them. Both mentors and mentees were asked for educational feedback and overall program satisfaction.

Lessons Learned: Pipeline Mentoring program is novel approach to introducing URM medical students to the field of ophthalmology early in their medical school careers and creating a mentorship relationship that can help support them during the transition to medical school.

Future Applications and Next Steps: Continued support in preparing for a competitive residency process including the USMLE, drafting personal statements, and interviewing successfully. Continuing this Pipeline Mentoring Program for future academic years to encourage URM medical students to explore ophthalmology as a career choice. In addition, to better understand the barriers to ophthalmology, an additional survey will be conducted with several medical school classes within our University of Michigan Medical School community. This survey will identify and characterize deterrents that can be addressed by this mentorship program.

Increasing Diversity in Ophthalmology: a Multi-Year Mentorship Pipeline Program

Mason A. Shaner, BS; Kevin Heinze, MD; Rahul Iyengar; Charles R. Frank; Ariane Kaplan, MD; Angela Elam, MD; Alan Sugar, MD; Katherine Whitney; Lauren Prisk; Shahzad Mian, MD
University of Michigan Medical School & Kellogg Eye Center

Background

Need for Diversity in Ophthalmology
Studies demonstrate that ethnic concordance between physician and patient improves patient compliance and therapeutic benefit.[1] Ophthalmology remains a specialty of low diversity. An optimal, population-based strategy for the future treatment of ophthalmologic disease includes increasing the number of practicing ophthalmologists who come from underrepresented ethnic backgrounds.[4]

Currently, 6% of practicing ophthalmologists and 7.7% of ophthalmology residents identify as coming from minority communities underrepresented in medicine (URM)[2] while the national prevalence of these minorities in the United States is about 30%.[3] In some areas of the United States, this difference is even larger.[4]

Lack of ophthalmologists in underserved communities, financial disparity, and patient mistrust of physicians present significant barriers to care. These barriers are reduced when physician and patient come from similar ethnic backgrounds.[4,5,6] Patients receiving care from physicians of the same race/ethnicity report greater satisfaction with communication and treatment outcomes.[7,8] URM physicians return frequently to underserved communities, including underserved areas which traditionally lack ophthalmologists.[9]

Efforts aimed at diversifying the ophthalmology workforce address the sense of alienation experienced by patients who have difficulty relating to physicians of a background different from their own. While such a project may take time, early intervention is important. By 2050, the prevalence of common ophthalmology diseases is predicted to double.[10]

Medical Student Barriers to Pursue Ophthalmology
Many barriers deter medical students from pursuing a career in ophthalmology, including its competitiveness, lack of exposure to ophthalmology, and lack of time for career exploration beyond the required core clerkships within the medical curriculum. URM students face additional challenges including lack of familial, financial, or educational support, and limited encouragement to pursue competitive fields in medicine.[11]

Purpose

In an effort to enhance ophthalmologist diversity and thereby improve healthcare delivery to underserved communities, we designed a longitudinal one-on-one mentorship-led pipeline program between medical students and ophthalmology residents to inspire and to support URM medical students in pursuing a career in ophthalmology.

Methods

Recruitment
We worked closely with the Black Medical Association (BMA) and the Latin American and Native American Medical Association (LANAMA) to recruit interested M1s.

Participants
In the fall of 2017, nine M1s joined the program. Five identified as URM. All seven PGY2s from the University of Michigan Ophthalmology Residency Program participated. We arranged a clinical mentorship program between M1s and PGY2s. Selected faculty participated in the educational program. In the fall of 2018, twelve M1s applied for seven mentee positions. All seven selected mentees identified as URM. All newly entering PGY2s in 2018 are participating. All nine M2s and seven PGY3s from the 2017 cohort are continuing the program.

Evaluation
We anonymously surveyed M1s and PGY2s biannually.

M1 Program Design

Informational Session
Interested M1s and PGY2s attended a dinner meeting with ophthalmology faculty and leadership to learn about ophthalmology, the mentorship program, and disparities within ophthalmology.

Clinical Skills Night
After we paired the M1s and PGY2s, each PGY2 mentor taught their M1 mentee skills utilized throughout the program. This included basic ocular anatomy, direct ophthalmoscopy, indirect ophthalmoscopy, and slit-lamp techniques.

Mentor-Guided Immersion
Mentees participated with their mentors in clinic or in the operating room at least three times per semester and worked on the ophthalmology inpatient consult or night-float service once per semester.

Educational Sessions
We hosted a surgical simulation experience with VRmagic to practice examination skills and basic microsurgery techniques. We also hosted a plastic surgery suturing skills event in which PGY2s taught M1s knot-tying and suturing techniques.

Global Networking
We invited Eve Higginbotham MD, Professor of Ophthalmology and Vice Dean for Diversity and Inclusion at the University of Pennsylvania Perelman School of Medicine, to host Grand Rounds and speak about vision care disparities and diversity, equity, and inclusion efforts in ophthalmology. In April 2019, Keith Carter MD, Chairman and Head of the Ophthalmology Department at the University of Iowa, president of the American University Professors of Ophthalmology (AUPO), and president of the American Academy of Ophthalmology (AAO), will host Grand Rounds and speak with program members and fellow medical students interested in diversity, equity, and inclusion (DEI).
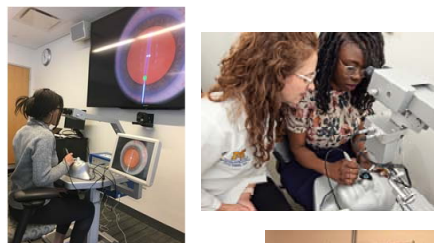
Results

Mid-Year Feedback
M1s showed an overall positive response to the program:
- All students felt either "satisfied" or "very satisfied" with the program
- Average perceived educational value of the program on a scale from 1-5 with increasing value was 4.2/5
- 8/9 students indicated that ophthalmology was either their top choice of future specialty or of primary interest to them
- Several students shared the sentiment "I have maintained my interest in ophthalmology, and this experience has made it even stronger!"

PGY2s showed an overall positive experience to the program as well:
- Average satisfaction with the clinical experiences with their mentees rated from 1-5 with increasing satisfaction was 4.8/5
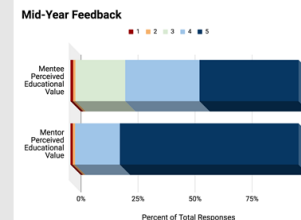

Figure 1. 100% stacked mid-year feedback responses of perceived educational value on a scale from 1-5 with increasing value

End-Year Feedback
M1s and PGY2s continued this positive trend:
- All M1s stated that interest in ophthalmology increased since beginning the program
- PGY2s identified the program as a means to connect with students from different backgrounds and an opportunity to gain educator experience

Question	Average Response (n=6)
How valuable has this program and resident mentorship been to your educational development?	4.33
My interest in Ophthalmology has increased since starting the Pipeline program.	4.67
My knowledge of Ophthalmology has improved throughout the Pipeline program.	5
My knowledge of DEI efforts within the field has improved throughout the Pipeline program.	4.5
I feel confident in my ability to apply clinical skills gained in the Pipeline program.	3.67
Overall, how satisfied are you with the DEI Ophthalmology Mentorship Program?	Very satisfied
Would you recommend the program to other students?	Yes

Table 1. Mentee End-Year Feedback Responses on a scale from 1-5 with increasing value

Question	Average Response (n=4)
Overall, how would you rate the clinical experiences you've had with your mentee(s)?	3.5
I feel that I have grown significantly as an educator since participating in the Ophthalmology Pipeline Program	3.5
I believe that my knowledge of efforts in Diversity, Health Equity, and Inclusion have increased since participating in the Ophthalmology Pipeline Program.	3.5
I believe that the Pipeline program is an effective way to improve the presence of underrepresented minorities in Ophthalmology.	3.5
Would you recommend that future residents also participate in this program?	Yes

Table 2. Mentor End-Year Feedback Responses on a scale of 1-5 with increasing value

Future Directions

M2 Program Design

Welcome Back Dinner
PGY3s mentors give advice, direction, and support as M2 mentees prepare for clerkships.

Educational Sessions
Using the resident wet lab, PGY3s teach M2 mentees microsurgery techniques. PGY3s also teach M2s skills needed to shine during ophthalmology rotations.

Continued Support & Partnership

Continued support in preparing for a competitive residency application process including the United States Medical Licensure Examinations, drafting personal statements, and interviewing successfully. Continued partnership with BMA and LANAMA to recruit a new cohort of first year medical student mentees and pair them with incoming first year ophthalmology resident mentors.

In an effort to better understand the barriers to ophthalmology, an additional survey will be conducted with several medical school classes within our University of Michigan Medical School community. This survey will identify and characterize deterrents that can be addressed by this mentorship program.

Conclusions

We present a "pipeline" program to recruit URM medical students into ophthalmology, successful within its first year as measured by the cohort's increasing interest in ophthalmology. We plan continued mentoring that supports education, research, surgical skill, and strategic residency application towards completion of ophthalmology residency.

Grant Support

References

1. Saha S, Komaromy M, Koepsell TD, Bindman AB. Patient-Physician Racial Concordance and the Perceived Quality and Use of Health Care. Archives of Internal Medicine. 1999;159(9):997. doi:10.1001/archinte.159.9.997
2. Xierali IM, Nivet MA, Wilson MR. Current and Future Status of Diversity in Ophthalmologist Workforce. JAMA Ophthalmology. 2016;134 (9):1016-1023.
3. U.S. Census Bureau (2011). Profile of General Population and Housing Characteristics: 2010 Demographic Profile Data. Retrieved from https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF.
4. Deas D, Pisano ED, Mainous AG, et al. Improving Diversity Through Strategic Planning. Academic Medicine. 2012;87(11):1548-1555. doi:10.1097/acm.0b013e31826d63e0
5. Zhang X, et al. Vision Health Disparities in the United States by Race/Ethnicity, Education, and Economic Status: Findings from Two Nationally Representative Surveys. American Journal of Ophthalmology. 2012;154 (6 0):53-62
6. Walker KO, Moreno G, Grumbach K. The Association Among Specialty, Race, Ethnicity, and Practice Location among California physicians in Diverse Specialties. J Natl Med Assoc. 2012;104 (1-2):46-52.
7. Xierali IM, et al. AM Last Page: The Urgency of Physician Workforce Diversity. Acad Med. 2014;89 (8):1192.
8. Reede J. A Recurring Theme: The Need for Minority Physicians. Health Affairs (Millwood). 2003;22 (4):91-93.
9. Simon AE, Marsteller JA, Lin SX. Physician-patient Race Concordance from the Physician Perspective. J Natl Med Assoc. 2013;105 (2):150-156.
10. National Eye Institute [Internet]. Bethesda (MD): National Institutes of Health (US); Prevalence of Adult Vision Impairment and Age-Related Eye Diseases in America; reviewed 2016 April; cited 2018 August 20
11. Ross PT, et al. Doctors of Tomorrow–A Pipeline Program for Getting a Head Start in Medicine. International Journal of Humanities and Social Science Invention. 2016;5 (9): 33-37.

700: Why Do Dentists Treat vs. Not Treat or Discontinue Treating Patients Covered by Medicaid? Does Dental Education Matter?

Authors: Heather Rae McAlvey, Marita R. Inglehart

Background: The American College of Dentists charges dentists to practice with beneficence, compassion, integrity, justice, professionalism, tolerance and veracity. Providing care for patients from socioeconomically disadvantaged backgrounds is related to practicing with compassion and justice. The objectives are to analyze how dentists who treat, do not currently treat or never treated patients covered by Medicaid differ in Medicaid-related educational and personal experiences and attitudes. The relationships between experiences, attitudes and professional behavior will also be explored.

Actions, Methods or Interventions: Anonymous postal surveys were mailed to 1,500 dentists; 31 surveys could not be delivered and 368 dentists responded (Response rate: 25.05%).

Results: 102 dentists (27.7%) treated patients covered by Mediciad, 104 (28.26%) had treated these patients in the past, but had discontinued this practice, and 162 (44.02%) did not treat these patients. Dentists who treated these patients agreed more strongly that they had family members who were covered by Medicaid (Scale ranged from 1=disagree strongly to 5=agree strongly: 2.04 vs. 1.77/1.75; p=0.016) and personnally knew people covered by Medicaid (3.02 vs. 2.77/2.59; p<0.001) than dentists who currently did not treat or never had treated these patients. They also were significantly more interested in Medicaid-related information (2.77 vs. 2.56/2,58; p<0.001), considered providing care for patients on Medicaid less an administrative burden (3.28 vs. 3.62/3.61; p<0.001), and had more positive attitudes towards these patients (2.96 vs. 2.61/2.65; p<0.001) than dentists in the other two groups. The more educational and personal Medicaid-related experiences these dentists had, the higher was the percentage of patients covered by Medicaid (r=0.21;p<0.001 / r=0.18;p<0.01), the more interested they were in Medicaid-related matters (r=0.22;p<0.001 / r=0.24;p<0.001), and the more positive were their attitudes towards these patients (r=0.29;p<0.001 / r=0.25;p<0.001).

Lessons Learned: Medicaid-related educational experiences are a crucial step in challenging future dentists to consider treating patients on Medicaid.

Why Do Dentists Treat vs. Not Treat or Discontinue Treating Patients Covered by Medicaid? The Role of Dental Education

HR McAlvey; Mentor: MR Inglehart
University of Michigan - School of Dentistry, Ann Arbor, MI

ABSTRACT

Objectives: The American College of Dentists charges dentists to practice with beneficence, compassion, integrity, justice, professionalism, tolerance and veracity. Providing care for patients from socioeconomically disadvantaged backgrounds is related to practicing with compassion and justice. The objectives are to analyze how dentists who treat, do not currently treat or never treated patients covered by Medicaid differ in Medicaid-related educational and personal experiences and attitudes. The relationships between experiences, attitudes and professional behavior will also be explored.

Methods: Surveys were mailed to 1,500 dentists in Michigan and 368 dentists responded.

Results: 102 dentists treated patients on Medicaid, 104 had treated these patients in the past, but had discontinued this practice, and 162 did not treat these patients. Dentists who treated these patients agreed more strongly that they had family members on Medicaid and personally knew people on Medicaid than dentists who currently did not treat or never had treated these patients. They also were more interested in Medicaid-related information, considered providing care for patients on Medicaid less an administrative burden, and had more positive attitudes towards these patients than dentists in the other two groups. The more educational and personal Medicaid-related experiences these dentists had, the more patients on Medicaid they treated, the more interested they were in Medicaid-related matters, and the more positive were their attitudes towards these patients.

Conclusions: Medicaid-related educational experiences are a crucial step in challenging future dentists to consider treating patients on Medicaid.

INTRODUCTION

Michigan expanded coverage to low-income adults with the adoption of the federally mandated Affordable Care Act in 2013. As of December 2016, Michigan Medicaid or "Healthy Michigan Plan" reported that 23.3% of the population is enrolled in Medicaid. The Healthy Michigan Plan covers: dental check-ups, teeth cleanings, radiographs, fillings, tooth extractions dentures and partial dentures.[1] Although Medicaid coverage in Michigan encompasses dental services, dental practitioners are not required to see patients with this coverage. Therefore, patients covered by Medicaid still encounter challenges when seeking dental care.

Gaining a better understanding of the factors affecting dentists' decision to participate in the Medicaid program and especially understanding why dentists who previously provided treatment for these patients discontinued their services is therefore crucial. The role of personal and educational experiences with Medicaid as well as of related attitudes will be explored. [2-4]

AIMS

The objectives are to analyze how dentists who treat, do not currently treat or never treated patients covered by Medicaid differ in Medicaid-related

a. **personal and educational experiences, and**

b. **attitudes.**

c. **Relationships between experiences, attitudes and professional behavior will be explored.**

METHODS

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

Respondents: Data were collected from 368 dentists in the state of MI (See Table 1).

Procedure: The postal addresses of the 4,370 practicing and retired dentists in the state of Michigan were obtained from the Michigan Dental Association. A cover letter and survey were sent to a random sample of 1,500 dentists on this list.

Statistical analysis: The data were analyzed with SPSS (Version 22).

Table 1: Overview of the respondents' background characteristics

Sociodemographic background	Frequencies N = 368	Percentages
Gender:		
- male	259	71%
- female	104	29%
Educational background		
Dental school attended:		
- University in Michigan	289	82%
- Other university in U.S.	63	17%
- University in other countries	4	1%
Year of graduation from dental school:	**Mean (SD)** 1992 (13.10)	**Range** 1958 – 2016
Practice characteristics		
Practice/employment situation:		
- Solo practice	204	56%
- Partnership	49	14%
- Associateship	37	10%
- Group practice	45	12%
- Community dental clinic	24	7%
- Other	4	1%
% of income earned:	**Mean**	**Range**
- Fee for service	73%	0 – 100%
- Salaried	18.%	0 – 100%
- Shared group income	4.%	0 – 100%
- Other	3%	0 – 100%
Practice location:		
- Rural (< 5,000)	26	7%
- Small town / city (5,000-24,999)	100	28%
- Moderate-sized city	111	31%
- Suburb near large city	106	29%
- Large city	19	5%

RESULTS

The *first objective* was to analyze how dentists who treat, do not currently treat or never treated patients covered by Medicaid differ in Medicaid-related personal and educational experiences. Table 2 provides an overview of the percentages of dentists who provide care for patients covered by Medicaid. Medicaid.

Table 2: Responses concerning patient characteristics

Patient characteristics	Mean	Range
Percentage of patients:		
- Above average income	26%	0 – 100%
- With average income	48%	0 – 100%
- With low income	26%	0 – 100%
Percentage covered by:		
- Medicaid	12%	0 – 100%
- Private / direct pay	24%	0 – 100%
- Dental insurance	62%	0 – 100%
Program participation	**Frequencies**	**Percentages**
Participation in the Healthy Kid Program: Yes	264	74%
Treat patients covered by Medicaid: Yes	104	29%
If no: Did you treat in past? Yes	116	45%
Responses of dentists who treat Medicaid patients	**Mean**	**Range**
Year started treating Medicaid patients	2002	1968 - 2017
# adult patients on Medicaid treated in an average week	20	0 – 368
# children on Medicaid treated in an average week	12	0 – 200
# children treated by Healthy Kids in average week	15	0 - 200
	Frequencies	**Percentages**
All treatment provided for Medicaid patients: Yes	57	57%

Table 3 provides an overview of the Medicaid-related personal and educational experiences of dentists who treat, do not currently treat or never treated patients covered by Medicaid. Dentists who treated these patients agreed more strongly that they had family members on Medicaid and personally knew people on Medicaid than dentists who currently did not treat or never had treated these patients.

Table 3: Personal and educational experiences of dentists who do not, or treated in the past or now treat patients covered by Medicaid

Personal experiences with patients covered by Medicaid	Does not treat	Did treat - but not now	Treats	p
m. Some of the members of my own family were / are assisted by Medicaid.	1.76[1]	1.77	2.04	0.019
n. Some people that I know personally from the community are on Medicaid.	2.59	2.76	3.03	<0.001
Educational experiences				
p. My instructors in dental school were positive about treating the needs of Medicaid patients.	2.73	2.58	2.89	0.017
q. I want to attend a continuing education workshop to learn more about unserved and underserved populations.	2.01	1.98	2.40	<0.001
u. I learned about Medicaid patients in dental school.	2.62	2.51	2.66	n.s.

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

The *second objective* was to analyze how dentists who treat, do not currently treat, or never treated patients covered by Medicaid differ in Medicaid-related attitudes. Table 4 shows that dentists who treated patients on Medicaid considered providing care for patients on Medicaid less an administrative burden, and had more positive attitudes towards these patients than dentists in the other two groups.

Table 4: Average attitudinal responses of dentists in the three groups

Statements related to administrative burden	Does NOT treat	Did treat - but not now	Treats	p
Medicaid reimbursements are not sufficient.	3.80	3.90	3.86	n.s.
Getting reimbursed from Medicaid takes too long.	3.43	3.46	2.95	<0.001
Getting reimbursed from Medicaid requires too much paperwork.	3.57	3.52	3.04	<0.001
Statements related to negative attitudes towards patients on Medicaid				
My dental staff does not like to treat Medicaid patients.	2.23	2.14	2.09	n.s.
Medicaid patients are usually unaware of what keeps their teeth healthy.	2.61	2.69	2.87	0.028
Medicaid patients are uninterested in dental care.	2.31	2.23	2.29	n.s.
Medicaid patients are unreliable.	2.94	3.11	2.85	0.047
Medicaid patients are unresponsive to being educated about their oral health.	2.39	2.41	2.44	n.s.
Statements related to positive attitudes towards patients on Medicaid				
The dental profession has a responsibility to treat Medicaid patients.	2.51	2.57	3.09	<0.001
o. There is a need for more dentists to treat Medicaid patients.	2.89	2.86	3.06	n.s.
r. Children assisted by Medicaid are really suffering due to untreated caries.	3.01	2.95	3.12	n.s.

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

Objective 3 was to analyze the relationships between experiences, attitudes and professional behavior. Table 5 shows that the more educational and personal Medicaid-related experiences dentists had, the more patients on Medicaid they treated and the more positive were their attitudes towards these patients.

Table 5: Correlations between Medicaid related education, attitudes and related professional behavior

Medicaid related behavior	Experiences		Attitudes related to		
	Personal	Educational	Administrative burden	Patients: negative	Patients: positive
% of patients on Medicaid	.18**	.211***	-.208***	.048	.260***
# adult patients on Medicaid	.155	.133	-.086	.000	.137
# children on Medicaid	-.027	.190	-.031	.092	.171
# children on Healthy Kids	-.009	.144	-.109	.091	.195
Experiences					
Personal	1	.20***	-.076	-.14*	.25***
Educational	.20***	1	-.054	.006	.29***
Attitudes:					
- administrative burden	-.076	-.054	1	.16**	-.20**
Patient - Negative	-.14*	.006	.16**	1	.014
Patient - positive	.25***	.29***	-.20**	.014	1

DISCUSSION

➢ These findings are based on survey data from 368 dental providers across the State of Michigan. Future research should explore if these same trends also can be found on a national level.

➢ Having personal and educational experiences with patients covered by Medicaid was related to the percentage of patients on Medicaid that were treated by a dentist and their attitude towards these patients.

➢ Providing educational experiences with treating Medicaid patients is therefore crucial for increasing the number of dentists willing to treat patients on Medicaid.

CONCLUSIONS

These data show that:

➢ Dentists who treat patients covered by Medicaid were more likely to have had personal and educational experiences with Medicaid.

➢ These experiences are positively related with attitudes towards patients on Medicaid.

➢ They also are related with actually treating patients on Medicaid.

➢ Having positive role models in dental school is important.

REFERENCES

1. Michigan.gov, (2017). Healthy Michigan Handbook. [online] Available at: https://www.michigan.gov/documents/mdch/Healthy_Michigan_Handbook_Final_447363_7.pdf [Accessed 16 Mar. 2017].
2. Damiano P., Brown E., Johnson J., Scheetz J. Factors Affecting Dentist Participation in a State Medicaid Program. J Dent Educ1990;54(11):638-43.
3. Valentine A., Inglehart M. Medicaid Patients in Dental School Clinics: Do Personal and Professional Experiences Matter? J Dent Educ 2011;75(9):1225-35.
4. Warder C., Edelstein B.. Evaluating Levels of Dentist Participation in Medicaid: A Complicated Endeavor. J Amer Dent Assoc 2017;148(1):26-32.

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701: Patient Satisfaction and Pain after Dental Extraction with/without Opioids

Authors: Sarah Bettag, Brooke Kenney, Kendall Dubois, Shernel Thomas, Kenneth Sloss, Chad Brummet, Romesh P. Nalliah

Background: The opioid epidemic is a public health crisis, tripling rates of diagnosed abuse and causing an estimated 72,000 deaths in 2017 based on preliminary data. The escalating epidemic begs dentists to consider their involvement in exposing patients to opioids – one of the first instances naïve patients are exposed to opioids is for wisdom tooth extraction. Among those receiving opioids, 1 in 15 will become a long-term user. Dentists' desire to keep patients comfortable and satisfied can lead to the over-prescription of opioids, which when unused, become an available pool of medication easily diverted to potential abusers and the opioid-naïve. Adopting more judicious prescribing habits can help dentists balance patient safety and adequate pain reduction.
Our team is a multidisciplinary group with Community Health workers, anesthesiologists, hand surgeons, transplant surgeons, a dentist and registered nurses. Our study is modeled on the quality improvement project at Michigan Medicine focused on opioid use following laparoscopic colectomy. Michigan Medicine has found that, although prescribed an average of 50 tablets, only about 6 tablets were being used by patients. After a round of clinician education to reduce average prescribing to 15 tablets, patients were only found to be using 4 tablets. This study found that the amount you prescribe is the biggest factor affecting consumption – not pain. There is currently no knowledge about what is appropriate prescribing after dental surgery and guidelines published by the American Dental Association and the Centers for Disease Control remain vague. Our project is a collaborative with best practices applied from laparoscopic colectomy and aims to dispel the notion that opioids are necessary for patient satisfaction and comfort following dental surgery.

Actions, Methods or Interventions: Extractions accounted for over 90% of the opioid prescriptions at the University of Michigan School of Dentistry (UMSOD). Patients (n=424) undergoing oral surgery procedures from June 2017 through December 2017 completed phone surveys within six months of surgery about the number of opioid pills they had used, their use of non-opioid analgesics, their satisfaction and pain levels during the first week after surgery. Pain was ranked from (1) no pain to (4) severe pain; patient satisfaction was ranked from (1) extremely dissatisfied to (10) extremely satisfied.

Results: Pain rating was similar for patients who filled and used prescribed opioids (OP) and those who did not use opioids (NOP); OP patients did not report a greater reduction in post-operative pain than NOP patients (routine extraction p<0.0001; surgical extraction p=0.03). While some patients still ranked pain as moderate to severe, both NOP and OP patients reported feeling satisfied with their pain management after surgical extraction (NOP mean=8.1; OP mean=8.3, no sig. difference) and after routine extraction (NOP mean=8.8; OP mean=8.4; no sig. difference).

Lessons Learned: Our research has shown that non-opioid approaches to pain control after routine or surgical extraction will not significantly increase pain or reduce patient satisfaction. Given the high risk of opioids, providers should seek non-opioid solutions subsequent to extraction.

Future Applications and Next Steps: Results of this telephone survey can be used to develop postoperative prescribing guidelines at the UMSOD. After guideline implementation, the same survey questions will be administered to subsequent patients undergoing oral surgery procedures from June 2018 through December 2018. This iterative process of quality improvement will involve several cycles of education and reduction in opioid prescribing. We will evaluate 1) the effectiveness of education of prescribers in reducing opioid prescribing; and 2) the correlation between patient self-reported post-operative opioid use and their self-rated pain and satisfaction.

Patient Satisfaction and Pain after Dental Extractions with/without Opioids

S. Bettag; B. Kenney, MPH; K. Dubois, MS; S. Thomas;
K. Sloss; C. Brummett, MD; R. Nalliah, DDS, MHCM

SCHOOL OF DENTISTRY UNIVERSITY OF MICHIGAN

OPEN OPIOID PRESCRIBING ENGAGEMENT NETWORK

BACKGROUND

➤ The opioid epidemic is a public health crisis, causing 70,237 deaths in 2017

Opioid overdose kills more individuals than those involved in fatal motor vehicle accidents.

➤ One of the first instances naïve patients are exposed to opioids is for wisdom tooth extraction.

➤ Among those receiving opioids, 1 in 15 will become a long-term user.

➤ Our study is modeled on the quality improvement project at Michigan Medicine focused on opioid use following laparoscopic colectomy, which found that the amount prescribed is the biggest factor affecting consumption – not pain.

INTRODUCTION

➤ Unused prescriptions become an available pool of medication easily diverted to potential abusers and the opioid-naïve. Judicious prescribing habits can help dentists balance patient safety and adequate pain reduction.

➤ Existing opioid prescribing guidelines published by the American Dental Association and the Centers for Disease Control remain vague. Our project aims to dispel the notion that opioids are necessary for patient satisfaction and comfort following dental surgery.

METHODS

Patients (n=329) undergoing oral surgery procedures from June through December 2017 completed phone surveys about the number of opioid pills they had used, their use of non-opioid analgesics, their satisfaction and pain levels during the first week after surgery. Pain was ranked from 1 to 4; patient satisfaction was ranked from 1 to 10.

RESULTS

Procedure	Opioid Rx.	N	Mean Satisfaction	Median Satisfaction	Std. Dev.	Self-Reported Pain			
						1) No Pain	2) Minimal	3) Moderate	4) Severe
Surgical Extraction	N	75	8.1	10	3.0	21.3%	33.3%	40.0%	5.3%
	Y	80	8.3	9	2.0	2.5%	32.9%	44.3%	20.3%
Routine Extraction	N	106	8.8	10	1.8	26.7%	40.6%	27.4%	5.7%
	Y	68	8.4	9	2.2	8.8%	26.5%	42.7%	22.1%
Significant Results			Two-Sided P>[Z] Surgical Extraction 0.03483 Routine Extraction 0.2663			Row Mean Scores Differ Surgical Extraction p <0.01, nonzero correlation = 0.027 Routine Extraction p < 0.0001, nonzero correlation < 0.0001			

Table 1. Phone survey responses by procedure. Satisfaction was self-assessed from 1 = extremely dissatisfied to 10 = extremely satisfied. Significant results are demarcated by a *.

Pain:
Pain rating was higher for patients who filled and used prescribed opioids (OP) than for those who did not use opioids (NOP) (p<0.01 for both extraction groups). More patients in the OP group reported severe pain for both routine and surgical extractions compared to those that did not use opioids.

Satisfaction:
However, there was no significant difference between groups for satisfaction. Both NOP and OP patients reported feeling satisfied with their pain management after surgical extraction (NOP mean=8.1; OP mean=8.3) and after routine extraction (NOP mean=8.8; OP mean=8.4). Approximately 12% of patients in both extraction cohorts reported contacting the dental office for concerns about pain related to the extraction. Although there was a higher percentage of the OP group patients reporting phone calls compared to the NOP group, this difference was not significant (17.7% vs. 9.4% p=0.11).

Demographics:
There was no significant difference in pain score or satisfaction when stratified by gender or age group in either extraction group. In addition, there were no significant differences in the number of patient using non-steroid anti-inflammatory drugs (NSAIDs) or acetaminophen between the OP and NOP groups for both extraction groups.

Pill Usage:
Prescribed opioids were standardized into 5 mg hydrocodone equivalents. On average, patients consumed 50% of their prescribed opioids. Surgical extraction patients received between 8 and 19 equivalents and the median consumed was 5 equivalents (p<0.01). Routine extraction patients received between 8 and 15 equivalents with a median prescription of 10 equivalents. Patients reported consuming a median of 5.7 equivalents.

Routine Extraction:
Pills prescribed
Pills used

Surgical Extraction:

DISCUSSION & CONCLUSION

Discussion:
For a small private practice, barriers to more conservative opioid prescribing could include concern that 1) patient pain will increase, 2) patient satisfaction will suffer, and 3) calls to the practice regarding post-operative pain will increase – however no such difference was revealed in our study. Thoughtful pre-operative discussion between patients and clinicians about reasonable expectations regarding post-operative pain can reduce the need for an opioid prescription after an extraction.

Conclusion
Given the high risk of opioids, providers should seek non-opioid solutions subsequent to extraction with the knowledge that their patient's pain perception and satisfaction will not suffer.

702: Identifying the Hidden Curriculum around Relationship-Centered Practice in Laboratory Animal Medicine Residency Programs

Authors: Megan Nowland, Tiffany Whitcomb, Paul Haidet

Background: The hidden curriculum in medical education is a topic of great attention and has resulted in a large body of research and literature, including the realization that medical students become progressively less relationship/patient-centered as they progress through their training. The field of veterinary medical education has recently begun to explore the impact of the hidden curriculum, providing preliminary evidence that veterinary students also become less altruistic and relationship/client-centered as they progress through their training. This project was initiated to explore and identify the hidden curricula in laboratory animal medicine (LAM) residency programs, with the eventual goal of identifying target areas for training programs to pursue curricular intervention.

Actions, Methods or Interventions: We conducted a preliminary discussion with a group of LAM residency program directors to determine possible hidden curricular themes in LAM. The directors were presented with a list of common themes from hidden curricula (as reported in medical education research), and asked to discuss whether any of them resonated with their veterinary programs. A member of the study team participating in the meeting via teleconference transcribed notes to capture points of interest and topics of discussion. We analyzed meeting notes using open coding, and identified themes. In order to determine the resident's perspective on these themes, we constructed interview questions to address the topics generated by analysis of the residency program directors. We then conducted ten semi-structured interviews with residents at two institutions and the data were analyzed.

Results: Themes from the residency program directors discussion that focused on relationship-centered practice included: 1) valuing of veterinary knowledge over researcher knowledge, 2) a need for formal teaching of empathy toward researchers, 3) the idea that "venting" about researchers is a normal and healthy outlet, and 4) the primacy of technical skills over communication skills. The literature search yielded the following bodies of research that were determined, in consultation with a medical librarian, to be connected to the above themes: relationship-centered practice, triadic consultations, veterinary professionalism, and hidden curriculum of health professions education. The following themes emerged from the interviews with residents: a) residents see their roles as "powerless middlemen" required to support relationships between all stakeholders, b) veterinarians are responsible for creating positive experiences for the researcher in order to overcome barriers to relationship building, c) communication being more valued than technical skills, resident-mates view relationships with one other as most valuable, d) venting can be used as a tool to promote bonding among veterinary care teams, but is known to be detrimental to the relationship with the researcher.

Lessons Learned: While similar themes emerged from the residency directors and the residents themselves, some key points of difference were apparent. Program directors seemed to overvalue veterinary knowledge compared to researcher knowledge, but the residents themselves seemed to have a more equitable view, valuing both sets of expertise for different reasons. Residents were quick to recognize their place in the middle, often referring to themselves as powerless, and also reported feeling responsible for managing the relationships of all parties involved in the research process. Both groups reported venting as a normal process (but also a possibly detrimental one). The way in which a curriculum is delivered in the experience of the residency program director or program faculty is filtered through the experiences and perspectives of the residents, and thus, what we think we are teaching may not match up with what the resident is learning. Recognizing this subtext is the first step in identifying hidden curricula in LAM as they pertain to relationship-centered practice.

Future Applications and Next Steps: Additional interviews of residents at two other institutions are planned in order to elucidate additional themes that may arise with a wider cross-section of interview subjects. Once apparent saturation is reached, an instrument will be developed and then validated as a tool for LAM residency programs to deliver to their faculty and residents in order to identify the hidden curricula around relationship-centered practice within their programs.

Identifying the Hidden Curriculum Around Relationship-Centered Practice in Laboratory Animal Medicine Residency Programs

Nowland, M. H.[1], Whitcomb, T. L.[2], and Haidet, P. M.[2]

University of Michigan, Unit for Laboratory Animal Medicine[1]

Penn State College of Medicine[2]

Background

The hidden curriculum in medical education is a topic of great attention and has resulted in a large body of research and literature, including the realization that medical students become progressively less relationship/patient-centered as they progress through their training.

The field of veterinary medical education has recently begun to explore the impact of the hidden curriculum, providing preliminary evidence that veterinary students also become less altruistic and relationship/client-centered as they progress through their training.

This project was initiated to explore and identify the hidden curricula in laboratory animal medicine (LAM) residency programs, with the eventual goal of identifying target areas for training programs to pursue curricular intervention.
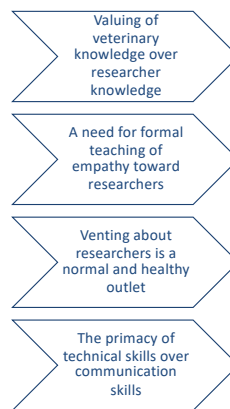
Methods

We conducted a preliminary discussion with a group of LAM residency program directors to determine possible hidden curricular themes in LAM. The directors were presented with a list of common themes from hidden curricula (as reported in medical education research), and asked to discuss whether any of them resonated with their veterinary programs.

A member of the study team participating in the meeting via teleconference transcribed notes, which were analyzed by open coding.

In order to determine the resident's perspective on these themes, we constructed interview questions to address the topics generated by analysis of the residency program directors. We then conducted ten semi-structured interviews with residents at two institutions. Transcripts were analyzed via open coding, followed by constant comparative method until a consensus was reached.
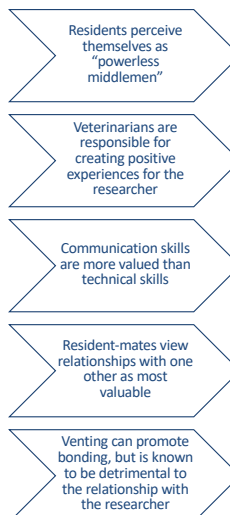
Results

Themes from the residency program directors discussion:

- Valuing of veterinary knowledge over researcher knowledge
- A need for formal teaching of empathy toward researchers
- Venting about researchers is a normal and healthy outlet
- The primacy of technical skills over communication skills

Themes from literature search:
- Relationship-centered practice
- Triadic consultations
- Veterinary professionalism
- Hidden curriculum of health professions education

Themes from interviews with residents:

- Residents perceive themselves as "powerless middlemen"
- Veterinarians are responsible for creating positive experiences for the researcher
- Communication skills are more valued than technical skills
- Resident-mates view relationships with one other as most valuable
- Venting can promote bonding, but is known to be detrimental to the relationship with the researcher

Lessons Learned

While similar themes emerged from the residency directors and the residents themselves, some key points of difference were apparent.

- Program directors seemed to overvalue veterinary knowledge compared to researcher knowledge, but the residents themselves seemed to have a more equitable view, valuing both sets of expertise for different reasons.
- Residents were quick to recognize their place in the middle, often referring to themselves as powerless, and also reported feeling responsible for managing the relationships of all parties involved in the research process.
- Both groups reported venting as a normal process (but also a possibly detrimental one).

The way in which a curriculum is delivered in the experience of the residency program director or program faculty is filtered through the experiences and perspectives of the residents, and thus, what we think we are teaching may not match up with what the resident is learning. Recognizing this subtext is the first step in identifying hidden curricula in LAM as they pertain to relationship-centered practice.

Future Implications & Next Steps

Additional interviews of residents at two other institutions are planned in order to elucidate additional themes that may arise with a wider cross-section of interview subjects.

Once apparent saturation is reached, an instrument will be developed and then validated as a tool for LAM residency programs to deliver to their faculty and residents in order to identify the hidden curricula around relationship-centered practice within their programs.

803: Trach Trail as a model system for Interdisciplinary Learning: Implementation of a Systems-based approach to Tracheostomy care

Authors: Rebecca Cherney, Elizabeth King, Vinciya Pandian, Brian Barnes, Krystyn Voris, Barbara Sterling, Debra Eastman, Julie Hanley, Ashly A. Ninan, Keith Casper, Patricia Davidson, Michael J. Brenner

Background: The Trach Trail was developed to address performance gaps in tracheostomy education, standardization of care, and patient-centered outcomes. The system serves as a blueprint for promoting interprofessional collaborative learning. Widespread adoption of best practices in tracheostomy care requires education and cooperation across healthcare disciplines. Five key drivers have been found to improve learning and the quality of care for tracheostomy patients: standardization of care protocols, appropriate interdisciplinary education and staff allocation, multidisciplinary synchronous ward rounds, patient and family involvement, and use of data to drive safety and quality improvement.

Actions, Methods or Interventions: Patients enrolled received a tracheostomy in the progressive care unit, ages 18 years old and above between January 2015 to December 2015. Patient who had a laryngectomy were excluded in the chart review. A nurse leader of the study underwent extensive training on implementing a tracheostomy program from October 2016 - January 2017. The trained nurse then provided further training to all the nurses in the progressive care unit.   Patients who received a tracheostomy in the progressive care unit, ages 18 years old and above between November 2017 - October 2018 were included in the study. Training was provided using PowerPoint, printed handout materials, and experiential learning. Training was offered in three sessions over a two-month. The Director of Nursing Research Quality and Innovation provided guidance on how to implement a quality improvement project using evidence.

Results: The Michigan Medicine progressive care unit completed training, engaging 55 regular nurses in formal training on tracheostomy management from September 2017 to October 2017. Training occurred once a month, eight-hours long, for one-year. Trach trail content encompassed methodology and best practices, grounded in systematic review of literature and incorporating learning on needs of tracheostomy patients in hospital settings. The team developed a detailed tracheostomy education booklet, patient-family friendly timeline called the Trach Trail, an informational video for patients and caregivers to learn how to provide basic tracheostomy care, and a workflow for nurses. Initial impact was primarily on knowledge outcomes. Integration of respiratory therapists, speech language pathology, social work, and physician champions enhanced learning and efficacy. Preliminary data provide evidence of enhanced staff knowledge, improvement in patient/family satisfaction, streamlined discharge, and positive impact on patient length of stay, 30 day readmission rate, and complications.

Lessons Learned: While spearheaded as a nursing education initiative, major benefits of the trach trail initiative were realized only after integration of diverse interdisciplinary allied health professionals, along with physician champions. Given the systems-based complexity of tracheostomy care, it is a model system for promoting effective patient and health provider learning while improving patient-centered outcomes.

Future Applications and Next Steps: Future plans include prospective study of outcomes of the initiative, including both learner-directed and patient centered outcomes. Successful roll-out of this initiative will be followed by application in other areas of the hospital and publishing in the literature. The University of Michigan also serves as a charter member of a global learning community, the Global Tracheostomy Collaborative that provides a structure for dissemination of practices to other institutions.

Trach Trail as a model system for Interdisciplinary Learning: Implementation of a Systems-based approach to Tracheostomy care

Rebecca Cherney, RN, BSN, BS , Medical School Elizabeth King RN, BSN, Medical School, Vinciya Pandian, PhD, MSN, RN, ACNP-BC, FAAN Johns Hopkins Nursing School Brian Barnes, RT, Medical School, Samantha Judkins, RN, BSN, Medical School, Krystyn Voris, RN, BSN, Barbara Sterling, Clinical nurse specialist, Medical School Debra Eastman, Clinical nurse specialist,, Medical School Julie Hanley MSN, RN, ACNP-BC, , Medical School Ashly James RN, Johns Hopkins Nursing School Keith Casper, MD Medical school Patricia Davidson, PhD, MEd, RN, FAAN, Dean, Johns Hopkins School of Nursing Michael J Brenner, MD, FACS , Medical school
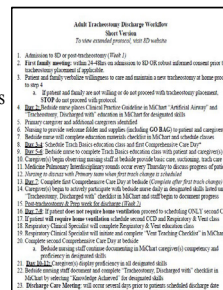
Background

- Address performance gaps in tracheostomy education, standardization of care, and patient-centered outcomes..

- Five key components found to improve learning and the quality of care for tracheostomy patients:
  - Standardization of care protocols
  - Appropriate interdisciplinary education & staff allocation
  - Multidisciplinary synchronous ward rounds
  - Patient/Family involvement
  - Data use to drive safety & quality improvement

- The system serves as a guide for promoting interprofessional collaborative learning.

Implementation of a Multidisciplinary Pathway for Enhanced Recovery After Tracheostomy

- A multidisciplinary pathway, the "Trach Trail," was developed to address variation in postoperative care and to improve outcomes after tracheostomy.

- The Trach Trail structures the journey of patients and their families through tracheostomy education that promote a safe and expeditious discharge to home.

- Members of the Trach Trail Program:
  - Respiratory therapist
  - Speech Pathologist
  - Primary Care team
  - Bedside nursing, clinical nurse specialist, unit educator, and supervisor
  - Case manager & Social work
  - Advanced practice nurse and RT from outpatient vent clinic

- The integration of a multidisciplinary team is key to ensuring effectiveness of the Trach Trail program and positive outcomes.
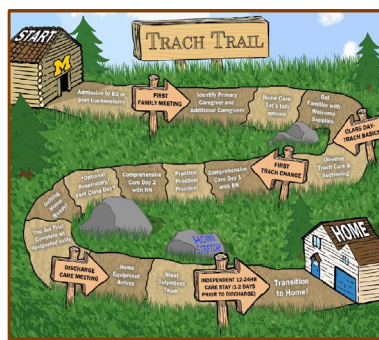
Actions, Methods, Interventions

- Patients enrolled received a tracheostomy in the progressive care unit, ages 18 years old and above between January 2015 to December 2015.
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- Patients who received a tracheostomy in the progressive care unit, ages 18 years old and above between November 2017 - October 2018 were included in the study.
- Training was provided using PowerPoint, printed handout materials, and experiential learning.
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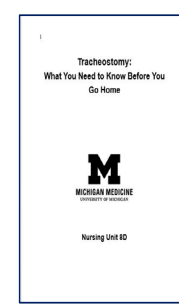
Results

- The Michigan Medicine progressive care unit completed training, engaging 55 regular nurses in formal training on tracheostomy management from September 2017 to October 2017. Training occurred once a month, eight-hours long, for one-year.
- Trach trail content encompassed methodology and best practices, grounded in systematic review of literature and incorporating learning on needs of tracheostomy patients in hospital settings.
- The team developed:
  - A detailed tracheostomy booklet
  - Patient-family friendly timeline called the "Trach Trail"
  - Welcome folder
  - Workflow for nurses
  - An informational video for patients and caregivers to learn basic tracheostomy care
- Preliminary data provide evidence of enhanced staff knowledge, improvement in patient/family satisfaction, streamlined discharge, and positive impact on patient length of stay, 30 day readmission rate, and complications.

Lessons Learned

While spearheaded as a nursing education initiative, major benefits of the trach trail initiative were realized only after integration of diverse interdisciplinary allied health professionals, along with physician champions.

Given the systems-based complexity of tracheostomy care, it is a model system for promoting effective patient and health provider learning while improving patient-centered outcomes

Future Implications

Future plans include prospective study of the outcomes of the initiative, including both learner-directed and patient centered outcomes.

UMHS is committed to developing collaborative multidisciplinary teams. Successful roll-out of this initiative and multidisciplinary team will be followed by application in other areas of UMHS and publishing in the literature.

The University of Michigan also serves as a charter member of a global learning community, the Global Tracheostomy Collaborative that provides structure for dissemination of practices to other institutions.

References

Baker C, Martin S, Thrasher J, et al. A (2016) Standardized Discharge Process Decreases Length of Stay for Ventilator-Dependent Children. Pediatrics Official Journal of The American Academy of Pediatrics. 137(4): e1-e9.

Gaudreau, P., Greenlick, H., Dong, T., et al (2016). Preventing Complications of Pediatric Tracheostomy Through Standardized Wound Care and Parent Education. JAMA Otolaryngeal Head Neck Surg. 142(10): 966-971

Loerzel, V., Crosby, W., Reising, E., et al (2014). Developing the Tracheostomy Care Anxiety Relief Through Education and Support (T-CARES) Program. Clinical Journal of Oncology Nursing. 8(5): 522- 527)

Szondy, M., Morton, D., Parrott, H.., et al (2014). Standardizing Family Education in a Pediatric Respiratory Care Unit. Journal of Pediatric Nursing. 29: 272-278.

704: Learning From Our Patients: Teaching Providers to Collect Constructive Patient Feedback About Patient Education

Authors: Ruti Volk, Karelyn Munro, Amy Hyde, Julie Wietzke, Yvette Salamey

Background: Testing materials with patients is an important step in the process of creating patient education materials. The CMS Toolkit for Making Written Materials Clear and Effective states that "feedback from readers is the gold standard of evidence on how well your written material is working". Feedback enables identifying areas of potential confusion which may lead to mistakes, complications and bad outcomes. The Toolkit recommends collecting feedback either via individual interviews or focus groups, but these methods require a substantial cost and time investment, for both staff and patients. Staff has to spend time to organize and manage the sessions, and patients/testers need to travel and spend time in an interview or focus group. Michigan Medicine needed a more cost-effective way to get constructive and useful patient feedback about educational materials.

Actions, Methods or Interventions: The Patient Education and Health Literacy Program (PEHL) collaborated with the Office of Patient Experience (OPE) to implement online surveys for obtaining feedback from patients about patient education materials. The surveys are based on the Patient Education Materials Assessment Tool (PEMAT), a standardized national tool published by the Agency for Healthcare Research and Quality (AHRQ) which is intended to help clinicians determine the quality of patient education materials. The PEMAT survey has Yes/No questions to assess the clarity and intelligibility of the materials. PEHL adapted these questions to address patients rather than clinicians and added an option to write comments on each of them. In addition, PEHL added 3-4 comprehension questions to assess if the reader gained the knowledge they were intended to learn. The surveys are sent via email to eAdvisors: patients who volunteer with the Office of Patient Experience to help with projects virtually.

Results: Since the program's inception in May 2018, 5 materials have been tested: N=60, N=58, N=40, N=23 and N=15 (for a 75-page booklet). While all materials scored over 70% on the PEMAT score, and 92% of comprehension questions were answered correctly, responders' comments included many useful and implementable suggestions that greatly improved patient education materials. Since the surveys are based on the PEMAT tool, the feedback conforms with plain language guidelines.

Lessons Learned: Collecting patient feedback via an online survey is highly beneficial. Participation is high because eAdvisors are able to do the surveys at their convenience, without having to travel. Staff does not need to designate time to manage individual interviews or focus groups and appreciate getting the feedback tallied in an Excel document or a Qualtrics report. Even though Michigan Medicine patient education meets quality standards and is clear and effective, comments provided other valuable and implementable feedback that led to improvements.

Future Applications and Next Steps: PEHL and OPE will continue to collaborate and expand the program. Marketing and promotional activities are needed to educate staff about testing patient education materials with patients.

Learning From Our Patients:
Teaching Providers To Collect Constructive Patient Feedback About Patient Education

Ruti Volk, MSI, AHIP, Karelyn Munro, BA, Amy Hyde, MILS, Patient Education and Health Literacy Program (PEHL)
Julie Wietzke, MHSA, MLS, Yvette Salamey, BA, Quinlan Davis BAA, office of Patient Experience (OPE)

MICHIGAN MEDICINE
UNIVERSITY OF MICHIGAN

Background:

Testing materials with patients is an important step in the process of creating patient education materials. *The CMS Toolkit for Making Written Materials Clear and Effective* states that "feedback from readers is the "gold standard" of evidence on how well your written material is working". Testing allows identifying areas of potential confusion which may lead to mistakes, complications and bad outcomes. Common methods for collecting feedback include individual interviews or focus groups, but these methods require a substantial cost and time investment for both staff and participants. Michigan Medicine needed a more streamlined and cost-effective way to get constructive and implementable patient feedback on educational materials.

Actions, Methods or Intervention:

The team created online surveys based on *the Patient Education Assessment Tool (PEMAT)*, a standardized national tool published by the Agency for Healthcare Research and Quality (AHRQ) developed to help clinicians determine the quality of patient education materials. PEMAT has Yes/No questions to assess the clarity and intelligibility of the materials. The questions were adapted to address patients rather than clinicians and the modified survey also included an option for respondents to write comments on each of the questions. In addition, 3-4 comprehension questions to assess if the reader gained the knowledge they were intended to learn from the material were added to each survey. The survey and a link to the material to be evaluated were sent via email to eAdvisors: patients who volunteered to advise the health system about their experiences virtually.

Case Study:

Results:

Since the program's inception in May 2018, 5 materials have been tested: N=60, N=58, N=40, N=23 and N=15 (for a 75-page booklet). While all materials scored over 70% on the PEMAT score, and 92% of comprehension questions were answered correctly, responders' comments included many useful and implementable suggestions that greatly improved patient education materials. Since the surveys are based on the PEMAT tool, the feedback conforms with plain language guidelines..

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Future Applications and Next Steps:

PEHL and OPE will continue to collaborate and expand the program. Marketing and promotional activities are needed to educate staff about testing patient education materials with patients.

800: The Student Advisory Committee: Expanding the Student Voice in Interprofessional Education (IPE)

Authors: Stuart Hammond, Sally Salari, Vani Patterson

Background: The University of Michigan Center for Interprofessional Education (IPE) ("the Center") was formed in 2015 to ensure that health-professional students gain the necessary knowledge and skills to become effective members of collaborative healthcare teams. In the first years of the Center's existence, student involvement was minimal and facilitated by ad hoc student-faculty relationships. In Winter 2018, the Associate Director (author, VP) of the Center for IPE convened a retreat for student-leaders of extracurricular IPE organizations. A key finding of this retreat was the desire and potential for strategic involvement of students in the Center's activities. Following the retreat, the Associate Director contacted two retreat participants (authors SH and SS) to spearhead future efforts at student-involvement. These students went on to serve as co-chairs of the committee presented below.

Actions, Methods or Interventions: Using ideas generated during the Winter 2018 Student Retreat, we outlined potential charges for an IPE Student Advisory Committee (SAC), designed to coordinate student-led interprofessional activities and facilitate interprofessional collaboration among students. SAC was approved by the Center for IPE Executive Committee (EC) in May 2018. The committee is responsible to and overseen by the EC. In addition to leading SAC, the co-chairs serve as members of the EC. Preliminary SAC members were identified through faculty recommendations and involvement with pre-existing IPE student organizations. These committee members worked together to advertise opportunities for SAC involvement at the campus-wide event, IPE in Action. In November 2018, formal committee roles were finalized and an online application process was used to fill the positions.

Results: We identified the following goals for SAC's inaugural year: 1) to identify ongoing student-led IPE activities; 2) to serve as a direct liaison to the health-professional schools' student organizations and strategize with them to incorporate IPE in future events; 3) to serve as a forum for exchange of student-led events, opportunities, ideas, and contacts; and, 4) to serve as a pipeline for students to engage in IPE activities.

Preliminary SAC members included 11 students from five health-professional schools. The application process expanded the committee to 13 members from six health-professional schools. Positions include: two Co-Chairs, a Secretary, an Events Coordinator, a Curriculum Committee liaison, and representatives from four interprofessional student organizations.

In its first year, SAC has developed relationships with student-government leaders within each health-professional school. In January 2019, SAC will host the second IPE Student Retreat, with the goal of developing cross-campus partnerships between SAC and student-government leaders.

Lessons Learned: In chartering this new, student-led committee, we found that it can be difficult to identify the areas in which student voices are most impactful and needed. An additional lesson from the development process has been that student involvement requires a coordinated plan of succession, as health-professional degrees can be completed in as few as 18 months. This suggests that it is critical to engage students during their first year on campus, so that they are well-equipped to serve as student leaders during the subsequent years of their program. Finally, throughout this process we encountered strong support and enthusiasm among students and faculty for collaboration in IPE development.

Future Applications and Next Steps: Next steps for SAC include: recruiting members from UM-Flint, UM-Dearborn, and the School of Dentistry; creating further opportunities for students to gain leadership experience in IPE; and deepening relationships with student-government leaders to enable streamlined communication across health-professional schools.

The Student Advisory Committee:
Expanding the Student Voice in Interprofessional Education (IPE)

Stuart Hammond, BS, Salomeh Salari, MS, Vani Patterson, MPH

CENTER FOR INTERPROFESSIONAL EDUCATION
UNIVERSITY OF MICHIGAN

Development of a Student Advisory Committee (SAC):

Identify a Gap	Formation	Recruitment	Action	Future Steps

Identify a Gap

2015 - 2017: Ad hoc student involvement in the Center for IPE (the Center).

March 2018: Assistant Director of the Center convened a retreat for student-leaders.
- **Key findings:**
  - Potential & desire for more strategic student involvement
  - Desire for structures & networks for students to create their own IPE opportunities

March - May 2018: Two retreat participants decided to spearhead future efforts at student-involvement in IPE.

Formation

April 2018: Outlined potential charges for an IPE SAC using ideas generated during the Winter 2018 Student Retreat.

May 2018: SAC approved by the Center's Executive Committee.

Recruitment

September 2018: Preliminary SAC members identified via
- Faculty recommendations
- Involvement with IPE student organizations.

November 2018: Expansion of SAC from 11 students/5 schools to 13 members/6 schools.
- Formal committee roles
- Online application process to recruit further members
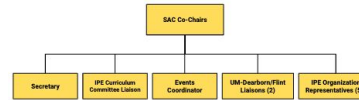
Action

Accomplishments for 2018-2019 included:
- Assisted in planning of IPE In Action
- Co-chairs serving as members of the Executive Committee, Curriculum Committee, and 101 Task Force
- Contributed to the Center's Proposal to the Provost
- Laying the foundation for a Student Champion Network to connect student leaders from each school to each other as well as to IPE leaders
- Hosted the second IPE Student Retreat

Future Steps

Goals for SAC include:
- Recruiting members from UM-Flint, UM-Dearborn, and the School of Dentistry.
- Creating further opportunities for students to gain leadership experience in IPE.
- Deepening relationships with student-government leaders.
- Working collaboratively with administration and student leaders to address the student wellness challenges that face each of the health science schools.

801: Modified Delphi Method: developing a Pediatric specific Emergency Medicine curriculum for Emergency Medicine Residents

Authors: Daphne Morrison Ponce, Margaret Wolff

Background: The American College of Emergency Physicians defines Emergency Medicine (EM) as a specialty dedicated to the treatment of unforeseen illness or injuries where physicians must evaluate, treat, diagnose and manage patients of all ages.   EM residency provides the essential foundation of knowledge to care for any patient, including pediatrics, through hands-on training combined with didactic curriculum. Providing this foundation for care of pediatric patients is challenging and guidance from governing bodies is limited. A recent study utilized the modified Delphi method to develop a list of highly recommended and partially recommended pediatric emergency medicine (PEM) curriculum topics, skills and experiences.   This study provides a comprehensive list of curriculum topics that should be required and others that are suggested based on each program's individual learning environment. We hypothesized that this published curriculum could be used as a general needs assessment to guide a local needs assessment for PEM specific curriculum development at the University of Michigan.
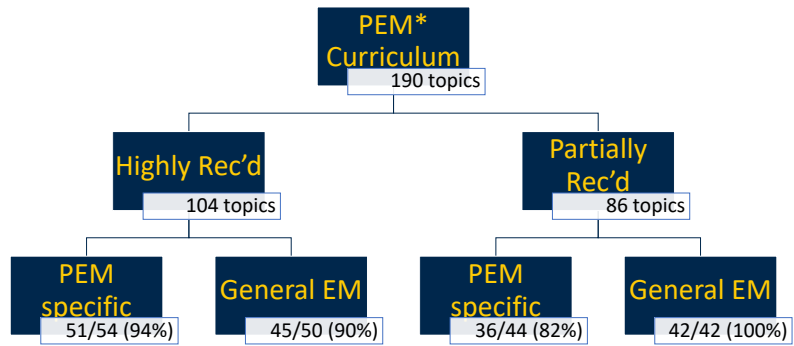
Actions, Methods or Interventions: Educational Objectives: To perform a local needs assessment for pediatric emergency medicine curriculum in the University of Michigan emergency medicine residents.
Methods of Curricular Design: The recently published general needs assessment was used as a starting point. This provided topics identified as either highly or partially recommended; then we further categorized these topics into those needing dedicated PEM curriculum and those that did not need dedicated time. These four categories (highly and partially recommended needing dedicated teaching, highly and partially recommended NOT needing dedicated teaching) were provided to local experts.
We followed the modified Delphi technique, an accepted method for building content validity through an iterative input from experts in the area. A group of local experts was identified, these individuals serve as program leadership for the EM residency and PEM fellowship, thus have the best understanding not only about the local curriculum but also the clinical exposure trainees receive. Predetermined consensus amongst experts was chosen to be 80% agreement, consistent with similar studies.

Results: Round one was conducted via online survey (Qualtrics), seven of the ten identified experts completed the survey. Experts reached consensus agreement for 87/98 (89%) topics needing dedicated curriculum (51/54 (94%) highly and 36/44 (82%) partially recommended topics). For the topics that did not need dedicated curriculum, there was consensus agreement on 87/92 (95%) topics (45/50 (84%) highly and 42/42 (100%) partially recommended topics). Currently round two of the study is being conducted to reach consensus on the remaining 16 topics.

Lessons Learned: Following the completion of the first step in this iterative process we have demonstrated that it is possible to conduct the modified Delphi method using an electronic survey. Additionally, it is possible to use previously published work as a general needs assessment to guide the local curriculum development. Response rate from local experts can be a challenge when attempting to reach consensus decisions.

Future Applications and Next Steps: Currently round two of the study is being conducted to reach consensus on the remaining 16 topics. After consensus has been reached, the project will move into the development and implementation of the expert guided, pediatric emergency medicine curriculum.

MICHIGAN MEDICINE
DEPARTMENT OF EMERGENCY MEDICINE

Modified Delphi Method: developing a Pediatric specific Emergency Medicine curriculum for Emergency Medicine Residents

Daphne Morrison Ponce, MD, LCDR (MC) [1,2] and Margaret S. Wolff, MD, MHPE [1]

[1] Emergency Medicine – University of Michigan, [2] United States Navy Medical Corps

BACKGROUND

- Emergency Medicine (EM) physicians must evaluate, treat, diagnose and manage patients of all ages
- EM residency provides this foundation of knowledge
- Guidance for curriculum from governing bodies is limited
- A recent study published a list of highly recommended and partially recommended pediatric emergency medicine (PEM) curriculum

- We hypothesized that this published curriculum could be used as a general needs assessment, step 1 of curriculum design (Figure 1)
- To develop a local needs assessment for PEM specific curriculum development at the University of Michigan (Figure 1: Step 2)

Published PEM needs assessment - 153 topics, 84 skills and 28 experiences

Mitzman, J; King AM et al. AEM Ed and Train. 2017.

OBJECTIVE

Educational Objectives: To perform a local needs assessment for pediatric emergency medicine curriculum in the University of Michigan emergency medicine residents.

METHODS

1. General Needs Assessment
2. Targeted Needs Assessment
3. Goals and Objectives
4. Educational Strategies
5. Implementation
6. Evaluation and Feedback

Figure 1: Six steps of curriculum design. Adapted from Thomas PA, Kern DE et. al. Curriculum Development. 2016

Survey Design

Experts ID'd

Start Delphi → Survey Experts → Analyze Responses → Consensus? →

TOPIC THAT REACHED CONSENSUS

PEM* Curriculum — 190 topics

Highly Rec'd — 104 topics
- PEM specific — 51/54 (94%)
- General EM — 45/50 (90%)

Partially Rec'd — 86 topics
- PEM specific — 36/44 (82%)
- General EM — 42/42 (100%)

TOPICS THAT DID NOT REACH CONSENSUS

Meningitis
Appendicitis
Acute otitis media
EMS transport of children
Higher risk for medical error in peds v. adults
Common traumatic conditions - penetrating trauma
Common traumatic conditions - blunt abdominal trauma
Application of strategies for performing accurate PE on a difficult child
Anticipatory guidance to parents
Glomerular nephritis
Recognition of how pediatric emergencies provoke higher levels of anxiety among ED physicians
Discriminate between patients who can be sent home and those who need admission
Discriminate between common and deadly rashes
Airway management for respiratory failure
Diagnosis and management of sexual abuse
Lumbar puncture

LESSONS LEARNED

Following the completion of the first step in this iterative process we have demonstrated that it is possible to conduct the modified Delphi method using an electronic survey. Additionally, it is possible to use previously published work as a general needs assessment to guide the local curriculum development. Response rate from local experts can be a challenge when attempting to reach consensus decisions

NEXT STEPS

Currently round two of the study is being conducted to reach consensus on the remaining 16 topics. After consensus has been reached, the project will move into the development and implementation of the expert guided, pediatric emergency medicine curriculum.

*DEFINITIONS

Highly Rec'd topic – should be taught to all EM residents

Partially Rec'd topic – could be taught, depends on clinical exposure and other factors (e.g. Lyme disease – given regional differences residents level of exposure will impact curriculum plan.

General EM topic - the underlying pathophysiology and treatment is similar between adults and pediatrics and could be included as part of a teaching session on the topic (e.g. anaphylaxis - though there are slight variations the foundation of treatment and diagnostic criteria are the same for all ages).

PEM specific topic - these topics are specific in to a pediatric population or have clinically significant differences in diagnosis or management (e.g. pyloric stenosis - this occurs only in the infant age group or pediatric sepsis - underlying differences in physiology lead to distinctly different management).

DISCLOSURES

No relevant financial disclosures

The views expressed in this article are those of the author(s) and do not necessarily reflect the official policy or position of the Department of the Navy, Department of Defense, or the United States Government.

I am a military service member. This work was prepared as part of my official duties. Title 17 U.S.C. 105 provides that "Copyright protection under this title is not available for any work of the United States Government." Title 17 U.S.C. 101 defines a United States Government work as a work prepared by a military service member or employee of the United States Government as part of that person's official duties.

802: First year dental students' observations of gender discrimination and experiences of sexual harassment and its consequences: A gender divide

Authors: Chelsea Fullgrapp, Jasmine Samani, Marita R. Inglehart

Background: Recent societal developments such as the #MeToo Movement drew attention to the fact that sexual harassment is quite prevalent in professional environments. One question is whether it is also a significant problem in academic settings such as in dental school. The objectives were to assess (a) students' observations and experiences of gender discrimination and sexual harassment at the beginning and end of their first year in dental school, (b) differences in female vs. male students' observations and experiences, and (c) effects of these observations and experiences on students' stress and confidence.

Actions, Methods or Interventions: Anonymous survey data were collected from 107 D1 students at the beginning of the school years and from 105 first year dental students at the end of the academic year.

Results: The students' observation of gender discrimination by faculty members in classroom, pre-clinic and clinical settings and their experiences of gender discrimination by patients and by faculty members were significantly higher at the end of the year compared to the beginning. Sexual harassment by staff members and by faculty members also was significantly more common at the end of the school year compared to the beginning. Female students reported significantly more observations of and own experiences with gender discrimination by other students, patients and faculty as well as sexual harassment by other students, staff, faculty and patients than male students. Observations and experiences of gender discrimination and sexual harassment were correlated with increased reported stress and perceptions of unequal chances for professional advancement. The more frequently female students had experienced gender discrimination in the pre-clinical setting, the lower their academic confidence was.

Lessons Learned: Observation and experiences of gender discrimination and sexual harassment were more likely found among female than male students; these experiences increased over the course of the first year in dental school. Educational interventions for faculty, staff and students are needed to establish a positive cultural climate for all students.

First year dental students' observations of gender discrimination and experiences of sexual harassment and its consequences: A gender divide

Chelsea C. Fullgrapp , Jasmine M. Samani, MR Inglehart
University of Michigan - School of Dentistry, Ann Arbor, MI

ABSTRACT

Objectives: Recent societal developments drew attention to sexual harassment in professional environments. The objectives were to assess (a) students' observations and experiences of gender discrimination and sexual harassment at the beginning and end of their first year in dental school, (b) differences in female vs. male students' observations and experiences, and (c) effects of these observations and experiences on students' stress and confidence.

Methods: Survey data were collected from 107 D1 students at the beginning of the school years and from 105 first year dental students at the end of the academic year.

Results: The students' observation of gender discrimination by faculty members in classroom, pre-clinic and clinical settings and their experiences of gender discrimination by patients and by faculty members were higher at the end of the year compared to the beginning. Sexual harassment by staff members and by faculty members also was more common at the end of the school year compared to the beginning. Female students reported more observations of and own experiences with gender discrimination by other students, patients and faculty as well as sexual harassment by other students, staff, faculty and patients than male students. Observations and experiences of gender discrimination and sexual harassment were correlated with increased reported stress and perceptions of unequal chances for professional advancement. The more frequently female students had experienced gender discrimination in the pre-clinical setting, the lower their academic confidence was.

Conclusions: Observation and experiences of gender discrimination and sexual harassment were more likely found among female than male students; these experiences were higher at the end compared to the beginning of the first year in dental school. Educational interventions for faculty, staff and students are needed to establish a positive cultural climate for all students.

INTRODUCTION

In 2019, the proportion of male vs. female pre-doctoral dental students is reaching equity. Over the last few decades, the number of female dental students has been steadily increasing, approaching 50%. (Woolfolk et al., 2012) One would assume that this means that female students have similar experiences in dental school as their male counterparts, and are treated equally. Unfortunately, this is not always the case. Since 2017, the "me too" movement has drawn attention to sexual harassment and gender discrimination, particularly in professional settings. Even in dental school settings, gender discrimination and sexual harassment is not unheard of. Several studies indicate that there is still a significant gender bias among male vs female students in dental school. Female students regularly report more gender discrimination in the form of favoritism and harassment than their male peers. (Quick, 2014) Consequences of observing and experiencing gender discrimination and harassment are severe and can lead to stress, lack of confidence, etc.

AIMS

The objectives were to assess students'

(a) observations and experiences of gender discrimination and sexual harassment at the beginning and end of their first year in dental school,

(b) differences in female vs. male students' observations and experiences of gender discrimination and sexual harassment, and

(c) effects of these observations and experiences on students' stress and confidence.

#ME TOO
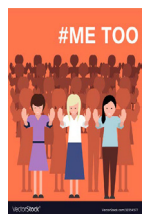
METHODS

The Health Sciences and Behavioral Sciences Institutional Review Board determined that this study was exempt from IRB oversight (#HUM00133474).

Respondents: Survey data were collected from 107 D1 students at the beginning of the school years and from 105 first year dental students at the end of the academic year. (See Table 1).

Procedure: The students responded to anonymous web-based surveys. The data were analyzed with SPSS (Version 22).

Table 1: Respondents' background characteristics

Background characteristics	Frequencies	Percentages
Gender:		
- male	102	48%
- female	110	52%
Age:	Mean 23.73	SD / Range 2.256 / 21-34
Educational characteristics	**Frequencies**	**Percentages**
Time:		
- D1: end of year	105	50%
- D1: beginning Fall term	107	51%
Dental school:		
- University of Michigan	212	100%

RESULTS

The *first objective* was to assess students' observations and experiences of gender discrimination and sexual harassment at the beginning and end of their first year in dental school. The students' observation of gender discrimination by faculty members in classroom, pre-clinic and clinical settings and their experiences of gender discrimination by patients and by faculty members were higher at the end of the year compared to the beginning. Sexual harassment by staff members and by faculty members also was more common at the end of the school year compared to the beginning (see Tables 2a, 2b, and 2c).

Table 2a: Observations of other students being treated differently because of their gender at the beginning and end of the D1 year

How often have you observed that students were treated differently:	Beginning D1 year	End D1 year	p
- by other students because of their gender?	1.98[1]	1.83	0.25
- by other students because of their gender?	2.01	1.82	0.16
- by patients because of their gender?	1.69	1.87	0.98
- by faculty in classroom-based settings because of their gender?	1.45	1.70	0.02
- by faculty in pre-clinic settings because of their gender?	1.35	1.88	<0.001
- by faculty in clinical settings because of their gender?	1.31	1.73	<0.001

Legend: 1 Answers ranged from 1 = "never" to 5 = "very often".

Table 2b: Experiences of personal gender discrimination at the beginning and end of the year

How often have you personally experienced that you were treated differently because of your gender:	Beginning D1 year	End D1 year	p
- by other students because of your gender?	1.72[1]	1.64	0.49
- by staff because of my gender?	1.35	1.47	0.20
- by patients because of their gender?	1.34	1.58	0.02
- by faculty in classroom-based settings because of their gender?	1.24	1.41	0.02
- by faculty in pre-clinic settings because of their gender?	1.27	1.59	0.08
- by faculty in clinical settings because of their gender?	1.21	1.41	0.01

Legend: 1 Answers ranged from 1 = "never" to 5 = "very often".

Table 2c: Experiences unwanted sexual reactions by others at the beginning and end of the year

I encountered unwanted sexual comments by:	Beginning D1 year	End D1 year	p
- other students.	1.65[1]	1.49	0.20
- staff members.	1.15	1.29	0.08
- faculty members.	1.15	1.39	0.008
- patients.	1.24	1.38	0.10
I encountered unwanted sexual attention by:	**Beginning D1 year**	**End D1 year**	**p**
- other students.	1.49	1.43	0.60
- staff members.	1.11	1.31	0.005
- faculty members.	1.13	1.29	0.03
- patients.	1.22	1.36	0.098
I encountered unwanted sexual advances by:	**Beginning D1 year**	**End D1 year**	**p**
- other students.	1.33	1.41	0.427
- staff members.	1.10	1.22	0.040
- faculty members.	1.11	1.23	0.048
- patients.	1.19	1.24	0.523
Statements	**Beginning**	**End**	**p**
Encounter(s) with unwanted sexual attention has/have been a major source of stress for me.	1.25	1.35	0.28
I have been left out of opportunities for professional advancement based on gender.	1.21	1.35	0.099
I have had increased opportunities for professional advancement because of my gender.	1.47	1.64	0.161

Legend: 1 Answers ranged from 1 = "disagree strongly" to 5 = "agree strongly".

The *third objective* was to assess the effects of these observations and experiences on students' stress and confidence. Observations and experiences of gender discrimination and sexual harassment were correlated with increased reported stress and perceptions of unequal chances for professional advancement. The more frequently female students had experienced gender discrimination in the pre-clinical setting, the lower their academic confidence was (see Table 4).

The *second objective* was to assess differences in female vs. male students' observations and experiences of gender discrimination and sexual harassment. Female students reported more observations of others' and own experiences with gender discrimination by other students, patients and faculty as well as sexual harassment by other students, staff, faculty and patients than male students.

Table 1a: Observations of other students being treated differently because of their gender by male vs. female students

How often have you observed that students were treated differently:	Male students	Female students	p
- by other students because of their gender?	1.71[1]	2.10	0.003
- by other students because of their gender?	1.74	2.09	0.01
- by patients because of their gender?	1.56	1.96	0.003
- by faculty in classroom-based settings because of their gender?	1.43	1.73	0.01
- by faculty in pre-clinic settings because of their gender?	1.41	1.82	<0.001
- by faculty in clinical settings because of their gender?	1.35	1.69	0.001

Legend: 1 Answers ranged from 1 = "never" to 5 = "very often".

Table 3b: Experiences of personal gender discrimination of male vs. female respondents

How often have you personally experienced that you were treated differently because of your gender:	Male students	Female students	p
- by other students because of their gender?	1.3	2.00	<0.001
- by staff because of my gender?	1.26	1.56	0.001
- by patients because of their gender?	1.32	1.61	0.01
- by faculty in classroom-based settings because of their gender?	1.23	1.42	0.01
- by faculty in pre-clinic settings because of their gender?	1.27	1.59	0.001
- by faculty in clinical settings because of their gender?	1.23	1.40	0.03

Legend: 1 Answers ranged from 1 = "never" to 5 = "very often".

Table 3c: Responses concerning unwanted sexual reactions by others by male vs. female students

I encountered unwanted sexual comments by:	Male students	Female students	p
- other students.	1.30[1]	1.84	<0.001
- sexual comments by staff members.	1.08	1.36	<0.001
- sexual comments by faculty members.	1.12	1.42	0.001
- sexual comments by patients.	1.15	1.46	<0.001
I encountered unwanted sexual attention by	**Male students**	**Female students**	**p**
- other students.	1.16	1.76	<0.001
- staff members.	1.10	1.31	0.004
- faculty members.	1.10	1.32	0.002
- patients.	1.14	1.43	0.001
I encountered unwanted sexual advances by	**Male students**	**Female students**	**p**
- other students.	1.12	1.62	<0.001
- staff members.	1.08	1.23	0.011
- faculty members.	1.09	1.24	0.016
- patients.	1.13	1.29	0.023
Statements	**Male students**	**Female students**	**p**
Encounter(s) with unwanted sexual attention has/have been a major source of stress for me.	1.14	1.46	<0.001
I have been left out of opportunities for professional advancement based on gender.	1.18	1.38	0.021
- I have had increased opportunities for professional advancement because of my gender.	1.49	1.62	0.292

Legend: 1 Answers ranged from 1 = "disagree strongly" to 5 = "agree strongly".

Table 4: Relationships between gender discriminations of others, own experiences with gender discrimination and sexual harassment

Outcomes	Average observations of gender discrimination of others	Average own experiences of gender discrimination	Average sexual harassment by staff and faculty	students	patients
Encounters with unwanted sexual attention have been a major source of stress.	.39***	.44***	.53***	.64***	.52***
I have been left out of opportunities for professional advancement based on gender.	.32***	.33***	.63***	.47***	.52***
Achievement related confidence	-.13	-.25**	-.06	.04	.04

DISCUSSION

➤ Data were collected with anonymous web based surveys from D1 students at one dental school.

➤ The survey ideally will be expanded to other classes in other dental schools as well.

➤ Students have expressed interest in continuing the study and expanding it to other classes, professions, and had stories of their own experiences.

➤ It was interesting to see the relationships between experiences of discrimination and harassment and students' levels of stress and confidence.

CONCLUSIONS

These data show that:

➤ Observation and experiences of gender discrimination and sexual harassment were more likely found among female than male students.

➤ These experiences were higher at the end compared to the beginning of the first year in dental school.

➤ They correlated with students' level of stress and confidence.

➤ Educational interventions for faculty, staff and students are needed to establish a positive cultural climate for all students.

REFERENCES

Quick KK. A humanistic environment for dental schools: what are dental students experiencing? J Dent Educ 2014;78(12):1629-635.

Woolfolk MW, Price SS. Dental education: evolving student trends. J Dent Educ 2012;76(1):51-64.

ACKNOWLEDGEMENT

803: Ability of Dental Students to use eyewash equipment in a preclinical setting

Authors: Harold Pinsky, Lacy Jones, Domenica Sweier, Kyriaki Marti

Background: There is limited literature on eyewash stations in the dental setting where there is a risk of eye injury. Timely access to and use of an eye wash station are imperative in reducing morbidity of eye injuries.

Laboratory experience is a pre-requisite for dental school admission. Additionally, second-year dental (D2) students take required emergency simulation training. Therefore, it is reasonable to assume that D2 students should be familiar with the use of eyewash equipment.

We aimed to evaluate the correct usage of an eyewash station by second-year dental students

Actions, Methods or Interventions: We assessed students' ability to use the eyewash station in the Foundation Clinic where students have their initial clinical experience (ICE). IRB exempt approval has been obtained (regarding the simulation-based medical emergencies course) by HSBS-IRB in our Institution. Students volunteered for the assessment, and there was no identifying information collected. We designed and implemented a checklist assessment tool to objectively document the dental students' ability to correctly use the eyewash station located in the Foundation Clinic.

Results: A total of 3 out 103 second-year dental students (2017-2018) correctly utilized the eyewash station for its intended use on the first attempt during their Medical Emergencies Simulation-based Course. After instructor led demonstration, 100% utilized the eyewash station correctly.

Lessons Learned: Although all dental students have had laboratory safety training, only 3 second-year dental students initially knew how to use the equipment.

Future Applications and Next Steps: We plan to present our findings to UMSD Leadership in order to propose eyewash training for all dental students as part of their onboarding process.

Ability of Dental Students to Use Eyewash Equipment in a Preclinical Setting

Harold M. Pinsky, DDS, Lacy N. Jones, CDA, Domenica Sweier, DDS, PhD, Kyriaki Marti DMD, MD, MHPE, PhD, CHSE, FEBOMFS

BACKGROUND

There is limited literature on eyewash stations in the dental setting where there is a risk of eye injury. Timely access to and use of an eye wash station are imperative in reducing morbidity of eye injuries.

Laboratory experience is a pre-requisite for dental school admission. Additionally, second-year dental (D2) students take required emergency simulation training. Therefore, it is reasonable to assume that D2 students should be familiar with the use of eyewash equipment.

AIMS

We aimed to evaluate the correct usage of the eyewash station located in foundation's clinic where second-year dental students receive emergency simulation training.

METHODS & RESULTS

Axion eyePOD Model #7620

Methods: Second-year dental students (2017-2018), during their Medical Emergencies Simulation-based course, were given a no notice simulated eye splatter emergency.

Results: A total of **3 out of 103 (~3%)** correctly utilized the eyewash station for its intended use on the first attempt. After training, 100% utilized the eyewash station correctly.

Common errors included:

➢ Usage of hands to cup water
➢ Utilizing hot water for flushing
➢ Misunderstanding of eyewash system
➢ Significant hesitation

LESSONS LEARNED

Although all dental students have had laboratory safety training, only 3 second-year dental students initially knew how to use the equipment.

LIMITATIONS INCLUDED

➢ Eyewash station labeling absent.
➢ Non-compliance with ANSI standards

NEXT STEPS

We plan to present our findings to UMSD Leadership in order to propose eyewash training for all dental students as part of their onboarding process.

❖ IRB exempt
❖ References available upon request

804: Evaluation of ANSI compliance of eyewash systems in the Dental School

Authors: Harold Pinsky, Lacy Jones, Domenica Sweier, Kyriaki Marti

Background: There is limited literature on eyewash stations in the dental setting where there is a risk of eye injury. Timely access to, and use of, an eye wash station are imperative in reducing morbidity of eye injuries.

We aimed to survey the location of all eye wash stations in the University of Michigan School of Dentistry (UMSD), and to assess compliance with American National Standards Institute (ANSI)

Actions, Methods or Interventions: We documented the total number, locations, makes, and models of all eyewash stations throughout the UMSD. We designed and implemented a checklist assessment tool, using ANSI standards ANSI-Z358.1, to evaluate compliance of each eyewash stations.

Results: The UMSD has a total of 33 eyewash stations that were identified and mapped. There were 6 different models/manufacturers discovered. None of the stations showed evidence of weekly activation and none of the eyewash stations was found to be 100% ANSI compliant.

Lessons Learned: We found no evidence of consistency in type, installation, or routine flushing of eyewash stations within the UMSD.

Future Applications and Next Steps: We plan to present our findings to UMSD Leadership and propose standardization of all eyewash equipment throughout the School, as well as follow the recommended manufacturer's instructions regarding the provisions of ANSI-Z358.1

Evaluation of ANSI Compliance of Eyewash Systems in the UM School of Dentistry

Harold M. Pinsky, DDS, Lacy N. Jones, CDA, Domenica Sweier, DDS, PhD, Kyriaki Marti DMD, MD, MHPE, PhD, CHSE, FEBOMFS

BACKGROUND

There is limited literature on eyewash stations in the dental setting where there is a risk of eye injury. Timely access to and use of an eye wash station are imperative in reducing morbidity of eye injuries.

AIMS

We aimed to survey the location of, and to assess compliance with American National Standards Institute (ANSI), of all eye wash stations in the University of Michigan School of Dentistry (UMSD).

METHODS & RESULTS

We documented the total number, locations, makes, and models of all eyewash stations throughout the UMSD using ANSI standards (ANSI-Z358.1). We designed and implemented a checklist assessment tool to evaluate ANSI standards compliance of eyewash stations.

ANSI Standard Requirements:

- Accommodates for hands-free rinsing
- Dust covers present
- Spray heads 6' from nearest obstruction
- Height of fluid flow 33'-53' from floor
- Weekly testing
- Tepid water range of 60°-100°F
- Accessible within 10 seconds
- Identifiable with highly visible safety sign
- Pipe size of 1.27cm
- Shut off valve present
- Drainage available

❖ **33 eyewash stations 6 different manufacturers/models**
❖ **Zero evidence of weekly activation**
❖ **None found to be 100% ANSI compliant**
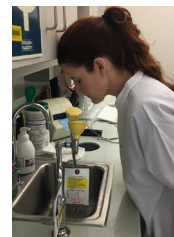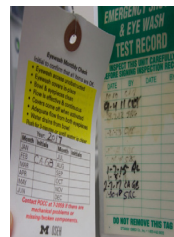
LESSONS LEARNED

We found no evidence of consistency in type, installation, or oversight of eyewash stations within the UMSD.

NEXT STEPS

We plan to present our findings to UMSD Leadership and propose standardization of all eyewash equipment throughout the School, as well as follow the recommended manufacturer's instructions regarding the provisions of ANSI-Z358.1

❖ References available

805: Using the CIPP Evaluation Model to Advance Innovation in Medical Education

Authors: Nikki Zaidi, Paula Ross, Rajesh Mangrulkar, Helen Morgan

Background: Innovative strategies in medical education present an opportunity to address major health problems by disrupting the status quo and creating meaningful impact on both learning and health. A new innovation initiative was launched within Michigan Medicine to engage and collaborate with institutional, local, state, national, and global communities to advance this aim. A robust evaluation plan was implemented to understand how innovation in medical education can impact societal health problems. We adopted a decision-oriented evaluation approach, using the context/input/process/product (CIPP) model to employ a comprehensive program evaluation plan. The CIPP model focuses on program improvement and provides data about the program's functioning. It also addresses all phases of a program: planning, implementation, and a summative or final retrospective assessment. The CIPP model facilitates decision-making by providing data to determine the proper context for establishing an innovation initiative, the resources (or inputs) needed, the processes to support it, and the metrics to assess effectiveness.

Actions, Methods or Interventions: Our program evaluation has begun to inform strategic decisions on how to launch and build our novel innovation in medical education initiative. We have completed the context (C) domain of our evaluation plan, (i.e. needs assessment) which determined on what needs to be done to advance innovation in medical education. We have also begun the second step of our evaluation plan, the input (I) domain, to identify what is necessary to achieve this goal. Based on results from our context and input evaluation, we have proposed a process for implementing our initiative.

Results: In the content phase of our evaluation we consulted a diverse group of stakeholders (>150 individuals). This needs assessment indicated that innovation in medical education should align educational practice toward helping learners meet the healthcare needs of society. Through the input domain, we adopted the translational education framework (McGaghie, 2010) to guide innovation in medical education at Michigan Medicine. Translational medical education will be implemented as the educational framework and process (P) by providing training and development on how (T1) to transfer knowledge, skill, attitudes, and professionalism (T2) to advance health care practices (T3) to improve health outcomes.

Lessons Learned: Through the context and input phases of our evaluation model, we have identified the need for innovation in medical education, and stretch beyond continuous quality improvement measures, to address existing health problems. We have also identified the need for "translational medical education" as a guiding framework to help close the gap between education and health.

Future Applications and Next Steps: We will soon commence the final phases of our evaluation to assess—1) whether our process (P) is being implemented as planned and 2) measure our products (P), or outcomes, to determine whether our initiative is succeeding—i.e. is the initiative meeting our stated objectives? We plan to ultimately evaluate the success of this initiative based on how Michigan Medicine establishes a Community of Practice that engages in and supports a culture of innovation in medical education.

Using the CIPP Evaluation Model to Advance Innovation in Medical Education

Nikki Zaidi, PhD; Paula Ross, PhD; Helen Morgan, MD; Rajesh Mangrulkar, MD
Office of Medical Student Education, University of Michigan Medical School

Background

- **Innovation in medical education** can address major health problems by disrupting the status quo and creating meaningful impact on learning and health.
- **Michigan Medicine** has launched **R.I.S.E. (Research. Innovation. Scholarship. Education)** to promote innovation in medical education.
- A **robust program evaluation** was implemented to understand how innovation in medical education can impact societal health problems.

Methods

- We adopted a decision-oriented approach, using the **context/input/process/product (CIPP)[1]** evaluation model which involved guiding questions outlined in Table 1.

Results

- As outlined in Table 1, we have some initial results from the **(C) Context** and **(I) Input** evaluation phases.

Lessons Learned

- RISE must stretch **beyond modest improvement** and continuous quality improvement measures to impact health.
- **Translational medical education[2]** is necessary to transfer the knowledge, skills, attitudes, and professionalism to healthcare practices to impact health.

Future Application and Next Steps

- We will soon commence the **(P) Process** phase to evaluate **implementation** and support for the RISE mission.
- Then, we will employ the **(P) Product** phase to measure **outcome metrics** for determining whether our initiative is succeeding.
- We will evaluate the overall success of this initiative based on the engagement and products of our **Community of Practice.**
- We will also employ the CIPP framework for evaluation of the specific innovation projects supported by RISE.

Table 1. CIPP Model for RISE Program Evaluation

CIPP Evaluation	Guiding Questions	Results
CONTEXT assess needs, assets, and problems within defined environment	• What needs of society can be/were addressed through innovation in medical education? • What are/were impediments to meeting these needs? • What pertinent expertise, services, or other assets are/were available?	Consulted a diverse group of stakeholders (>150 individuals) who indicated that we need to help learners meet the healthcare needs of society
INPUT assess potential resources and strategies	• What are/were approaches to meeting the identified need(s)? • How feasible is/was each of the identified approaches, given the specific context of the need?	Adopted the translational education framework[2] to guide innovation in medical education at Michigan Medicine
PROCESS monitor, document, and assess program activities	• How is/was the program implemented, compared to the plan? • Can/did participants accept and carry out their roles? • What implementation problems have been/were encountered? • How do/did participants perceive program quality?	Will soon implement and support all aspects of RISE (research, innovation, scholarship and education)
PRODUCT measure, interpret, and judge outcomes	• What positive and negative outcomes of the program are/were identified? • Are/were there unintended outcomes? • What are/were short-and long-term implications of program outcomes? • How sustainable is/was the program?	Will soon establish a Community of Practice that engages in and supports a culture of innovation

References

1. Stufflebeam, DL, Shinkfield, AJ. 2007. Evaluation theory, models and applications. San Francisco, CA: Jossey-Bass.
2. McGaghie WC. Medical education research as translational science. Sci Transl Med 2010; 2(1):1-3.

806: Simulation as an effective tool for student nurses to enhance communication skills and comfort level with behavioral/mental health patients: Does it work?

Authors: Renee Clemons, Betsy Cambridge, Anita Simmons

Background: With a growing need for nurses in healthcare, many nursing programs have tapped into utilizing simulation as a method to address the issue of limited clinical site availability. This is largely an issue in select specialty areas, such as in behavioral/mental health. In this field, it can be challenging to create an engaging and high-quality learning situation for students. Research and the use of simulation in the behavioral/mental health field is also limited. Simulation offers nursing students exposure to situations that might otherwise never occur in the clinical setting. Simulation offers students a unique learning opportunity to apply therapeutic communication and behavioral rehearsal in a controlled, non-threatening environment.

Available literature from behavioral health simulations has reported increases to self and situational awareness among nursing students, with increased confidence in working with patients who suffer from behavioral and mental health illnesses. Literature reports nurse and patient safety appear to be a primary concern. Literature also indicates those who have participated in behavioral health simulation have reported increased abilities to maintain empathy, rational behavior, and calmness when psychiatric crises and emergencies unfold.

Actions, Methods or Interventions: A quality improvement study has been developed to assess whether simulation is an effective tool for nursing students to enhance communication skills and comfort level when working with behavioral and mental health patients. This project was conducted with all BSN students enrolled in a psychological nursing wellness course. As part of the clinical component of their program, the students were simultaneously completing clinical simulation scenarios. During simulation, the students worked with patient actors suffering from alcohol addiction, suicidal ideation/depression, PTSD/anxiety, Bipolar disorder, as well as eating disorders/gender dysphoria. The students were then invited to participate in a post-course survey to assess student perception in their application of therapeutic communication, knowledge transfer to the real-life setting, and comfort level in interacting with this patient population. Data will be analyzed using the Statistical Package for Social Sciences through means and thematic content analysis.

Results: Pending completion of data analysis. Twenty-four nursing students were invited to voluntarily participate in this anonymous study.

Lessons Learned: A pre-survey was unable to be obtained from the students due to the timing of this study. Data analysis still pending. Preliminary data indicates students appreciated the opportunity to participate in simulation and many reported the experience enhanced their comfort level when working with this patient population. Many also reported they felt the actor(s) playing out the various mental health illnesses portrayed the disorders in a realistic manner, which helped them to anticipate what they might encounter in the real world patient setting.

Future Applications and Next Steps: Future steps for this study would be the introduction of a pre-post survey to the nursing students to increase study validity. Pending data analysis, simulations found most effective and least effective can be further tailored to allow for students to receive the most beneficial simulation experience.

Simulation as an effective tool for student nurses to enhance communication skills and comfort level with behavioral/mental health patients: Does it work?

Renee Clemons DNP, RN, AGACNP-BC; Anita Simmons MSN, RN; Betsy Cambridge BSN, RN

Concordia University – Ann Arbor, School of Nursing

BACKGROUND & PURPOSE

➢ Select nursing specialty areas have limited clinical site availability to accommodate growing nursing student numbers

➢ Nursing students report apprehension and anxiety when working with patients in behavioral/mental health setting

➢ Simulation provides opportunities for an engaging and realistic learning environment

➢ Literature from behavioral/mental health simulations reports increased self- and situational awareness & increased confidence in working with those suffering from behavioral/mental health illnesses

➢ Nursing students report simulation increased abilities to maintain empathy, rational behavior, and a calm demeanor when psychiatric crises and emergencies unfold

➢ Allows students to practice in a non-threatening & non-judgmental environment
- ➢ Uses role-playing with hired actors to provide students with varying scenarios that might not otherwise occur in clinical setting
- ➢ Utilizes debriefing sessions to strengthen individual & group communication and competencies

OBJECTIVES

1. Determine whether simulation is an effective method to enhance therapeutic communication skills among nursing students in the behavioral/mental health setting

2. Determine whether the actors portraying the behavioral/mental health patients are believable and realistic to allow for an engaging clinical experience

3. Determine whether student comfort level increases among the behavioral/mental health population after simulation courses

MATERIALS & METHODS

➢ All traditional BSN students enrolled in the required program psychological wellness course participated in bi-monthly simulation courses

➢ During each simulation session, hired actors role-play pre-scripted scenarios

➢ Actors play the roles of patients suffering from varying illnesses

➢ Student nurses play the role of staff nurses

➢ At the conclusion of each simulation session, students, actors & instructors assemble for a debriefing session to reflect on effective use of communication techniques, stress and anxiety level recognition, and comment on knowledge transferability to the real life setting

➢ Scenarios include:
- ➢ Therapeutic Communication
- ➢ Alcohol Abuse
- ➢ Suicide Ideation/Depression, Anxiety, PTSD
- ➢ Bipolar Disorder
- ➢ Hearing Voices
- ➢ Eating Disorders/Gender Dysphoria

➢ Students completed a post-course simulation survey on each of the differing scenarios

RESULTS

➢ Most common concerns among nursing students working with this patient population prior to simulation:
- ➢ "Patients are unpredictable"
- ➢ "Patients can be threatening"
- ➢ "Physically abusive patients"
- ➢ "Fear of being injured, stalked, or inability to handle outbursts from patients"

➢ 100% of students believed their simulation scenario experience will be easily transferrable to the in-patient and/or out-patient setting

➢ 100% of students reported simulation helped to prepare them for what they expect to encounter in the real-life setting

➢ 100% of students indicated they did not feel their safety was at risk during any of the simulation sessions

➢ 100% of students believed simulation content tied into lecture content

➢ 85.7% of students believed simulation increased their overall ability to communicate effectively with behavioral/mental health patients

➢ Favorite simulation sessions:
- ➢ Hearing Voices/Schizophrenia – 57.1%
- ➢ Suicide Ideation/Depression, Anxiety, PTSD – 27.1%

Sample Size N = 14

1 - Strongly disagree
2 - Disagree
3 - Neutral
4 - Agree 5- Strongly Agree

■5 ■4 ■3 ■2 ■1
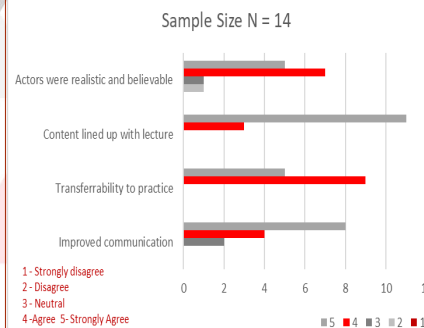
Selected Student Responses

- "I liked that we were able to face individual disorders with less fear and a bit more confidence."
- "Very realistic, helped me with therapeutic communication."
- "I loved interacting with our patients, it gave me a real sense of what these diseases entail."
- "The class helped us to relate the simulations to real-life situations and provided us with what we might expect."

IMPLICATIONS

➢ Simulation addresses a critical shortage of available behavioral/mental health sites that are needed to allow nursing students to effectively transfer knowledge into the real-life setting

➢ Simulation provides a realistic and safe environment for nursing students to practice and sharpen their therapeutic communication skills

➢ Results from this study will aid in enhancing the effectiveness of simulation and equip future nurses with increased confidence, cognition, as well as self- and situational-awareness within the behavioral/mental health population

807: Undergraduates Advancing Surgical Education Research

Authors: Cuilee Sha, Akira Nishii, Elvan Ziyalan, Cassandra Singler, Julie Thompson, Gurjit Sandhu

Background: Declining interest in surgical specialties among undergraduates has affected recruitment in general surgery programs across the country. Reasons for this decline have been identified as: lifestyle issues, fear of litigation, absence of role models, gender issues, and lack of lack of undergraduate exposure. There is a gap between student perception of the surgical profession and the reality. Operating room experiences and research exposure are valuable for undergraduate pre-med students as these activities are becoming essential for acceptance into medical school. Many of these students are preparing for careers in health care and are applying to medical school. Surgical program exposure at the undergraduate level could play a pivotal role in influencing students to pursue careers in surgery. Through undergraduate engagement in surgical teaching and education research, we may be able to help close the perception gap.
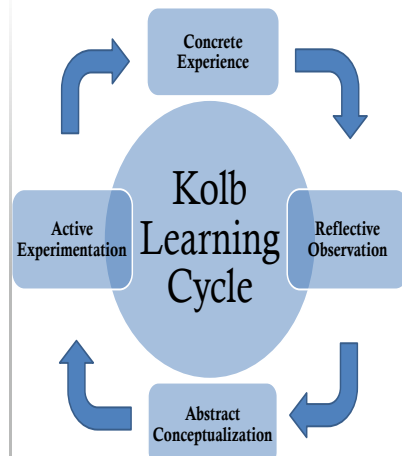
Actions, Methods or Interventions: Pre-med honors program undergraduates (12) were introduced to qualitative surgical education research and behavior measurement in the operating room. The experience allowed them to see first-hand the environment of teaching, learning, practice, and research in surgery. To assess the value of including pre-med undergraduate students in surgical educational research and how this experience may impact academic growth, personal growth, and future educational trajectories, we used video diary to capture student perspectives of surgical environment, culture, and education. We collected video diaries during 3 specifically identified time-points during the student's research experience: first experience (post-training) as an independent researcher, midway through research collection, and after their involvement with data collection was completed.

Results: This pilot study included video diaries from 4 undergraduate surgical researchers. For each video diary entry, students thought about their experience of surgical education research in the OR through the lens of the Kolb experiential learning cycle: concrete experience (a new experience is encountered, or a reinterpretation of existing experience); reflective observation (observation of and reflection on that experience); abstract conceptualization (reflection gives rise to new ideas, or a modification of an existing concepts, and/or conclusions); active experimentation (the learner applies them to the world around them to see what results). The video diaries they were thematically coded using Kolb's two continuums: the Processing Continuum (how we approach a task) and the Perception Continuum (our emotional response, or how we think or feel about it).

Lessons Learned: Undergraduates found the experience of engaging in surgical education research valuable both educationally and personally. As a concrete experience, the research process keenly enhanced their understanding of the variable dynamics of the operative environment and how diverse health care teams interact intraoperatively to further patient outcomes. In reflective observation students spoke of the active and welcome engagement of faculty and residents in the study; the surgical team's generosity and the value of the study to the participants was an especially positive experience for the researchers. The duality of teacher as learner and learner as teacher when multiple educational interactions were taking place resonated with the students when considering abstract conceptualism. Lastly, in active experimentation they reflected on their own role in the teacher/learner dyad and how they could use principles from the research tool to augment their own educational interactions.

Future Applications and Next Steps: Continued engagement of pre-med honors program undergraduate students in surgical research has the opportunity to further enhance undergraduate student research experience, play a meaningful role in influencing student perceptions of surgical careers, and provide positive role models in surgery. Operating room experiences and research exposure continue to be valuable for undergraduate pre-med students. Purposeful undergraduate engagement in surgical research is beneficial in influencing students to pursue careers in surgery and to help close the perception gap. It is also wholly worthwhile for research programs as it employs highly capable students in data collection, analysis, and dissemination.

UNDERGRADUATES ADVANCING SURGICAL EDUCATION RESEARCH

Sha, C[2]; Nishii, A[2]; Ziyalan, E[2]; Singler, C[2]; Thompson, J, BA[1]; Sandhu, G, PhD[1]

[1]Department of Surgery, Michigan Medicine, Ann Arbor, MI, USA; [2]University of Michigan, Ann Arbor, MI, USA

MICHIGAN MEDICINE
UNIVERSITY OF MICHIGAN

BACKGROUND

Declining interest in surgical specialties among undergraduates has affected recruitment in general surgery programs across the country.[1-3] Reasons for this decline have been identified as: lifestyle issues, fear of litigation, absence of role models, gender issues, and lack of lack of undergraduate exposure. There is a gap between student perception of the surgical profession and the reality.[1]

Operating room (OR) experiences and research exposure are valuable for undergraduate pre-med students as these activities are becoming essential for acceptance into medical school. Many of these students are preparing for careers in health care and are applying to medical school. Surgical program exposure at the undergraduate level could play a pivotal role in influencing students to pursue careers in surgery. Through undergraduate engagement in surgical teaching and education research, we may be able to help close the perception gap.

ACTION

Pre-med honors program undergraduates (12) were introduced to qualitative surgical education research and behavior measurement in the OR. The experience allowed them to see first-hand the environment of teaching, learning, practice, and research in surgery.

To assess the value of including pre-med undergraduate students in surgical educational research and how this experience may impact academic growth, personal growth, and future educational trajectories, we used **video diary** to capture student perspectives of surgical environment, culture, and education.

We collected video diaries during 3 time-points during the student's research experience:

1. First experience (post-training) as an independent researcher
2. Midway through research collection
3. When their involvement with data collection was completed

METHODS & RESULTS

Kolb Learning Cycle

- Concrete Experience
- Reflective Observation
- Abstract Conceptualization
- Active Experimentation

Data Collection

This pilot study included video diaries from 4 undergraduate volunteer surgical researchers. For each video diary entry, students thought about their experience of surgical education research in the OR through the lens of the Kolb experiential learning cycle.
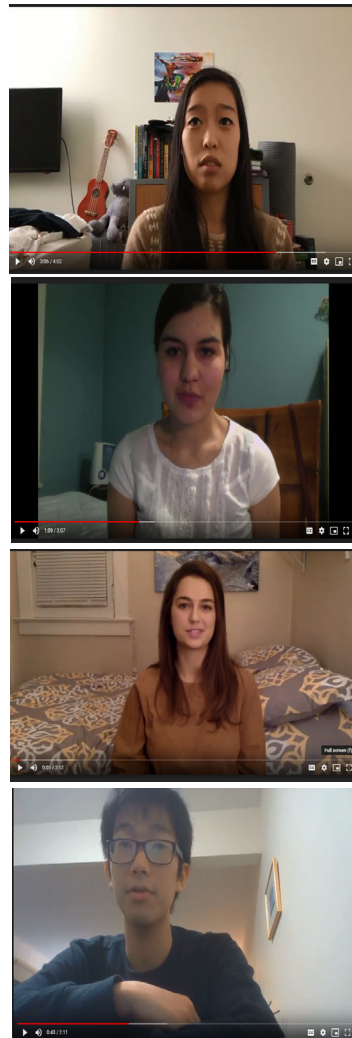
Analysis

The video diaries were thematically coded using Kolb's two continuums:

Kolb Continuum

The Processing Continuum (how we approach a task)

Kolb Continuum

The Perception Continuum (our emotional response; how we think and feel about it)

LESSONS LEARNED

Undergraduates found the experience of engaging in surgical education research valuable both educationally and personally.

1. Concrete Experience: the research process keenly enhanced their understanding of the variable dynamics of the operative environment and how diverse health care teams interact intraoperatively to enhance patient outcomes.
2. Reflective Observation: the students spoke of the active and welcome engagement of faculty and residents in the study; the surgical team's generosity and the value of the study to the participants was an especially positive experience for the researchers.
3. Abstract Conceptualism: The duality of teacher as learner and learner as teacher when multiple educational interactions were taking place resonated with the students.
4. Active Experimentation: They students reflected on their own role in the teacher/learner dyad and how they could use principles from the research tool to augment their own educational interactions.

FUTURE APPLICATION

- Continued engagement of pre-med honors program undergraduate students in surgical research has the opportunity to further enhance undergraduate student research experience, play a meaningful role in influencing student perceptions of surgical careers, and provide positive role models in surgery.

- Purposeful undergraduate engagement in surgical research is beneficial in influencing students to pursue careers in surgery and to help close the perception gap.

- It is also wholly worthwhile for research programs as it employs highly capable students in data collection, analysis, and dissemination.

References: 1. Ek EW, Ek ET, Mackay SD. Undergraduate experience of surgical teaching and its influence and its influence on career choice. ANZ journal of surgery. 2005;75(8):713-718. 2. Gelfand DV, Podnos YD, Wilson SE, Cooke J, Williams RA. Choosing general surgery: insights into career choices of current medical students. Archives of Surgery. 2002;137(8):941-947. 3.Marschall JG, Karimuddin AA. Decline in popularity of general surgery as a career choice in North America: review of postgraduate residency training selection in Canada, 1996–2001. World journal of surgery. 2003;27(3):249-252.

808: A Mixed Methods Approach to Developing and Evaluating Cross-Cultural Sensitivity Training for University of Michigan Medical Students

Authors: Brent Williams, Ellen Rubinstein, Craig McCool, Jason Bell, Nikita Shah

Background: Within three decades, the U.S. population will reach the point where no single racial or ethnic minority exists. Today's medical students must be prepared to treat patients from different cultures. As such, leaders in the medical school's Global Health and Disparities (GHD) Path of Excellence designed a project to develop and evaluate cultural sensitivity training among students, including those participating in educational experiences off-campus in low-resource settings.

Actions, Methods or Interventions: The team conducted 8 interviews with students recently returned from experiences in low-resource settings. Primary themes to emerge were integrated as additional questions into an existing instrument (with permission) to arrive at a new UM Medical School Cross-Cultural Survey. Those same themes also drove the development of four "case studies" discussed in a required pre-departure seminar for students embarking on experiences in low-resource settings. Seminar attendees completed the survey (n=20) in January 2018. More recently, a broader segment (n=103) from across UMMS completed it for baseline analysis.

Results: Half of students surveyed reported little or no prior training in identifying religious beliefs (50%) or cultural customs (53%) that might impact clinical care. Most respondents (62%) feel only somewhat prepared (at best) to care for patients from different cultures. Case-based questions about scope of practice and knowledge conflict (e.g., where a visiting student's medical knowledge/teaching doesn't align with the accepted practices of the host site) show a broad spectrum of responses and therefore little agreement regarding how best to manage such scenarios when they inevitably arise. For example, students were uniformly divided regarding their willingness to perform procedures on an away rotation that they are not yet allowed to do as a trainee at Michigan Medicine (33% willing; 42% unwilling; 25% neutral).

Lessons Learned: Preliminary results illuminate a need for further curricular development/ coordination to ensure that medical students receive training on providing culturally sensitive/ appropriate care, particularly when working off campus in low-resource communities. In particular, students require more guidance in areas where community-level customs, cultures and religious beliefs influence treatment in ways that conflict with standard western practices. Further defining and addressing students' allowable scope of practice during off-campus rotations will also eliminate confusion.

809: School-Based Oral Health Education to Improve Adolescent Student Oral Health Knowledge

Authors: Kristen Lehner, Vince Labinpuno, Shernel Thomas, Sarah Bettag

Background: According to the National Institutes of Health, 59% of adolescents aged 12 to 19 have had dental caries in their permanent teeth, and 20% have untreated decay. It has been shown that the risk of childhood caries can be effectively mitigated with proper oral health related knowledge. Existing core health and science curricula provides a segue for collaboration between dental professionals and the secondary school educators. Through this collaboration between science and health teachers and dental students, our intervention provides oral health education to middle- and high-school students in local, underserved communities. Our study aims to 1) assess the oral health related knowledge (OHRK) of middle and high school students prior to an oral health presentation, 2) evaluate how OHRK differs by background characteristics such as the respondents' age and gender, and 3) assess improvement in OHRK after the presentation.

Actions, Methods or Interventions: This study is a non-randomized controlled study. Survey data and demographic information were collected from high/middle school students before (n=239) and after (n=235) an oral health presentation. Survey used open-ended questions and a 5-point Likert scale to assess beliefs and attitudes about oral health. Statistical analysis was performed using SPSS. We analyze the students OHRK as well as their interest in careers in health professions before and after our intervention.

Results: At baseline, 50.2% of the students disagreed/strongly disagreed that they knew a lot about oral health, and 78.1% agreed/strongly agreed that they know how to keep their mouths healthy. Only 53.9% agreed/strongly agreed with the statement that what they eat affects the health of the mouth and teeth. An analysis of the relationship between age and baseline numbers showed that as age increased, students' perceived OHRK increased while the perceived severity of the oral health risks associated with smoking decreased. Male students on average agreed more strongly that they had sufficient oral hygiene knowledge (mean=4.53) compared to female students (mean=3.98, p=0.005). Post-survey results indicate that students' OHRK increased significantly.

Lessons Learned: Middle and high school students OHRK can be improved significantly after a one hour presentation in a classroom setting. Despite differences in response rates for age and gender, OHRK increased significantly among all groups. Collaboration between health profession students and science/health teachers is beneficial to teach middle/high school kids about their own health, as well as potential career opportunities.

Future Applications and Next Steps: We plan to build upon our current presentation model to further expand students OHRK with different oral health related topics. Secondly, we plan to expand our model to include students of nursing, pharmacy, medicine, and others to create additional opportunities for middle/high students to learn about other health professions in a school-based environment. This will provide for an IPE model and allow us as dental students to work with and learn from students of other health professions, in addition to the benefit it will continue to provide to the middle/high school students.

Does School-Based Oral Health Education Improve Adolescent Students' Oral Health Knowledge?

Vince Labinpuno, Kristen Lehner, Sarah Bettag, Shernel Thomas; Mentor: MR Inglehart
University of Michigan School of Dentistry

BACKGROUND

According to the National Institutes of Health, 59% of adolescents aged 12 to 19 have had dental caries in their permanent teeth, and 20% have untreated decay.[1] Risk of childhood caries can be effectively mitigated with proper oral health related knowledge. Existing core health and science curricula provides a segue for collaboration between dental professionals the secondary school educators.[2]

INTRODUCTION

Our educational intervention provides oral health education to middle- and high-school students in local, underserved communities. We utilize several interactive demonstrations to engage the students and assure retention of the material presented. In this study, we aim to assess the oral health related knowledge (OHRK) of middle and high school students prior to an oral health presentation, and their OHRK improvement after the presentation. Lastly, we want to create an interest in the students for potential careers in dentistry.

METHODS & RESULTS

September 2018
Met with Ruth Kraut (Washtenaw County Health Program Administrator) to discuss oral health needs of the county. Decided to focus on Oral Health Education (OHE) for teenagers.

February 2018
1. Identified disadvantaged schools in the county that could benefit from OHE.
2. Surveys to measure oral health related knowledge (OHRK) were drafted.

June 2018
"Healthy Smiles, Happy Teens" project launch. Pilot project day at Ypsilanti Community Middle School.

June 2018 to December 2018
1. Taught 13 presentations about OHRK at 3 local schools (Ypsilanti Community Middle School, Ypsilanti STEMM Middle College, Lincoln Middle School).
2. Assessed feedback from surveys and revised survey for clarity.

Future Plans (2019)
1. Expand project into Milan area schools.
2. Incorporate other health professions in program.
3. Expand presentation subject matter.

Background Characteristics		Percentage
School	Lincoln Middle School	35.6
	Ypsilanti Middle School	51
	Ypsilanti High School	13.4
Grade	7	66.4
	8	18.9
	9	7.1
	10	3.4
	11	4.2
Gender	Male	56.6
	Female	43.4
Do you have a dentist that you go to regularly?	Yes	70.7
	No	29.3
When was your last dental appointment?	< 6 months	70.1
	Within 1 year	22.2
	Within 2 years	6.0
	> 2 years	0.9
	Never	0.9
Do you have any problems with your teeth?	Yes	32.7
	No	67.3

Table 1. Demographic information: Students' age ranged from 11-18, with a mean of 12.87 years of age. At the three schools that were visited, 29.3% of students surveyed reported that they did not see a dentist regularly, and 32.7% reported that they had problems with their teeth.
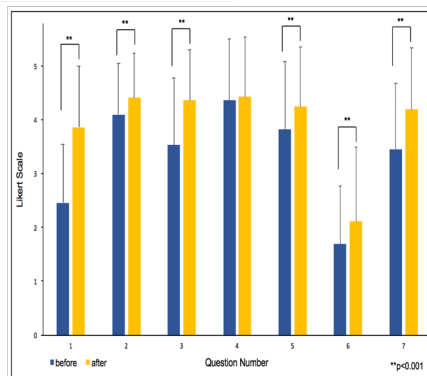
Figure 1. Survey data collected from high/middle school students before (n=239) and after (n=235) an oral health presentation. Survey used open-ended questions and a 5-point Likert scale to assess beliefs and attitudes about oral health.

Figure 2. Survey responses before and after oral health education. Questions asked: 1. I know a lot about oral health, 2. I know how to keep my mouth healthy, 3. What I eat affects the health of my mouth and teeth, 4. Smoking affects the health of my mouth and teeth, 5. Drugs and medications can affect the health of my mouth and teeth, 6. I might want to be a dentist when I grow up, 7. A presentation on oral health is useful to me. Answers ranged from 1 = not at all, 2 = a little, 3 = somewhat, 4 = much, 5 = very much. Students' responses significantly increased for each question with the exception of 4. Smoking affects the health of my mouth and teeth.

DISCUSSION

- At baseline, 50.2% of the students disagreed/strongly disagreed that they knew a lot about oral health; however, 78.1% agreed/strongly agreed that they knew how to keep their mouths healthy. Only 53.9% agreed/strongly agreed with the statement that what they eat affects the health of the mouth and teeth.
- An analysis of the relationship between age and baseline data showed that as age increased, students' perceived OHRK increased, while the perceived severity of the oral health risks associated with smoking decreased.
- Male students on average agreed more strongly that they had sufficient oral hygiene knowledge compared to female students.
- Post-survey results indicate that students' OHRK increased.
- Future directions: Refine current IPE model to create additional opportunities for middle/high students to learn about other health professions in a school-based environment. Build upon current presentation model to further expand OHRK.

CONCLUSIONS

Middle and high school students oral health related knowledge (OHRK) can be improved significantly after one presentation on nutrition and oral health. Despite some variation in response rates for age and gender, OHRK increased significantly among all groups. Students also demonstrated an increased interest in dentistry as a career after the presentation. Responses to open ended questions suggest that students enjoyed the presentation and particularly liked the interactive demonstrations.

REFERENCES

- NIH: National Institute of Dental and Craniofacial Research. *Dental Caries in Children Age 2-11*. The National Health and Nutrition Examination Survey (NHANES)
- Dye, BA et al, *Dental Caries and Sealant Prevalence in Children and Adolescents in the United States*, 2011-2012. NCHS Data Brief No. 191; 2015.

810: Outpatient Handoff Matters, Too! An Intervention for Graduating PGY-3 Panel Patients and Effect on Resident Perception

Authors: Vanessa Scowden

Background: Much attention has been paid to transition of care upon hospital discharge, although outpatient transition of care is an area perceived by many of lesser importance. Graduating residents in primary care settings experience this cycle predictably, and a paucity of evidence exists to help guide programs in best practice.

Goals were to establish handoff process and standardize documentation, improve resident satisfaction with close of clinic as well as perception of importance of ambulatory handoff, improve patient satisfaction and continuity of care during planned transition in provider, as well as improve intern clinic experience when "inheriting" a panel.

Actions, Methods or Interventions: Graduating PGY-3 resident PCPs and their continuity attending at a single academic continuity site (resident n=5) were selected to review their panels. Patients subjectively identified as "higher risk" were then discussed individually to identify who was best served to undergo intervention- options were to transition to an established resident (rising PGY-2) or an attending panel, or to complete a formal transition of care process. Patients identified for formal transition of care process (felt to be highest need by treating providers) were identified for in-office return visit prior to resident graduating. This visit note was standardized with a template created and provided in Epic, designed to remain in the permanent medical record for future reference.

To evaluate the impact on the residents, an anonymous retrospective pre-then-post survey was completed to assess perception and sense of value for handoff in the ambulatory setting with 100% of surveys returned (n=5). There were four questions designed to evaluate perception of importance for both inpatient and ambulatory handoff, and if the resident felt current curriculum provided adequate instruction for best practice in both settings.

Results: There were a total of 331 patients identified as having a PGY-3 as PCP and individually reviewed approximately 6 months prior to resident graduation. Of these patients, 39 (11.8%) were determined to be medically or socially complex enough to be best served by return visit process above, with template note completion after visit.

Regarding value for inpatient handoff, all PGY-3 agreed or strongly agreed that there is value. They also all agreed or strongly agreed that their current curriculum provides instruction for best practice. This study did not show any change in level of response after our intervention regarding inpatient handoff attitude of importance or provided instruction.

All respondents did also agree or strongly agree that there is value in ambulatory handoff, although 4 of the 5 disagreed or strongly disagreed that there was adequate instruction prior to this intervention regarding handoff in the ambulatory setting. After the intervention, 4 of the 5 did improve on ambulatory question metrics, with a single respondent reported three levels of improvement, one with two levels of improvement and the remaining two with one level of improvement for confidence in instruction.

Lessons Learned: This study was created to address a perceived need for improved formal handoff in an ambulatory setting during resident transition. This was formalized in recommendations both for review process, individual patient discussion as well as a note template to standardize documentation in the permanent medical record as a guide for accepting provider. Results did show that time needed for review was not onerous, nor were the number of patients excessive that underwent the intervention. Resident attitudes and perception of instruction were measured to determine value for this process, and showed overall very positive improvement in both perception of importance of ambulatory handoff as well as perceived instruction in our program.

Future Applications and Next Steps: Areas of interest that would benefit from further study include pursuing this on a larger scale, which is planned at our program for the upcoming academic cycle. Interestingly, there was almost unanimous agreement between resident and attending in identifying these patients, and further study to help determine ways to best utilize the medical record to help identify these patients (as most did not qualify as "high utilizers" on current metric standards) would be of clear future interest.

Outpatient Handoff Matters, Too! An Intervention for Graduating PGY-3 Panel Patients and Effect on Resident Perception

Vanessa Scowden, MD

MICHIGAN MEDICINE
UNIVERSITY OF MICHIGAN

MICHIGAN MEDICINE
UNIVERSITY OF MICHIGAN

Introduction

- Much attention has been paid nationally to safety and coordination for transition from inpatient to outpatient care, although less emphasis has been placed on **ambulatory transitions of care**.
- Many outpatient transitions cannot be anticipated, although there is an expected transition annually in academic primary care continuity clinics across the country.
- These opportunities are important to consider not only from the standpoint of delivering high quality patient care but also from the **educational standpoint of the trainee**.

Setting

- Single clinic within large academic internal medicine residency in the Midwest (total trainees 44 per year in program, 5 per year of training at this clinic).
- Residents are assigned as PCP for their panel, and are expected to act as front line PCP with continuity attending support/supervision- this was a new change as of 2017.
- **No formal process** in place for distributing new patients or transition of panel to incoming intern at graduation of PGY-3.
- Attendings do rotate coverage every 6 months for staffing resident clinic, although are always the same 2 attendings per resident for their 3 year continuity experience. This allows for **less continuity at both the resident and attending level**.

Objectives

- The goal of this project was to perform a review of internal medicine continuity clinic residency patient panels, both for patient appropriateness for a resident panel as well as a smooth and safe transition of care for more complex patients.
- No formal process was existing, therefore goals ultimately were to:
  - **establish process**
  - **improve resident satisfaction** with close of clinic
  - **improve patient satisfaction** and continuity of care during planned transition in primary care physician.

Process
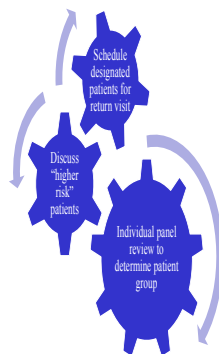
1. Panel manager helped to "scrub" panel lists and provided verified list to each resident and attending pair
2. PGY-3 and attending each reviewed panels independently to classify patients in 3 groups:
   - Transfer off resident panel
   - Transfer to more senior resident (rising PGY-2)
   - Bring patient back for visit prior to resident graduating program
   - This will also allow some standardization of panels for total patient number and complexity
3. Patients were contacted for rescheduling, as appropriate
   - Template visit note was created to be used for all return visits for identified "higher risk" patients

Schedule designated patients for return visit

Discuss "higher risk" patients

Individual panel review to determine patient group

AMBULATORY CLINIC SIGN OUT NOTE

Mr X, who previously followed with <PRIOR PCP> presents today to followup for regular care prior to plan to transition care to an incoming resident physician.

***

Active problem list:
<Edited to represent only pertinent active issues>

Physical Exam:
<Focused to current problems and ongoing active issues>

Pertinent recent labs/studies:
<Pertinent only>

Assessment and Plan:
***

Tests requiring followup:
***

Issues requiring short term followup:
***

Chronic stable issues with last plan, updated from last note:
***

Dr *** is acting as staff attending who is available for consultation/discussion during transition of care.

Patients Identified for In Office Return Visit

Patients scheduled
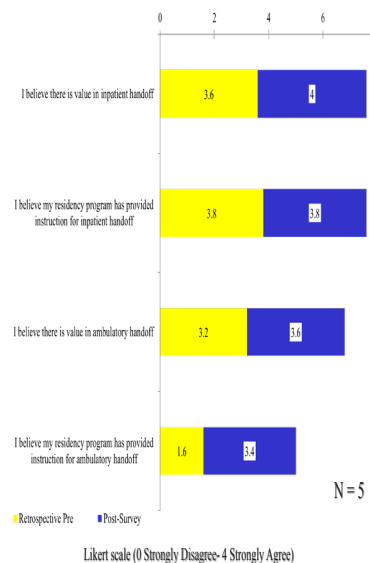
Total patients reviewed
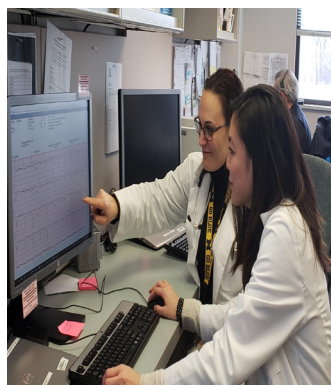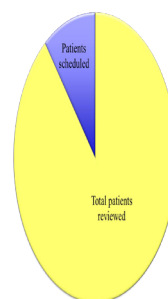
Evaluation

Residents completed **retrospective pre and post evaluation** to assess their opinion of and perceived instruction for both inpatient and outpatient handoff

Results

- I believe there is value in inpatient handoff: 3.6 / 4
- I believe my residency program has provided instruction for inpatient handoff: 3.8 / 3.8
- I believe there is value in ambulatory handoff: 3.2 / 3.6
- I believe my residency program has provided instruction for ambulatory handoff: 1.6 / 3.4

N = 5

■ Retrospective Pre ■ Post-Survey

Likert scale (0 Strongly Disagree- 4 Strongly Agree)

Next steps

- Academic year 2018-2019 will be performed for >40 graduating PGY-3 in internal medicine.

Acknowledgements

900: Dental Checklist Utilization to Address Trainee Situational Awareness

Authors: Amanda Beck-Slumka, Mark Pinsky, Stephanie Munz

Background: At least 44,000 people die each year in hospitals due to errors (IOM, 1999). It is logical to conclude that if medicine has error, so does dentistry. In 2010 dentistry borrowed the concepts from aviation called crew resource management(CRM) in an attempt to address the human aspect of error. (Pinsky, 2010). CRM makes use of all available resources-- information, equipment and people, to achieve safety and efficiency. (Lauber, 1987). A fundamental concept of CRM is situational awareness(SA). Situational awareness (SA) is "the perception of the elements in the environment within a volume of time and space, the comprehension of their meaning, and the projection of their status in the near future.(Endsely, 1988)" High risk fields such as aviation, medicine, and dentistry need to address situational awareness to help mitigate error. A threat is a potential error that is identified prospectively. Early threat identification leads to error mitigation. A CRM tool designed to maintain SA and identify threat is the dental checklist. Use of a checklist in the field of dentistry is in its infancy.

Actions, Methods or Interventions: The aim of this study was to examine dental residents' and dental students' situational awareness through the use of a dental checklist. Participants were trained on and utilized a previous published checklist. Students submitted an online anonymous survey after using the dental checklist with a patient.Statistical analysis was conducted using SPSS 25.0.0.1.

Results: 60 surveys were analyzed. Participants' identified a greater ability to prospectively identify threats (P=0.001) when utilizing the checklist versus not. Participants reported maintaining SA when using the checklist (P < 0.001). Time of day was also analyzed and found to be not significant. Those that lost SA showed a trend of regaining it by utilizing the checklist.

Lessons Learned: Participants that utilized the dental checklist reported increased ability to prospectively identify threats during the planned procedure. When situational awareness was lost, participants reported the checklist helped them regain situational awareness. A trend was noted that participants indicated they did not lose situational awareness when they utilized the checklist; potentially indicating the checklist helped them maintain situational awareness. This increase in SA may indicate that use of the checklist may reduce the magnitude of individual errors and aid in prevention of irreversible complications.Limitations include that participants were able to submit surveys at will, though they were encouraged to submit a survey with every patient, they did not not submit them for every patient. A potential selection bias might have occured as the students and residents were able to submit the survey response at their own discretion, which may have been more frequently when they had a more significant patient interaction involving the checklist.

Future Applications and Next Steps: Next steps include increased emphasis on dental checklist uses and collecting more diverse data. This would begin next year with a fine-tuned survey with help from CSCAR, and data collection with Hospital Dentistry Residents over the course of an entire year, instead of several months.