

ABSTRACTS

Health Professions Education Day 2020



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Developing Interprofessional Communication Practices for the Opioid Naïve Population

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Background

- Chronic opioid use and misuse has become a significant health care issue in recent years.¹
- Studies suggest that surgery is a risk factor for initiation of chronic opioid use. This may be greater in opioid naïve patients.²
- Effective interdisciplinary team communication practices that are patient-centered could mitigate the risk of chronic opioid use and misuse.³
- These practices are related to higher levels of patient self-efficacy which is further related to lower patient report of pain intensity and pain interference.^{4,5}



Purpose

The purpose of this study is to develop quality communication among interdisciplinary teams working with opioid naïve patients within a post-surgical context through interprofessional education.



Methods

- A pilot project was developed with the pilot group to consist of nursing, physical therapy and psychology students. The students will be placed into interdisciplinary teams.
- A case study based course was designed and administered through a learning management system (Canvas).
- The case centered around a woman with an acute ankle fracture who is opioid naïve, but the communication about her opioid prescription is subpar.
- Asynchronous pre-activity work was assigned to the students:
 - Communication strategies for both the opioid naïve patient and the interprofessional team
- During the synchronous portion of the course, the case study was introduced and students reviewed it individually.
 - A facilitator (KK) engaged the students with focused questioning on team communication and patient outcomes as it relates to opioid naïve patients.
- Videos were created to offer additional insight into the complexities of this case.
- Student learning was assessed using the Interprofessional Collaborative Competencies Attainment Survey

Future Application and Next Steps:

- Authors are implementing the project in June 2020



References

1. Hedegaard H, Miniño AM, Warner M. Drug overdose deaths in the United States, 1999–2017. NCHS Data Brief, no 329. Hyattsville, MD: National Center for Health Statistics. 2018
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The authors wish to acknowledge the Interprofessional Education Center, the Center for Research on Learning and Teaching, and the students who plan to participate in the pilot

HPE Day Abstract 001

Abstract Title: Developing interprofessional communication practices for the opioid naive population

Background: Chronic opioid use and misuse has become a significant health care issue in recent years. Some studies suggest that surgery is a risk factor for initiation of chronic opioid use and a small subset of opioid naive patients are at risk for potential opioid misuse post-surgically. One avenue to mitigate this risk and enhance patient outcomes is effective interdisciplinary team communication. Patient-centered care includes consistent communication messages. Effective communication practices among the interprofessional team is related to higher levels of patient self-efficacy which is further related to lower patient report of pain intensity and pain interference. The purpose of this study is to develop quality communication among interdisciplinary teams working with opioid naive patients within a post-surgical context through interprofessional education.

Methods: A pilot project with a sample of students from nursing, physical therapy and psychology were placed in interdisciplinary teams. A case study based course was designed and administered through a learning management system (Canvas). Asynchronous pre-activity work was assigned to the students which included communication strategies for both the opioid naive patient and the interprofessional team members. During the synchronous portion of the course, the case study was introduced and students reviewed it individually. A facilitator then engaged the students with focused questioning on team communication and patient outcomes as it relates to opioid naive patients. Student learning was assessed using the Interprofessional Collaborative Competencies Attainment Survey.

Results: This project will be implemented in late February/early March with completion of data analysis in early April.

Lessons Learned: Patient-centered communication strategies are key in transition of care for opioid naive patients.

Future Application and Next Steps: Authors are looking to expand this IPE offering and are exploring various avenues to achieve this. Potential avenues would be to develop a new IPE course or embed this offering in existing courses.



A Case-Based Virtual Simulation to Improve Inter-Professional Communication Regarding Patient Safety

Denise Campbell, DNP, RN, ACNS-BC, CEN, CHSE, Diane Hoelscher, DDS, MS, Erika Manu, MD, Anao Zhang, PhD, LCSW, ACSW, ACT, Ji Hyun Yu, PhD (Instruction Designer)

Background

Healthcare today relies on **effective teamwork and communication** to ensure **patient safety**.^{1,2}

Traditionally, healthcare students are educated in **professional silos** that have **different foci of communication**.³

Graduates of healthcare programs are **expected to work** in an inter-professional team and **communicate effectively upon entering the workforce**.

Purpose of the Project

The purpose of this pilot project is to determine if an **online, case-based simulation module** introducing the communication tool CUS, **improves** healthcare professional students' **communication efficacy** and **confidence** and **decreases fear related to communication**.

Methods

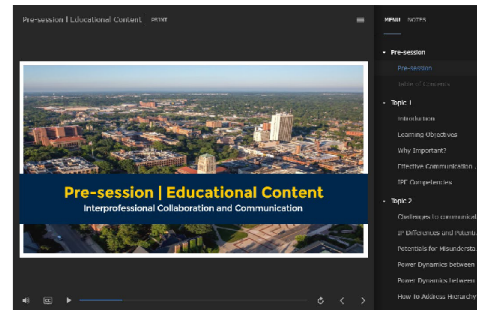
Proposed a **pilot** pre/post single-group **quasi-experimental** design including (**N = 20**)

Phase 1 → Educational Module Development & Virtual Simulated Case Development

Phase 2 → Baseline Survey Administration & Synchronous Online Simulation Session

Phase 3 → Student Post-Session Assessment & Post-Session Reflection

Pre-session Educational Content



Progress to Date

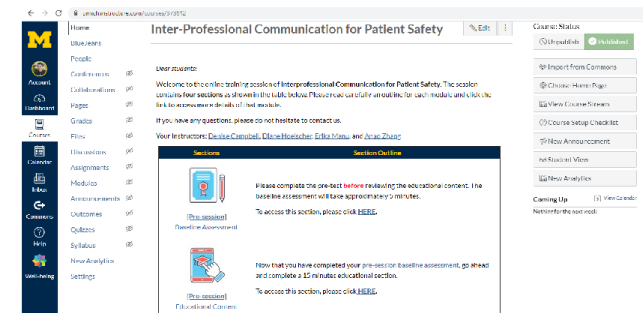
In addition to a fully developed Canvas site, we have also developed discipline specific case scenarios for dyads of health profession students to use in their virtual live simulation. Before the project was interrupted due to COVID-19, we were able to deliver this educational session to one dyad of dental and medical students. **Preliminary Results** revealed students reporting **improvement** in their **self-confidence** and **comfort** with inter-professional communication as well as in their **knowledge** about inter-professional communication.

Next Steps

We plan to complete the pilot in the upcoming weeks/months and publish the results. Results of this project will help emphasize the importance of incorporating inter-professional communication education into healthcare professional curricula. We aim to sustain the use of this curricula by recommending its use in other inter-professional courses at our institution and outside.

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Course Canvas Page



HPE Day Abstract 002

Title: A case-based virtual simulation to improve inter-professional communication regarding patient safety

Background: Healthcare today is provided by multidisciplinary interprofessional teams who rely on effective teamwork and communication to ensure safe high-quality patient care. In its 2004 sentinel event data report, the Joint Commission listed leadership, communication, coordination and human factors as among the leading root causes of sentinel events. In addition, team communication failures have significant economic burden that can impact patient quality and safety, and access to care.

Traditionally, healthcare students are educated in professional silos that have different foci in communication, yet graduates of healthcare programs are expected to work as an interprofessional team and communicate effectively upon entering the workforce. The positive relationship between team communication and patient safety has increased the emphasis on training future health professionals to work within interprofessional teams and to communicate effectively. Effective communication and confidence develop when students have the opportunity to practice these skills. Additionally, inter-professional communication and team training in academia has been shown to be effective in building the foundations for later practice within healthcare teams.

Increasingly, educators have sought to create inter-professional trainings that teach the key elements of effective teamwork in simulated settings which allow for the practice of skills in a controlled environment. Simulation provides a realistic, risk free environment promoting patient safety and increasing students' competence and confidence with communication strategies.

Purpose: The purpose of this pilot project is to determine if an online, case-based simulation module introducing the communication tool, CUS words, improves healthcare professional students' communication efficacy and confidence and decreases fear related to communication.

Methods: This pilot project is a pre/post single-group quasi-experimental design including 20 healthcare professional students from nursing, medicine, and dentistry. This project is completed in four phases.

The initial phase of this project includes development of an educational module, simulated case study scenarios and evaluation tools. Phase II involves the administration of pre-surveys and an on-line educational module to participating students. During Phase III students actively participate in simulated case study role

play scenarios followed by a debriefing session facilitated by the researchers. In the last phase participating students' complete post-surveys.

Data analysis: Statistical analysis of data will be conducted under direct consultation with a statistician from the University of Michigan. In addition to descriptive statistics, we will conduct dependent samples t-test to determine if students report significant improvement across outcome domains.

Results- Data collection is currently underway. Outcome measures will include differences in pre/post survey on student confidence and knowledge of communication tools, pre/post survey on student attitudes of the simulation experience, and results of the observation tool during the simulated case study interaction.

Lessons Learned: We intend to test the hypothesis that the simulated inter-professional communication scenarios help to improve student efficacy, confidence, and comfort in communicating with other healthcare professionals.

Future application and next steps- Results of this project will help to emphasize the importance of incorporating inter-professional education relating to communication into healthcare professional curricula. Given this module is delivered online; we aim to sustain its use by recommending it to other IPE courses at the University of Michigan campuses. Furthermore, information obtained from this project can assist with identifying areas for improving inter-professional communication between all healthcare professionals thereby improving patient safety.

CONVENING HEALTH CARE PROFESSIONALS TO CENTER YOUTH, RESEARCH, BEST PRACTICES, AND COMMUNITY

THE CONNECTION SESSION MINI-CONFERENCE AS AN INNOVATIVE STRUCTURE FOR CONTINUING EDUCATION

Jenni Lane, MA; Ellen Wagner, MS, MPH; Ariel Ragin, BA

BACKGROUND

The Adolescent Health Initiative (AHI) first organized a Connection Session mini-conference in 2016 to convene health care professionals from multiple disciplines with a shared goal of improving adolescent health. Since then, AHI has hosted annual Connection Sessions on specific adolescent-related topics to further interdisciplinary learning using innovative, multi-pronged approaches.

The Connection Session framework is a thoughtful, engaging mix of the latest research, cross-discipline problem-solving, application of best practices, and activities to incorporate authentic youth voice. AHI has partnered with subject matter experts to plan and execute Connection Sessions each year from 2016-2019.

The first Connection Session's structure was so effective that each subsequent program has included the same primary components, each time adapted to best suit the topic.

Key Components

Activities to center the voices and experiences of youth

Keynote and discussion addressing emerging research

Networking Opportunity

Small group, adolescent-centered case-based discussions

Interdisciplinary practice-based strategizing

Collaborative action planning

Interdisciplinary Emphasis

An audience size of 70-90 people allows for meaningful small group discussion, dynamic Q & As with youth and other subject matter experts, and community sharing. Roles represented include:

- Administrators
- Health Educators
- Medical Assistants
- Nurse Practitioners
- Physicians
- Physician's Assistants
- Registered Nurses
- Social Workers
- Community Health Professionals



Adolescent Health Initiative Team, 2019

Challenges and Opportunities

A challenge with the multidisciplinary aspect of the event is to create cases and activities that feel relevant to all of the roles in the room. AHI thoughtfully develops exercises that illustrate role-specific best practices, find common ground, and reinforcing the interconnectedness of an adolescent-serving team. Continuing education credits are offered for medical and mental health providers, as well as health educators, to encourage a wide range of professions to participate.

Unique considerations are associated with amplifying youth perspectives on sensitive topics. Sometimes, anonymity is essential to respect privacy, or to avoid re-traumatization. At the human trafficking event, to ensure AHI was centering survivor voices in an ethical way, they worked with AHI's youth council to record audio clips of survivor quotes from qualitative research. For the event on marijuana, AHI recorded small discussion groups with youth ahead of time, and shared audio clips and quotes at the event. These activities supplement the face-to-face discussions with youth.

CONNECTION SESSIONS IMPACT

2016: AFFIRMING CARE FOR TRANSGENDER YOUTH

3 hours

80 registrants

Goal: To foster clinical competence in health services for transgender youth through increased support, quality care, and equitable access to resources.

Participants said..

"There a much larger community in the area than I had anticipated--thrilled to be a part of it."

"I am excited to take what I learned today and share it with other staff I work with."

"It was great. I wanted more!"

- Attendees learned from youth presenters and participated in ten round-table discussions on topics such as medical management, advocacy, building staff buy-in, taking a sexual history, working with families, and partnering with schools.
- Representatives from 12 community organizations shared information about their services.
- Participants received access to free, replicable training for delivery at their home sites.

2017: ADOLESCENTS AND SUBSTANCE USE DISORDER

3.5 hours

64 registrants

Goal: To gain a deeper understanding of youth perspectives on addiction, identify various substances and factors that lead to their use, and exchange best practices in treatment of adolescents.

Participants said..

"I have attended many conferences that address substance abuse. The information shared by the presenters gave me more information about this topic than all of the combined information from those conferences."

- Dr. John Hopper gave a keynote talk on *Adolescent Substance Use: A Clinical Perspective on Neurobiology, Prevention, and Management*.
- Youth shared their experiences with addiction and treatment.
- Ten roundtable topics included co-occurring disorders, homelessness, marijuana use, vaping, and small group discussions with youth.

2018: IDENTIFYING AND SUPPORTING TRAFFICKED YOUTH

7 hours

82 registrants

Goal: To share strategies for identifying and supporting trafficked and sexually exploited youth.

Participants said:

"I enjoyed having non-health care providers on the panel to understand the 'bigger picture.'"

"I love the Spark model...excited to share this with staff members."

- Five "experts from the field" guided the day's activities, including a panel discussion, small group case work, and problem-solving around systems-based challenges.
- Multimedia mini-presentations throughout the day allowed survivor voices to inform our work.
- Participants received access to a Spark mini-training, *Identifying and Supporting Trafficked Youth: Everyone Can Play a Part* to deliver at their home sites.

2019: THE CHANGING LANDSCAPE OF LEGALIZED MARIJUANA

7 hours

91 registrants

Goal: To address the uncertainties, best practices, and legal ramifications for minors and young adults around marijuana use.

Participants said:

- In-depth discussion of youth brain development and marijuana use
- Material was applicable to various disciplines
- Unique high-level insight was provided

- Dr. Leslie Walker-Harding's keynote, *Weed through the Weeds: Marijuana, Legalization, and the Adolescent Impact*, brought the latest research to practice.
- Youth presenters shared information on current forms of marijuana use, social norms, and effective health messaging.
- Participants received actionable steps to effectively address marijuana use and received access to supplemental training.

IMPACT

Each year, AHI planners examine evaluation results and plan for the next year with the data. Based on the request for more programming, the event grew from a three-hour event in 2016 to seven hours in 2019. AHI planners make an effort to maintain the effectiveness of the structure while developing engaging and innovative activities that align with the objectives and topic.

2016 Evaluation

100% of respondents stated that quality of the event was "Good" (11.90%) or "Excellent" (88.10%)

All respondents (n=43) agreed that they demonstrated improvements in these areas:

- "I can identify at least 3 barriers transgender youth face when accessing health care services."
- "I can identify at least 3 ways to create an affirming environment for transgender youth."
- "I can identify strategies related to the care and well being of transgender adolescents that can enhance my work."
- "I can identify referral services that I can use for my patients/clients."

2017 Evaluation

Overall quality of event

- 3.5/4

Keynote: John Hopper, MD

Youth Presenters

Format of event

- 3.67/4

100% of participants said:

- The event was relevant to my practice
- I would recommend it to a colleague

- 3.58/4 → Quality of presentation
- 3.53/4 → Content was relevant to my practice
- 3.63/4 → Clarity of presenter

- 3.68/4 → Quality of presentation
- 3.74/4 → Content was relevant to my practice
- 3.68/4 → Clarity of presenter

2018 Evaluation

92% of participants stated that they intended to change practice as a result of the event, in the following ways:

- "Ask more screening questions of young adults with risk factors"
- "Find resources in my area"
- "Create a protocol for our center"
- "Cluster leads will present Spark at all cluster meetings" "Providing training to staff and thinking about what training looks like from the MA level to the Medical Director level"
- "Improve resources and signage [at our site]"
- "Attend each patient with a trafficking possibility lens"

2019 Evaluation

Among the 76 respondents, the average score for sessions was 3.46/4, with attendees intending to improve their practice in the following ways:

- Generate a list of online and community resources to patients or staff
- Disseminate Timely Topics: Marijuana web-based module to colleagues
- Add follow-up questions to risk screening tool for positive marijuana screens
- Commit to additional training on: Motivational Interviewing, SBIRT, and strengths-based approaches to adolescent health
- Pay increased attention to language and phrases when talking to youth about marijuana

2020: Shifting to a Virtual Environment

As large gatherings are not feasible this year, AHI is restructuring the Connection Session framework for effective delivery in a virtual setting. The 2020 event on trauma-informed practices for adolescents will be entirely online, and every effort is being made to retain effectiveness, center youth voice, and engage participants in new and creative ways. The 2018-2020 Connection Sessions were supported by an Innovation Grant from the Michigan Medicine Office of Continuing Medical Education and Lifelong Learning. AHI is excited to continue innovating, increasing access, and nurturing interdisciplinary growth through its new platforms.

HPE Day Abstract 013

Title: Convening Health Care Professionals To Center Youth, Research, Best Practices, And Community: The Connection Session Mini-Conference As An Innovative Structure For Continuing Education

Authors: Jenni Lane, MA; Ellen Wagner, MS, MPH; Ariel Ragin, BA

Background: The Adolescent Health Initiative (AHI) first organized a Connection Session mini-conference in 2016 as a means to convene health care professionals from multiple disciplines, with a shared goal of improving adolescent health. Since then, AHI has hosted an annual Connection Sessions on specific adolescent-related topics to further interdisciplinary learning using innovative, multi-pronged approaches. The Connection Session framework is a thoughtful, engaging mix of the latest research, cross-discipline problem-solving, application of best practices, and activities to incorporate authentic youth voice.

AHI has partnered with subject matter experts to plan and execute Connection Sessions each year from 2016-2019, with the following topics: Affirming Care for Transgender Youth; Adolescents and Substance Use Disorder; Identifying and Supporting Trafficked Youth; and Navigating the Changing Landscape of Legalized Marijuana. Each of the mini-conferences has offered continuing education credits for physicians, nurses, health educators, and social workers.

The first Connection Session's structure was so successful that each subsequent program has included the same primary components, each time adapted to best suit the topic. Key components include an opening activity to center the voices of youth; activity or keynote discussion addressing emerging research; practice-based strategies; small group case-based discussions; and collaborative action planning.

The audience size is 70-90 people, which allows for shared programming and meaningful small group discussion and community sharing.

Program evaluation responses have been resoundingly positive. In 2019, the response rate was 70%, and the average score for sessions was 3.46/4. The scores for each previous year are very similar. In addition, AHI follows up with participants 3 months after the program, to assess for completion of SMART goals and share additional resources.

Many attendees return each year and say that it is one of their most valuable continuing education opportunities of the year. One common comment stated, "This was a really nice mix of interactive and more traditional lecture type presentations. I really enjoyed hearing the youth perspective on this topic. I learned a great deal

that will help me to help my adolescent patients.”

The diversity of the audience has prompted rich discussion and learning among adolescent-serving professionals. Connection Sessions have included representatives from community-based organizations, as a means to educate participants on the resources in their community, engage in nuanced problem-solving together, strengthen linkages, and coordinate community responses to problems.

Each year, AHI planners examine evaluation results and plan for the next year with the data. Based on the request for more programming, the event has gotten longer, from its first year of four hours to 2019’s seven hour event. The expense has grown with expanded meal options and more renowned national speakers presenting. AHI planners make an effort with each program to maintain the effectiveness of the structure while adapting with the topic and keeping the activities engaging and innovative.

One unique challenge has been navigating the sensitive nature of young people sharing their perspectives on stigmatized topics, such as marijuana use and human trafficking. In the case of trafficking, subject matter experts advised strongly against having a survivor panel due to the likelihood of re-traumatization, so AHI worked with its youth council to record audio clips of survivor quotes from qualitative research, keeping survivor “voices” at the center in an ethical way.

Another challenge with the multidisciplinary aspect of the event is to create cases and activities that feel relatable and applicable to all of the roles in the room. AHI has developed creative solutions to keep the experience practical and meaningful to all participants.

AHI plans to continue offering Connection Sessions in Michigan in the future, and is gathering information about the feasibility of bringing the model to other parts of the country. The framework is successful, effective, participatory, and easy to replicate, the cost is low, and the outcomes offer an excellent return on investment.

From Inception to Year 5: The Evolution of Interprofessional Education at the University of Michigan

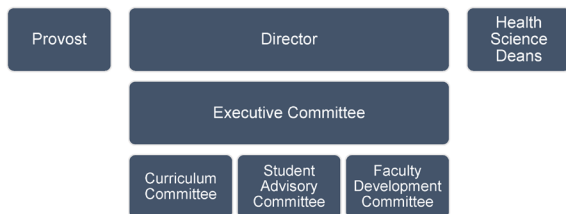


Vani Patterson, Mary Beth Lewis, Lindsay Telega, Ghaidaa Najjar, Frank Ascione

Background

In 2015, the provost and the health science deans committed \$6 million over five years to develop an interprofessional health education initiative, including the founding of the Michigan Center for Interprofessional Education (Center for IPE). By carefully aligning and integrating the needs and interests of health professions *education* with collaborative *practice*, the health science schools are working to transform the way they prepare U-M students to become effective members of the collaborative health care teams of the future.

Center for IPE Organizational Structure



Strategy

The Center for IPE is the coordinating body for IPE across the health sciences schools tasked to drive forth 5 overarching goals for IPE at U-M:

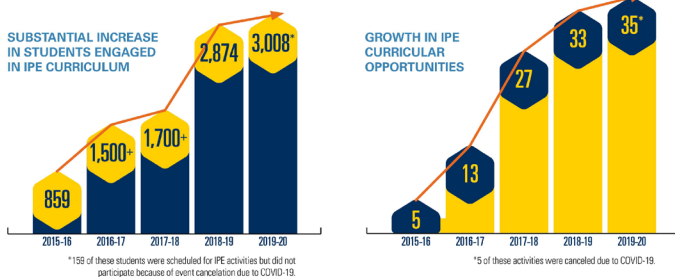
- GOAL 1** - Create a collaborative culture
- GOAL 2** - Cultivate a core interprofessional curriculum
- GOAL 3** - Develop faculty to teach in innovative learning environments
- GOAL 4** - Create a unique body of knowledge
- GOAL 5** - Become a national/international leader in IPE



Successes

CURRICULUM

There is 100% exposure for targeted learners in Dentistry, Dental Hygiene, Movement Science, Medicine, Nursing BSN/MSN (Ann Arbor and Flint), Pharmacy, Physical Therapy, Respiratory Therapy, Occupational Therapy, Public Health (Flint) and Social Work integrated health scholars.

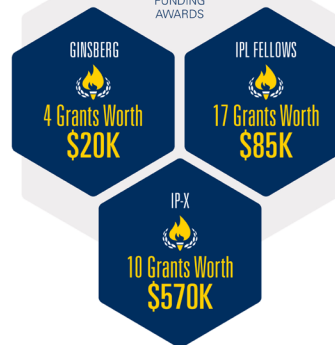


CO-CURRICULAR STUDENT ORGANIZATIONS

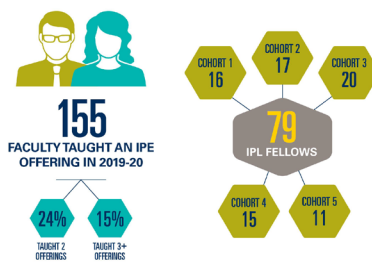
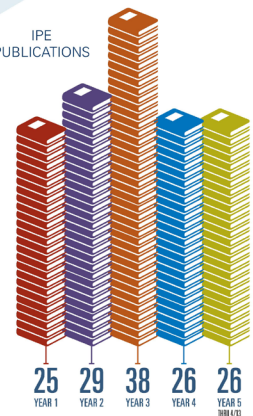
500+
STUDENTS ENGAGED IN CO-CURRICULAR IPE

- Blueprints for Pangaea
- Student-Run Free Clinic
- Health Policy Student Association
- Institute for Healthcare Improvement--Open School
- Interprofessional Health Student Organization

FUNDING AWARDS



IPE PUBLICATIONS



Lessons Learned

- Identify and leverage champions within each school.
- Identify and collaborate with the existing resources at U-M to develop mutually beneficial partnerships and efforts.
- Put diverse people together with a general goal and give them space to be innovative.

Next Steps

The next phase will focus on full integration of IPE into each health science school, their culture, and their curricula, with an emphasis on IPE in experiential settings including both clinical and community spaces. This will allow students and faculty to apply the didactic IPE that has flourished in the first 5 years to the actual practice settings and drive forth collaborative practice models. Additionally, the IPE effort will expand beyond the health science schools to be inclusive of other professional schools at U-M.

HPE Day Abstract 100

Category: IPE

Title: From Inception to Year 5: The Evolution of Interprofessional Education at the University of Michigan

Authors : Vani Patterson, Mary Beth Lewis, Lindsay Telega, Ghaidaa Najjar, Frank Ascione

Background: Efforts to create a collaborative culture across the health science schools is rooted in a strong commitment from University of Michigan leadership. In 2015, the provost and the health science deans committed \$6 million over five years to develop an interprofessional health education initiative, including the founding of the Michigan Center for Interprofessional Education (Center for IPE). By carefully aligning and integrating the needs and interests of health professions education with collaborative practice, the health science schools are working to transform the way they prepare U-M students to become effective members of the collaborative health care teams of the future.

Actions, Methods, or Intervention: The Center for IPE is the coordinating body for IPE across the health sciences schools tasked to drive forth 5 overarching goals for IPE at

U-M:

GOAL 1 - Create a collaborative culture

GOAL 2 - Cultivate a core interprofessional curriculum

GOAL 3 - Develop faculty to teach in innovative learning environments

GOAL 4 - Create a unique body of knowledge

GOAL 5 - Become a national/international leader in IPE

The Center for IPE creates venues and capacity-building opportunities to achieve the goals and potential of IPE through curriculum development, clinical innovation and evaluative research. We've developed a structure to oversee, develop, and implement IPE activities, which includes: [for poster, just include org chart]

- Executive Committee
- Ad Hoc Administrative Advisory Committee
- Curriculum Committee
- Faculty Development Committee
- Student Advisory Committee

The Center for IPE in partnership with the health science schools also coordinates a myriad of other opportunities to engage students and faculty. For students, this includes funding for IPE student organizations, connections to a network of collaborators and faculty speakers, IPE courses, and opportunities to inform the IPE movement. Faculty have opportunities spanning funding, professional development, and scholarship.

These include an Interprofessional Leadership Fellows program facilitated by CRLT, IP-X funding in partnership with the Health Science Council of Deans, Community Engaged IPE Funding in partnership with the Ginsberg Center, IPE Travel Grants to support the dissemination of scholarly work, Health Professions Education Day in partnership with the Department of Learning Health Sciences to provide a venue for idea exchange and collaboration, and numerous professional development and skills-building activities to improve faculty capacity for IPE teaching and practice.

Results: IPE has experienced significant momentum over these first 5 years. IPE offerings for students have increased from 5 in year 1 to 33 in year 4. Over 130 manuscripts have been published on IPE by U-M faculty over the past 5 years. Eight of the 10 health science schools have IPE as a mandate in their curricula for 100% of targeted learners. This means that in 2018-19, 2874 of the 5,000 health science students had at least 1 IPE experience during that academic year. Over \$675,000 of IPE research has been funded internally. The number of IPE student orgs has doubled to 6. Robust social media channels position U-M in the center of IPE conversations and shared communications worldwide, most notably on Twitter--where U-M Center for IPE's followers now number over 875. A true testament to U-M progress came in late 2019 when faculty and staff nominated Center for IPE Director Frank Ascione for a first-ever national award: the Interprofessional Educator and Mentor Award from the American Interprofessional Health Collaborative (AIHC). U-M faculty have received numerous other IPE awards including the internal Awards for Innovation and Excellence in IPE as well as the regional MIPERC Awards.

Lessons Learned:

- Identify and leverage champions within each school.
- Identify and collaborate with the existing resources at U-M to develop mutually beneficial partnerships and efforts.
- Put diverse people together with a general goal and give them space to be innovative.

Future Application and Next Steps: The next phase focused on full integration of IPE into each health science school, their culture, and their curricula. Additionally, emphasis will be placed on IPE in experiential settings including both clinical and community spaces. This will allow students and faculty to apply the didactic IPE that has flourished in the first 5 years to the actual practice settings and drive forth collaborative practice models. Additionally, the IPE effort will expand beyond the health science schools to be inclusive of other professional schools at U-M.

An Introduction to IPE for First Semester Occupational Therapy and Physical Therapy Students

Suzanne Trojanowski¹ PT, DPT, NCS; Jillian Woodworth² DrOT, OTR/L; Anna Wiencek³; Amy Yorke¹ PT, PhD, NCS

¹Department of Physical Therapy, University of Michigan - Flint; ²Department of Occupational Therapy, University of Michigan - Flint; ³OTD Student

Background

- Collaboration amongst a variety of healthcare workers is essential in today's healthcare systems.
- Physical rehabilitation is completed by several health care professionals including occupational therapists (OT) and physical therapists (PT).¹
- The professions overlap in some responsibilities, but have areas of expertise.² Through collaboration between OT and PT, proper role delineation can be executed.³
- It is important for OTD and DPT students to gain understanding of being part of an interprofessional team.³ Learning these clinical skills are important to create practice-ready graduate students, in order to improve client outcomes and collaboration in their setting once they are in the field.

Purpose

The purpose of this study is to describe the process and outcomes of implementing an IPE experience with first year OT and PT students completed within the first six weeks of the first semester of their respective programs

Methods

- Students were in their first semester of their respective professional programs, enrolled in introductory courses. The IPE offering was designed to focus on two of the IPEC competencies (Teams and Teamwork and Roles/Responsibilities) and to be at the exposure level.
- A dedicated course for this offering was created in the Blackboard Learning Management System (LMS).
- The Readiness for Interprofessional Learning Scale (RIPLS) was completed pre- and post- learning activities, in order to assess students' attitudes toward interprofessional learning.
- Occupational Therapy (OT) and Physical Therapy (PT) students were placed into small groups consisting of one to two OT students and 2 PT students. The objective was for students to get to know each other socially through an icebreaker activity, answer structured interview questions that focused on Roles and Responsibilities and Teams and Teamwork.
- The students were instructed to watch an introductory video of the authors (ST and JW) answering the interview questions prior to meeting.
- Students completed a written reflection to further assess their attitudes and learning about this offering. Reflection questions included: (1) Summarize the icebreaker and interview; (2) How has your knowledge increased about the OT and PT profession?; (3) How has your knowledge increased regarding interprofessional collaboration?

Timeline of IPE Event

Week 3 of semester	Introduction to Event Students completed Pre-RIPLS
Weeks 4 & 5 of semester	Small group meetings and completion of group activities
Week 6 of semester	Post-meeting reflections completed Post-RIPLS completed

Results

	Entire Sample (n=58)		OTD (n=13)		DPT (n=45)	
	Pre Mean (SD)	Post Mean (SD)	Pre Mean (SD)	Post Mean (SD)	Pre Mean (SD)	Post Mean (SD)
RIPLS Total	68.9 (5.1)	69.5 (4.4)	71.8 (4.1)	71.8 (3.6)	68.1 (5.1)	68.8 (4.5)
Teamwork	41.0 (3.9)	42.0 (3.7)	41.6 (3.5)	42.9 (3.4)	40.8 (4.0)	41.7(3.8)
Negative professional identity	4.6 (1.6)	4.5 (1.8)	4.7 (1.6)	4.7 (2.0)	4.6 (1.6)	4.4 (1.7)
Positive professional identity	17.2 (2.6)	17.6 (2.3)	18.2 (1.7)	18.0 (2.0)	16.9 (2.8)	17.5 (2.4)
Roles and responsibilities	6.2 (1.7)	5.5 (1.6)	7.2 (2.3)	6.2 (1.6)	5.8 (1.4)	5.3 (1.5)

- Ninety-One students completed the Pre-RIPLS survey, while only 66 Post-RIPLS were completed (OT = 13, PT = 45). The response rate was 63.7% overall with 41.9% OT response and 75% PT response rate.
- Utilizing the Wilcoxon Signed Rank Test, no difference was found between pre- to post-test RIPLS score: entire group (p=0.250), or OT (p=0.874), or PT (p=0.146).
- Reflection themes included:
 - Personal experiences led me to become an OT or PT
 - Observation experiences have shaped my knowledge of OT and/or PT and interprofessional collaboration
 - OT and PT have similarities and differences
 - Future Opportunities

Lessons Learned

- Students completing the activity on their own time without the presence of faculty members was feasible.
- Students gained awareness of components of each other's profession that are not commonly known (i.e. OT's role in mental health)
- Students anecdotally reported feeling better prepared to participate in IPE in Action Day.
- Response rate for the post-RIPLS was poor compared to the pre-RIPLS. Use of class time to facilitate completion of surveys can be beneficial.

Future Application and Next Steps:

- The Occupational Therapy program began its inaugural cohort in Fall 2019. As this new program grows and develops, integrating OT into existing IPE offerings, as well as developing new offerings, is an ongoing process.
- Next steps include following the development of IPE skills of OT and PT students and how OT and PT students continue to learn about, from, and with each other.

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HPE Day Abstract 101

Title: An Introduction to IPE for First Semester Occupational Therapy and Physical Therapy Students

Background: Communication is a fundamental aspect of the healthcare field. Strong communication has been shown to increase quality of care and experience for a client as well as collaboration between healthcare professionals. Interprofessional Education (IPE) is an educational program that helps healthcare professionals gain the skills necessary to improve communication between each other. Within the healthcare field, IPE is used to help different professions work together and educate one another on each profession. IPE has been integrated within the curriculum in universities with health science programs. These universities have exposed IPE to students through coursework, student run clinics, seminars, and educational programs. Students that were exposed to IPE early show higher rates of interprofessional skills when entering clinicals.

Methods: Occupational Therapy (OT) and Physical Therapy (PT) students were placed into small groups consisting of one to two OT students and 2 PT students. The students were instructed to complete the RIPLS pre-activity; to watch an introductory video of the authors answering the interview questions; connect with their group members and follow the structured outline provided by the instructors. The students were charged with contacting each other and arranging a meeting time that was convenient for all members of the small group. After the meeting, students completed a reflection of the encounter and the post-activity RIPLS. The reflection questions were:

1. Summarize the icebreaker and interview
2. How has your knowledge increased about the OT and PT profession?
3. How has your knowledge increased regarding interprofessional collaboration?

The pre-post-test RIPLS was analyzed using SPSS. The de-identified reflections were analyzed to identify common themes.

The timing of all activities were intentionally planned to be completed prior to IPE in Action Day.

Results: A total number of 91 students participated in the IPE event (31 OT students, 60 PT students). Students were asked to complete the RIPLS survey prior to and after the IPE in action event. 91 surveys were completed pre while 66 surveys were completed post; however, complete data (pre and post test) was available on 13 OT students and 45 PT students resulting in a 63.7% response rate. The average age of the OT and PT students was 23.5 years and 23.6 years respectively. The entire sample had 13 males (OT=2, PT=11) and 45 females (OT=11, PT=34).

The average RIPLS scores for the OT students was 71.8 for both the pre and post test. The PT students average RIPLS score was 68.1 pre and 68.8 post. No difference was found between pre to post test RIPLS score among the entire group ($p=0.250$), or OT ($p=0.874$), or PT ($p=0.146$).

Qualitative analysis of post-event reflections demonstrated several themes. One of the themes being a large number of students were inspired to pursue a career in PT and OT because of a personal or family member's injury or condition that necessitated seeking PT and/or OT services. Many students during their prerequisite observation experiences had observed PT and OT collaboration in the clinic environment. This ranged from intermittent communication to extensive collaboration and co-treatment. Most students had a basic understanding of the other's profession, but furthered their knowledge of the full breadth of the other's profession. In particular, most PT students were unaware of the role of OT in mental health care.

Students acknowledge how important collaboration is in healthcare and overall described this IPE offering as a positive experience.

Lessons Learned: This format was feasible of students completing the activity on their own time without the presence of faculty members. Students anecdotally reported feeling better prepared to participate in IPE in Action Day. Students gained awareness of components of each other's profession that are not commonly known (i.e. OT's role in mental health). Currently OT and PT students share a lecture class. Students reported enjoying meeting each other in a formalized way that traditional lecture classes do not facilitate.

Response rate for the post-RIPLS was poor compared to the pre-RIPLS. Use of class time to facilitate completion of surveys can be beneficial.

Future Application & Next Steps: The Occupational Therapy program began its inaugural cohort in Fall 2019. As this new program grows and develops, integrating OT into existing IPE offerings, as well as developing new offerings, is an ongoing process. Next steps include following the development of IPE skills of OT and PT students and how OT and PT students continue to learn about, from and with each other.

Effect of Team-Based Learning in Community Health in Uganda on Attitudes and Skills in Interprofessional Health Care among Students from the United States and Uganda

Brent C. Williams¹, Gad Ruzazza², Christine Karungi³, Cranmer Anyine³, Viola Nyakato³, Grace Nambozi⁴, Megan Eagle⁵, Judi Policicchio⁵, Joshua Brewster⁶

1. UM Medical School 2. Mbarara University of Science and Technology (MUST) Dept of Community Health 3. MUST Faculty of Interdisciplinary Sciences

4. MUST Department (School) of Nursing 5. UM School of Nursing 6. UM School of Social Work

Introduction

- Interprofessional education (IPE) in the United States (U.S.) is largely delivered in classrooms and health care settings.
- The Mbarara University of Science and Technology (MUST) Community Based Education Research and Service (COBERS) program in Uganda has provided interprofessional, community based education for over thirty years.
- We hypothesized that COBERS would promote interprofessional attitudes and skills among American and Ugandan health professions students and provide a model for community based IPE in the U.S.

Methods

In May 2019, six nursing and one social work student from the University of Michigan (UM)

- Spent 2 weeks in rural communities in Uganda engaged in community education and health care
- Experience a one-day cultural orientation immersion taught by MUST students and faculty
- Joined interprofessional teams of 8-10 MUST students in a week of leadership team training

After an unplanned early departure by UM students, MUST students spent 4 weeks at community health centers and in villages designing and implementing community health projects with local leaders.

Assessment: UM and MUST students completed:

1. Retrospective pre- and post-experience **Interprofessional Collaborative Competency Attainment Scale (ICCAS)** (1)
2. One-time administration of the **Cultural Intelligence Survey (CQS)** (2)
3. Brief **Reflective Questionnaires (RQ)** on interprofessional education (IPE) and care (IPC)

Results

Mean (SD) Paired Interprofessional Collaborative Competency Attainment Scale (ICCAS) Scores* (n=32; 26 MUST and 6 UM students)

Pre-COBERS	Post-COBERS	Difference	P value (Paired T-test)
62 (14)	80 (10)	18 (18)	<.0001

* Scale range: 20-100

Mean (SD) Cultural Intelligence Survey (CQI) scores*

	Motivation	Knowledge	Metacognition	Behavior
MUST Students – Post COBERS (n=26)	3.9 (0.6)	2.7 (0.6)	4.1 (0.6)	3.9 (0.7)
UM student scores - Pre COBERS (n=6)	4.0 (0.5)	2.3 (1.0)	3.8 (0.4)	4.0 (0.3)
UM student – Post COBERS (n=6)	4.4 (0.5)	2.7 (1.3)	4.2 (0.5)	4.2 (0.6)

* Scale range: 1-5

Reflective Questionnaires (RQ)

- MUST students identified hierarchy among professions and language barriers among professions and with patients as barriers to interprofessional care.

“(There is a problem with) underlooking of other professions within the same facility as some professions assume they are more superior and more important.- Low self esteem by the individuals with lower qualifications. - language barrier as certain professionals can’t change from their native language so as to communicate with a fellow professional of a different native language.”

- UM students perceived a similar hierarchy among health professions in the U.S. and Uganda. Observed difference in IPC varied, and included differences in communication and problem-solving among professions and the availability of medical record-based communication.

“One similarity between regions is the hierarchy amongst health care professions. In the US, I have seen nurses take a back seat in decision making or metaphorically “spoken over” by a physician because of the increase level of education/training they hold. In Uganda...students are placed into a university program (medicine, nursing, laboratory sciences, etc.) based directly upon academic performance. This leads to doctors being respected most because they were deemed the smartest of their peers.”

Discussion

An intercultural, community-based learning experience improved self-rated interprofessional competence among UM and Ugandan students.

- IPE may be uniquely effective in the context of community engagement.
 - Exposes learners to the full range of factors that influence human health
 - Makes evident the roles and relevance of multiple health professions.
- Team-based learning may be a particularly strong catalyst to IPE in community-based settings.
 - Working together on immediate, practical challenges may drive acquisition of attitudes and skills for interprofessional care.
- Challenges
 - Sustainable funding may be a challenge
 - Host country factors difficult to anticipate
 - School schedules difficult to coordinate

Next Steps

Building sustained community-engaged interprofessional learning experiences at UM will likely require:

- Building strong, trusted community relationships around a clinical ‘backbone’ for ongoing community-based care
- Supporting faculty time to develop and implement
- Coordinating schools’ schedules around community-based IPE experiences at the outset rather than as an ‘add-on’ experience.

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Funding

- 1.UM Interprofessional Education (IPE) Center
- 2.UM Schools of Medicine, Nursing, and Social Work

HPE Day Abstract 103

Authors

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Abstract title

Effect of Team-Based Learning in Community Health in Uganda on Attitudes and Skills in Interprofessional Health Care among Students from the United States and Uganda

Background

Interprofessional education (IPE) in the United States (U.S.) is largely delivered in classrooms and health care settings. The Mbarara University of Science and Technology (MUST) Community Based Education Research and Service (COBERS) program in Uganda has provided interprofessional, community based education for nearly thirty years. We hypothesized that COBERS would promote interprofessional attitudes and skills among American and Ugandan health professions students and provide a model for community based IPE in the U.S.

Methods

In May 2019, six nursing and one social work student from the University of Michigan (UM) joined interprofessional teams of 8-10 health professions students at MUST in a week of learning in cross cultural awareness, leadership, and community collaboration to address health needs. Students separately spent 2 (UM students) or 4 (MUST students) weeks at community health centers and in villages learning from (UM) and collaborating with (MUST) community members to address public health needs.

Students wrote brief reflective essays on interprofessional care at the beginning and end of the experience, and rated their skills using the Interprofessional Collaborative Competency Attainment Scale (ICCAS) in a retrospective pre- and post-experience format at the end of the experience.

Results

In the essays, UM nursing students noted the value and paucity in the U.S. of community-based interprofessional care models. MUST students valued the unique and interrelated contributions of different health profession in community settings, and cited lack of respect and perceived equality across the professions as an important barrier to effective team care.

Among all students, pre- and post-experience mean (SD) ICCAS scores increased substantially, from 63 (15) to 80 (10) (paired t-test $p < .0001$); with similar findings among MUST ($n=27$) and UM ($n=6$) students separately.

Lessons learned

The COBERS program at MUST represents a unique opportunity to expose U.S. students to community-based interprofessional care. Our pilot experience suggests the effects on students' appreciation and skills in interprofessional care are positive and powerful. As U.S. health systems increasingly engage with communities to address the social determinants of health, the COBERS model may provide a feasible and effective IPE curricular model.

Future steps

The UM-MUST collaboration will continue in 2020 with learners from medicine, nursing, and social work. Effects on interdisciplinary skills will be measured as well as indices of cross-cultural maturity. Methods to apply the COBERS model at UM will be explored with the Schools of Medicine, Nursing, and Social Work, and the UM IPE Center.

Background

- The World Health Organization recognized interprofessional education (IPE) as an important component of primary health care in 1978.
- IPE has been defined by the UK Centre for Advancement of Interprofessional Education as "occasions when two or more professions learn from and about each other to improve collaboration and the quality of care."
- The integration of diverse learners into the same educational module can increase the learners' exposure to differing viewpoints and professional roles.
- The development of IPE asynchronous learning modules that can be used across diverse professions and educational backgrounds is necessary.

Objective

- To develop an IPE asynchronous learning module that can be used across diverse professions and educational backgrounds.
- To understand the viewpoints of students from various backgrounds on the unique roles of healthcare professionals
- To evaluate the effectiveness of our multidisciplinary educational module at improving university students' understanding of physical activity in relation to the prevention and treatment of prediabetes and type 2 diabetes mellitus.
- Receive student feedback on the use of animations created by the online animation software *toonily* in healthcare education videos

Methods

- Created a multidisciplinary educational module to highlight the evidence linking physical activity and exercise to the prevention and treatment of type 2 diabetes mellitus.
- Subsequently developed engaging animations to help depict and explain the scientific evidence
- Presented module to students in undergraduate and graduate level courses
- Used the Canvas Learning Management System to provide pre-, post-, and in-video quizzing to examine student learning
- Finally, a case-study was provided to allow learners to provide their perspective on a complex case requiring an interprofessional care team.

Course	Introduction to Diabetes Video	Diabetes and Exercise Video	Patient Case Study
Movement Science 110	X		X
Movement Science 241	X	X	
Kinesiology 513/Nutrition 651			X

Table 1 shows the course that the subjects were enrolled in at the time of their participation. An X indicates students from a course participated in the indicated portion of the module. Movement Science 110 is an introduction to movement science course for undergraduates. Movement Science 241 is an exercise and nutrition course usually taken by students outside of the School of Kinesiology. Kinesiology 513/Nutrition 651 is a graduate Physical Activity and Nutrition (PAN) course.

Components of the IPE Module

- Introduction to diabetes video + pre- and post-video quizzes
- Diabetes and exercise video with in-video quizzing
- Patient case study

Examples of questions posed to students:

Diabetes quizzes:

- What can one do to help prevent or delay the onset of type 2 diabetes?
- Which of the following are physical activity lifestyle modifications recommended by the ADA for adults with prediabetes?
- In your potential future career (or any career you might be interested in pursuing), how could you, as a professional in this field, be impactful on the prevention and/or treatment of diabetes? For example, a scientist researching, a politician championing policies, etc. Consider why individuals of different professions working together can be so important, specifically for diabetes in the United States.

Case Study:

- To prescribe exercise, where do you expect the physician would go for the latest information regarding physical activity for the treatment of diabetes?
- What additional health care team members do you expect would be beneficial to help in enhancing the physical activity of this patient? (List all that you think would apply – and briefly describe what role they might play in enhancing the physical activity of the patient).

Results

- Undergraduate learners had a significant improvement in their understanding of diabetes and the unique mechanistic underpinnings of type 1 and type 2 diabetes.
 - A 16% improvement in overall test scores was observed (See Figure 1 for question breakdown)
- Students of different educational backgrounds were observed to have varied expectations of the roles of interprofessional team members in the care of complex patients.
- Graduate and undergraduate students, with some exceptions
 - Agreed on the roles of physicians and pharmacists in prescribing exercise to patients
 - Disagreed on the level of communication between physicians and other health professionals (see Figure 2)
- Students thoughtfully responded to prompts regarding interprofessional healthcare and their own role within that team

The diabetes video resulted in modest improvements across all of the questions featured in the multiple choice quiz provided in canvas to undergraduate students

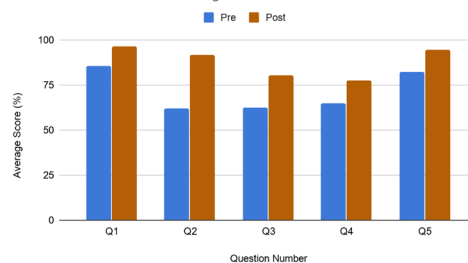


Figure 1. Quiz score averages between the pre-video quiz and the post-video quiz for the Movement Science 110 and 241 courses.

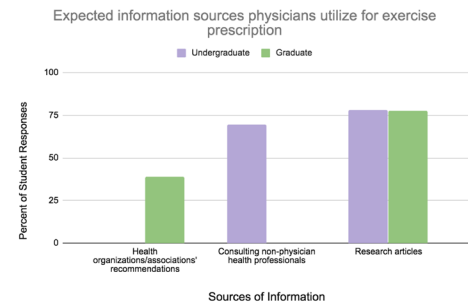


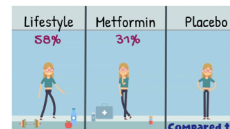
Figure 2. Frequency of three common responses to the question: "To prescribe exercise, where do you expect the physician would go for the latest information regarding physical activity for the treatment of diabetes?"



These two images are captured from different portions of the Diabetes and Exercise Video and display the use of *toonily* animation software.

Links to each diabetes video:

- Introduction to Diabetes Video: <https://www.youtube.com/watch?v=wXEFgA92Ww>
- Diabetes and Exercise Video: <https://www.youtube.com/watch?v=3TbW1QzJqOY>



Notable quotes from the students highlight their experience with both the video and the interprofessional setting. In response to the diabetes videos:

"I thought the info-graphics, along with sound effects in describing the process of glucose to insulin release to glycogen storage was very helpful in visually representing the concept so students remember it better."

"I enjoyed the video a lot, although I came across issues with the video skipping questions and I had to keep redoing the video."

"I love the video animations! They make learning the material so much fun!"

Results Cont.

Regarding interprofessional healthcare:

"Students that are focused on a certain field are likely to incorporate said field in their approach to solve health related problems, as demonstrated when the kinesiology student asked about physical ability and the nutrition student asked about the diet. My response was to ask about diet because I felt that controlling diet and physical activity both would produce better results for the patient."

"I think it is important that individuals of all different professions work together. I myself am majoring in computer science and have a great interest in data science. Over the summer I actually worked for a healthcare facility and was exposed to a project that took data, cleaned and analyzed it through programming and then used it to let patients know how at risk they were. Working with data this way is how I as a professional could help. I think it is important that individuals of all different professions work together because diabetes rates in the US can be avoided by simple lifestyle changes and educating people. The more professionals work towards this goal of decreasing diabetes rates, the better."

Lessons Learned

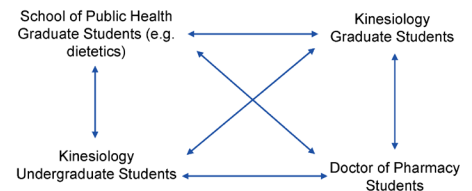
- The introduction to diabetes videos were effective in teaching students the basics of diabetes and the benefits of exercise for patients with diabetes/prediabetes.
- Students at both the graduate and undergraduate level recognized that a variety of healthcare team members make up a healthcare team and have unique roles.
- The IPE module could be a means of enhancing students' understanding of the unique, and at times overlapping, roles of the healthcare team in the treatment of patients with diabetes.
- Majority of students reported enjoying and learning from the *toonily* animations, though some complaints indicate the animations may be connected to technical difficulties with in-video quizzing.
- When presenting the module to different groups, it is important we are cognizant of the framing of the assignment. Variability in the presentation of the assignment may have led to the between-group differences, particularly between the undergraduate and graduate students. We must frame the assignment consistently so that we are able to attribute between-group differences to their background/current status.

Future Application and Next Steps

We hope to further improve the components of the module and expand the reach of the designed asynchronous module to include students in a range of professional programs, including:

- Pharmacy
- Physical Therapy
- Medicine

Although we have not yet had an adequate audience to allow proper interaction among learners, we hope to promote interaction between learners in the future. This includes utilization of Canvas "Discussions" in order to allow students from various programs and disciplines to see each other's responses and, in turn, enhance their understanding of other professionals in the health care team.



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- Dr. Jaynee Handelsman (Michigan Medicine / Pediatric Audiology)

HPE Day Abstract 105

Title: Development of engaging evidence-based practice educational videos for use across diverse professions and educational backgrounds

Background: The development of interprofessional education (IPE) asynchronous learning modules that can be used across diverse professions and educational backgrounds can be challenging. However, the integration of diverse learners into the same educational module can increase the learners' exposure to differing viewpoints and professional roles.

Actions, Methods or Intervention: We created a multidisciplinary educational module that highlighted the evidence linking physical activity and exercise to the prevention and treatment of type 2 diabetes mellitus. Subsequently, we developed engaging animations to help depict and explain the scientific evidence to enhance the learning and enjoyment of the videos. In addition, we used the Canvas Learning Management System to provide pre- and post-video quizzing to examine student learning. Finally, a complex case-study was provided to allow learners to provide their interprofessional perspective on a complex case requiring an interprofessional care team.

Results: Early stage undergraduate learners had a significant improvement in their understanding of diabetes and the unique mechanistic underpinnings of type 1 and type 2 diabetes. On average, 74% of students who got questions wrong in the pre-video test, showed improvement after watching the video. An 11% improvement in overall test scores was observed. In addition, the complex case study revealed noticeable variability in the expected role of the health care professionals in the prescribing of exercise for patients with diabetes. Finally, students of different educational backgrounds were observed to have a limited understanding of the role of interprofessional teams in the care of complex patients.

Lessons Learned: Considerable confusion exists about the prescription of exercise for patients with diabetes and the impact of physical activity on diabetes prevention and treatment. There is an opportunity for this IPE module to enhance the understanding of the unique and sometimes overlapping roles of the team of professionals that provide the care and treatment for patients with diabetes.

Future Application and Next Steps: We hope to expand the reach of the designed asynchronous module to include students in diverse professional programs including Pharmacy, Physical Therapy, and Medicine.



Background

- Failure to communicate effectively among the interprofessional team remains a primary reason for sentinel events and unsafe practice in health care settings.
- Crew Resource Management (CRM) is a team training program that has proven successful in improving team behaviors and patient outcomes.
- Integrating CRM principles into curriculum of the interdisciplinary team may be what is needed to improve collaboration and team communication, which subsequently may improve patient safety.

Purpose

- This project assessed the impact of team training on participant knowledge, skills, attitudes about teamwork, and use of team behaviors contributing to safe patient care.

Methods

Using a quasi-experimental design, a convenient sample of students enrolled in one of the following healthcare disciplines—nursing, social work, and pharmacy were randomized to one of three groups:

Group 1 Intervention—CRM module only

- Self-paced, virtual training focused on how to lead, how to follow, and how to better communicate during escalating patient situations.

Group 2 Intervention—CRM module + Simulation training;

- Self-paced, virtual training PLUS
- opportunities to practice these new skills and tools in a simulated environment.

Group 3 Control—no CRM training.

- No formal training received

Project Evaluation

- The project was evaluated using mixed methodology, including observations and surveys.
- Teams during an evaluation simulation were observed to determine the utilization of effective team behaviors conducive to patient safety.
- Knowledge, skills, and attitudes towards CRM principles was evaluated through a series of pre- and post-surveys.

Results

Project Sample

	Pre-Implementation			Post-Implementation		
	Group 1	Group 2	Group 3	Group 1	Group 2	Group 3
Nursing	4	5	4	3	4	3
Pharmacy	4	4	4	4	2	3
Social Work	6	4	5	5	3	5
Total	14	13	12	12	10	11

IPE Knowledge Scores by Group

Item	Pre-			Total	Post-		
	Grp 1 CRM Module + Sim	Grp 2 CRM Module + Sim	Grp 3 Control - no training		Grp 1 CRM Module Only	Grp 2 CRM Module + Sim	Grp 3 Control - no training
Total Knowledge Score	7.57* (1.45)	7.31* (1.03)	6.83* (2.0)	7.26 (1.52)	8.83 (1.27)	8.70 (1.57)	8.55 (1.21) (1.31)

- Significant improvements in knowledge occurred with all three groups, with greatest knowledge scores in Group 1.

IPE Team Attitude by Group

- Attitudes related to teamwork improved in many areas for groups 1 and 2; with some decline from group 3.
- Significant improvement noted in the importance of understanding team roles post-training (Groups 1, 2, & 3)
- Significant improvement in understanding need of leader to explicitly communicate interest in team members to 'speak up' (Groups 1 & 2).

IPE CRM Training Evaluation

Item (1-5 scale)	Post-Implementation			Total
	Grp 1	Grp 2	Grp 3	
Concepts Apply to Practice	4.83 (.39)	4.90 (.32)	5.0 (.00)	4.91 (.29)
Developed New Skills	4.50 (.67)	4.90 (.32)	4.91 (.30)	4.76 (.50)
Will Use New Skills	4.58 (.52)	4.80 (.42)	4.91 (.30)	4.76 (.44)
Teaching Strategies Effective	4.75 (.45)	4.70 (.48)	4.45 (.82)	4.64 (.60)
Recommend Training to Others	4.67 (.65)	4.80 (.42)	4.64 (.67)	4.70 (.59)
Interest in Similar Training	4.83 (.39)	4.70 (.48)	4.82 (.41)	4.79 (.42)

*1, Strongly Disagree; 5, Strongly Agree

- Strong agreement of participants that the training was applicable to practice and resulted in the development of new skills.
- Strong recommendation for widespread dissemination of the training and for future opportunities for similar training.

Feedback Themes

- Themes from participants included (1) appreciation for 'real life' exposure to patient care (2) opportunity to learn with other disciplines; and (3) interactive nature of the training.
- Barriers to implementing learnings in the clinical setting included (1) limited training, (2) feeling uncomfortable with other disciplines; and (3) power hierarchy within the clinical setting.

Lessons Learned

- The self-paced, virtual learning module provided the flexibility needed for participants to engage in the training.
- Debriefing was an important aspect of the experience as it provided a mechanism for learning, especially among group 3 who had no formal training other than what was provided in the evaluation simulation.
- The simulation was more effective when all disciplines were represented in the simulation group.
- Students consistently reported appreciation for the content and the opportunity to practice the specific skills and strategies around teamwork, communication, and leadership and followership skills.
- A strong desire for future training in relation to the CRM principles was reported.

Future Application and Next Steps

- Extending the invitation to other disciplines, such as medicine and dentistry, would be an important consideration.
- Further discussion is needed to determine opportunities for sustaining this activity, including consideration for its inclusion in an existing interprofessional course or experiential activity.
- Consideration should also be given with regard to how to build CRM training into curriculum content for the participating health science schools. In doing so, this would address all 3 levels of the IPE learning progression of introduce, reinforce, and practice of the skills targeted in the CRM training program for all participating learners.
- Future considerations should include how to engage learners remotely for 'practice' of these concepts (e.g. virtual simulation opportunities).

Acknowledgments

Project supported by the UM Interprofessional Education Center IPX Diamond Cube Grant.

A special thank you to the UM School of Nursing Simulation Center Staff for their support for the simulation training.

HPE Day Abstract 106

Title: Improving Safety through Team Training on Effective Leadership and Followership within the Interprofessional Team

Primary Author: Dana Tschannen

Additional Authors: Dan Fischer, Paul Walker, Erin Khang

Category for Abstract Submission: IPE education experience

Did the activity you are submitting target learners from two or more health professions: Yes

Insert Abstract Title: Improving Safety through Team Training on Effective Leadership and Followership within the Interprofessional Team

Background: Failure to communicate effectively among the interprofessional team remains a primary reason for sentinel events and unsafe practice in health care settings. Crew Resource Management (CRM) is a team training program that has proven successful in improving team behaviors and patient outcomes. Integrating CRM principles into curriculum of the interdisciplinary team may be what is needed to improve collaboration and team communication, which subsequently may improve patient safety.

Actions, Methods or Intervention: Using a quasi-experimental design, a convenient sample of students enrolled in one of the following healthcare disciplines—nursing, social work, and pharmacy were randomized to one of three groups: (1) Group 1 Intervention—CRM module only (self-paced, virtual training focused on how to lead, how to follow, and how to better communicate during escalating patient situations); (2) Group 2 Intervention—CRM module + Simulation training (self-paced, virtual training PLUS opportunities to practice these new skills and tools in a simulated environment; and (3) Group 3 Control—no CRM training (No formal training received).

The project was evaluated using mixed methodology, including observations and surveys. Teams during an evaluation simulation were observed to determine the utilization of effective team behaviors conducive to patient safety. Knowledge, skills, and attitudes towards CRM principles was evaluated through a series of pre- and post-surveys. Findings from this study provide the foundational work needed to refine the currently designed CRM training to maximize learning and impact on team behaviors conducive to error avoidance and safe patient care.

Results: A total of 33 interprofessional students completed both the pre- and post-implementation survey, representing nurses (n=10), pharmacy (n=9) and social work (n=13). Students were equally distributed between groups: Group 1 (n=12), Group 2 (n=10), and Group 3 (n=11). Knowledge scores in all three groups improved significantly from pre- to post-training, with the highest knowledge score being from the two intervention groups. Attitudes also improved in many areas for groups 1 and 2, but declined in some areas for group 3. Significant improvements were noted in all groups in relation to the importance of understanding team roles post-training. When asked overall satisfaction, all three groups strongly agreed, reporting the development of new skills, applicability to practice, and desire for further trainings. Students appreciated the 'real life' exposure to patient care and opportunity to learn with other disciplines. Barriers to implementing the communication tools in practice perceived by the participants included (1) limited training, (2) feeling uncomfortable with other disciplines; and (3) power hierarchy within the clinical setting.

Lessons Learned: The self-paced, virtual learning module provided the flexibility needed for participants to engage in the training. The simulation provided participants with an opportunity to practice their newly developed skills in a safe space. The simulation experience was more effective when all disciplines were represented. One of the most important aspects of the experience was the debriefing as it provided a mechanism for learning, especially among group 3 who had no formal training other than what was provided in the evaluation simulation.

Future Applications and Next Steps: Based on our preliminary results, we anticipate CRM to be a valuable and vital communication and teamwork training for all health science schools. In the future, extending the invitation to other disciplines, such as medicine and dentistry, would be an important consideration. Further consideration for the sustainability of this activity is needed, including integration of this training into an existing interprofessional course or experiential activity. Consideration should also be given with regard to how to build CRM training into curriculum content for the participating health science schools. In doing so, this would address all 3 levels of IPE learning progression of introduce, reinforce, practice of the skills targeted in the CRM training program for all participating learners.



Interprofessional Simulation in Airway Surgery

Robbi A. Kupfer, MD; Samuel Schechtman, MD; Helen Chang, RN MSN; Jonnie Weaver, CST
Michigan Medicine University Hospital Operating Rooms



MICHIGAN MEDICINE
VOCAL HEALTH CENTER
UNIVERSITY OF MICHIGAN

INTRODUCTION

Surgery for airway obstruction from subglottic stenosis:

- Unique anesthesia management
 - Jet ventilation
 - Shared airway between surgeon and anesthesiologist
- Complications rare but life-threatening
- All team members of the interprofessional team must communicate effectively and efficiently

Interprofessional Team:

- Otolaryngology – Head and Neck Surgery
- Anesthesiology
- OR Nursing
- Surgical Technician

Objectives:

- Develop in situ interprofessional education (IPE) simulation for airway surgery¹
- Teach non-technical skills related to airway surgery

METHODS

Interprofessional Simulation Development:

- Educational task force with members from Anesthesiology, OR Nursing and Surgical Technicians, and Otolaryngology

Simulation Scenario (Figure):

- Planned endoscopic laser and dilation for subglottic stenosis using jet ventilation
- High fidelity manikin in situ simulation in the OR
- 3-D printed subglottic stenosis simulator

Learners:

- Anesthesia residents and fellows
- Otolaryngology residents
- OR nurses
- Surgical technicians
- Perioperative technicians

Program Evaluation and Assessment:

- Pre, post, and retrospective pre-post survey for learners to self-rate technical and non-technical skills

Table 1: Evaluation of simulation program by learners

Program Evaluation (n=19)	Agree/ Strongly Agree	Disagree/ Neutral
Program should be continued	100%	--
Simulation was important and useful	100%	--
Simulation was realistic	94%	6%
Simulation was an effective training tool	100%	--

Table 2: Self-assessment of technical skills

Learner Self-Assessment: Technical Skills (n=19)	Agree/ Strongly Agree	Disagree/ Neutral
Post-simulation: Able to effectively perform technical skills for airway surgery	85%	15%
Retrospective pre- post-simulation: Able to effectively perform technical skills	38%	62%

Table 3: Self-assessment of non-technical skills

Learner Self-Assessment: Non-Technical Skills (n=19)	Pre-sim	Post-sim	Retrospective pre- post-sim
Situational awareness	63%	73%	68%
Decision Making	42%	58%	37%
Communication and teamwork	74%	79%	47%
Leadership	42%	79%	42%

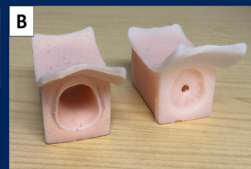


Figure: A) Learners during simulation. B) 3-D printed subglottic stenosis insert (right) to be placed in manikin's neck. Compare to normal trachea (left).

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1. Rao et al. Curriculum Using the In-Situ Operating Room Setting. J Surg Ed. 2017
2. Mishra et al. The Oxford NOTECHS System: reliability and validity of a tool for measuring teamwork behaviour in the operating theatre. Qual Saf Health Care. 2009

RESULTS

Learners:

- 19 learners over three simulation events

Program Evaluation (Table 1):

- 100% of learners strongly agreed that program should be continued
- 100% of learners agreed or strongly agreed that simulation was important and an effective training tool

Self Assessment: Technical Skills (Table 2)

- 85% of learners agreed that they were able to technically perform technical skills required for airway surgery after simulation
 - Only 38% agreed on retrospective pre-post simulation assessment

Self Assessment: Non-Technical Skills (Table 3)

- On average, learners felt that all aspects of non-technical skills improved post-simulation
- Most dramatic improvement in Leadership domain
- Learners were more likely to rate themselves lower in Communication and Teamwork domain on retrospective pre-post-simulation

DISCUSSION

Lessons Learned:

- Interprofessional in situ simulation for airway surgery is feasible and valued by learners
- Educators from all involved disciplines should be involved in simulation development

Next Steps:

- Additional simulations to train OR staff and continually educate resident learners
- Teams of learners will be assessed on NOTECHS scale² of non-technical skills via recorded simulation videos

Contact

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HPE Day Abstract 109

Title: Interprofessional simulation in airway surgery

Authors: Robbi Kupfer, MD; Samuel Schechtman, MD, Helen Chang, RN MSN, Jonnie Weaver, CST

Background: Safe and successful airway surgery requires an interprofessional (IPE) team of anesthesiology and otolaryngology providers working closely together with operating room (OR) nurses and surgical technicians. Complications of airway surgery occur with low frequency but may have devastating outcomes, demanding efficient communication and technical proficiency to allow the team to quickly progress through an airway management algorithm together. IPE simulation is proposed to provide exposure to these infrequently encountered clinical scenarios while assessing and teaching non-technical skills necessary for effective teamwork.

Actions, Methods, or Intervention: An IPE simulation program for airway surgery was developed by an educational task force including anesthesiologists, otolaryngologists, OR nurses, and surgical technicians. Planned endoscopic dilation for subglottic stenosis with jet ventilation was simulated in the OR using a high-fidelity simulation mannequin and standard surgical equipment used for airway surgery. Learners included residents and fellows from anesthesiology and otolaryngology, OR nurses, surgical technicians, and perioperative technicians. Learners completed questionnaires assessing their non-technical skills and comfort with technical aspects of the procedure pre-simulation, post-simulation, and retrospective pre-post simulation. Simulations were video recorded for review and assessment of learners' nontechnical skills using the NOTECHS scale.

Results: Presently, 19 learners have participated in the program over three simulation events. 100% of participants strongly agreed that the program should be continued, while 100% of participants agreed or strongly agreed that the simulation was important and useful and was an effective training tool. 94% of participants agreed or strongly agreed that the simulator was realistic. Following the simulation, 85% of learners agreed they could perform their role for the technical procedures covered in the scenario, while only 38% of learners agreed to the same on retrospective pre-post self-assessment. Future simulations are planned and assessment of non-technical skills will be presented upon completion.

Lessons Learned: IPE simulation of airway surgery in the OR is feasible and valued by participants. Educators from all participating disciplines should be involved in developing the program to optimize educational value.

Effectiveness of Dental Hygiene Student Led Instruction on Oral Cancer Screenings for Nursing Students

Lacy N. Jones, CDA, Stefanie VanDuine, RDH, BSDH, MSDH

BACKGROUND

Oral cancer has a poor prognosis with 50% of individuals dying within five years from diagnosis. One of the major reasons for this is due to a delayed diagnosis. This indicates early detection and prevention can play a key role in controlling mortality rates. The most valid form of screening for oral cancer is done by visual inspection.

Nurses and nurse practitioners have roles within the public health sector, and can impact oral cancer prevention in various settings. Interprofessional education and coordination may help improve survival rates for oral cancer. The purpose of this study was to measure the effectiveness of dental hygiene student led instruction on oral cancer screenings for nursing students.

OBJECTIVES

Objective 1: To measure the confidence level of junior nursing students ability to conduct an oral cancer screening.

Objective 2: To measure the value of integrating an oral cancer screening into nursing education.

METHODS

- IRB-HSBS deemed study to be not regulated: HUM#00170705
- 74 Junior level U-M School of Nursing students (course NURS 356)
- PowerPoint lecture on most commonly seen oral lesions
- DH student led oral cancer screening demonstration
- Nursing students separated into groups of three: Pen light holder, clinician, and patient
- 7 question survey via Canvas post DH student screening
- Questions evaluated confidence level before and after DH student led demonstration, amount of training in their curriculum, and the value in being taught how to perform an oral cancer screening in nursing curriculum



Figure 1. Presentation on oral lesions.



Figure 2. Oral cancer screening demonstration.



Figure 3. Nursing student group demonstration and discussion.

METHODS AND RESULTS

The survey had a 91% response rate (N=67 out of 74 nursing students completed the survey)

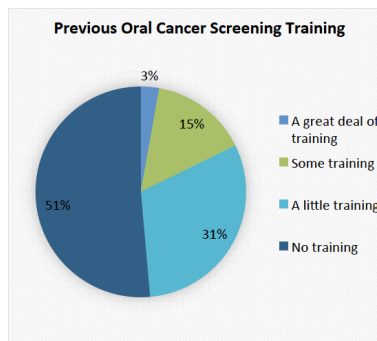


Figure 4. The majority of nursing students had no prior oral cancer screening training before this educational session.

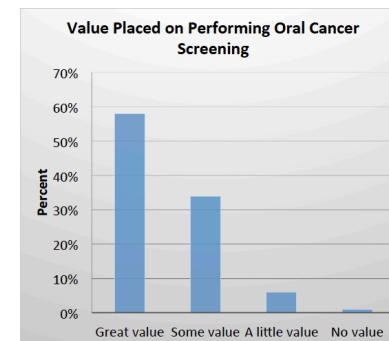


Figure 5. The majority of nursing students placed great value on learning how to perform an oral cancer screening as a part of the nursing program.

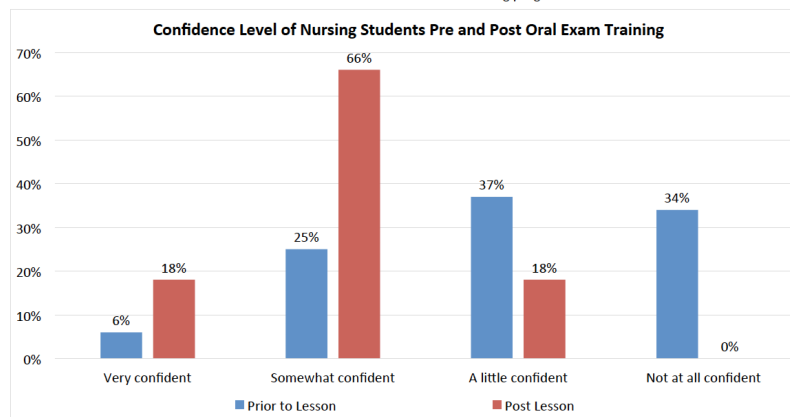


Figure 6. Prior to the lesson, only 31% of nursing students were somewhat or very confident about performing an oral cancer screening. After the lesson, 84% of nursing students were somewhat or very confident about performing an oral cancer screening.

DISCUSSION

Based off of respondents, 34% went from not being confident in providing an oral screening prior to training and gained in confidence by the end of training. With over 50% of the respondents not receiving any training in providing oral examinations reveals the need for oral cancer screenings to be taught in nursing curriculum. Since 58% felt there was a great value in being taught how to perform an oral cancer screening dental hygienists and dental hygiene students have an opportunity for interprofessional education and collaboration. Previous research has indicated nurses regard oral health as important, but awareness and clinical signs of oral cancer has been poor. DH led instruction can improve education for nurses.

Limitations include time constraint in providing lecture and demonstration.

Recommendations for future studies:

- More medical supplies for students to use: gloves, masks, sanitizer, gauze, tongue depressors.
- More dental personnel to assist with nursing group practice demonstrations.
- Experimental study that evaluates nursing students oral cancer screenings post DH led instruction
- Follow up study on same sample in five years to evaluate how many conduct oral cancer screenings

CONCLUSIONS

Academic institutions that have both nursing programs and dental hygiene programs have an opportunity for collaboration. Dental hygiene students have the ability to provide information to nursing students on common oral lesions seen in practice and how to conduct an oral cancer screening. With nursing students being able to take this knowledge into their future care more health care providers can help fight the battle in oral cancer prevention and detection.

HPE Day Abstract 110

Title: Effectiveness of Dental Hygiene Student Led Instruction on Oral Cancer Screenings for Nursing Students Abstract

Background: Oral cancer has a poor prognosis with 50% of individuals dying within five years from diagnosis. Early detection and prevention can play a key role in controlling mortality rates. Nurses can impact oral cancer prevention in various settings. Interprofessional education and coordination may help improve survival rates for oral cancer. The purpose of this study was to measure the effectiveness of dental hygiene student led instruction on oral cancer screenings for nursing students.

Objectives: To measure the confidence level of junior nursing students ability to conduct an oral cancer screening. To measure the value of integrating an oral cancer screening into nursing education.

Methods: Nursing students in course NURS 356 at the University of Michigan School of Nursing, voluntarily completed a 7 question survey via Canvas post DH student led oral cancer screening, which evaluated confidence level before and after DH student led demonstration, the amount of training in their curriculum, and the value in being taught how to perform an oral cancer screening in nursing curriculum. U-M IRB deemed study to be not regulated.

Results: Response rate=91%. Prior to lesson, 31% of students were somewhat or very confident about performing an oral cancer screening. After lesson, this increased to 84%. 51% of the students had no prior oral cancer screening training before educational session. 58% placed great value on learning how to perform an oral cancer screening as a part of the nursing program.

Conclusion: Academic institutions that have nursing and DH programs have an opportunity to collaborate. DH students have the ability to educate nursing students on common oral lesions and how to conduct a screening. Nursing students can take this knowledge and aid in oral cancer prevention and detection. U-M School of Nursing has requested another oral lesion lecture and oral cancer led demonstration to be provided to students in future curriculum.

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. Existing 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. 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 care¹. Improving inter-professional communication would assist in preparing healthcare professionals for effective future collaborations with patients, families, communities, and other healthcare professionals, in the field². Among eight sub-competencies of communication defined by the Interprofessional Education Collaboration³, the following three are explored in a structured training to be delivered as an online asynchronous foundational module at the University of Michigan.

Sub-competency

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.

Listen actively and encourage ideas and opinions of other team members.

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.

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.

Methods

Theoretical framework: According to social constructivism, learning process is mediated and moderated by the social factors affecting the meanings and concepts⁴. In fact, research has shown that learner-learner and learner-instructor/facilitator collaboration can create an engaging learning environment⁴. The collaboration between learners creates a Zone of Proximal Development⁵ in which some learners with more knowledge and experience can help others assimilate the new knowledge.

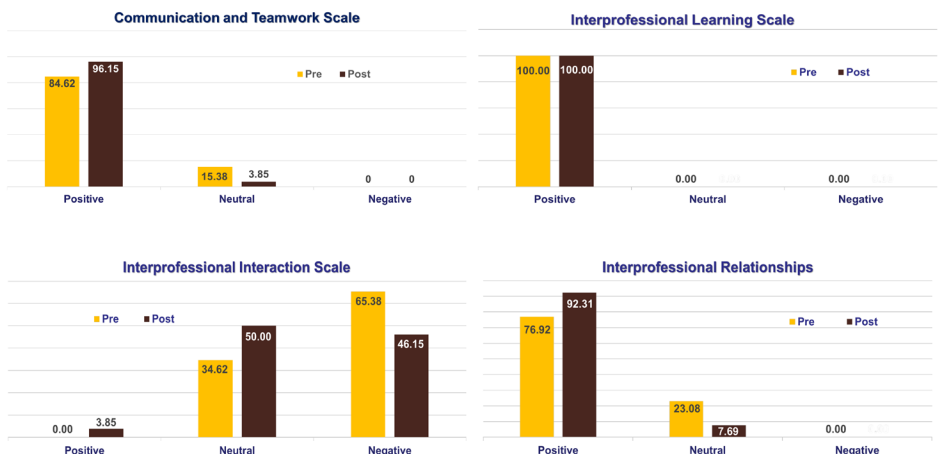
Teaching Method: In order to cover all learning styles, we used different teaching methods: slides (included text, graphs, pictures), lecture, case scenarios, and videos.

Assessments: Each submodule has different assessment tools, which examine the mastery level of students regarding the learning objectives. "The UWE Interprofessional Questionnaire", which examines the communication competency in four domains: Communication and Teamwork, Interprofessional Learning, Interprofessional Interaction, and Interprofessional Relationship. In each domain, the score can be categorized as "positive", "neutral", and "negative". Twenty-six students participated in the module.

Statistical Analysis: We compared the results of before and after taking the module using Chi square for categories and Wilcoxon Signed Rank Test for scores.

Results

The Chi-square was not statistically significant. It can be due to the number of students. In such cases, we use nonparametric tests. Wilcoxon Signed Rank Test shows the difference between Interprofessional Interaction (IPI) and Interprofessional Relationship (IPR) were significantly changed.



Conclusion

Many healthcare professionals have some levels of communication and teamwork experience also one of the main aims of trainings is preparing individuals for teamwork. Despite significant changes in communication were not expected, the scores of this domain are more likely to be shifted toward positive. Interprofessional Interaction was shifted from negative toward neutral, which is a considerable change. Also, Inter-professional Relationship showed more positive and less neutral after taking the module.

Future Application and Next Steps

Next Step: We will collect more data and adjust further based on the results and students feedback. This is a continuous process as we analyze the responses and scores and revise the content.

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HPE Day Abstract 111

Title: Communication Competency: Inter-Professional Education

Authors: Laura Power, School of Public Health; Diane Asher, School of Nursing; Carrie Bell, Michigan Medicine; Sabah Ganai, College of Health Sciences (UM-Flint)

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. Existing gaps in inter-professional training have resulted in students being unable to engage in effective communication while working in multidisciplinary teams, thereby contributing to the sub-optimal quality of care and patient safety. Structured training 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. Improving inter-professional communication would assist in preparing healthcare professionals for effective future collaborations with patients, families, communities, and other healthcare professionals, in the field. Three of the sub-competencies of communication defined by the Interprofessional Education Collaboration were explored: Express one's knowledge and opinions to team members, listen actively and encourage ideas and opinions of other team members, recognize how one's uniqueness contributes to effective communication, conflict resolution, and positive inter-professional working relationships.

Purpose: This new online asynchronous module was created for all health professional students in the University of Michigan undergraduate and graduate communities. Theoretical framework: According to social constructivism, the learning process is mediated and moderated by the social factors affecting the meanings and concepts. Research has shown that learner-learner and learner-instructor/facilitator collaboration can create an engaging learning environment. The collaboration between learners creates a Zone of Proximal Development in which some learners with more knowledge and experience can help others assimilate the new knowledge.

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

Assessments: Each sub-module has different assessment tools, which examine the mastery level of students regarding the learning objectives. “The UWE Inter-professional Questionnaire”, which examines the communication competency in four domains: Communication and Teamwork, Inter-professional Learning, Inter-professional Interaction, and Inter-professional Relationship. In each domain, the score can be categorized as “positive”, “neutral”, and “negative”.

Statistical Analysis: We compared the results of before and after taking the module using Chi-square for categories and Wilcoxon Signed Rank Test for scores.

Results: The Chi-square was not statistically significant. It can be due to the number of students. In such cases, we use non-parametric tests. Wilcoxon Signed Rank Test shows the difference between Interprofessional Interaction (IPI) and Inter-professional Relationship (IPR) were significantly changed. Many healthcare professionals have some levels of communication and teamwork experience. Also, one of the main aims of the training is preparing individuals for teamwork. Hence, the scores of this domain are more likely to be shifted toward positive. Inter-professional Interaction was shifted from negative toward neutral, which is a considerable change. Also, Inter-professional Relationship showed more positive and less neutral after taking the module.

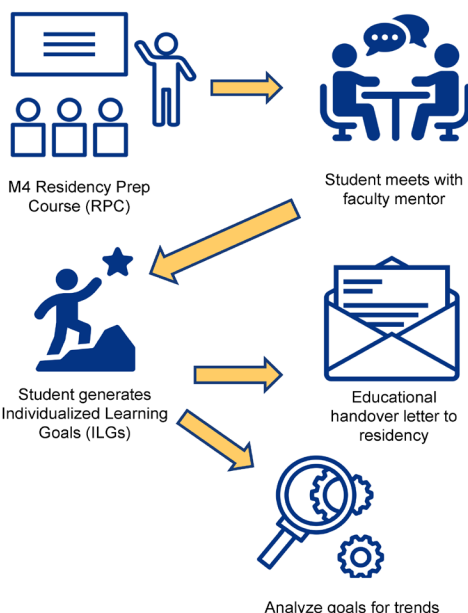
Conclusion: We will collect more data and adjust the module further based on the results and students’ feedback. This is a continuous process as we analyze the responses and scores and revise the content.

Background

- To improve communication at the medical school to residency transition, the University of Michigan Medical School transmits “educational handover” letters to program directors (PDs) in the spring of the final year of medical school for students entering pediatrics and obstetrics and gynecology (OBGYN) residencies.¹
- Letters contain information about students' entry level Accreditation Council for Graduate Medical Education (ACGME) Milestones and student's individual learning goals (ILGs) for beginning residency.
- Prior research on ILGs in residency and during medical student sub-internships shows that learners focus predominantly on the ACGME competencies of medical knowledge (MK) and patient care (PC).^{2,3}
- No studies have examined ILGs of graduating medical students; therefore, the goal of this study was to examine the content of students' ILGs in educational handover communications.

Methods

- Educational handover letters were written at the conclusion of four-week residency preparation courses (RPCs) at the end of M4 year.
- Students met individually with RPC faculty to create their ILGs based on assessment data from the RPCs and their medical school performance.
- ILGs were included in the OBGYN educational handover letters in 2018 and 2019 and for pediatrics in 2017 and 2018.
- ILGs were categorized into one of the six ACGME competencies or “other.”
- Fisher's exact test was used to compare differences in ILG categories between groups.



Results

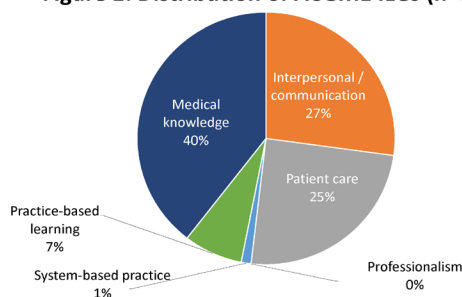


n = 46 handover letters
(24 OBGYN, 22 pediatric)



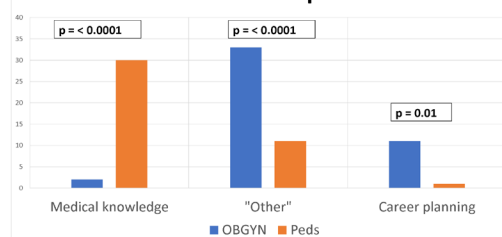
n = 116 ILGs
(average 2.8 ILGs per student)

Figure 1: Distribution of ACGME ILGs (n=72)



- Medical knowledge, interpersonal/communication skills, and patient care were the most common categories for ACGME ILGs.

Figure 3: Differences Between Student Groups



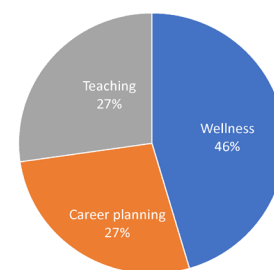
Lessons Learned

- To our knowledge, this is the first study that has examined senior medical students' ILGs contained in an educational handover communication between medical school and residency.
- Many ILGs centered around the MK and PC competencies, consistent with previous studies of sub-internship rotation students and residents.
- No students chose professionalism ILGs, which is notable given that program directors have cited professionalism as an area of development for their first-year residents.⁴
- One-fifth of ILGs contained wellness goals, which is remarkable given that the transition to residency is a vulnerable time for the development of burnout and suicide risk.⁵
- Recognizing trends in current ILGs is an important first step for the creation of additional support and infrastructure to help students take an active approach in their own development during this important educational transition.

Example Goals:

- “Expand my medical knowledge base by reading at least one ACOG Practice Bulletin per week pertaining to patients in my care”
- “Engage in continuous self-initiated learning by asking for feedback every day and after each procedure”
- “I will complete one Fitness Blender workout six days per week to maintain cardiovascular health, increase energy, and balance emotional stress”

Figure 2: Distribution of Non-ACGME ILGs (n=44)



- Of non-ACGME ILGs, common themes included wellness (20 goals, 46%), career planning (12 goals, 10%) and teaching (12 goals, 10%).

- Pediatrics students were more likely to report MK ILGs (30 vs. 2 goals, p < 0.0001).
- OBGYN students were more likely to report “other” ILGs (33 vs 11 goals, p < 0.0001), particularly ILGs related to career planning (11 vs 1 goals, p = 0.01).

Future Applications

The ILG curriculum will be expanded in spring 2020 to include students going into all specialties. The relationship between ILG and burnout will also be further explored.

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HPE Day Abstract 200

Title: Common Themes in Medical Students' Individualized Learning Goals Prior to Starting Residency

Authors: Amanda E. Huey, Jocelyn Schiller, Lauren A. Heidemann, Anita Malone, Brittany Allen, Helen Kang Morgan

Background: In order to improve communication at the medical school to residency transition, the University of Michigan Medical School has transmitted “educational handover” letters to program directors (PDs) in the spring of the final year of medical school for students entering pediatrics and obstetrics and gynecology (OBGYN) residencies.¹ These letters contain information about students' entry level Accreditation Council for Graduate Medical Education (ACGME) Milestones and student's individual learning goals (ILGs) for beginning residency. Prior research on ILGs in residency and during medical student sub-internships has demonstrated that learners focus predominantly on the ACGME competencies of medical knowledge (MK) and patient care (PC).^{2,3} However, no studies have examined ILGs of graduating medical students; therefore, the goal of this study was to examine the content of students' ILGs in educational handover communications.

Action, methods or intervention: Educational handover letters were written at the conclusion of four-week residency preparation courses (RPCs) held at the end of students' fourth year. Students met individually with faculty from these courses to create and iterate their ILGs based on assessment data from the RPCs and from their medical school performance. ILGs were included in the OBGYN educational handover letters in 2018 and 2019 and for pediatrics in 2017 and 2018. These ILGs were categorized into one of the six ACGME competencies or “other.” Fisher's exact test was used to compare differences in ILG categories between groups.

Results: The forty-six letters reviewed (24 OBGYN, 22 pediatric) encompassed a total of 116 ILGs with an average of 2.8 ILGs per student. Seventy-two ILGs (62%) fit into one of the six ACGME competencies while 44 ILGs (38%) were classified as “other.” The most common ILG competency was MK (32 goals, 27%), followed by interpersonal and communication skills (22 goals, 19%), and PC (20 goals, 17%). The least common ILG competencies were professionalism (0 goals, 0%), system-based practice (1 goal, 0.9%), and practice-based learning (6 goals, 5%). Of the 44 “other” goals, common themes included wellness (20 goals, 17%), career planning (12 goals, 10%) and teaching (12 goals, 10%). Pediatrics students were more likely to report MK ILGs (30 vs. 2 goals, $p < 0.0001$), whereas OBGYN students were more likely to report “other” ILGs (33 vs 11 goals, $p < 0.0001$), particularly ILGs related to career planning (11 vs 1 goals, $p = 0.01$).

Lessons learned: To our knowledge, this is the first study that has examined senior medical students' ILGs contained in an educational handover communication between medical school and residency. Many ILGs centered around the MK and PC competencies, consistent with previous studies of sub-internship rotation students and residents. However, it is remarkable that almost one-fifth of ILGs contained wellness goals, given that the transition to residency is a vulnerable time for the development of burnout and suicide risk.⁴ It is also notable that no students chose professionalism ILGs given that PDs have cited professionalism as an area of development for their first-year residents.⁵ Strengths of this study include the diversity of students going into two different specialties over multiple years. Limitations include a single center study and small number of students. In order to create a true continuum of learning at the medical school to residency transition, students should feel empowered to take an active approach to their own development. Recognizing trends in current ILGs is an important first step for the creation of additional support and infrastructure to help students to create meaningful ILGs for this important educational transition.

Future application and next steps: The ILG curriculum will be expanded in spring 2020 to include students going into all specialties. The relationship between ILG and burnout will also be further explored.

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Word count: 564 (max 600; not including title, authors, institutional affiliations and references)
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High vs. Low Entrustment Behaviors in the Operating Room

Christine Nguyen¹, Julie Thompson-Burdine², Gurjit Sandhu²

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



BACKGROUND

Entrustment is key to resident progression to supervised autonomy during training.

- How can faculty foster higher entrustment?
- How can residents demonstrate higher entrustability?



METHODS

204 SURGICAL CASES

Observed @ Michigan Medicine from 2015-2017
Evaluated using OpTrust tool by trained third party raters

108
HIGH ENTRUSTMENT
Score 3-4

96
LOW ENTRUSTMENT
Score 1-2

Intraoperative notes structured with inductive open coding in NVivo12

Thematic analysis of codes

RESULTS

Codes clustered into **10 major themes**:

Communication	Procedural actions
Faculty guidance	Educational actions
Faculty education	Operative plan
Resident procedural lead	Problem solving
Faculty procedural lead	Resident leadership

These themes manifested differently in **high** and **low** entrustment cases:

High Entrustment

- Resident problem solving**
Case 172: Resident identifies bleeding and corrects it.
- Resident operative planning**
Case 180: Resident proposes starting with non-cancerous breast. Faculty tells resident to make the mark and decide.
- Resident leadership**
Case 166: Resident guides junior resident on tying and suturing. Faculty leaves. Resident closes the case with junior resident.

Low Entrustment

- Foundational teaching**
Case 124: Faculty uses the camera to show anatomy to resident.
- Conversations to build familiarity and establish resident knowledge**
Case 80: Faculty and resident side chat about resident's background.
- Extensive faculty feedback and guidance**
Case 98: Faculty guides resident step by step and corrects technique, guiding resident in creating a plane.

DISCUSSION

- There are key differences in behaviors exhibited by residents and faculty in high and low entrustment interactions in the operating room.



- Faculty and residents can be more deliberate with their interactions.



- Faculty and resident development can be augmented to include explicit intraoperative behaviors to enhance entrustment.



HPE Day Abstract 201

Title: High vs. Low Entrustment Behaviors in the Operating Room

Authors: Christine Nguyen, Julie Thompson-Burdine, Gurjit Sandhu

Background: Surgical residents must have adequate operative experience with supervised autonomy to be able to safely and confidently practice independently at the end of training. Even though this progression towards autonomy is key, it is not clear how faculty can foster higher entrustment and how residents can demonstrate higher entrustability. This study attempts to identify consistently observed behaviors in the operating room that are linked with higher entrustment.

Methods: This qualitative study analyzed intraoperative notes taken by trained OpTrust raters from 206 surgical cases observed at an academic hospital from 2015-2017. These notes described faculty and resident behaviors, verbal/nonverbal communication, and educational interaction processes and are a component of the OpTrust tool, a validated entrustment instrument. Cases were divided into low and high entrustment groups. Cases with OpTrust scores of 1-2 were included in the low entrustment group, while scores of 3-4 were included in the high entrustment group. Then, the notes were structured using inductive open coding in NVivo12. Thematic analysis was used to identify themes and patterns within the data.

Results: The analysis generated 144 initial codes. A consensus building session was held to review codes and search for prominent themes and identified behaviors associated with high and low entrustment cases. Codes were clustered into 10 themes, including: communication, faculty guidance, faculty education, procedural lead, procedural actions, educational actions, operative plan, and resident leadership. While elements of these themes were present in both high and low entrustment interactions, they manifested differently. In particular, the behaviors most strongly associated with high entrustment, included: resident problem solving, resident operative planning, and resident leadership. Behaviors linked with low entrustment, included: foundational teaching, conversations to build familiarity and establish resident knowledge, and extensive faculty feedback and guidance.

Conclusion: This study demonstrated key differences in behaviors exhibited by residents and faculty in high and low entrustment interactions in the operating room. These behaviors can be identified from objective notes by third-party OpTrust raters. Awareness of specific behaviors that cue higher entrustment can help faculty to guide intraoperative interactions and conversations to enhance resident learning and enable greater resident progression towards autonomy.

Acute Care Surgery Demonstrates Higher Faculty-Resident Entrustment Than Elective General Surgery

Kristen Kolberg, BS¹; Aaron M. Williams, MD²; David Lenzi, BA, MS³; Julie Thompson-Burdine, BA²; Niki Matusko, BS²; Rebecca M. Minter, MD⁴; Gurjit Sandhu, PhD²

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BACKGROUND

Changes in surgical education have raised concerns that surgical residents may not be prepared to practice independently after graduation.



supervision requirements



patient acuity and comorbidities



work hour restrictions

Faculty must entrust residents with appropriate tasks and decisions to allow them to develop autonomy. While entrustment in the operating room has been assessed for elective general surgery (GS) cases, studies evaluating these interactions during acute care surgery (ACS) rotations remain lacking

The ACS environment poses unique differences from the elective GS environment including limited preoperative assessment, unpredictable case timing, 24-hour in-house team coverage, and increased risk of perioperative complications due to tenuous patient health status or lack of reliable patient history. We hypothesize that these differences may lead to increased entrustment on ACS.

RESULTS

Table 1: ACS and Elective General Surgery Entrustment and Entrustability Characteristics.

Category	ACS Cases (n=49)	Elective GS Cases (n=92)	p value
Resident Entrustability Score	3.02	2.25	<0.001
Faculty Entrustment Score	3.00	2.52	0.001
Case Difficulty			
Easy/Straightforward	17 (36%)	38 (43%)	0.404
Moderately Difficult	21 (45%)	29 (33%)	
Very Difficult	9 (19%)	21 (24%)	
Faculty Years of Experience			
Junior (<10 y)	8 (16%)	49 (53%)	<0.001
Midlevel (10-20 y)	25 (51%)	31 (34%)	
Senior (>20 y)	11 (22%)	12 (13%)	
Faculty Familiarity with Resident			
Not at all	1 (2%)	7 (8%)	0.23
Slightly	8 (17%)	26 (30%)	0.11
Familiar*	38 (80%)	54 (62%)	0.02
Number of times faculty has done this type of case w/resident			
1	16 (34%)	44 (50%)	0.071
2 to 5	21 (45%)	27 (31%)	
6 to 10	4 (9%)	13 (15%)	
>10	6 (13%)	4 (5%)	
Resident Familiarity with Faculty			
Not at all	0 (0%)	5 (6%)	0.11
Slightly	3 (6%)	28 (33%)	0.001
Familiar*	46 (94%)	51 (61%)	<0.001
Number of times resident has done this type of case			
1	5 (11%)	20 (25%)	0.001
2 to 5	7 (15%)	25 (31%)	
6 to 10	4 (9%)	12 (15%)	
>10	31 (66%)	23 (29%)	
Number of times resident has done this type of case w/ faculty			
1	15 (32%)	43 (54%)	0.058
2 to 5	22 (47%)	25 (31%)	
6 to 10	4 (9%)	8 (10%)	
>10	6 (13%)	4 (5%)	
Resident PGY Level			
PGY 1	1 (2%)	17 (19%)	0.005
PGY 2	2 (4%)	9 (10%)	
PGY 3	21 (43%)	19 (21%)	
PGY 4	11 (22%)	16 (17%)	
PGY 5	14 (29%)	28 (30%)	
PGY 6	0 (0%)	3 (3%)	

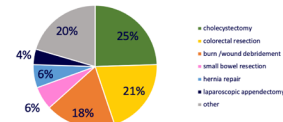
*Familiar designates ratings of moderately and extremely familiar

Table 2: Operative Environment Comparison of Supervised Autonomy, Attending Observers, and Additional Learners in ACS Cases and Elective GS Cases.

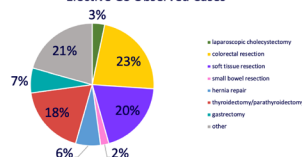
Observation Characteristic	ACS Cases (n=49)	Elective GS Cases (n=92)	p value
Attending Not Scrubbed	18 (37%)	0 (0%)	<0.001
Additional Learner Present*	7 (14%)	33 (36%)	0.007
Medical Student	41 (84%)	57 (62%)	0.007
Junior Resident (PGY1-2)	6 (12%)	8 (9%)	0.50
Senior Resident (PGY ≥3)	20 (41%)	0 (0%)	<0.001

*For 24 (49%) ACS and 3 (3%) Elective GS cases there were 2 additional learners present.

ACS Observed Cases



Elective GS Observed Cases



OBJECTIVE

The aim of this study was to compare intraoperative faculty-resident entrustment interactions during an ACS rotation with core elective general surgery services.

METHODS



Observational pilot study on ACS
May – September 2019
using OpTrust



Compared to elective GS
observations November 2016 –
June 2017

Chi-square/Fisher's exact tests, case type (ACS vs elective GS) analysis by separate, single factor linear or ordered logistic regression mixed effects models were used as appropriate. Faculty and/or resident was included as a random intercept to account for faculty/resident clustering. All analyses conducted with STATA 15 with significance set at $p < 0.05$

CONCLUSIONS

- Higher faculty entrustment/resident entrustability present in ACS operations compared to elective GS
- Faculty and resident familiarity and resident cases volume were associated with increased faculty entrustment and resident entrustability in the ACS operations
- ACS group had higher proportions of residents operating together compared to elective GS

FUTURE DIRECTIONS

- Complementary qualitative research is needed to better understand faculty-resident entrustment behaviors and the learning environment within the ACS service.
- Further research on outcomes of multiple-resident cases could better inform faculty entrustment decisions.



HPE Day Abstract 202

Title: Acute Care Surgery Demonstrates Higher Faculty-Resident Entrustment Compared to Elective Surgery

Authors: Kristen Kolberg, BS; Aaron M. Williams, MD; David Lenzi, BA, MS; Julie Thompson-Burdine, BA; Niki Matusko, BS; Rebecca M. Minter, MD; Gurjit Sandhu, PhD

Background: Attaining appropriate faculty entrustment and resident entrustability is crucial for intraoperative learning during surgical residency. While intraoperative faculty entrustment and resident entrustability have been heavily evaluated for core elective surgical services, studies evaluating these interactions during acute care surgery (ACS) rotations remain lacking. The aim of this study was to compare intraoperative faculty-resident entrustment interactions during an ACS rotation with core elective general surgery services.

Methods: From May-September 2019, ACS operations were directly observed and evaluated for faculty entrustment and resident entrustability using OpTrust. This sample was compared to OpTrust data from elective cases in general surgery (November 2016 - June 2017). Linear mixed modeling was used to evaluate the relationship between service type and entrustment/entrustability scores, while accounting for faculty/resident correlation.

Results: Faculty entrustment (3.00 vs 2.52; $p=0.001$) and resident entrustability scores (3.02 vs 2.25; $p < 0.001$) were significantly higher for the ACS cohort compared to the elective group. Faculty familiarity with the resident, resident familiarity with the faculty, and the number of times the resident had performed the operation correlated with higher entrustment scores in the ACS group compared to elective general surgery. There were no differences in case difficulty and prior operative experience with the resident between groups.

Conclusion: Both faculty entrustment and resident entrustability were significantly higher in ACS cases compared to elective general surgery operations. Faculty and resident familiarity with each other and resident case volume may be associated with higher faculty entrustment and resident entrustability.

Identification of Observable Promotion and Prevention Associated Surgeon Behaviors in the Operating Room to Improve Resident Entrustability

Akira Nishii^a, Julie Burdine^b, Niki Matusko^b, Ton Wang^b, Ana De Roo^b, Alisha Lussiez^b, Janice Vallie^b, Gurjit Sandhu^b

a. University of Michigan, Ann Arbor, b. Department of Surgery, University of Michigan Health System

INTRODUCTION

- It is critical for surgical residents to achieve **progressive autonomy** during training.
- Increasing **intraoperative entrustment** can translate into greater autonomy.¹
- Motivational style congruency can **enhance intraoperative entrustment**.²

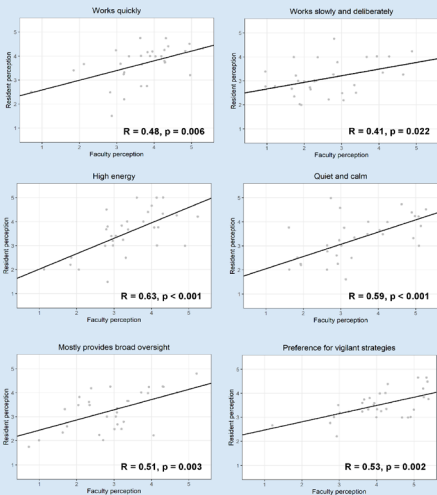
METHODS

- The study was conducted at the **Michigan Medicine Department of Surgery**, a university hospital.



- Surveys distributed to **45 general surgery residents and 39 faculty** in the Department of Surgery.
- Faculty rated on how strongly they exhibit carefully selected operative **promotion- and prevention-associated behaviors**.

RESULTS



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- Sutzko DC, Boniakowski AE, Nikolian VC, et al. Alignment of Personality Is Associated With Increased Intraoperative Entrustment. *Ann Surg.* 2018.

Residents should observe faculty **operative behaviors** to adjust for similarities and differences in **motivational styles**.

Promotion



Works Quickly



High Energy



Mostly Provides Broad Oversight

Prevention



Works Slowly and Deliberately



Quiet and Calm



Preference for Vigilant Strategies

HPE Day Abstract 203

Title: Identification of Observable Promotion and Prevention Associated Surgeon Behaviors in the Operating Room to Improve Resident Entrustability

Authors: Akira Nishiia, Julie Burdineb, Niki Matuskob, Ton Wangb, Ana De Roob, Alisha Lussiezb, Janice Vallieb, Gurjit Sandhub

Background: Motivational style congruency between faculty and residents based on the regulatory focus theory may enhance resident autonomy in the OR. This study establishes a set of faculty behaviors residents can identify in the OR to adapt to motivational style congruencies and incongruencies.

Methods: 10 behaviors associated with promotion and prevention motivational styles were identified. General surgery residents were asked to rate faculty members on how strongly they exhibit these behaviors. Similarly, faculty members conducted a self-assessment of how strongly they exhibit these behaviors.

Results: There is a positive correlation between resident and faculty ratings for the promotion-associated behaviors of “works quickly,” “high energy,” and “mostly provides broad oversight” and for the prevention-associated behaviors of “works slowly and deliberately”, “quiet and calm”, and “preference for vigilant strategies.”

Conclusion: Residents can observe faculty operative behaviors to infer faculty motivational styles. Residents can use this knowledge to adapt to motivational style congruencies and incongruencies.

A Comparison of Unguided Versus Guided Instruction in a Formative OSCE Experience in Clinical Physician Assistant Learners

Presenters: Ahmad Hakemi, M.D. and Teresa Armstead, B.S. Authors Xiaomei Song, PhD, Judy Blebea, MD, Matthew Kanitz, PA-C, John Lowry, Ph.D., Scott Massey, Ph.D., Rachel Older, BS, Jocelyn Steffke, BS

This novel mixed study demonstrates that the introduction of a guided instruction containing the domains in the OSCE formative assessment is beneficial to the learning outcomes and process.



Background

OSCE (Objective Structured Clinical Examination) has superior psychometric properties and is the Gold Standard for assessment for clinical skills in a controlled and reproducible clinicomimetic environment. Physician Assistant (PA) students at Central Michigan University undergo yearly low stake formative OSCE (fOSCE) assessments in preparation for their final summative multiple station examination. In general, the purpose of the fOSCE assessment has been used to identify performance gaps and provide specific suggestions for domains that need improvement. Formative experiences have been known to drive learning and increase student performance in final summative assessments. At Central Michigan University Learners are not provided with any guided instruction prior to the administration of the fOSCE station. Literature search was done to assess the value of providing the learners with guided instruction prior to administration of the fOSCE and no research studies were found. In this study, a novel intervention was devised by providing some learners with guided instruction of a specific case and chief complaint (Chest Pain) to see whether this intervention will augment learning.

Action/Method/Intervention

The learners were divided randomly into two groups (a.m. and p.m.). The a.m group underwent a routine fOSCE session (pre brief, experience, and debrief). The p.m group had the identical session except they received a copy of the guided instruction, which included the domains necessary for the experience (General Medicine Etiquette, Chief Complaint and Agenda, History of Present Illness, Physical Examination, Communication Skills, *SOFTEN/**PEARL Skills and Consolidation of the Experience). Two groups were also surveyed in the end about their learning experiences.

*S=Smile, O=Open, F=Forward Lean, T=Touch, E=Eye Contact, N=Nod.
**P=Partnership, E=Empathy, A=Apology, R=Respect, L=Legitimatization, S=Support

Results and Implications

Results indicated that 20 students in the experimental group performed higher than those in the control group (n =20) by 12 points. The t-test analysis with total scores showed significant differences (t = 2.662, P=.002), although their perceptions with 10 Likert-scale questions did not show significant differences. The open-ended responses indicated that students generally believed debrief was the most helpful to learn contents and clinical practices; however, what students were assessed and discussed in debrief did not seem to be consistent what was taught in the clinical skills course series. In addition, the learners had some challenges in the usage of the door note narratives. The researchers will continue to collect data in the future. The door note will be enhanced, strengthened, more robust and learner friendly. The results have been discussed with the curriculum committee of the PA Program and a new instructor has been assigned for the Clinical Skills course.



To view the full abstract, scan this QR code with your phone camera.

HPE Day Abstract 300

Title: A Comparison of Unguided Versus Guided Instruction in A Formative OSCE Experience in Clinical Physician Assistant Learners

Authors: Ahmad Hakemi, MD, Teresa Armstead, BS, Xiaomei Song, Ph.D., Judy Blebea, MD, Matthew Kanitz, PA-C, John Lowry, Ph.D., Scott Massey, Ph.D., Rachel Older, BS, Jocelyn Steffke, BS

Background: OSCE (Objective Structured Clinical Examination) has superior psychometric properties and is the Gold Standard for assessment for clinical skills in a controlled and reproducible clinicomimetic environment. Physician Assistant students at Central Michigan University undergo yearly low stake formative OSCE (fOSCE) assessments in preparation for their final summative multiple station examination. In general, the purpose of the fOSCE assessment has been used to identify performance gaps and provide specific suggestions for domains that need improvement. Formative experiences have been known to drive learning and increase student performance in final summative assessments. At Central Michigan University Learners are not provided with any guided instruction prior to the administration of the fOSCE station. Literature search was done to assess the value of providing the learners with guided instruction prior to administration of the fOSCE and no research studies were found. In this study, a novel intervention was devised by providing some learners with guided instruction of a specific case and chief complaint (Chest Pain) to see whether this intervention will augment learning.

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Lesson Learned: The formative assessment is an important process in any educational institution. This novel study demonstrates that the introduction of a guided instruction containing the domains in the OSCE study in a formative assessment is helpful in the learning process. The fOSCE experiences for both groups had a high reliability, and analysis of the survey questions demonstrated a high level of satisfaction and a closing of the learning gap by conducting a robust debrief.

Future Application and Next Steps:

Discussion - The learners will have the same case during the final summative OSCE (sOSCE), which contains six stations. The results will be compared to the fOSCE to see if scores improve over time. The researchers will continue to collect data using the guided and unguided instructions during the fOSCE over the next three years. The door note will be enhanced, strengthened, more robust and learner friendly. The results have been discussed with the curriculum committee of the PA Program and a new instructor has been assigned for the Clinical Skills course.

G. TERRY MD MSN BSN

Background

- Interprofessional Education (IPE) in the United States originated in the patient safety movement, quality improvement, and cost savings as described by the Institute of Medicine (IOM) report *To Err is Human*, World Health Organization (WHO) guidelines, Quality and Safety Education for Nurses (QSEN), and the Center for Medicare and Medicaid Services (CMS) policies (IOM, 2000; WHO, 2010; Dolansky & Moore, 2013; MedPAC, 2007).
- IPE competencies were developed and revised by the Interprofessional Education Collaborative (IPEC, 2011; IPEC, 2016). The IPE sub-competencies areas are Values/Ethics, Roles/Responsibilities, Interprofessional Communication, and Teams/Teamwork.
- The Health Professions Accreditors Collaborative (HPAC) scaffold on the IPEC work and recommended that quality IPE included Rationale, Outcome-based Goals, Deliberate Design, and Assessment and Evaluation (HPAC, 2019). This audience-specific guidance targeted institutional leaders, program-specific leaders and faculty, and accrediting boards/commissions/evaluators. The recommended IPE learning modalities in-person learning and collaborative online learning.

Actions, Methods or Interventions

IPE 407/507-Integrated Team Health Care: Course Design.

- Since Fall 2012, students from Grand Valley State University and Ferris State University in athletic training, nursing, occupational therapy, pharmacy, social work, and speech language pathology *have learned about, from, and with either other in the* foundational IPE course. The concepts, objective, assessments, and simulations were developed as 10 units by interdisciplinary faculty teams. The first offerings of the course were delivered as lecture/discussion and included in-person collaborative learning. Intentional faculty development included the pedagogy of Kolb's Experiential Learning Theory, Debriefing strategies applying O'Donnell's GAS Model, and foundations of hybrid/online teaching competency.

UNIT	UNIT-BASED ASSESSMENT	METHODS OF EVALUATION
Values/Ethics (V/E)	<ul style="list-style-type: none"> • IPELab Module & Certificate for V/E • Written Assignment – Team Blog on V/E • Ottawa Hospital's Module & Certificate – Ottawa Decision Support Test (ODST) 	<ul style="list-style-type: none"> • Written Assignment(s) – Code of Ethics, Elevator Speech • Collaborative Learning – Team Charter
Conf	<ul style="list-style-type: none"> • UCSE Modules: Conflict Resolution • PACER Civility Toolkit • Thomas-Kilmann Conflict Styles 	<ul style="list-style-type: none"> • Written Assignment – Conflict Styles Collaborative Learning – Conflict Case Analysis
Roles/Responsibilities (R/R)	<ul style="list-style-type: none"> • IPELab Module & Certificate for R/R • IHI Module and Certificate for Leadership 	<ul style="list-style-type: none"> • Written Assignment – Report on the R/R of other Healthcare Profession • Collaborative Learning – Myths & Truths, Roles and Cases • Collaborative Learning - IP Com Tools
Interprofessional Communication (IPCCom)	<ul style="list-style-type: none"> • IPELab Module & Certificate on R/R 	<ul style="list-style-type: none"> • Collaborative Learning - IP Com Tools
Teams/Teamwork (T/T)	<ul style="list-style-type: none"> • IPELab Module & Certificate on T/T 	<ul style="list-style-type: none"> • Written Assignment – Belbin Team Roles • Collaborative Learning – Analysis of Team Performance using IAQ
Simulations	<ul style="list-style-type: none"> • Debrief with Standard Patient, Peers, and Faculty 	<ul style="list-style-type: none"> • Collaborative Learning – Design Thinking, IP Team Care Conference with Standard Patient, Team Analysis of SIM Performance • Written Assignment(s) – SIM Role, Self-Analysis of SIM Performance
COMPREHENSIVE EVALUATION		ASSESSMENT
Quizzes and Tests	<ul style="list-style-type: none"> • Final Exam 	
Team Analysis	<ul style="list-style-type: none"> • Collaborative Learning - Case Analyses: Infect GR [with Covid-19] Save the USA; Team Portfolio 	

Table 1. Integrated Team Care and Student Learning Outcomes

Results

1. Since the foundational IPE course was implemented, the concepts and objectives have remained constant. In contrast the resources, in-person learning, collaborative learning, assessments and have been revised in response to course evaluations by students and faculty teaching team feedback.
2. The present course is five units offered in seven or 14 weeks (See Table 1. Integrated Team Care and Student Learning Outcomes).
3. Meanwhile as new resources have become available, these were integrated into the course: such as modules from IPE Lab at CUNY and videos from UCSF, and IHI.
4. Lastly, the online/hybrid pedagogy has evolved. Open Education Resources (OER) leverage these teaching and learning technologies. An OER can be defined as, "...teaching, learning, and research materials in any medium-digital or otherwise-that reside in the public domain or have been released under an open license that permits no cost access, use, adaptation, and redistribution by others with no restrictions (Hewlett Foundation, 2019, p.2).



Lessons Learned

1. Students engage in content that is perceived as relevant to their reality. Therefore, students have commented that peers from other health professions were not engaged in the coursework or that they should not be on in the course at all because they do not see this role in practice settings.
2. There have been many faculty champions for IPE across various disciplines. However, their IPE commitments has not been encouraged or supported as resources by the administrative teams of their healthcare programs.
3. Simulation alone has not fostered the competency for team communication and collaboration. Rather, foundational knowledge and faculty proficient in debriefing were valued.
4. In West Michigan, routine practice opportunities on interprofessional healthcare teams has been limited. Rather, these types of practice environments need to be expanded to involve in-person learning for all healthcare students.
5. There is a lack of opportunities for foundational IPE for healthcare providers already in practice.

Future Applications and Next Steps

1. NEXT STEP. For the foundational IPE course, Integrated Team Health Care, is to make the material available as an Open Education Resource (OER) and to make it available through ScholarWorks@GVSU
2. Disseminate the OER IPE product worldwide to healthcare programs for students as well as to organizations for the purpose of providing IPE to healthcare providers regardless of discipline or level of education.
3. OER format has been chosen as the most effective strategy for no-cost sharing that would leverage available technology.

Acknowledgments

- Cynthia McCurren for her sustained support of IPE foundations course.
- The faculty champions of IPE and IPCP that have contributed to or taught in the IPE foundations course.
- The Teaching Assistants for their participation in the assessment of student learning and coursework delivery.
- The IPE Students for their undying energy and ongoing challenge for relevancy for their learning

G. TERRY MD MSN BSN

Background

- Interprofessional Education (IPE) in the United States originated in the patient safety movement, quality improvement, and cost savings as described by the Institute of Medicine (IOM) report *To Err is Human*, World Health Organization (WHO) guidelines, Quality and Safety Education for Nurses (QSEN), and the Center for Medicare and Medicaid Services (CMS) policies (IOM, 2000; WHO, 2010; Dolansky & Moore, 2013; MedPAC, 2007)
- Since Fall 2012, students from Grand Valley State University (GVSU) and Ferris State University (FSU) in nursing, occupational therapy, speech language pathology, social work, and pharmacy have been learning about, from, and with each other in the IPE foundations course, IPE 407/507: Integrated Team Care. (See Table 1 for Student Learning Outcomes for the course)
- Since its' inception, the IPE course content remains and has been revised by interprofessional faculty.
- Meanwhile, resources for the course have been integrated from other IPE programs such as, IPELab at City University of New York, University of California at San Francisco, and the Institute for Healthcare Improvement.

Purpose

The purpose of this project is to provide an evidence-based data that will impact the hybrid delivery of IPE that includes asynchronous team collaboration and simulation that demonstrates interprofessional competencies in pre-licensed students of the healthcare professions.

UNIT	UNIT-BASED ASSESSMENT	EVALUATIONS FOR THIS STUDY
Introduction to Interprofessional Education an Interprofessional Collaborative Practice (IPE/IPCP)	• Written Assignment – Team Charter	
Values/Ethics (V/E)	• IPELab Module & Certificate on V/E • Written Assignment – Team Blog on V/E • Ottawa Hospital's Module & Certificate – Ottawa Decision Support Tool (ODST)	Written Assignment – Team Blog on V/E
Roles/Responsibilities (R/R)	• IPELab Module & Certificate on R/R • Written Assignments – Myths & Truths, Role & Cases, Team Blog on R/R	Written Assignment – Team Blog on R/R
Interprofessional Communication (IPCom)	• Written Assignments – Barriers and facilitators & IP Com Tools, Team Blog on R/R	Written Assignment – Team Blog on IPCom
Teams/Teamwork (T/T)- [Team Development & Team Roles] AND [Team Dynamics & Interprofessional Models]	• IPELab Module & Certificate on T/T • Written Assignments – Team Role, SIM Role , Self-Analysis of SIM performance and Team SBAR	Written Assignment – Team Blog on T/T
Conflict Management	• Written Assignments – Conflict Styles, Case Analysis:	
Leadership	• IHI Module & Certificate	
Design Thinking (DT)	• Written Assignments – Redesigning the Patient Waiting Experience	
COMPREHENSIVE EVALUATION	ASSESSMENT	
Quizzes and Tests	*Midterm Exam *Final Exam	
Team Analysis	*Team Analysis of SIM performance *Case Analyses: Infect GR Save the USA, Conflict Management *Team Portfolio	

Table 1. Integrated Team Care and Student Learning Outcomes

Frameworks

- Competencies have been developed and revised for healthcare professional students by the Interprofessional Education Collaborative (IPEC) (IPEC, 2011; IPEC, 2016). The competencies include Values/Ethics, Roles/Responsibilities, Interprofessional Communications, and Teams/Teamwork.
- The Health Professions Accreditors Collaborative (HPAC) scaffold on IPEC's work and developed guidelines that identify of quality IPE plans: Rationale, Outcome-based Goals, Deliberate Design, and Assessment and Evaluation (HPAC, 2019). These guidelines target institutional leaders, program-specific leaders and faculty, and accrediting boards/commissions/evaluators.
- Open Education Resources can be defined as, “teaching, learning, and research materials in any medium – digital or otherwise – that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation, and redistribution by others with no limited restrictions” (Hewlett Foundation, 2019, p.2).



Methods & Design

The research team will use a modified Giorgi method of phenomenological data analysis, which examines the data for meaning and themes (DeCastro, 2003). A convenient sample of 4 team blogs associated with 4 teams of students (for a total of 16 blogs) from a past offering from the foundational IPE course will be examined after the blogs are de-identified. The blogs ask for team reflection on the 4 IPEC Core Competencies. (See Table 2 for a sample of the Blog questions). The questions reflect the pedagogy of Kolb's theory or experiential learning (Kolb, 1984). The data will be collected by a faculty member not associated with assigning grades to the teams. IRB is pending. The researcher will analyze the data according to the steps in the Giorgi method:

1. Read the blogs in their entirety, eliminating extraneous words to reveal the essential words of the content.
2. Segregate the content into meaningful segments, meaning units, by marking the text of the blog when topics change.
3. Categorize the meaning units into more scientific or formal terms, which are deduced into a concrete Situated Structure Statement (SSS).
4. The General Structure Statements (GSS) are generated from the SSSs that illustrate the general and essential meaning of the phenomenon.

1. What was a Ah-Ha idea from your team about what your team has learned about Roles and Responsibilities for Interprofessional Teams?
2. Give an example.
3. List 2 SMART Goals for your team about Roles and Responsibilities.

Table 2. Sample Questions for Team Blogs

Conclusions

- Due to logistic barriers, not all potential healthcare student groups participate in IPE.
- Open Education Resources (OER) offer a wide appeal due to no-cost, flexibility, and asynchronous opportunities for IPE directed to students of any level of education or practice.
- The results will inform institutional leaders and faculty about student learning deficits and adequacy concerning interprofessional competencies.
- The results will demonstrate relevancy of team collaboration to students.

Acknowledgments

Cynthia McCurrent for her sustained support of IPE foundations course. The faculty champions of IPE and IPCP that have contributed to or taught in the IPE foundations course.

HPE Day Abstract 301

Title: An Open Education Resource as the IPE solution for pre-licensure students and healthcare providers in practice

Background: Interprofessional Education (IPE) in the USA originated in the patient safety movement, quality improvement, and cost savings as described in the Institute of Medicine (IOM) report to Err is Human, World Health Organization (WHO) guidelines, Quality and Safety Education for Nurses (QSEN), and the Center for Medicare and Medicaid Services (CMS) policies (IOM, 2000; WHO 2010; Dolansky & Moore, 2013; MedPAC, 2007).

Competencies were developed and revised for IPE for healthcare professional students by the Interprofessional Education Collaborative (IPEC) (IPEC, 2011; IPEC, 2016). The competency domains included Values/Ethics, Roles/Responsibilities, Interprofessional Communication, and Teams/Teamwork.

The Health Professions Accreditors Collaborative (HPAC) scaffold on IPEC's work and recommended guidelines that for quality IPE to include Rationale, Outcome-based Goals, Deliberate Design, and Assessment and Evaluation. This audience-specific guidance targeted institutional leaders, program-specific leaders and faculty, and accrediting boards/commissions/evaluators. Recommended IPE learning modalities include In-Person Learning and Collaborative Online Learning.

Methods: IPE 407/507-Integrated Team Care: Course Design.

Since Fall 2012, students from Grand Valley State University (GVSU) and Ferris State University (FSU) in nursing, occupational therapy, speech language pathology, social work, and pharmacy have learned about, from, and with each other in this foundational IPE course. Concepts/Objectives/Assessments/Simulations were developed as ten units by interprofessional faculty teams. The original content was delivered by lecture/discussion or hybrid/online. Intentional faculty development included training the pedagogy of Kolb's Experiential Learning Theory, debriefing using O'Donnell's GAS Model, and foundations of hybrid/online teaching.

Results: Since its inception, the concepts and objectives of the foundation IPE course have remained constant. In contrast, the resources and assessments have been revised in response to student course evaluations and faculty teaching team feedback. Meanwhile as they became available, new resources for this course were integrated from other IPE programs such as, IPE Lab at City University of New York, University of California at San Francisco, and the Institute for Health Improvement.

Lessons Learned:

- Students hunger for relevancy in their education; therefore, students noted that many of their peer students in other healthcare professions were not engaged in this IPE learning opportunity.
- There have been many faculty champions for IPE across many disciplines; however, their commitment to IPE was not encouraged or supported by the administrative teams in of their healthcare programs.
- Simulation alone has not fostered team communication and collaboration; rather foundational knowledge of IPE, the pedagogy of Kolb's Experiential Learning Theory, and faculty proficient in debriefing were valued.
- In West Michigan, routine clinical opportunities, that include inclusion on Interprofessional practice teams have been limited and need to be expanded to involve In-person learning opportunities for all healthcare professional students.

Future Application and Next Steps:

NEXT STEP for this foundational course's is making the materials available as an Open Education Resource (OER) available at ScholarWork@GVSU with the goal to disseminate this IPE product to worldwide to healthcare student programs as well as to organizations for the purpose of providing IPE to healthcare providers regardless of discipline or level of education. OER has been chosen as the most effective strategy for no-cost sharing and dissemination. OER has been defined as, "teaching, learning, and research materials in any medium-digital or otherwise-that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation, and redistribution by others with not limited restrictions (Hewlett Foundation, 2019, p.2).



Keeping it Square: Surgical Knot Tying Errors by Post-graduate Year

Viktor Tollemar, MD; Jaron Scott, MS; Geoffrey Siegel, MD

University of Michigan Health System, Department of Orthopaedic Surgery

Introduction

- Residency Training Learning Objectives:
 - Medical knowledge
 - Patient Care
 - Interpersonal and Communication Skills
 - Professionalism
 - Practice Based Learning and Improvement
 - Systems Based Practice
 - Surgical Knot Tying?*
- Does practice make better?
- Do more senior residents have superior surgical knot-tying skills compared to their junior counterparts?

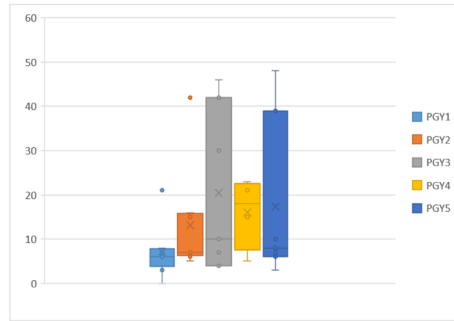
Objectives

- Measure surgical knot tying errors by post-graduate year
- Determine whether correlation exists between years of training and error rate

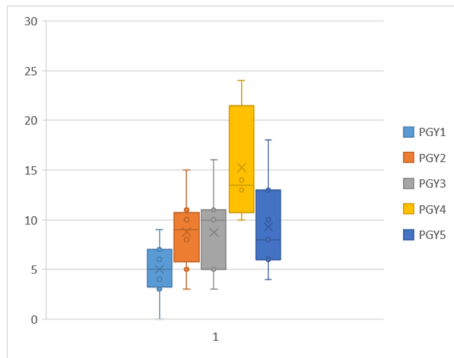
Materials & Methods

- University of Michigan Orthopaedic Surgery Residency Program
- 34 residents participated
 - PGY1 8
 - PGY2 8
 - PGY3 7
 - PGY4 4
 - PGY5 7
- 50 single-handed ties
- 50 two-handed ties

Results



Single-Handed Ties. Number of errors for each PGY group was graphed on the box and whisker plot. ANOVA demonstrates no statistical difference (P = 0.43)



Two-Handed Ties. Number of errors for each PGY group was graphed on the box and whisker plot. ANOVA demonstrates statistical difference (P = 0.012)

Group1	Group2	Mean Difference	P-value	Reject H0
PGY1	PGY2	3.75	0.42	FALSE
PGY1	PGY3	3.71	0.46	FALSE
PGY1	PGY4	10.25	0.0042	TRUE
PGY1	PGY5	4.29	0.32	FALSE
PGY2	PGY3	-0.036	0.9	FALSE
PGY2	PGY4	6.5	0.12	FALSE
PGY2	PGY5	0.54	0.9	FALSE
PGY3	PGY4	6.54	0.13	FALSE
PGY3	PGY5	0.57	0.9	FALSE

Tukey's Range Test was used to identify groups that were significantly different. The only significantly different comparison was found between PGY1 and PGY4 where p = 0.0042 < 0.05

Statistics

- We used ANOVA with a significance cutoff of 0.05 in order to detect differences in error rate between groups
- When a difference was detected, Tukey's Range test was used to identify groups that were different

Conclusions

- PGY-1 group had significantly lower error rate than PGY-4 group for two-handed ties
- No other significant difference detected in error rate between any groups for single-handed or two-handed ties

Limitations

- Small sample size
- Fewer participants in PGY4 class
- Yarn is not analogous to suture
- Did not take into account speed or efficiency of hand movements
- Unclear if measured "errors" are clinically relevant

HPE Day Abstract 305

Title: Keeping it Square: Surgical Knot Tying Errors by Post-graduate Year

Authors: Viktor Tollemar, Geoff Siegel, Jaron Scott

Background: The University of Michigan Orthopaedic Surgery Residency Program outlines a number of learning objectives for each post-graduate year in a number of areas including professionalism, communication skills, medical knowledge, and patient care. Surgical knot tying skills is not included in these educational objectives. We asked the question whether more senior residents have superior surgical knot-tying skills compared to their junior counterparts. In order to answer this, we measured knot tying error rate by post-graduate year.

Actions, Methods, or Intervention: Each participating resident performed 50 one-handed ties and 50 two-handed. Each series of knots was inspected by the same volunteer faculty member. The total number of non-square knots were counted and recorded as errors. The error rate was then compared between classes using analysis of variance with a significance cutoff of 0.05. When a difference was detected, Tukey's Range test was used to identify groups that were different.

Results: 34 residents in the University of Michigan Orthopaedic Surgery Residency Program participated. Of these, 8 were PGY-1s, 8 were PGY-2s, 7 were PGY-3s, 4 were PGY-4s, and 7 were PGY-5s. ANOVA demonstrated no statistical difference ($P = 0.43$) in one-handed knot error rate between groups. ANOVA did demonstrate a statistical difference ($P = 0.012$) in two-handed knot error rate. The only significantly different comparison was found between PGY-1s and PGY-4s where ($P = 0.0042$).

Lessons Learned: PGY-1s had a significantly lower error rate than PGY-4s for two-handed ties. No other significant difference detected in error rate between any groups for single-handed or two-handed ties. Future Applications and Next Steps: This experiment should be repeated with a larger sample size and conducted in a more controlled setting. Time to complete the assignment and efficiency or hand movements could also be used as metric of proficiency. If done at other institutions, it would be valuable to compare data in order to determine if specific educational objectives correlate with improved knot-tying skills.



Acute Stroke Education for Medical Students (ASEMS)

Sadhana Murali, MD, Department of Neurology, University of Michigan Stroke Program

Why is stroke education important?

Stroke is a neurologic emergency and the 5th leading cause of death in the United States. Over the last several decades, several acute treatments have emerged. These treatments are limited by narrow time windows, requiring quick provider recognition of stroke symptoms and initiation of acute management. Given this, evolving stroke education to all providers is critical and can be improved on in medical school.

Current gaps in education

U of M medical students rotate on an inpatient neurology service for two weeks. While med students can observe stroke codes during their rotations, currently students are not able to actively participate and some may not even observe any stroke codes due to the sporadic nature of codes. This leads to passive observation and unstructured learning.

Goals of the project

The main goal of this study is to determine whether a stroke clinical passport (Figure 1) can turn the passive nature of stroke code observation into a beneficial, active learning activity. In addition, a stroke pager schedule has been created to maximize the number of stroke codes observed per student. Finally, the study will evaluate student feedback to improve stroke education during the neurology rotation.

Interventions

1. Stroke clinical passport - Main intervention
2. Pre/post rotation surveys with detailed end-of-survey answers provided
3. Stroke pager schedule - Rotation schedule to hold stroke pager

Acute Stroke Code Clinical Passport	
Student name: _____	Date/Time _____
Patient MRN: _____	
Last known well (LKW): _____	
NIHSS: _____	
Specific stroke syndrome: _____	
Was IV tPA administered (Y/N): _____	
If no, list all contraindications to IV tPA:	
Was mechanical thrombectomy performed? (Y/N)	
If yes, which vessel was occluded?	
Was CT perfusion obtained and if yes, how was it utilized?	

Figure 1

Methods

This study has two phases. At the start and end of each neuro rotation, students take the pre and post-rotation surveys via Qualtrics. Two cycles have been completed so far. 23 of 30 students have responded to the pre-survey and 20 out of 30 students have responded to the post survey. All students are provided with a stroke pager rotation schedule and hold the stroke pager on their assigned days. Surveys were also sent to 180 previous neurology students between 2018-2019 of whom 42 responded.

Students rotating during the phase 1 period do not receive the clinical passport intervention and serve as a control. Phase 2 students will receive a pack of passports to fill out with each observed stroke code.

Pre and post-survey results will be compared within each phase. Post-survey results will be compared between phase 1 and 2. Surveys include confidence, knowledge, and feedback-based questions. Confidence questions are compared using a 2-sample t test and all other results are compared using a comparison of proportions test

Preliminary Phase 1 Results

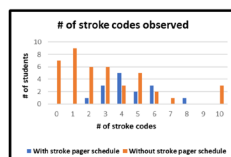


Figure 2

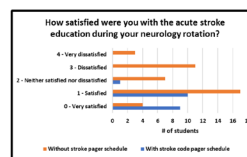


Figure 3

Phase 1 results show an overall significant increase in the average number of stroke codes observed per student compared to students who rotated without the neurology rotation prior to the implementation of the stroke pager schedule (Figure 2) (3.35 vs 2.97 $P = 0.05$). Of note every student saw at least one stroke code, whereas prior to the schedule implementation, 7 out of 42 students did not get to see a stroke code at all. In addition, on average, students with the stroke pager schedule were satisfied with their stroke education on the rotation (Figure 3) (1.6 vs 2.81, $P = 0.00002$).

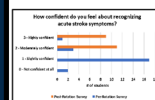


Figure 4

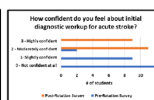


Figure 5

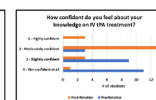


Figure 6

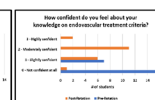


Figure 7

Results cont'd

Questions related to confidence are shown in figures 4-7. A statistically significant improvement in student's perceived confidence was found between pre and post rotation surveys ($P < 0.00001$).

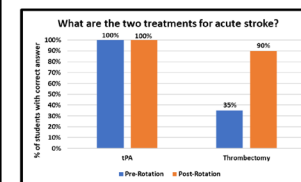


Figure 8

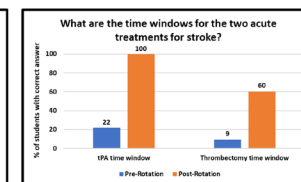


Figure 9

Figures 8 and 9 show data from several knowledge based questions. There was significant increase in the % of students between pre and post surveys who were able to correctly identify thrombectomy as an acute stroke treatment (55% absolute increase, $P = 0.0003$) and correctly state the time windows for tPA (78% absolute increase, $P < 0.0001$) and thrombectomy (51% absolute increase, $P = 0.0004$).

Feedback regarding improving stroke education was requested from students who had completed the neurology rotation. The top four suggestions included adding a formal stroke lecture to the rotation, allowing students to spend more time with the stroke pager, providing stroke handouts, and providing a debrief session after a stroke code.

Discussion

The preliminary data from phase 1 has shown that, between the start and end of the neuro rotation, there is a significant increase in student's perceived confidence and knowledge base regarding acute stroke management. This improvement is in the absence of the clinical passport intervention. Several factors could have lead to this improvement: increased # of observed stroke codes with the new schedule or repetitive testing bias. Phase 1 will continue for one more rotation cycle and phase 2 will start after. Results of the two phases will then be compared. If this intervention shows significant benefit, this tool may be utilized at other schools as well.

Acknowledgements

I would like to thank the medical education scholars program (MESP) for providing a valuable course that allows teachers to become better educators.

HPE Day Abstract 306

Title: Acute Stroke Education for Medical Students (ASEMS) Abstract

Author: Sadhana Murali, MD, Department of Neurology, University of Michigan Stroke Program

Background: Stroke is a neurologic emergency and the 5th leading cause of death in the United States. Over the last several decades, several acute treatment options have emerged that are limited by narrow time window. This requires providers to be able to quickly recognize stroke symptoms and initiate the appropriate initial acute management. As strokes can occur anywhere, at any time, it is vital that providers of all specialties are appropriately educated in acute stroke recognition and management. This education should be provided at all levels of training. Currently, stroke education is not consistently provided to medical students nation-wide. Medical students are most likely to observe acute stroke codes on their neurology or emergency medicine rotations. However, neurology rotations are not required in all medical schools and even when medical students rotate through a neurology rotation, they may not get the chance to observe a stroke code or receive structured stroke education. It is clear that a nation-wide shift in stroke education is needed. The goal of the Acute Stroke Education for Medical Students (ASEMS) project is to increase medical student exposure to the acute stroke code process and to maximize learning while observing acute stroke codes.

This study will be evaluating several interventions. First, the study will be looking at the utility of a structured stroke pager rotation schedule to maximize the number of stroke codes students observe during their neurology rotation. Second, a stroke code clinical passport will be utilized which students will fill out during each acute stroke code. The goal of this intervention is to change the passive observation of a stroke code into a more active learning activity. Benefit of these interventions will be evaluated with a pre and post-rotation survey to assess improved student confidence, knowledge, and satisfaction. The first half of the study, phase 1, will not use the stroke clinical passport intervention and will serve as a control. The second half of the study, phase 2, will utilize the stroke clinical passport intervention and results will be compared to phase 1. Phase 1 data collection is currently in process and will be completed after one more neurology rotation cycle after which the phase 2 period will begin. Preliminary phase 1 results show a statistically significant improvement in confidence and knowledge of medical students between pre and post-rotation survey results. Several factors may be resulting in this improvement, including an increased number of stroke codes observed or repetitive testing bias from pre and post-rotation surveys. Phase 2 data, when available, will be compared to phase 1 data to determine if there is any additional benefit to using a stroke clinical passport as a learning tool. If such a benefit exists, this could potentially be used at other medical schools as well.

OBJECTIVE

- To provide pulmonary/critical care fellows and allied providers with an evidence-based intervention to improve skills in delivering serious news (DSN) and conducting goals of care conversations (GOCC)

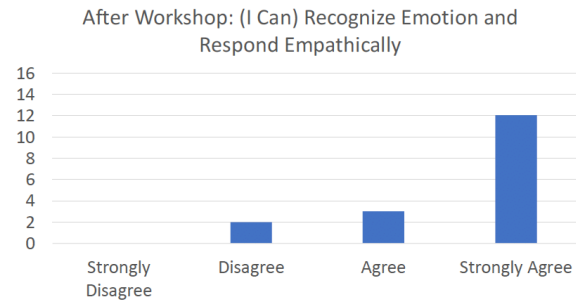
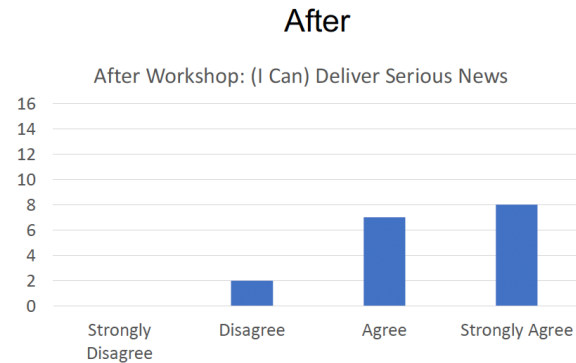
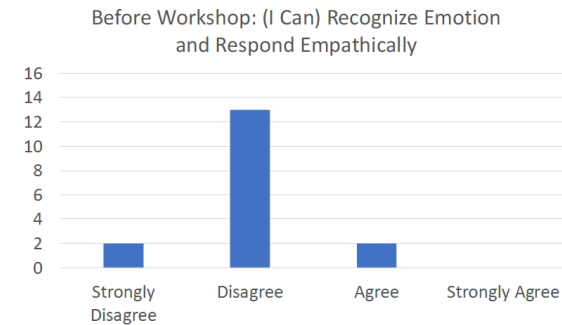
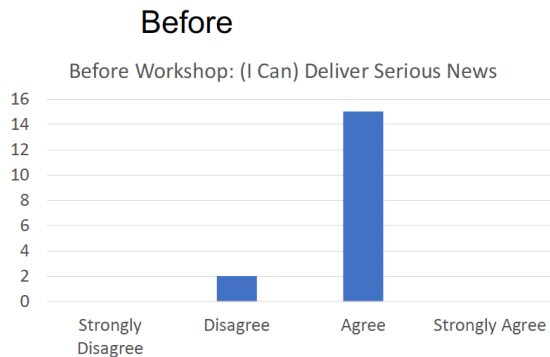
BACKGROUND

- New technologies and interventions make navigating decisions at the end of life increasingly difficult
- Training programs have the challenging task of teaching how to communicate effectively in these situations
- Trainees often feel ill-prepared, which can result in poorer patient outcomes, provider burnout, and a traumatic experience for patient's loved ones

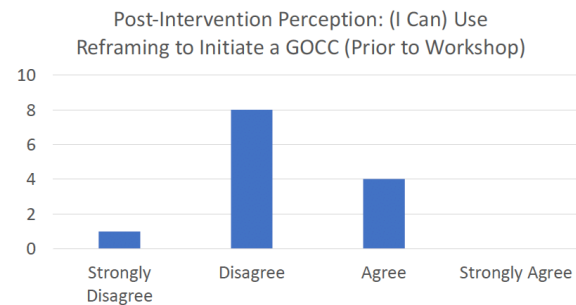
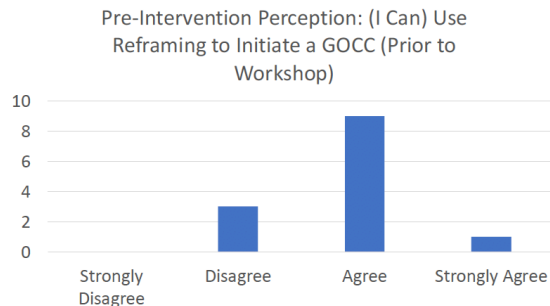
METHODS

- Participants: 6 pulmonary/critical care fellows, 5 palliative fellows, 5 geriatric fellows, 1 palliative NP. 13 completed the pre-intervention survey, all 17 completed the post-intervention survey
- Intervention: 2 half-day workshops teaching roadmaps, skills in DSN, and conducting GOCC
- Measurement: After the workshops, a retrospective pre-post course survey was used to assess participants' assessment of their skills before and after exposure to the curriculum

Impact of Intervention



Pre and Post Intervention Perceptions of Ability to Reframe Prior to Intervention



METHODS – CONT.

- Additionally, perceptions of skills were assessed prior to the workshops
- Variables: Demographics, pre-post self-efficacy, pre-post interventions of self-efficacy prior to intervention

LESSONS LEARNED

- Training in DSN and GOCC is needed and well-received
- The retrospective pre-post survey of all participants showed a statistically significant increase in their self-assessed skill across all domains assessed
- When comparing retrospective perception of skill in reframing to pre-workshop perception, it appears that participants may have been overconfident in this domain. The trend was similar in all domains, but only reached significance with regards to reframing

FUTURE DIRECTIONS

- Increase exposure of fellows to more simulation practice in fellowship
- Incorporate more topics such as practicing goals of care conversation
- Bridge intentional practice techniques from the workshop setting to the bedside through faculty dissemination

HPE Day Abstract 308

Title: Fellows from Diverse Programs Benefit from a Combined Curriculum for Learning Skills in Delivering Serious News and Conducting Goals of Care Conversations

Authors: D. Antokub, N. Houchensab, J. Osterholzerab, P. Choib, L. Taylorab, P. Mullanb, M.P. Mendezab-Veterans Affairs Health System and Division of Pulmonary and Critical Care Medicine, Department of Internal Medicine, University of Michigan Medical Schoolb, Ann Arbor, MI

Background: As the medical complexity of patients increases, so does the need for effective communication. New technologies and interventions make navigating decisions at the end of life increasingly difficult. Training programs have the challenging task of teaching critical care fellows and trainees in allied specialties how to communicate effectively in these situations. Trainees often feel ill-prepared, which can result in poorer patient outcomes, provider burnout, and a traumatic experience for patient's loved ones.

To address this historically neglected but critical part of training, we initiated a communication skills workshop for Pulmonary/Critical Care, Palliative, and Geriatric Medicine fellows in the Academic Year 2019-2020. Case scenarios of critically ill patients in which a goals of care meeting was conducted were simulated using professional actors. The focus of the program was two-fold: to teach skills in delivering serious news (DSN) and conducting goals of care conversations (GOCC).

Methods: A total of 16 fellows and one nurse practitioner participated in the intervention. Participants were exposed to two half-day workshops teaching roadmaps and skills in DSN and conducting GOCC. Teaching was provided using a mix of drills, interactive demonstrations, and a simulated family meeting with highly trained actors using the VitalTalk method. After the workshops, a retrospective pre-post course survey was used to assess participants' assessment of their skills before and after exposure to the curriculum. Additionally, perceptions of skills were assessed prior to the workshops to assess whether participants pre-session attitudes suggested over/under confidence in their skills.

Results: Of the 17 trainees, 13 completed the pre-intervention survey (6 Pulm/CC, 5 palliative, and 2 geriatric fellows). All 17 participants completed the post-intervention survey (6 Pulm/CC, 5 palliative, 5 geriatric fellows, and 1 nurse practitioner from palliative care). The retrospective prepost survey of all participants showed a statistically significant increase in their self-assessed skill across all domains assessed. Notably, when comparing their retrospective perception of skill in reframing to their pre-workshop perception, it appears that participants may have been overconfident in this domain. Though the trend was similar in all domains, it only reached significance with regards to reframing.

Conclusion: Implementation of a combined training program designed to enhance communication skills for fellows from diverse programs in a critical care setting is feasible, effective, and well-received. In response to this assessment, this model will continue to be refined and used in future academic years to combine fellows from different programs in this unique curriculum.

Background

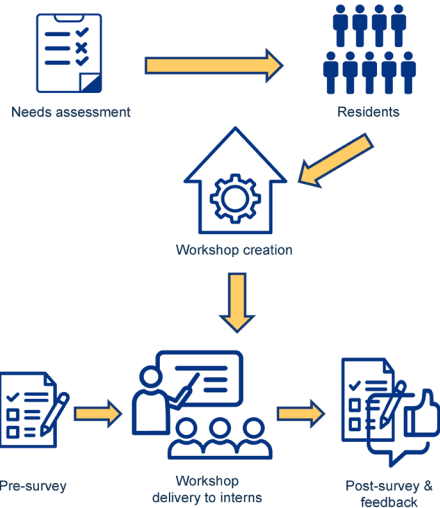
- The Liaison Committee on Medical Education (LCME), Accreditation Council on Graduate Medical Education (ACGME) and Michigan Medicine Graduate Medical Education (GME) committee all recognize the important role of residents as teachers in the clinical environment.
- In internal medicine, the transition from intern to senior resident includes advancement in both clinical and educational responsibilities.
- While clinical training has been a focus of the intern year, residents often have no formal training as an educator at the time of this transition.
- As part of our participation in the CoMET (Community of Medical Educators in Training) program, we created a curriculum to fill this educational gap for Michigan Medicine internal medicine.

Objective

Create a “just in time” curriculum for rising senior internal medicine resident to increase feelings of confidence and readiness to teach.

Methods

- 110 internal medicine residents participated in a needs assessment survey in order to understand resident confidence in providing clinical care and education of medical students.
- Using input from the needs assessment, we created four 45-minute interactive workshops for interns which covered educational theory and practical, interactive ways to incorporate teaching into a busy clinical service. Content areas included: creating a positive learning environment, setting expectations, giving feedback, Bloom’s Taxonomy, Kirkpatrick pyramid, effective questioning, One Minute Preceptor, chalk talks, and teaching scripts.
- Workshops were delivered to interns prior to their transition to a senior resident role.
- Pre- and post-surveys similar to the needs assessment survey were distributed to interns before and after the entire workshop series to evaluate for change. In addition, feedback on each session was obtained.
- The curriculum was launched in spring 2018.



Representative Slides

Session 1: Setting the Stage for Effective Teaching

Session 2: Asking Questions & Engaging the Learner

Session 3: Delivering High Yield Teaching Sessions

Session 3: Delivering High Yield Teaching Sessions

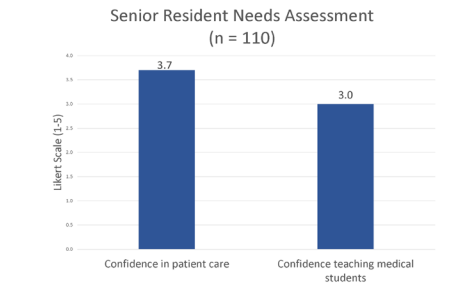
- Clinical trigger + high-yield topic = ready to teach!
- Ways to aid learner retention
- Chalk talks and how to overcome barriers to giving one

Session 4: Teaching on an Early Call Day (aka “on the fly”)

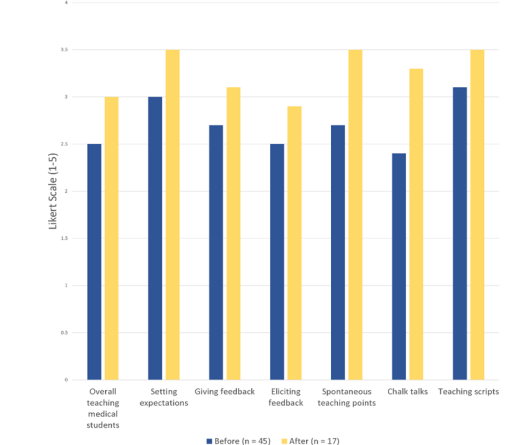
- Teaching scripts are pre-planned teaching guides to aid your delivery of high yield teaching sessions.
- Sharing is good! Use your resources.
- You CAN teach on busy call days! And now have the skills to do so!

Results

- Needs Assessment:**
- Forty-nine senior residents (45%) responded to the needs assessment.
 - Using a 5-point Likert scale, residents reported greater confidence providing patient care (mean=3.7) than teaching medical students (mean=3.0).
 - The majority of respondents (n=45, 92%) wanted to improve their skills as educators.
- Curriculum evaluation:**
- Forty-nine interns (82%) participated in at least one workshop.
 - Using a 5-point Likert scale, overall intern feedback on individual sessions was positive with participants agreeing that they felt satisfied with the sessions (mean=4.7) and planned to incorporate new tools into their teaching practice on the wards (mean=4.8).



Intern Confidence Pre vs. Post Intervention



- Comparing intern pre-workshop survey responses (n=45) to the post-survey responses of interns who attended at least one workshop (n=17) demonstrated an overall increase in confidence in teaching medical students (2.5 before vs 3.0 after), as well as an increase in confidence across domains covered in the workshops including: setting expectations (3.0 before vs 3.5 after), giving feedback (2.7 before vs 3.1 after), eliciting feedback (2.5 before vs 2.9 after), making spontaneous teaching points (2.7 before vs 3.5 after), delivering chalk talks (2.4 before vs 3.3 after) and using teaching scripts (3.1 before vs 3.5 after).
- Feedback on the sessions was incorporated into enhancements and the program was delivered again in spring 2019.

Lessons Learned

- This “just in time” curriculum was designed to improve teaching skills of interns preparing to transition into the senior resident role. It was well received by interns and increased participants’ confidence in teaching.
- Variable and busy clinical schedules limited interns from attending all workshops. To ameliorate this problem, the content from previous workshops was summarized during each subsequent workshop.
- The interactive workshops enhanced engagement through multiple teaching techniques including skill simulation through role play.
- Materials were available on request, though could not replicate the experiential learning of being present at the workshops.
- An additional facilitator for the second year of the curriculum increased feasibility in continued delivery of workshops.

Future Application & Next Steps

- Given the planned implementation of a Michigan Medicine GME sponsored resident as teacher curriculum for all residents, we plan to re-evaluate our curriculum to determine out how it can best be used to expand and reinforce the new GME curriculum while maintaining “just in time” training in the the key transition from intern to senior resident.

Acknowledgments

The authors would like to thank the CoMET program for the providing foundational teaching skills and research guidance, as well as the internal medicine residency for support to complete this program. The authors would also like to thank Dr. Jennifer Lukela and Dr. Amit Gupta for providing inspiration for some of the workshops.

HPE Day Abstract 309

Title: "I'm Ready to be a Teaching Senior": An Educational Intervention for Rising Seniors Residents to Improve Readiness to Teach

Background: The Liaison Committee on Medical Education (LCME), Accreditation Council on Graduate Medical Education (ACGME) and Michigan Medicine Graduate Medical Education (GME) committee all recognize the important role of residents as teachers in the clinical environment. In internal medicine, residents make the biggest transition as educators when they move from being an intern to a senior resident where they are looked to as the leader of the team and one of the primary educators of medical students. However, prior to this transition many residents have had no formal training on the role as an educator. As part of our participation in the CoMET (Community of Medical Educators in Training) program, we created a curriculum for Michigan Medicine Internal Medicine Residents to fill this educational gap.

Methods: A needs assessment survey was distributed to 110 internal medicine residents using a 5-point Likert scale (1=not at all confident; 5=extremely confident) in order to understand resident confidence with providing clinical care and education of medical students. Using input from the needs assessment, we created four 45-minute interactive workshops for interns aimed at covering educational theory and practical interactive ways to incorporate teaching into a busy clinical service. Content areas included the following: creating a positive learning environment, setting expectations, giving feedback, Bloom's Taxonomy, Kirkpatrick pyramid, effective questioning, One Minute Preceptor model, chalk talks, and teaching scripts. Workshops were delivered to interns at the end of the year, prior to starting their new role as senior residents. Pre- and post-surveys similar to the needs assessment survey were distributed to interns before and after the entire workshop series to evaluate for change. In addition, written feedback using a 5-point Likert scale (1=strongly disagree; 5=strongly agree) and free text were obtained from participants at the end of each individual workshop; optional verbal feedback was also solicited. The curriculum was launched in spring 2018.

Results: Forty-nine senior residents (45%) responded to the needs assessment. Overall, residents had greater confidence providing patient care (mean=3.7) than teaching medical students (mean=3.0). The majority of respondents (n=45, 92%) wanted to improve their skills as educators. Forty-nine interns (82%) participated in at least one workshop. Overall intern feedback on individual sessions was positive with participants agreeing that they felt satisfied with the sessions (mean=4.7) and planned to incorporate new tools into their teaching practice on the wards (mean=4.8). Comparing intern pre-workshop survey responses (n=45) to the post-survey responses of interns who attended at least one workshop (n=17) demonstrated an overall increase in confidence in teaching medical students (2.5 before vs 3.0 after), as well as an increase in confidence across domains covered in the workshops including: setting expectations (3.0 before vs 3.5 after), giving feedback (2.7 before vs 3.1 after), eliciting feedback (2.5 before vs 2.9 after), making spontaneous teaching points (2.7 before vs 3.5 after), delivering chalk talks (2.4 before vs 3.3 after) and using teaching scripts (3.1 before vs 3.5 after). Feedback on the sessions was incorporated into enhancements and the program was delivered again in spring 2019.

Lessons Learned: This “just in time” curriculum was designed to improve teaching skills of interns preparing to transition into the senior resident role. It was well received by interns and increased participants’ confidence in teaching. The interactive workshops enhanced engagement through multiple teaching techniques including skill simulation through role play. However, variable and busy clinical schedules limited interns from attending all workshops. Our approach to ameliorate this problem was summarizing the content from previous workshops during each subsequent workshop. Materials were also available on request but could not replicate the experiential learning of being present at the workshops. An additional facilitator for the second year of the curriculum increased feasibility in continued delivery of workshops.

Future Application and Next Steps: Given the planned implementation of a Michigan Medicine GME sponsored resident as teacher curriculum for all residents, we plan to re-evaluate our curriculum to determine out how it can best be used to build off of the new GME curriculum and still provide “just in time” reinforcement of concepts during the key transition from intern to senior resident.

A virtual, interprofessional approach to develop expertise in the public health perspectives of lactation



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Background

Virtual internships may provide students learning experiences that are equitable, flexible, accessible, interprofessional, and even cross-cultural. Many virtual experiences lack the engagement and interaction required for student satisfaction and sufficient attainment of skills. As technology for remote collaboration advances, it is critical to understand how public health practice sites can leverage such technology for experiential learning in pre-professionals.

Objectives

Determine if an interprofessional, virtual internship offered through a breastfeeding education company:

- 1) engages learners,
- 2) if learner engagement leads to the development of public health skills, and
- 3) if public health skills are translated to create artifacts that are mutually beneficial for the practice site and learners.

Methods

3 dual-degree students in public health, dietetics, nursing, and social work participated in the internship.

A learner-centered syllabus was developed to guide interns through approximately 20 hours self-directed learning with readings, videos, podcasts, and various assignments each week. Interns completed knowledge assessments and surveys weekly and pre- and post-internship.

Overall, interns were satisfied with the virtual internship experience

Table 1. Intern satisfaction (aggregate average, weeks 1-16)

Survey item	Avg. agreement*
The expectations of the internship are appropriate	5.0
I am overwhelmed by the workload for this internship	2.8
My opinion is valued by my fellow interns	6.0
I value the opinion of my fellow interns	6.0
My opinion is valued by the instructors/supervisors	6.0
I value the opinion of the instructors/supervisors	6.0
I did the majority of the work on this week's group project	2.3
All interns contributed equally to this week's group project	5.2
I am satisfied with this week's internship experience	5.2

Agreement rated from 1 (strongly disagree) - 6 (strongly agree)

For questions, contact:

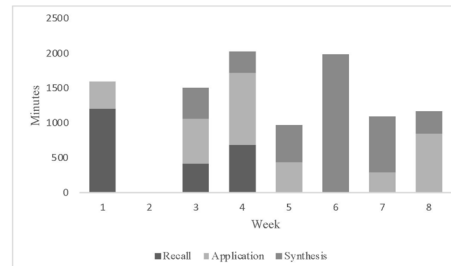
Olivia Anderson, Ph.D, R.D. - University of Michigan School of Public Health
Department of Nutritional Sciences - oliviasa@umich.edu

Engagement with internship content increased over 16 weeks

Interns spent an average of 24.3 hours per week on internship meetings and activities. **The average weekly hours spent on the internship increased from 20.6 to 34.5 (p<0.0001) between weeks 13 and 16.**

Time spent in higher-order cognitive discussion increased as interns gained knowledge

Figure 1. Time interns spent engaging in higher-order cognitive discussion

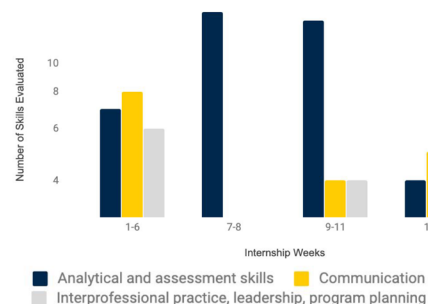


Most discussion guiding questions were at an applied or synthesis knowledge-level (n=7 at synthesis; n=10 at application; n=5 at recall). **As the internship progressed, time spent on application and synthesis knowledge-level questions increased.**

Learners practiced over 70 public health skills

Interns reported practicing skills within the three CEPH competency domains a total of 70 times (Figure 2). Interns agreed (average 5.3/6.0 across all weeks) they practiced translational skills that aligned to weekly assignments.

Figure 2. CEPH-aligned translational skills assessed in the virtual internship



Knowledge gains were demonstrated through weekly 2-minute oral assessments

The interns' average concept inventory scores increased by 3.3 points (p<0.001) from 7.0/14 to 10.3/14. Interns scored an average of 77.3% on weekly quizzes. Interns agreed (5.1/6.0) they were confident they met weekly learning objectives.

Interns answered the weekly oral assessment prompt at a higher knowledge-level (+0.4/3.0, P=0.007) after completing each week's assignments. Monday's responses did not correlate (r=0.04) while Friday's were highly correlated (r=0.8) to the question's knowledge-level.

Relevant artifacts benefitted interns and the internship practice site

Interns submitted a total of 8 artifacts developed during the internship to fulfill their applied practice experience.

The artifacts aligned to the following CEPH competency domains:

- analytical and assessment skills (n=3/8)
- communication (n=3/8)
- and community dimensions of practice, interprofessional practice, leadership, or program planning (n=8/8)

The internship practice site used artifacts to:

- receive over \$10,000 in grant funding and employ two MPH candidate research assistants, one of whom was a summer intern
- publish abstracts research manuscripts relevant to the breastfeeding field
- engage their target audience through marketing campaigns and social media (8,700+ video views on YouTube in 5 months).

Virtual internship toolkit

We have developed a menu of options for public health practice sites to assist preceptors in designing an internship experience that includes tools for evaluation and assessment, opportunities for defining learning objectives, tips to engage interns and team members in productive meetings, and ideas for remaining flexible within a framework provided.

Table 2. Recommended weekly organization for an engaging virtual internship

	Monday	Tuesday	Wednesday	Thursday	Friday
Meetings					
Readings	✓	✓	✓		✓
Assignments	Individual assignment	Individual assignment	Group assignment	Group assignment	Assignment submission
Assessment & Evaluation	Weekly survey and oral assessment		Written self-reflection		Weekly post-survey and oral assessment

HPE Day Abstract 310

Title: A virtual, interprofessional approach to develop expertise in the public health perspectives of lactation

Submission category: Teaching techniques

Authors: Olivia S. Anderson, PhD, RD Carolyn F. McCabe, MS Samantha Chuisano, MPH Emily Wicoff, Aria Grabowski, Anna Sadovnikova, IBCLC, MPH, MA, University of Michigan School of Public Health, Department of Nutritional Sciences LiquidGoldConcept, Inc.

Background: Curricula in health professional degree programs are increasingly prescribed to meet competency requirements within accreditation standards, resulting in rigid curricular design. Pre-licensure health professionals do not have space in their course schedule to specialize in areas outside standard offerings, such as clinical lactation. However, online education is erupting providing health professional learners flexible, affordable, and accessible means to gain expertise. There are advantages to learning online, yet student engagement is difficult to achieve within an online education model. Innovations in online learning tools include capabilities to foster active learning such as group discussion boards or Google Jamboard to record real-time notes in a slide format. Another important and valuable means for a health professional student to gain specialized knowledge outside of typical course offerings could be through an internship. However, internships rarely occur in online learning environments since they require high-level engagement to gain specific expertise. Internships allow for unique partnerships with companies, health systems, etc. in varying regions of the world, but for many, an ideal internship may be out of reach due to logistics (e.g., cost, family). Leveraging online technologies that support virtual engagement for experiential learning is rare, yet it is an innovative means to provide equitable learning opportunities for health professionals to expand their expertise.

Methods: In collaboration with LiquidGoldConcept (LGC), a breastfeeding education company, we developed, implemented, and evaluated a novel online summer internship for Master of Public Health (MPH) students on the topic of translational research and practice in public health lactation. The lead LGC preceptor was located in California while interns in Michigan. The interns consisted of three females seeking the following degrees: 1) dual degree in nutrition (MPH) and dietetics (Registered Dietitian certification), 2) dual degree in nursing (Master of Science in Nursing) and health behavior/health education (MPH), and 3) dual degree in health behavior/health education (MPH) and social work (Master of Social Work). Through various online technologies including Google Hangouts, Google Jamboard, Slack, Pinterest and Twitter, interns engaged in two weekly discussions, asynchronous group work, social media campaign development, and written and oral assessments. Intern satisfaction and perceived gain in learning objectives were evaluated through weekly surveys using Likert scale items as well as open-ended responses. Intern knowledge was assessed through concept inventory and oral and written assessments. Thematic analyses were conducted on the discussions and oral assessments to determine if what we intended to teach each week occurred and to determine topics that the interns took interest in.

Results: Overall the interns were satisfied with the internship curriculum, workload, and instruction (survey satisfaction items rated 5.1 or higher on 6-pt Likert scale). The interns perceived that they met weekly learning objectives by the end of each week (survey perception items rated 4.8 or higher on 6-pt Likert scale). Interns enjoyed the mix of learning materials incorporated into each week as represented by one student, "The mix of materials this week was very informative (readings, podcasts, marketing materials, former reports, social media, etc.)." The translational

skills indicated as most frequently being developed throughout the internship (asked on a weekly basis) included peer feedback mechanisms (mentioned n=13 times), research (n=7), presenting skills (n=6), and time management (n=6). Areas needing improvement that were commonly reported included the incorporation of too much work each week and need for clearer instructions for weekly assignments. There was a significant increase in the average score of the pre- versus post-concept inventory (+3.33%; p=0.005). Thematic analyses on discussions and oral assessments are ongoing.

Lessons Learned: There were some road blocks with some of the technology that was utilized. For example, the ability to record a Google Hangout discussion was discontinued mid-way through the internship so we had to be efficient in finding another means to record. Further, the knowledge attained may not have been accurately depicted in the assessments for the specific public health lactation material because the curriculum was fluid from week to week due to the nature of real-world setting and working to meet the demands of LGC.

Future Application and Next Steps: The online curriculum from this internship is in the process of being converted into a Massive Open Online Course (MOOCs) in collaboration with the University of Michigan's Office of Academic Innovation. This iterative process of developing curriculum and implementing and evaluating through an internship will be utilized to create three more MOOCs on lactation.



International vs. U.S. Residents' Stress, Discrimination, Subjective Well-being and Depression

M.K. Almadani, R.A. Bagramian, J.B. Dennison, T.L.de Peralta & M. Inglehart

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ABSTRACT

Objectives: Graduate dentistry programs in the U.S. enroll large numbers of international residents. The objectives are to compare (a) stress and discrimination of international vs. in-state/out-of-state U.S. dental graduate students, (b) their well-being and depression scores, and (c) the relationships between stress / discrimination and well-being/depression in these two groups of dental residents.

Methods: Data were collected from 94 international students from 26 countries and 142 in-state/out-of-state U.S. dental graduate students. Stress, subjective well-being and depression were included with standardized scales.

Results: Compared to in-state/out-of-state residents, international residents reported more stress related to faculty and administrator interactions, work-related self-confidence, work-life balance, and social interactions. International residents experienced more frequently negative treatment from (peers, faculty and staff because of their ethnic/cultural background, and from patients and persons outside the academic setting, and peers, faculty, staff, patients and others because of language fluency than U.S. graduate students. International students had lower subjective well-being and higher depression scores than their U.S. peers. Stress scores were correlated with well-being and depression for both groups. However, discrimination scores were only correlated with international residents' well-being and depression scores.

Conclusions: International students in U.S. dental graduate programs experience higher stress, more discrimination, lower subjective well-being and more depression than their U.S. peers. Given the negative relationships between stress, discrimination, depression and poorer academic achievement, it is crucial for U.S. dental graduate program administrators to consider how to better support international residents' adjustment to their new environment.

INTRODUCTION

- In 2018-19, 627 graduates of international dental schools were admitted to U.S. dental schools. In 2018-19, non-resident aliens made up 4.4% of first-year students and 5.9% of graduates.
- Originally, stress was defined as a general response of the body to any noxious stimulus.¹
- Small amounts of stress may be desirable, beneficial, and even healthy.
- But in the context of this thesis, stress is defined as being negative or distress.²
- Excessive chronic stress can adversely affect a person's physical and mental health.³
- Occupational stress can negatively affect the quality of life and health, resulting in social, health and economic costs.
- It can lead to impaired well-being² and depression.³

AIMS

The objectives are to compare

- (a) stress and discrimination of international vs. in-state/out-of-state U.S. dental graduate students,
- (b) their well-being and depression scores, and
- (c) the relationships between stress / discrimination and well-being /depression in these two groups of dental residents.

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.

Study design: This research is a cross-sectional study of international vs. in-state and out-of-state U.S. graduate students.

Respondents: Data were collected from 94 international and 142 in/out-of-state residents (See Table 1).

Procedure: A recruitment email was sent graduate dental program directors, asking them to forward a recruitment email to their residents. This email explained the purpose of the research and provided a link to an anonymous web-based survey.

Table 1: Background characteristics of in- and out-of-state vs. international residents

Background characteristics	In- and out-of-state residents N = 142	International residents N = 94	p
Gender:			
- male	52%	43%	0.098
- female	48%	57%	
Age:	Mean: 30.24 SD: 3.608	30.77 4.523	0.323
Living situation:			
- alone	32%	48%	0.031
- with spouse/partner	53%	38%	
- with roommate(s)/others	15%	16%	
Do you have children? Yes	23%	35%	0.036
Number of U.S. states from which responses were received	27	35	
Year in graduate program:			0.938
-Year 1	35%	38%	
-Year 2	32%	32%	
-Year 3	32%	28%	
-Year 4	2%	2%	
Specialty program:			
- Periodontics	17%	32%	
- Orthodontics	25%	5%	
- Prosthodontics	14%	16%	
- Endodontics	12%	14%	
- Pediatric dentistry	16%	4%	
- OMS	12%	2%	
- Restorative dentistry	2%	12%	
- Operative dentistry	1%	10%	
- PHD	0%	2%	
- AEGD	0%	1%	
- Implant dentistry	0%	1%	
- Oral medicine	1%	0%	
- TMD	1%	0%	



RESULTS

The first objective was to compare stress and discrimination^{1,2} international vs. in-state/out-of-state U.S. dental graduate students. Table 2 shows that compared to in-state / out-of-state residents, international residents reported more stress related to faculty and administrator interactions, work-related self-confidence, work-life balance, and social interactions, and experienced more frequently negative treatment from peers, faculty and staff because of their ethnic/cultural background.

Table 2: In- and out-of-state vs. international students' stress and experienced discrimination

Dental Environment Survey – Stress factors	In-state & out-of-state	International	p
Factor 1: Stress due to faculty and administrative support Index (Cronbach alpha = 0.870)	2.01	2.25	0.016
Factor 2: Stress about work related self-confidence Index (Cronbach alpha = 0.885)	2.08	2.29	0.027
Factor 3: Work-life balance stress Index (Cronbach alpha = 0.816)	2.19	2.51	0.006
Factor 5: Stress related to social interactions Index (Cronbach alpha = 0.721)	1.76	1.97	0.014
Factor 6: Stress related to finances/future Index (Cronbach alpha = 0.704)	2.39	2.48	0.471
Single item: Examinations / assessments	2.24	2.51	0.041
Single item: Learning laboratory techniques	1.68	2.06	0.002
How often have you experienced negative treatment - by peers, faculty and staff due to ethnic / cultural background Index (alpha = 0.930)	1.18	1.64	<0.001
- by patients and others due to ethnic/cultural background Index (alpha = 0.804)	1.36	1.79	<0.001
- because of language fluency Index (alpha = 0.981)	1.17	1.87	<0.001

Legend:
1 The answers ranged from 1 = not at all stressful to 4 = very stressful.
2 The answers ranged from 1 = never to 5 = very often.

The second objective was to compare the in-/out-of-state vs. international residents' well-being and depression. Table 3 shows that international students had lower subjective well-being and higher depression scores than their U.S. peers.

Table 3: Average well-being and depression of in- and out-of-state vs. international residents

Subjective well-being	In-state & out-of-state	International	p
Well-being Index (alpha = 0.873)	3.41 ¹	3.24	0.005
Center for Epidemiological studies depression scale			
Average depression Index (Cronbach alpha = 0.872)	1.66 ²	1.72	0.002

Legend:
1 The answers ranged from 1 = lowest to 5 = most positive average subjective well-being.
2 Answers ranged from 1 = "hardly ever depressed", 2 = "some of the time" to 3 = "most of the time depressed".

The third objective was to compare the relationships between stress / discrimination and well-being /depression in these two groups of dental residents. Table 4 shows Stress scores were correlated with well-being and depression for both groups. However, discrimination scores were only correlated with international residents' well-being and depression scores.

Table 4: Correlations between stress and discrimination and well-being and depression

Stress about:	Well-being		Depression	
	In- & out-of-state	International	In & out-of-state	International
- Faculty and administrative support	.475 ***	.491 ***	-.389 ***	-.327 ***
- Work related self-confidence	.514 ***	.470 ***	-.405 ***	-.353 ***
- Work-life balance stress	.569 ***	.412 ***	-.474 ***	-.301 ***
- Program requirements	.316 ***	.428 ***	-.256 ***	-.321 ***
- social interactions	.461 ***	.370 ***	-.320 ***	-.077
- finances / future Index	.371 ***	.288 ***	-.340 ***	-.368 ***
Negative treatment				
- by peers, faculty and staff due to ethnic /cultural background	.226 *	.407 ***	-.135	-.070
- by patients and others due to ethnic / cultural background	.335 ***	.262 *	-.229	-.095
- because of language fluency	.091	.270 *	-.091	.028

DISCUSSION

Given the negative relationships between stress, discrimination, depression and poorer academic achievement, it is crucial for U.S. dental graduate program administrators to consider how to better support international residents' adjustment to their new environment.

CONCLUSIONS

- International students in U.S. dental graduate programs experience
 - higher stress,
 - more discrimination,
 - lower subjective well-being and
 - more depression
- than their U.S. peers.

ACKNOWLEDGEMENTS

- We want to thank
- the program directors for forwarding our resident email to their students and
 - the residents for taking time out of their busy schedules to respond to our survey.

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HPE Day Abstract 500

Title: International vs. U.S. Residents' Stress, Discrimination, Subjective Well-being and Depression

Authors: M.K. Almadani , R.A. Bagramian , J.B. Dennison, T.L.de Peralta & M.R. Inglehart

Background: Graduate dentistry programs in the United States (U.S.) enroll large numbers of international residents. The objectives are to compare (a) stress and discrimination of international vs. in-state/out-of-state U.S. dental graduate students, (b) their well-being and depression scores, and (c) the relationships between stress/discrimination and well-being/depression in these two groups of dental residents.

Methods: Data were collected from 94 international students from 26 countries and 142 in-state/out-of-state U.S. dental graduate students U.S. The Graduate Environmental Stress Scale (DESS-30) was used to assess stress; Bradburn's Subjective Well-being scale and the Center for Epidemiological Studies Depression scale were included to assess well-being and depression.

Results: Compared to in-state/out-of-state residents, international residents reported more stress related to faculty and administrator interactions (4-point scale with 1=not at all stressful:2.01 vs. 2.25;p=0.015), about work-related self-confidence (2.08 vs.2.29;p=0.027), work-life balance stress (2.19 vs. 2.51;p=0.005), and more stress related to social interactions (1.76 vs. 1.97;p=0.014).

Lessons Learned: International residents experienced more frequently negative treatment from (a) peers, faculty and staff because of their ethnic/cultural background (5-point scale with 5 = very often: 1.64 vs. 1.18;p<0.001), (b) patients and persons outside the academic setting (1.79 vs. 1.36;p<0.001), and peers, faculty, staff, patients and others because of language fluency (1.87 vs. 1.17;p<0.001) than U.S. graduate students. International students had significantly lower subjective well-being and higher mean depression scores than their U.S. peers. Stress scores were significantly correlated with well-being and depression for both groups. However, discrimination scores were only correlated with international residents' well-being and depression scores.

Conclusion: International students in U.S. dental graduate programs experience higher stress, more discrimination, lower subjective well-being and more depression than their U.S. peers. Given the negative relationships between stress, discrimination, depression and poorer academic achievement, it is crucial for U.S. dental graduate program administrators to consider how to better support international residents' adjustment to their new environment.

“Students are my Treatment for Burnout”: Low Burnout Rates in Pediatric Clerkship Directors and Coordinators.

Jessica Fealy, MD¹; Ada M Fenick, MD²; Heather L Burrows, MD, PhD¹; Angela Punnett, MD³

1 University of Michigan Medical School, 2 Yale School of Medicine, 3 University of Toronto Faculty of Medicine

Background

- Physician burnout studies suggest that involvement in meaningful activities can be protective.
- Minimal data exists regarding the impact of burnout on those responsible for medical student education.
- More than 50% of IM clerkship directors (CDs) experienced burnout, which appeared to impact their attitudes towards students
- However, IM program directors and psychiatry CDs showed lower rates of burnout when compared to national studies.^{1,2,3}
- There are no related studies describing burnout among pediatric CDs and clerkship coordinators, nor the potential impact on pediatric student education.

Objective

- Determine the prevalence of burnout symptoms across the COMSEP membership
- Explore the relationship between burnout and attitudes toward medical students., CD demographics, dedicated educational FTE, and clerkship grading practices.

Methods

- The annual COMSEP survey in Spring 2019 included:
- Maslach’s single-item measures for emotional exhaustion (EE) and depersonalization (DP)
 - questions around attitudes towards student education
 - an open-ended question regarding interactions between education roles and wellness
 - demographic data regarding academic rank, gender, dedicated educational FTE and several questions on grading practices .

Results

- The measures for EE and DP in the 124 completed surveys were in the average range (mean scores 3.5 +/- 1.4 and 2.6 +/- 1.5 respectively).
- High EE and DP were reported by 21.7% and 10.8% of the cohort
- Low EE and DP were reported by 28.3% and 57.5% of the cohort.
- Only 9.7% of the cohort were at high-risk for burnout, 27.4% were at low-risk.
- 90% of respondents found working with students rewarding.
- Females comprised 71% of respondents and were significantly more likely (p=0.028) to acknowledge feeling too much stress when working with students, and more likely to feel guilty about their attitudes towards students (p=0.034).
- There was no statistical significance between the genders in EE or DP rates.
- Age, ethnicity, academic rank, and clerkship length were not statistically significant predictors of burnout symptoms.
- Neither subjectivity/objectivity of grades, nor grading schema significantly impacted burnout.
- As dedicated educational effort decreased, rates of callousness increased, and the respondents were less likely to feel rewarded from working with students.
- Thematic analysis of narrative comments revealed 3 themes: the importance of protected time, increased autonomy for medical educators, the tension between the joy of teaching and mentoring versus the administrative burden

Discussion

- COMSEP members experience substantially less burnout than other physicians and medical educators and the majority of respondents find their work with students rewarding, including those at highest risk for burnout.
- Taken as a whole, educational roles may contribute to resilience.
- Consistent with prior studies on burnout ⁴, female respondents were more likely to experience stress and feelings of guilt related to their educational roles
- Respondents with the lowest quartile of dedicated educational FTE (0.0-0.2) were more callous towards students and found their educational roles less rewarding.
- Results suggest little interaction between burnout and grading process.
- Future studies should explore ways to decrease feelings of stress and guilt, especially among female medical educators, and explore if dedicated educational FTE provides additional protection against burnout.

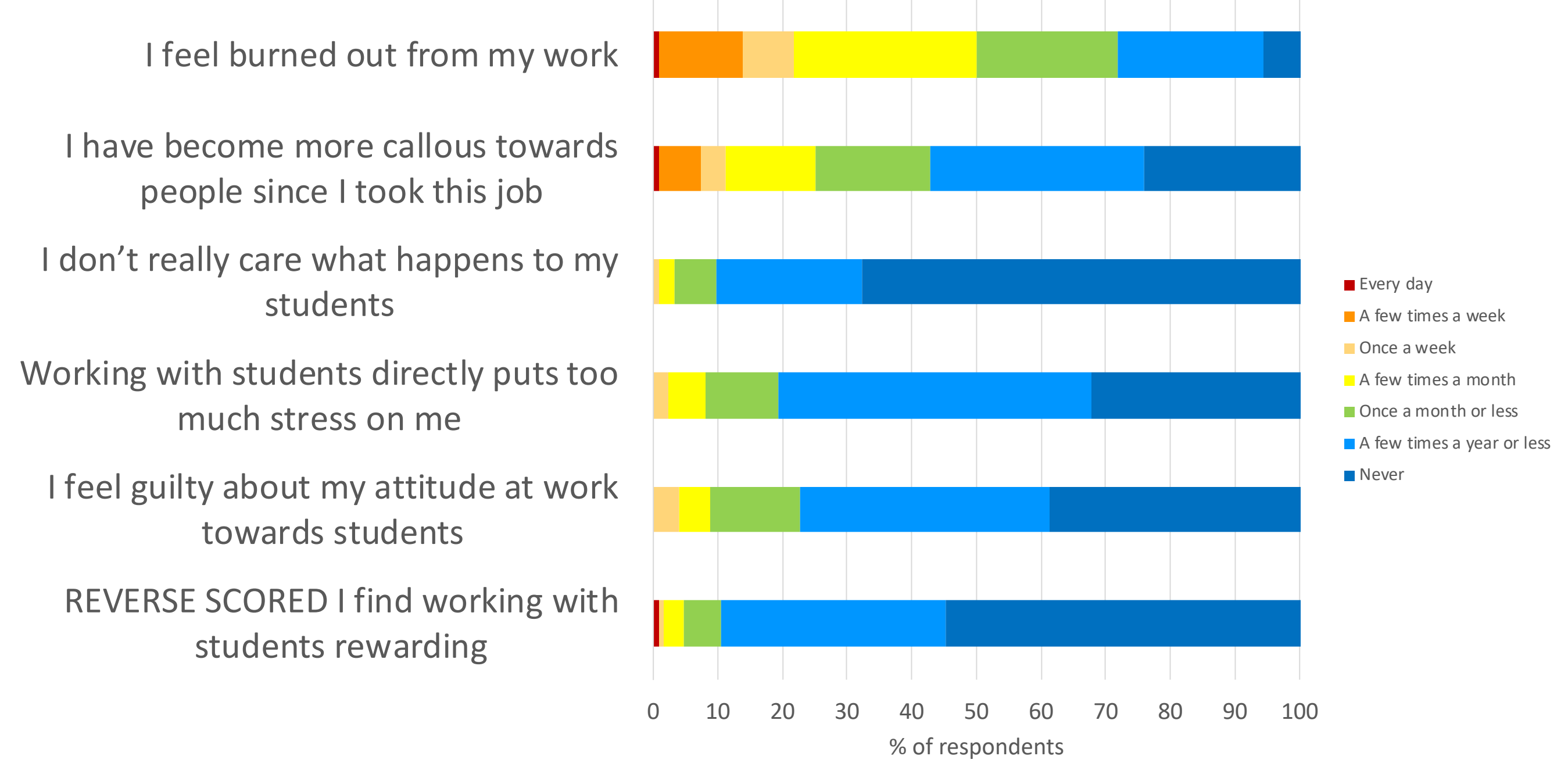


COMSEP members are less burned out than other physicians and medical educators.

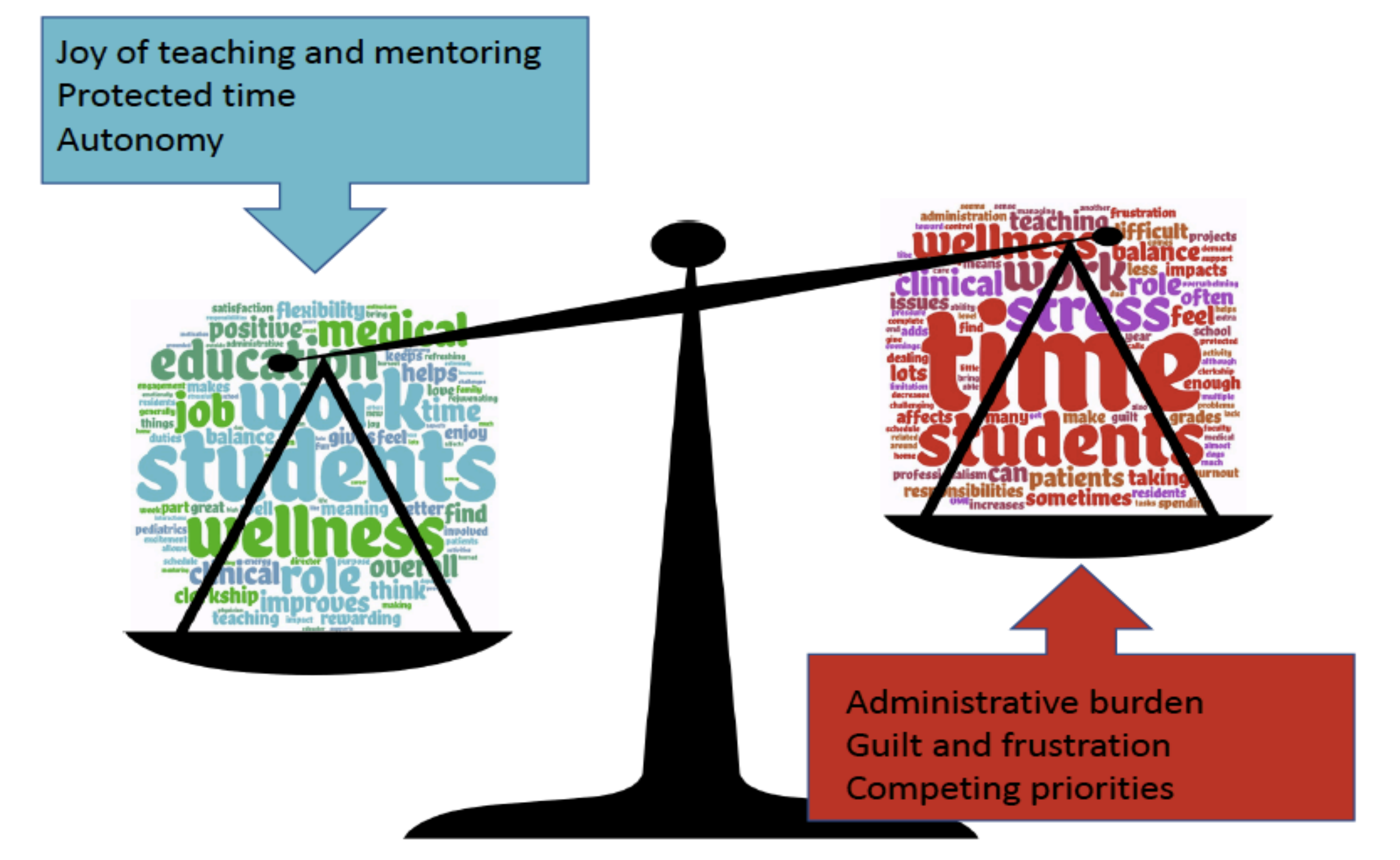


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Burnout and educational satisfaction



Education roles and wellness thematic analysis



Acknowledgement

- Statistical support was provided by Yunjie Wang, Charles Woodson Fund for Biostatistical Research, University of Michigan
- We are grateful to the COMSEP members who participated in the annual survey.

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“Students are my Treatment for Burnout”: Low Burnout Rates in Pediatric Clerkship Directors and Coordinators.

Fealy, Jessica L¹, Fenick, Ada M², Burrows, Heather L MD, PhD¹, Punnett, Angela MD³, for the COMSEP wellness collaborative.

¹University of Michigan Medical School, ²Yale School of Medicine, ³University of Toronto Faculty of Medicine

Background: Studies of physician burnout suggest that involvement in meaningful activities can be protective. Medical educators note the value educational roles contribute to their career satisfaction; minimal data exists regarding the impact of burnout on those responsible for medical students. More than 50% of IM clerkship directors (CDs) experienced burnout that appeared to impact their attitudes towards students, however, IM program directors and psychiatry CDs showed lower rates of burnout when compared to national studies [1,2,3]. There are no related studies describing burnout among pediatric CDs and clerkship coordinators, nor the potential impact on pediatric student education.

Objectives: To determine the prevalence of burnout symptoms across the COMSEP membership and explore the relationship between burnout and attitudes toward medical students, CD demographics, dedicated educational FTE, and clerkship grading practices.

Methods: The annual COMSEP survey in Spring 2019 included Maslach’s single-item measures for emotional exhaustion (EE) and depersonalization (DP), questions around attitudes towards student education, and an open-ended question regarding interactions between education roles and wellness. This survey also contained demographic data regarding academic rank, gender, dedicated educational FTE, and several questions on grading practices.

Results: The measures for EE and DP in the 124 completed surveys were in the average range (mean scores 3.5 +/- 1.4 and 2.6 +/- 1.5 respectively). Rates of high EE and DP were reported by 21.7% and 10.8% of the cohort, while low EE and DP were reported by 28.3% and 57.5% of the cohort. Only 9.7% of the cohort were at high-risk for burnout whereas 27.4% were at low-risk. 90% of respondents found working with students rewarding. Females comprised 71% of respondents and were significantly more likely than males ($p=0.028$) to acknowledge feeling too much stress when working with students, and more likely to feel guilty about their attitudes towards students ($p=0.034$). There was no statistical significance between the genders with regards to EE or DP rates. Age, ethnicity, academic rank, and clerkship length were not statistically significant predictors of burnout symptoms. Neither subjectivity/objectivity of grades, nor grading schema (e.g., H/HP/P/F vs. pass/fail) significantly impacted burnout. As dedicated educational effort decreased, rates of callousness increased, and the respondents were less likely to feel rewarded from working with students.

Narrative responses were positive (50%) or neutral (28%) with respect to medical education roles and impact on wellness.

Discussion: COMSEP members experience substantially less burnout than other physicians and medical educators. The overwhelming majority of respondents find their work with students rewarding, including those at highest risk for burnout. Taken as a whole, educational roles may

contribute to resilience. However, consistent with prior studies on burnout female respondents were more likely to experience stress and feelings of guilt related to their educational roles.⁴ Respondents with the lowest quartile of dedicated educational FTE 0.0-0.2 were also more callous towards students and found their educational roles less rewarding. Results suggest little interaction between burnout and grading process. Future studies should explore ways to decrease feelings of stress and guilt, especially among female medical educators, and explore if dedicated educational FTE provides additional protection against burnout.

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We are grateful to Yunjie Wang, MS, for her statistical support through the Charles Woodson Fund for Clinical Research, and to COMSEP members who shared their data via the Annual Survey of Members.



PURPOSE

- Medical students report high rates of stress, anxiety, and depression with peak time for burnout during medical training.
- Despite the widespread implementation of medical school wellness programs, currently there is a gap in our knowledge of the student perspective on the efficacy of these initiatives and they may not be targeting the most at-risk students in the clinical years.
- In order to address wellness in our clinical clerkship students, we designed a built-in “wellness days” intervention during our Obstetrics/Gynecology (OB/GYN) and Pediatrics clerkships wherein students were given time to choose their own wellness activities.
- Student choice of activities and choice of companions for the activity were explored.

METHODS

During the 2018-2019 academic year, students on OB/GYN and Pediatrics rotations were given protected time for personal wellness.

- OB/GYN: 3 days off
- Pediatrics: 1 weekday off (in addition to most weekends)



5-item electronic survey distributed at the conclusion of the clerkship.

IRB exempt

Wellness Activity

What wellness activity did you do?

Who did you spend wellness time with?

- Significant other, family member, friend (medical or not), self, pet, other

Impact of Protected Wellness Days

Would you have done this wellness activity if you hadn't had protected wellness days?

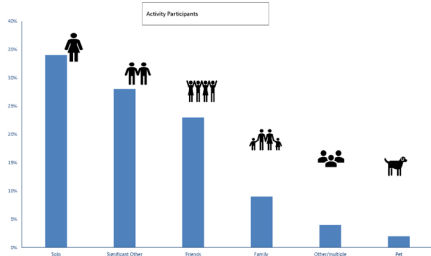
Comments (free-text)

RESULTS

185/193 (96%) of students on OB/GYN clerkship and 119/190 (63%) of students on pediatrics clerkship completed the wellness survey.



Graph 1: Activities students elected to participate in (Pediatric data)

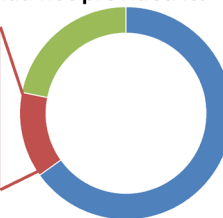


Graph 2: Who students elected to spend wellness time with (pediatric data)

RESULTS

Would you have had time to do this activity if the clerkship had not provided it?

Only 14% of students would have done this wellness activity if we had not encouraged them to dedicate time for it.



YES
NO
Not Sure

Graph 3: Frequency of students who would have participated in activity if dedicated time had not been provided

"Having a bit of extra time to breathe this clerkship was so helpful and needed it made me a better caregiver when I was on service."

"Thank you for the wellness days!! Made a HUGE difference in mental and physical wellbeing. More rotations should absolutely do this."

"This was incredible. I feel like I am learning a similar amount of medicine on this rotation, but thanks to the built-in wellness time, I feel far less burned out and much more motivated to study."

"Thank you for giving us time off for wellness! So important in helping us stave off the 'learned helplessness' by giving us some semblance of control over our schedule this year."

CONCLUSIONS

Students had a wide range of self-chosen wellness activities and wellness companions, many of which would not have taken place within traditionally defined wellness programming.

As medical educators are exploring strategies to incorporate practical wellness into their clerkship curricula, providing flexible built-in wellness time may be a unique approach to target students who wouldn't otherwise be inclined to participate in self-care.

Unique student preferences should guide wellness initiatives.

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HPE Day Abstract 502

Title: Promoting wellness in the clerkships: providing time for student wellness preferences

Authors: Samantha Kempner, Jessica Fealy, Jocelyn Schiller, Sharon Kileny, Heather Burrows, Maya Hammoud

Background: Medical students report high rates of stress, anxiety, and depression.¹ Peak time for burnout appears to be during medical training; thus, there has been a significant call for action to address wellbeing among medical trainees.^{2,3} Medical schools have largely responded with pre-clerkship curricular changes and with optional extracurricular wellness programming.^{4,5} Despite the widespread implementation of wellness programs, there is a gap in our knowledge of the student perspective on the efficacy of these initiatives.⁶ Additionally, optional wellness programming may not be targeting the most at-risk students, particularly in the stressful clinical medical school years. It is known that self-care and wellness activities are important for preventing burnout; however, conflicts in managing work-life balance are often highest in the first clinical year.⁷ In order to address wellness in our clinical clerkship students, we designed a built-in “wellness days” intervention during our Obstetrics/Gynecology (OB/GYN) and Pediatrics clerkships wherein students were given time to choose their own wellness activities.

Methods: At the start of the 2018-2019 clinical year, we initiated protected wellness days, completely free from clinical duties, for students on both the OB/GYN and Pediatrics rotations. In advance of the six-week OB/GYN clerkship, students were able to submit requests of the three days they would like to use for wellness in order to plan for personal travel or other wellness-related self-care. Similarly, in the six-week Pediatric rotation, students could submit requests for protected time for health-related appointments. Pediatric students were given weekends as well as one additional weekday off during the outpatient portion of their rotation. At the conclusion of each clerkship, a 7-item survey was administered to all students. Survey was IRB exempt.

Results: 185/193 (96%) second year medical students on the OB/GYN clerkship and 119/190 (63%) of students on pediatrics completed the wellness survey. Students participated in a variety of activities ranging from self-care activities (cooking, grocery shopping, doctor/dentist appointments) to physical activity, to travel to see family/significant others. Wellness time was spent with a significant other or family member (50% OB/GYN; 34% pediatrics), a friend (24%; 19%), solo (21%; 39%), or a pet (1%;1%). A significant portion of students (63% OB/GYN; 47% pediatrics) stated that they would not have made time for their specific wellness activity without our “wellness days” initiative. Only 25 students on OB/GYN (13%) and 18 students on pediatrics (15%) would have done this wellness activity if we had not encouraged them to dedicate time for it.

Lessons Learned: Students largely appreciated the protected time for wellness with the majority of students using the optional “comment” space on the survey to thank us for the wellness opportunity. Due to the demands of the clinical clerkship year, few students would have taken such purposeful time for self-care activities without explicit permission/instruction from the clerkship leadership. Students had a wide range of self-chosen wellness activities and wellness companions, many of which would not have taken place within traditionally-defined wellness programming.

Conclusion: In an era when medical educators are exploring strategies to incorporate practical wellness into their clerkship curricula, we found protected wellness days were well-received by our students. As medical educators continue to take steps to combat depression and burnout in our medical trainees, providing flexible built-in wellness time may be a unique approach to target students who wouldn't otherwise be inclined to participate in self-care. Unique student preferences should guide wellness initiatives. We also know that having social support structures improves medical student well-being and resilience; the fact that this activity permitted students to spend quality time with significant others, family members and friends likely also strengthened their social support system in ways that are difficult to measure.

List Of 3 Key Words: wellness, burnout, prevention

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Dental Students' Interest in Treating Pediatric Dental Patients: The Role of Personal and Educational Experiences: A Survey

Evan Templeman; Mentors: MR Inglehart & LB Salzmann; University of Michigan School of Dentistry



ABSTRACT

Background: Since the US Surgeon General Report on Oral Health in 2000, it is well-known that increased access to dental care for pediatric patients and especially for children with special health care needs is urgently needed. The objectives were to assess (a) dental students' experiences with pediatric dentistry prior to dental school and (b) their educational experiences during dental school, and (c) to determine how these experiences are associated with their interest in treating pediatric patients in the future as a general dentist or a pediatric dentist.

Methods: Anonymous survey data were collected from 368 pre-doctoral dental students.

Results: On average, the dental students were motivated to learn more about pediatric dentistry, had positive educational experiences with pediatric dentistry, and had a positive attitude towards peer education by pediatric dentistry residents. The more experiences with pediatric dentistry the students had prior to dental school, the more they were interested in becoming a pediatric dentist. The more exposure the dental students had to pediatric dentistry and the more positive their educational experiences were, the more interested they were in treating pediatric patients as a general dentist in the future.

Conclusions: To increase the number of dental students with interest in becoming pediatric dentists, exposure to the field prior to coming to dental school is critical and the better the students' educational experiences are, the more interest they have in treating pediatric patients as general dentists.

BACKGROUND

- Since the first ever U.S. Surgeon General Report on Oral Health in 2000, it is well-known that increased access to dental care for pediatric patients and especially for children with special health care needs is urgently needed.
- However, the American Academy of Pediatric Dentistry still has only about 5,000 members, leaving dental care for children mostly in the hands of general dentists.
- One interesting question is which factors would motivate dental students' career choices to continue their education in a pediatric dentistry residency or would motivate them to provide dental care for pediatric patients once they are established as general dentists.
- In 2018, Shaikh et al. provided an overview of motivational factors that motivate students to consider dentistry or dental hygiene as their future career.¹ Personal experiences played an important role in deciding on these careers. The role of personal experiences with pediatric dentistry prior to entering dental school will therefore be explored in a first objective of this study.
- Research also showed that the quality of dental education about pediatric dentistry motivated dentists to increase their services for pediatric patients.²

OBJECTIVES

The objectives are to explore dental students'

- experiences with pediatric dentistry prior to dental school,
- educational experiences during dental school, and
- to determine how these experiences are associated with their interest in treating pediatric patients in the future as a general dentist or a pediatric dentist.

METHODS

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

Respondents:

- Data were collected from 368 dental students students from the University of Michigan. See Table 1!

Procedure:

- Data were collected with anonymous web-based and paper-pencil data
- over a two months period in September/October 2019.

Table 1: Overview of the background characteristics

Background characteristics	Frequencies	Percentages
Gender:		
- male	171	46.1%
- female	200	53.9%
Age	Mean: 24.86 SD / Range: 2.87/19-38	
Year of dental school:		
- D1	91	24.7%
- D2	109	29.6%
- D3	101	27.4%
- D4	67	18.2%
Are you an internationally trained dentist? Yes	28	7.6%



Objective a was to explore dental students' experiences with pediatric dentistry prior to dental school. Table 2 shows that 26.3% had been a patient of a pediatric dentist, 26.4% had shadowed a pediatric dentist in an office setting and 8.9% in an operating room prior to dental school. In addition, 8.6% had worked in a pediatric dentistry practice.

Table 2: Experiences prior to dental school

Experiences with pediatric dentistry	Frequencies	%
Did you see a pediatric dentist?	97	26.3%
Did you shadow a pediatric dentist		
- in an office?	98	26.4%
- in an operating room?	33	8.9%
Number of hours you shadowed:	Mean: 28.68 Range: 0-4000	
Did you work in a pediatric practice? Yes	32	8.6%
Since you started your dental school education, did you have a rotation in:		
- in the pediatric dentistry department in the dental school?	167	45.0%
- in a community-based site?	22	5.9%
- as a volunteer for pediatric dentistry related activities?	82	22.1%
Sum of 3 previous experiences:		
3	12	3.2%
2	26	7.5%
1	71	19.1%
0	260	70.1%

Objective c was to determine how experiences prior and during college were associated with an interest in treating pediatric patients in the future as a general dentist or a pediatric dentist. Table 4 shows that the more experiences with pediatric dentistry the students had prior to dental school, the more they were interested in becoming a pediatric dentist. The more exposure they had to pediatric dentistry and the more positive their educational experiences were, the more interested they were in treating pediatric patients as a general dentist in the future.



RESULTS

Objective b was to explore dental students' educational experiences during dental school. Table 3 shows that on average, the dental students were motivated to learn more about pediatric dentistry and had had positive educational experiences with pediatric dentistry.

Table 3: Educational experiences with pediatric dentistry in dental school

Now much exposure have you had during dental school education with:	1	2	3	4	5	Mean
- pediatric dentistry faculty members ¹	36%	14%	23%	20%	7%	2.49
- pediatric dentistry residents ²	47%	20%	21%	9%	4%	2.04
- pediatric dentistry classroom-based education ²	32%	17%	19%	22%	10%	2.62
- pediatric dentistry clinical education ²	43%	14%	25%	14%	4%	2.23
Factor 1: "Degree of exposure to PDI"	Mean = 2.35 SD = 1.158 Range: 1 - 5					
Motivation to learn about pediatric dentistry	1	2	3	4	5	Mean
I would like an earlier exposure to pediatric dentistry in the dental school curriculum	2%	11%	23%	37%	18%	3.58
I would like more clinical exposure to pediatric dentistry	2%	7%	23%	43%	24%	3.80
Factor 2: "Motivation to learn about pediatric dentistry"	Mean = 3.69 SD = 0.877 Range: 1.00 - 5.00					
Positive educational experiences with pediatric dentistry	1	2	3	4	5	Mean
I had a positive first exposure to pediatric dentistry	3%	6%	44%	33%	14%	3.50
I am satisfied with the classroom-based education about pediatric dentistry that I received so far ¹	5%	19%	40%	26%	9%	3.15
I am satisfied with the clinical education about pediatric dentistry that I received so far ¹	6%	21%	44%	22%	6%	2.94
I feel comfortable approaching / working with the industry in the pediatric dentistry clinic	0.4%	6%	36%	35%	22%	3.72
Factor 3: "Positive educational experiences with pediatric dentistry in dental school"	Mean = 3.49 SD = 0.705 Range: 1.00 - 5.00					

1. Answers ranged from 1 = no exposure to 5 = very much exposure.
2. Answers ranged from 1 = disagree strongly to 5 = agree strongly.

Table 4: Correlations between personal and education experiences and career motivation to work with children

Personal experiences with pediatric dentistry prior to dental school	Interest to work with children as a			
	general dentist	pediatric dentist	another dental specialist	
Did you see a pediatric dentist growing up?	Yes: N=77 3.68	No: N=235 3.75	Yes: 3.03	No: 2.38** 3.51
Experience with pediatric dentistry prior to dental school ¹	0.04	0.18**	0.04	
Experiences in dental school				
Year in dental school	0.15*	.08	-0.09	
"Degree of exposure to pediatric dentistry" Index ²	0.14*	0.16*	-0.01	
"Motivation to learn about pediatric dentistry" Index ²	0.22***	0.24***	0.23***	
"Positive educational experiences" Index ²	0.27***	0.02	0.121	
"Positive attitude towards peer education" Index ²	-0.10	-0.06	-0.07	
Attitudes towards pediatric dentistry				
The idea of treating children frightens me ³	-0.12*	-0.24***	-0.09	
Treating children with special healthcare needs is solely a pediatric dentist's job ⁴	0.14*	0.03	0.04	

DISCUSSION

- A clear pattern arose: Having experiences with pediatric dentistry prior to entering dental school resulted in a higher likelihood of being interested in becoming a pediatric dentist.
- However, the better the educational experiences with pediatric dentistry were during the students time in dental school, the more likely they also were to be committed to treating pediatric dental patients as general dentists.
- Given that some dental specialty such as prosthodontics and endodontics focus mostly on providing adult care, it is not surprising that prior experiences with pediatric patients and experiences during dental school did not correlate with wanting to provide more care for children/
- One limitation of this study is that data were only collected from one dental school.

CONCLUSIONS

- In order to increase the number of dental students with an interest in becoming pediatric dentists, exposure to the field prior to coming to dental school would be important.
- In addition, the better the students' educational experiences with pediatric dentistry were during dental school, the more interest they had in treating pediatric patients as general dentists.
- Given that general dentists are still providing dental care for pediatric dental patients, it is crucial to assure that they have excellent educational experiences during their time in dental school.

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ACKNOWLEDGMENTS

We want to thank the dental students who took the time to respond to this survey.

HPE Day Abstract 600

Title: Dental Students' Interest in Treating Pediatric Dental Patients: The Role of Personal and Educational Experiences

Authors: Evan Templeman, Larry Salzman & Marita Inglehart

Background: Since the US Surgeon General Report on Oral Health in 2000, it is well-known that increased access to dental care for pediatric patients and especially for children with special health care needs is urgently needed. The objectives of this study were to assess (a) dental students' experiences with pediatric dentistry prior to dental school and (b) their educational experiences during dental school, and (c) to determine how these experiences are associated with their interest in treating pediatric patients in the future as a general dentist or a pediatric dentist.

Methods: Anonymous survey data were collected from 368 pre-doctoral dental students.

Results: 26.3% had been a patient of a pediatric dentist, 26.4% had shadowed a pediatric dentist in an office setting and 8.9% in an operating room prior to dental school. In addition, 8.6% had worked in a pediatric dentistry practice. On average, the dental students were motivated to learn more about pediatric dentistry (5-point scale with 1=no motivation: Mean=3.69), had positive educational experiences with pediatric dentistry (Mean=3.49), and had a positive attitude towards peer education by pediatric dentistry residents (Mean=3.28). The more experiences with pediatric dentistry the students had prior to dental school, the more they were interested in becoming a pediatric dentist ($r=0.18$; $p<0.01$). The more exposure the dental students had to pediatric dentistry and the more positive their educational experiences were, the more interested they were in treating pediatric patients as a general dentist in the future ($r=0.14$; $p<0.05$ / $r = 0.27$; $p<0.001$).

Lessons Learned: In order to increase the number of dental students with an interest in becoming pediatric dentists, exposure to the field prior of coming to dental school would be important. However, the better the students' educational experiences during dental school are, the more interest they have in treating pediatric patients as general dentists.

Future Application and Next Steps: Increasing dental students' educational experiences concerning treating pediatric patients could positively affect their willingness to provide care for these patients in the future.

What Can We Do About Dr. Google?

Utilizing The EMR To Prescribe Reliable Online Patient Education

Ruti Volk, MSI, AHIP, Karelyn Munro, BA, Amy Hyde, MILS
Patient Education and Health Literacy Program (PEHL)

Background

Providers have long been concerned about the widespread use of "Dr. Google". Research has shown that:

- The majority of patients use Google to find information about their health.
- Much of the information is not accurate.
- Most patients do not check the accuracy or the date of the information they find.

If patients rely on inaccurate, outdated or erroneous information to manage their health, it can lead to unnecessary anxiety and stress, medical mistakes and bad outcomes.

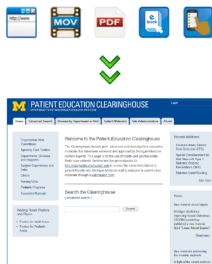


Objective

Our objective is to create an easy way for providers to direct patients to quality online health information resources.

Methods

Our solution relies on the **Patient Education Clearinghouse**, a web-based database that includes over 5,000 materials that have been created or approved by Michigan Medicine experts.



The patient interface of the Clearinghouse is called **Care Guides from Your Clinician**.



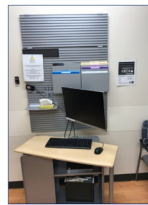
1 Build Collection

PEHL collaborates with providers to create clinic-specific subpages on the Care Guides. The subpages have a unique URL which can be given to patients so they can access it on their own devices. We call this process **Education Rx**.

<http://careguides.med.umich.edu/mis>

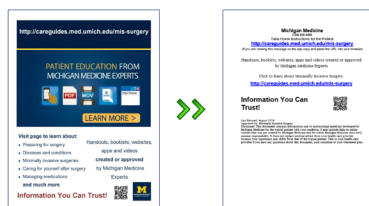


2 Create Print Education Rx

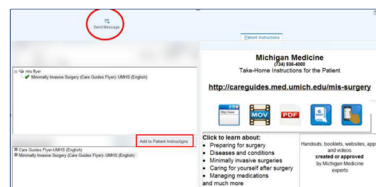


3 Create Electronic Education Rx

PEHL uploads the flyer to **MiChart** patient instructions so providers can send it to print with the After Visit Summary or send it as a message via the patient portal.



4 Prescribe the Education Rx



5 Fill the Prescription

Patients visit the prescribed webpage.

Results

The **Education Rx** has been implemented in more than 40 areas across the institution.



Usability data from the Minimally Invasive Surgery in Chelsea demonstrate that the patients received the Education Rx multiple times over several visits. The number of unique visitors to the page was very close to the number of unique patients seen at the clinic.

Patient data at MIS clinic between 5/1/2018 - 4/31/2019	
Number of unique patients see at the clinic	278
Number of times Education Rx was sent to print with the AVS	706*
* Patients have multiple visits at various locations	

Pageviews	598
New Visitors	252
Returning Visitors	122

• The number of visitors (252) to the page is similar to the number of patients (278) seen at the clinic.
• This provides some confidence that the data accurately reflects usage during this period.

Lessons Learned

- Staff training is key for successful implementation.
- Data shows that web traffic increased after PEHL provided face-to-face demonstrations to clinicians.



Future Application & Next Steps

This is a work in progress. PEHL continues to collaborate with various clinics and units to implement the Education Rx in more areas and clinics. PEHL plans to develop staff training materials, increase communication and provide more face-to-face demonstrations to faculty and staff to expand the use of this program.



Acknowledgments

Nabeel Obaid MD

HPE Day Abstract 700

Title: What can we do about Dr. Google? utilizing the EMR to prescribe reliable online patient education

Authors: Ruti Volk, MSI, AHIP, Karelyn Munro, BA, Amy Hyde, MILS Patient Education and Health Literacy Program (PEHL)

Background: Physicians have long been concerned about the widespread use of “Dr. Google” and the difficulties of responding to patients demanding unproven or unnecessary tests and therapies they found online. Free access to vast amounts of medical information has many benefits, but if patients rely on inaccurate, outdated or erroneous information to manage their health it can lead to unnecessary anxiety and stress, medical mistakes and bad outcomes. Several published studies recommend that physicians assume the responsibility of directing patients to quality online health information resources. Attribute #7 of the National Academy of Medicine discussion paper “Ten Attributes of Health Literate Health Care Organizations” states that it is the responsibility of health care organizations to steer individuals to accurate, easy-to-understand, and actionable information

Methods: Providers at Michigan Medicine use MiChart to prescribe reliable online health information resources to patients. This solution relies on a web-based database, the Michigan Medicine Patient Education Clearinghouse, <https://careguides.med.umich.edu>, which includes patient-education materials that have been created or approved by Michigan Medicine’s experts. PEHL collaborates with clinicians to create sub-pages within this Clearinghouse that link to reviewed and approved patient education materials. The Patient Instructions activity in MiChart is then utilized to direct patients to webpages and access the materials on their own devices. The process is called “Education Rx”.

Results: Education Rx has been implemented in more than 20 areas across the institution. Usability data from MiChart demonstrate providers utilize the Education Rx and send it to print with the After Visit Summary. Some patients receive the Education Rx multiple times over several visits at various locations. Analytics data demonstrate that the traffic volume matches the number of patients seen.

Lessons Learned: Utilizing the EMR to direct patients to accurate, easy-to-understand, and actionable online information is effective, but staff training is key for successful implementation. Data shows that web traffic increased after PEHL provided face-to-face demonstrations to clinicians.

Future Application and Next Steps: This is a work in progress. PEHL continues to collaborate with various clinics and units to implement the Education Rx in more areas and clinics. PEHL plans to develop staff training materials, increase communication and provide more face-to-face demonstrations to faculty and staff to expand the use of this program.

A Question of Justice: Expanding minority physician representation in the workforce

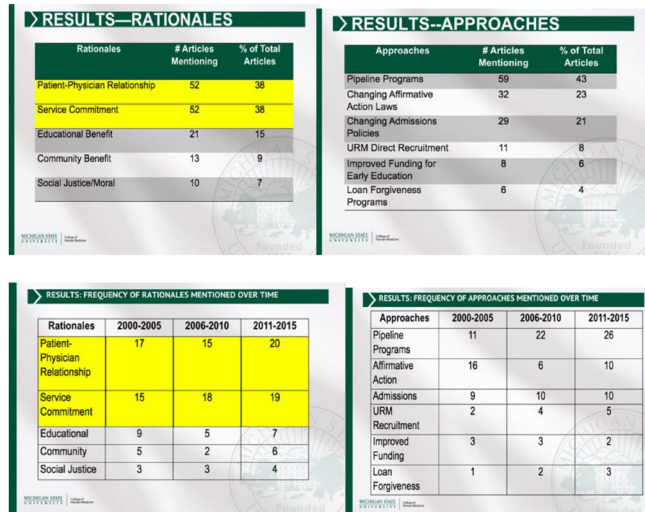
Kelly-Blake, Karen¹, Bogdan-Lovis, Elizabeth¹, Garrison, Nanibaa², Fletcher, Faith³, Ajegba, Brittany⁴, Smith, Nichole⁵, Brafford, Morgan⁶

¹ Center for Ethics and Humanities in the Life Sciences and Department of Medicine, College of Human Medicine, Michigan State University, East Lansing, Michigan,
² Institute for Society and Genetics, Department of Internal Medicine, University of California Los Angeles, Los Angeles, California
³ Department of Health Behavior, University of Alabama at Birmingham School of Public Health, Birmingham, Alabama
⁴ College of Human Medicine, Michigan State University, East Lansing, Michigan
⁵ Pritzker School of Medicine, The University of Chicago, Chicago, Illinois
⁶ Department of Forensic Psychology, Walden University, Minneapolis, Minnesota

INTRODUCTION

- The 2004 Sullivan Commission Report stated that *increasing diversity in the health care professions will improve healthcare access and quality for minority patients and assure a sound health care system for all of our nation's citizens.*
- The literature consistently reports that non-white physicians are more likely to care for minority, medically indigent, and sicker patients and that URM medical students expressed a greater commitment to serve the underserved and were more likely than others to fulfill that commitment.
- Research Question: What are the stated rationales and strategies provided in the 2000-2015 literature for increasing minority representation in the medical workforce?

RESULTS



DISCUSSION

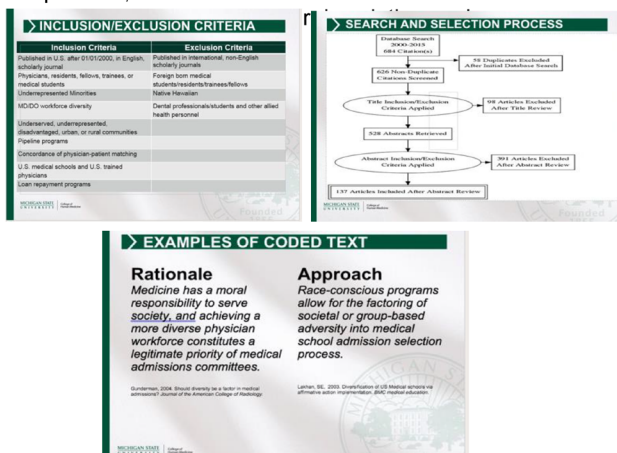
- Our scoping review of the 2000-2015 literature on strategies for and approaches to expanding URM representation in medicine reveals a repetitive, amplifying message of URM physician service commitment to medically underserved and vulnerable populations.
- Repetition breeds intention. Does such repetition reveal the the intentions of the medical community at large or does it seek to reinforce limitations on the scope of URM practice?
- Cross-nationally, service commitment and physician-patient concordance benefits admittedly respond to societal need, but there is an associated risk of singling out URM and only URM to fulfill this need. What is the role of non URM allies?
- The proceedings of a 2001 US Institute of Medicine symposium warned against creating a deterministic expectation that URM physicians provide care to minority populations

CONCLUSION

- The channeling of URMs into service for the underserved inadvertently/simultaneously might limit other specialty training, research, and professional leadership opportunities for those physicians.
- Similar professional limitations not imposed on White medical students/physicians. What is the role on non-URM allies? Caring for the underserved should be equitably shared amongst all providers.
- Instrument argument - taking care of "one's own" is responsibility of URM physicians.
- Our results suggest that the vigilance called for in 2001 at best, has languished.

METHODS

- Identified research question
- Found relevant studies
- Selected articles
- Charted keywords & themes
- Collated, summarized & reported results
- Developed codebook
- Reviewed and coded full-text articles using NVivo Pro™ v.11 qualitative software to identify themes, patterns, and trends in the selected literature.



HPE Day Abstract 800

Abstract Title: A Question of Justice: Expanding minority physician representation in the workforce

Abstract Authors: Karen Kelly-Blake, Elizabeth Bogdan-Lovis, Nanibaa' Garrison, Faith Fletcher, Brittany Ajegba, Nichole Smith, Morgann Brafford

Background: In the US, persons of color suffer disproportionately from a host of health care disparities related to racism, discrimination, lack of access, and undertreatment. When considering this disproportionate suffering, it is relevant to note the impact of the current physician shortage. That shortage is especially acute for underrepresented in medicine (URiM) physicians. Moreover, it is equally salient to recognize that URiM physicians provide care for underserved populations at levels disproportionate to their professional representation. There is a powerful narrative that a diverse and representative medical workforce, one reflecting general population characteristics, can effectively address access issues, increase satisfaction, and ultimately improve health outcomes. However, a 2001 Institute of Medicine (now the National Academy of Medicine) report warned that “we must be vigilant against the potentially pernicious effects of creating the expectation that minority physicians are being trained solely to provide health care services to minority patients or to research minority health issues.” Racial congruity alone is insufficient to address the disparities gap in U.S. health care, and like-to-like patient-physician matching may dangerously and perversely heighten discrimination against URiM physicians.

Actions, Methods, or Intervention: We conducted a scoping review of the literature to categorically map a 15-year trajectory of US undergraduate medical education rationales for and approaches to expanding URiM representation in the medical workforce. From 1 June to 31 July 2015, we searched the Cochrane Library, ERIC, PsycINFO, PubMed, Scopus, Web of Science and Google Scholar for articles published between 2000 and 2015 reporting rationales for and approaches to increasing the numbers of underrepresented minorities in undergraduate medical school. The review focused on three historically underrepresented groups, i.e., African American/Black, Latinx/Hispanic, and Native American/Alaskan Native.

Results: A total of 137 articles were included in the scoping review. Of these, 114 (83%) mentioned workforce diversity and 73 (53%) mentioned concordance. The patient-physician relationship (n = 52, 38%) and service commitment (n = 52, 38%) were the most cited rationales. The most frequently mentioned approaches to increasing minority representation were pipeline programs (n = 59, 43%), changes in affirmative action laws (n = 32, 23%) and changes in admission policies (n = 29, 21%).

Lessons Learned: It seems reasonable to surmise that shared concordant characteristics (e.g. race/ethnicity, language, gender, geographic location, etc.) between patients and physicians might lead to improved communication and satisfaction in the clinical setting. This scoping review of the 2000-2015 literature on strategies for and approaches to expanding URM representation in medicine reveals a repetitive, amplifying message of URM physician service commitment to vulnerable populations in medically underserved communities. Such message repetition reinforces policies and practices that might limit the full scope of URiM practice, research and leadership opportunities in medicine. URiM should not be selectively steered, based solely on assumptions of their background, to pursue a particular medical career pathway. The health care workforce should reflect the nation's population and equally, it is still fair and just to question why we are channeling URiMs to do work not expected of the entire medical workforce. Professional fairness and responsibility within medicine mandate that the medical workforce equitably and fairly assume shared

responsibility for meeting the health care needs of the underserved. Continuing an expectation of burdening the already overburdened is not just health care.

Future Applications and Next Steps: Future research will be a pilot study to: 1) Examine what URiM Michigan primary care physicians report about their practice experience in serving the underserved, 2) Identify potential and actual diversity barriers to URiM primary care practice and examine what they report about their respective practice options regarding patient demographics. We will administer a survey to practicing physicians in the Upper Midwest. The long-term goal of the pilot project is to inform, rethink, and reframe system-and policy-level efforts needed to ensure a medical workforce that is representative of the general population without disproportionately burdening a subset of that population. The results of the study will inform the design and justify an R21 proposal for distributing the survey to a national sample of URiM physicians.

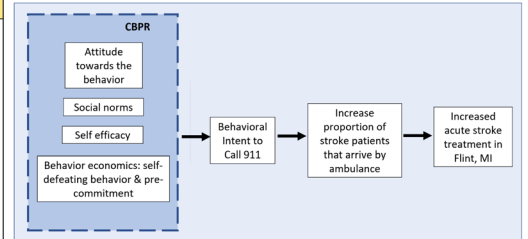
Stroke Ready: Development and Implementation of a Community-Wide, Health Behavior Theory-Based Stroke Preparedness Intervention

Casey L. Corches, MPH, MSOTR/L¹, A. Camille McBride, MPH^{1,2}, Maria Cielito Robles, BS¹, Narmeen Rehman, BS^{1,2}, Lesli Skolarus, MD, MS^{1,2}

¹University of Michigan-Medical School, ²University of Michigan-School of Public Health

Background

- Stroke is the leading cause of disability in the United States.
- Post-stroke disability is highly preventable with timely acute stroke treatment.
- Acute stroke treatments are underutilized, particularly in Flint, MI, where treatment rates are approx. half the national average.
- Stroke Ready is a community-wide, health behavior theory-based stroke preparedness education program to increase acute stroke treatment rates.



Actions, Methods, or Interventions

- We aim to describe how the Stroke Ready program was developed, with the goal of addressing the underlying barriers to seeking stroke treatment through use of culturally-tailored, theory-based messaging and materials.
- During the Stroke Ready pilot study, psychological factors inhibiting the behavior to call 911 were identified.
- Theory of Planned Behavior (TPB), Social Cognitive Theory (SCT), and elements of behavioral economics provided theoretical guidance for intervention development to address barriers. (Figure 1)
- Community-based participatory research (CBPR) provided a framework to ensure the community was engaged throughout the development and implementation process.

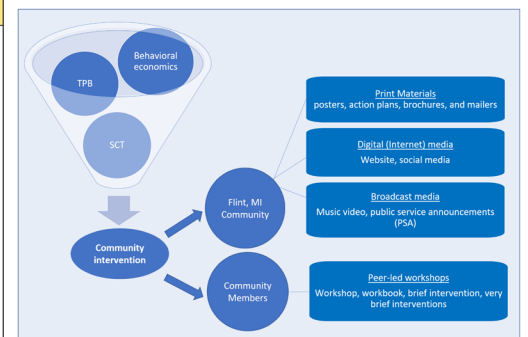


Figure 1

Results



- All intervention messaging and selected materials were pilot-tested through semi-structured interviews and focus groups at multiple phases of development.
- The refined messaging focused on promoting positive messages which are integrated into each component of the intervention (print material, digital and broadcast media and peer-led workshops):
 - there is something that can be done for stroke (e.g. stroke is treatable)
 - each person has the power to help someone they care about by calling 911
 - Increase the perception of having the ability to perform the behavior
 - stroke is not a secret worth keeping
- To date, over 5,500 Flint community members have received the Stroke Ready intervention.



Lessons Learned and Future Applications

- Community involvement is critical in developing acceptable and culturally relevant materials.
- The Stroke Ready program is one of the first to combine a CBPR approach with a theoretical framework in attempt to increase acute stroke treatments.
- We believe the Stroke Ready program reinforces the necessity of community engagement and application of health behavior theory, from intervention conception to dissemination and evaluation, to achieve behavior change and improve community health outcomes.
- Our hope is that Stroke Ready serves as a model for other community and academic partnerships interested in stroke, particularly among minority populations and under-resourced communities.

HPE Day Abstract 801

Abstract Title: Stroke Ready: Development and Implementation of a Community-Wide, Health Behavior Theory-Based Stroke Preparedness Intervention

Authors: Casey L. Corches, A. Camille McBride, Maria Cielito Robles, Narmeen Rehman, Lesli E. Skolarus

Background: Stroke is the leading cause of disability in the United States, but it is treatable. Despite this, acute stroke treatments are underutilized. Stroke Ready is a community-wide, health behavior theory-based stroke preparedness education program to increase acute stroke treatment rates in Flint, Michigan. Stroke Ready occurred in partnership with the city of Flint, Michigan, which has one of the lowest acute stroke treatment rates of any city of its size.

Actions, Methods, or Intervention: Stroke Ready was created in response to the need for practical, culturally appropriate, theory-based interventions to increase acute stroke treatment rates in communities with low utilization rates. We aim to describe how the Stroke Ready program was developed, with the goal of addressing the underlying barriers to seeking stroke treatment through use of culturally-tailored, theory-based messaging and materials.

Results: The Stroke Ready program is one of the first to combine a Community Based Participatory Research (CBPR) approach with a theoretical framework in attempt to increase acute stroke treatments. Using this schema helped us to develop and deliver messages that empower community members to act quickly once stroke symptoms are recognized. To date, over 5,500 Flint community members have received the Stroke Ready intervention.

Lessons Learned: The importance of community engagement in effective implementation cannot be overstated. Community involvement is critical in developing acceptable and culturally relevant materials.

Future Application: We believe the Stroke Ready program provides further evidence of the necessity of community engagement and application of health behavior theory, from intervention conception to dissemination and evaluation, to achieve optimal effectiveness in behavior change and improved community health outcomes. Our hope is that Stroke Ready serves as a model for other community and academic partnerships interested in stroke, particularly among minority populations and under-resourced communities.

Best Practices for Research Abstract Submissions to Multiple Medical Education Conferences

Paula T. Ross¹, PhD; Nicole Borges², PhD; Nikki L.B. Zaidi¹, PhD

¹Research. Innovation. Scholarship. Education. (RISE) and

²Dartmouth Geisel School of Medicine

BACKGROUND

- The presentation of research at professional conferences is one of the most common means to disseminate scholarship.
- Medical education researchers are often uncertain about proper etiquette for abstract submissions to medical education conferences and regularly ask the question, “Can I submit this?” in reference to their ongoing scholarship activities



METHODS

- Representatives from non-specialty-medical education conferences across **four** conference types (institutional, regional, national, and international) were invited to complete a modified Delphi process^{1,2} to identify best practices using a 50-item online survey.
- Questions focused on:

1. abstract submissions using same or similar data previously submitted, accepted, or presented at another conference type,
2. abstract submissions using same or similar data previously submitted or accepted for publication, and
3. required IRB and authorship attestation.



- Responses for each item were summarized (percent agreement and rationale) and shared in an effort to reach consensus (>80% agreement) across survey items.
- Items reaching consensus in any round were eliminated from subsequent round(s).
- In each round, panelists were asked to reconsider their responses based on majority responses or provide additional rationale if remaining outside the majority.

RESULTS

- Eleven expert panelists, representing all four conference types, participated and research consensus on 45/50 survey items: Round 1 = 30 items; Round 2 = 12 items; Round 3 = 3 items.

Panelists reached consensus that research abstracts currently **submitted*** to any conference type could also be submitted to any conference type.

If the abstract was submitted* to a(n)	Could the abstract be submitted in a similar format to a(n)			
	Institutional Conference	Regional Conference	National Conference	International Conference
Institutional Conference	NA	Yes	Yes	Yes
Regional Conference	Yes	NA	Yes	Yes
National Conference	Yes	Yes	NA	Yes
International Conference	Yes	Yes	Yes	NA

Panelists reached consensus that research abstracts currently **accepted*** to any conference type could also be submitted to any conference type.

If the abstract was accepted to a(n)	Could the abstract be submitted in a similar format to a(n)			
	Institutional Conference	Regional Conference	National Conference	International Conference
Institutional Conference	NA	Yes	Yes	Yes
Regional Conference	Yes	NA	Yes	Yes
National Conference	Yes	Yes	NA	Yes
International Conference	Yes	Yes	Yes	NA

*submitted = not yet accepted

After three rounds, panelists did not reach consensus regarding the submission of research abstracts to conferences using data and results currently accepted for publication.

Should the abstract be submitted in a similar format to a(n)			
Institutional Conference	Regional Conference	National Conference	International Conference
Yes	No Consensus	No Consensus	No Consensus

- Panelists also reached consensus that conferences should require an attestation that all authors meet the International Committee of Medical Journal Editors (ICMJE) authorship criteria and include Institutional Review Board (IRB) approval for projects that involve human subjects.

LESSONS LEARNED

- It is appropriate to resubmit abstracts to conferences with a larger or different audience, but not to smaller or more homogeneous audiences.
- Among the four conference types, abstract resubmissions from institutional conferences was the most widely accepted.
- Institutional conferences were primarily viewed as a valuable opportunity to receive peer feedback prior to wider dissemination.

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 2. Waggoner J, Carline JD, Durning SJ. Is there a consensus on consensus methodology? Descriptions and recommendations for future consensus research. *Acad Med*. 2016; 91:663-8.

HPE Day Abstract 802

Abstract Title: Best Practices for Research Abstract Submissions to Multiple Medical Education Conferences

Authors: Paula T. Ross, PhD; Nicole Borges, PhD; Nikki L.B. Zaidi, PhD Research. Innovation. Scholarship. Education. (RISE) and 2Dartmouth Geisel School of Medicine

Background: While it is important to adhere to ethical practices and professional etiquette, medical education researchers remain uncertain whether research abstracts should be submitted to multiple conferences. To establish clear guidelines, this study explored conference organizers' perspectives on best practices for abstract submissions to multiple medical education conferences. Methods Representatives from non-specialty-medical education conferences across four conference types (institutional, regional, national, and international) completed a modified Delphi process to identify best practices for focused on best practices conference abstract submissions using a 50-question online survey. Questions for: 1) abstract submissions using same or similar data previously submitted, accepted, or presented at another conference type, 2) abstract submissions using same or similar data previously submitted or accepted for publication, and 3) required IRB and authorship attestation. Each question asked for a rationale to support the perspective. Responses for each item were summarized (percent agreement and rationale) and shared in an effort to reach consensus (>80% agreement) across survey items. Items reaching consensus in any round were eliminated from subsequent round(s). In each round, panelists were asked to reconsider their responses based on majority responses or provide additional rationale if remaining outside the majority.

Results: Eleven expert panelists, representing all four conference types, participated. Consensus was reached on 45/50 survey items—30 items in Round 1, 12 items in Round 2, and three items in Round 3. In Round 1, consensus was reached that conferences should require an attestation that all authors meet the ICMJE authorship criteria and projects that involve human subjects must include IRB approval. Regarding etiquette for abstract submission, acceptance, and presentation, panelists unanimously agreed in Round 1 that abstracts submitted to institutional conferences could be submitted to any other conference type. In Round 2, panelists reached consensus that accepted abstracts could be submitted to any other conference type, and abstracts presented at institutional, national, and international conferences could be submitted to any of these three conference types. After three rounds consensus was not reached regarding the submission of abstracts previously presented at national or international conferences to regional conferences. When asked about submitting abstracts using data and results currently under review or accepted for publication, panelists reached consensus in Round 1 that abstracts using data and results currently under review or accepted for publication could only be submitted to an institutional conference. Panelists reached consensus in Round 3 that abstracts using data and results currently under review for publication could be submitted to any conference type; however, if accepted for publication, an abstract could not be submitted to a regional, national, or international conference.

Lessons Learned: Panelists' consensus and rationale indicated that it is appropriate to resubmit abstracts to conferences with a larger or different audience, but not to smaller or more homogeneous audiences. Among the four conference types, abstract resubmissions from institutional conferences was the most widely accepted. Institutional conferences were primarily viewed as a valuable opportunity to receive peer feedback prior to wider dissemination.

Oral Health Education for Deaf/Hard of Hearing High School Students

J.D. Samona, S. Stefanac, MR Inglehart
University of Michigan - School of Dentistry, Ann Arbor, MI



ABSTRACT

Objectives: Research showed that adolescents who are deaf or hard of hearing were less likely to brush and floss their teeth, had lower oral health-related knowledge and poorer oral health than their hearing peers. The objectives were to assess (a) the frequencies of brushing and flossing, and (b) diet-related knowledge before and after an educational intervention; and (c) the students' evaluation of the intervention.

Methods: Survey data were collected from 64 students who were deaf (65%) or hard of hearing (35%) before and after an educational intervention with a 30-minute long video (<https://youtu.be/gxCfgyg4INl>) followed by a discussion.

Results: The average frequency of intended brushing increased slightly and the frequency of flossing increased significantly. The students improved their responses concerning how healthy / unhealthy certain foods were. Their diet-related knowledge improved from 6.86 correct answers out of 10 possible answers before the intervention to 8.51 at the end. The students evaluated the intervention as interesting, easy to understand and offering new information.

Conclusions: Providing oral health-related information to high school students in schools for deaf and hard of hearing students was well received and increased the students' behavioral intentions to floss and their diet-related knowledge.

INTRODUCTION

- Over 5% of the world's population or 466 million people have hearing loss.¹
- Research showed that adolescents who are deaf or hard of hearing were less likely to brush and floss their teeth. They had lower oral health-related knowledge and poorer oral health than their hearing peers.²
- Specifically, they had poorer gingival health³ and more decayed, missing and filled teeth due to caries⁴ than their hearing counterparts.
- Educational intervention tailored to the needs of students who are hearing impaired or deaf in American Sign Language can might improve these students' oral health-related behavior and their diet-related knowledge⁵.

AIMS

The objectives of this study were to assess

- (a) the frequencies of brushing and flossing, and of
- (b) diet-related knowledge before and after an educational intervention; and
- (a) the students' evaluation of the intervention.

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 64 students in two high schools for students who are deaf or hard of hearing (see Table 1).

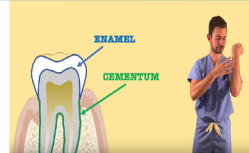
Procedure: Survey data were collected before and after a one hour long educational intervention that consisted of showing a 30 minute long video and discussing it.

Materials: A 30-minute long video (<https://youtu.be/gxCfgyg4INl>) was introduced and presented, followed by a discussion.

Table 1:
Overview of the respondents' background characteristics

Background characteristics	Mean SD	Range:
Age	17.23 2.34	14-26
N = 64		
Gender:		
- Male	67%	
- Female	43%	
Grade:		
- 9	22%	
- 10	19%	
- 11	16%	
- 12	34%	
- >12	7%	
Hard of hearing or deaf?		
- Hard of hearing	36%	
- deaf	65%	
Communication:		
- ASL	51%	
- Spoken & ASL	13%	
- Lip reading	3%	
- Lip reading & ASL	11%	
- Lip reading, ASL & English	9%	
- Spoken English	9%	

Link: <https://youtu.be/gxCfgyg4INl>



CONCLUSIONS

- Providing oral health-related information to high school students in schools for deaf and hard of hearing students was well received and increased the students' behavioral intentions to floss and their diet-related knowledge.
- Spreading the word about this video among middle and high school students and adults who are deaf and hard of hearing is important.

RESULTS

The **first objective** was to compare the frequencies of tooth brushing and flossing before and after the educational intervention. **Table 2** shows that the average frequency of intended brushing increased slightly and the frequency of flossing increased significantly.

Table 2:
Average oral health-related behavior responses before and after the educational intervention

Oral health-related responses	Before	End	p
Frequency of brushing teeth in the future	4.31	4.37	0.711
Frequency of flossing in the future	2.51	3.86	0.01

Legend:
1 = Answers ranged from 1 = never; 2 = sometimes; 3 = nearly every day; 4 = 1x a day; 5 = 2x a day to 6 = more than 2x a day.

The **third objective** was to evaluate the students' evaluation of the intervention. **Table 4** shows that the video was new, interesting and easy to understand

Table 4:
Students' evaluations of educational intervention at the end

Student evaluations	1	2	3	4	5	Mean
How new was the information in this video?	2%	5%	22%	44%	28%	3.92
How interesting was the video?	2%	2%	16%	48%	31%	4.05
How easy was it to understand the video?	0%	2%	38%	22%	30%	3.98
Most interesting in video:						
- brush / floss				23%		
- food and beverages				22%		
- learn about teeth				11%		
- cavities				9%		
- tooth eruption				8%		
- becoming a dentist				3%		
Least interesting in video:						
- Liked it!				51%		
- Brush and Floss				14%		
- Food and beverages				14%		
- Tooth structure/Eruption				9%		
- Cavities				3%		
Want to learn more about:						
- Brushing and flossing				19%		
- Tooth structure & development				13%		
- Food & beverages				13%		
- Cavities				8%		
- Dental profession				7%		
- Braces				3%		
- Whiting				2%		

Legend: 1 = Answers ranged from 1 = 'not at all' to 5 = 'very much'

The **second objective** was to compare the students' diet-related knowledge before and after the educational intervention. **Table 3** shows that the students improved their responses concerning how healthy / unhealthy certain foods were. Their diet-related knowledge improved from 6.86 correct answers out of 10 possible answers before the intervention to 8.51 at the end.

Table 3:
Comparison of the average beginning and end diet-related knowledge

How good or bad are the following beverages and foods for your teeth?	Before	End	Before knowledge	End knowledge	p
a. Milk	3.62 ¹	3.57	0.89	0.84	0.643
b. Cheese	2.97	3.43	0.37	0.76	0.004
c. Fruit juice	3.77	3.27	0.07	0.28	<0.001
d. Chips	2.93	2.34	0.33	0.61	<0.001
e. Soft drinks / pop	2.38	2.19	0.85	0.95	1.00
f. Diet soft drinks	2.12	2.37	1.07	0.91	0.066
g. Sport drinks	3.00	2.67	0.62	0.67	0.276
h. Candy	2.32	2.10	0.82	1.03	0.321
i. Chocolate	2.80	2.30	0.88	0.90	0.006
j. Ice cream	3.12	2.68	0.49	0.77	0.002
k. Cake / cookies	2.76	2.47	0.62	0.85	0.015
Sum of knowledge scores	n/a	n/a	6.86	8.51	0.008

Legend: 1 = Answers ranged from 1 = "very bad" to 5 = "very good" an answer of "1" to items a to k is also "bad" for an answer of "5" to items a and b, and an answer of "1" to items c to k is also "good" for an answer of "5" to items c and d, and an answer of "1" to items e to k is also "good" for an answer of "5" to items e and f.



DISCUSSION

- Educating students who are deaf or hard of hearing about oral health promotion is crucial to assure that they can successfully prevent oral disease.
- Developing an educational intervention in American Sign Language offers such an opportunity to these students.
- Providing this intervention to high school students in schools for deaf and hard of hearing students was well received and increased the students' behavioral intentions to floss and their diet-related knowledge.
- Spreading the word about this video among middle and high school students and adults who are deaf and hard of hearing is important.

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HPE Day Abstract 804

Abstract Title: Oral Health Education for Deaf/Hard of Hearing High School Students

Authors: J.D. Samona, S. Stefanac, MR Inglehart; University of Michigan, Ann Arbor, Michigan

Objectives: Research showed that children and adolescents who are deaf or hard of hearing were less likely to brush and floss their teeth and had lower oral health-related knowledge and thus poorer oral health than their hearing peers. The objectives were to assess (a) the frequencies of brushing and flossing, and (b) diet-related knowledge before and after an educational intervention; (c) the students' evaluation of the intervention was also assessed.

Methods: Survey data were collected from 64 students in two high schools who were deaf (65%) or hard of hearing (35%) before and after a one-hour long educational intervention. A 30-minute long YouTube video (<https://youtu.be/gxCfgyg4lNI>) educated the students about brushing, flossing and diet-related considerations concerning good oral health. A discussion followed.

Results: The average frequency of brushing increased slightly and the frequency of flossing increased significantly (6-point answer scale with 1=never: 2.51 vs. 3.86; $p=0.01$). The overall diet-related knowledge before and after an educational intervention improved from 6.93 correct answers out of 10 possible answers before the intervention to 8.51 ($p=0.016$) at the end. The students also improved their responses concerning how healthy/unhealthy certain foods were such as cheese, chips and ice cream. The students evaluated the intervention as interesting (5-point scale with 1 not at all: Mean=4.05), easy to understand (Mean=3.98) and offering new information (Mean=3.92).

Conclusions: Providing oral health-related information to high school students in schools for deaf and hard of hearing students was well received and increased the students' behavioral intentions to floss and their diet-related knowledge. Spreading the word about this video among middle and high school students and adults who are deaf and hard of hearing is important.

HPE Day Abstract 805

Abstract Title: Do students' personal and educational experiences result in diversity-related advocacy?

Authors: Sarah M. Radden, Todd V. Ester & Marita R. Inglehart

Objectives: Research predicts that by 2045, the U.S. will be "minority white". Educating future dentists to provide culturally sensitive care to their patients in the future requires an understanding of the factors that affect their diversity-related attitudes and behavior. The objectives are to assess (a) current dental students' personal and professional diversity related experiences, (b) their attitudes and behavior related to diversity in educational and workplace settings, and (c) their willingness to engage in promoting diversity. The relationships between these constructs will also be explored.

Methods: Anonymous survey data were collected from 165 dental students.

Results: Only 18% described their neighborhoods as much/very much racially diverse; 22% attended racially diverse elementary schools, 27% racially diverse middle schools and 30% racially diverse high schools; 42% described their friends as much or very much racially diverse. However, 75% agreed that their classroom-based dental education and 69% that their clinical education stressed the importance of being able to treat patients from diverse backgrounds. The majority agreed that it is important that they are educated with students from diverse backgrounds (87%), that they work with team members from diverse backgrounds (82%) and that patients from diverse backgrounds have access to dental care (90%). The majority was willing to increase diversity by speaking at high schools, talking to young patients about dental careers and inviting students to shadow. The more diverse friends they had, the more important they thought diversity was ($r=0.22$; $p < 0.01$); the more important they considered diversity to be, the more willing they were to engage in positive outreach efforts ($r=0.64$; $p < 0.001$).

Conclusions: A segregated childhood upbringing is likely to result in decreased numbers of friends from diverse backgrounds; having fewer diverse social contacts is predictor of negative diversity-related attitudes and consequently will negatively affect willingness to engage in outreach efforts.



Dental Hygiene Program Directors' and Faculty Members' Considerations of Gender Inequity in Dental Hygiene Programs: A National Survey

Said Al-Jazaeri, Fatima Noor, Muhammad Salman; Mentor: MR Inglehart
University of Michigan - School of Dentistry, Ann Arbor, MI

ABSTRACT

Background: In 2016, the United States Department of Labor reported that only 2.9% of dental hygienists and less than 3% of dental hygiene students in the U.S. were male.

Objectives: The objectives were to explore how dental hygiene program directors vs. faculty members (a) evaluate this gender imbalance and (b) perceive the consequences of being a male or female dental hygiene student.

Methods: In this cross-sectional study, data were collected with an anonymous web-based survey from 133 dental hygiene program directors and faculty members in the U.S.

Results: Program directors agreed on average more strongly that they would like to see more male dental hygienists in the U.S., more male students in dental hygiene programs in general, and in their own program than faculty members. In comparison to faculty members, they also agreed more strongly that it would be better for the profession if there were more male dental hygienists. However, the two groups of respondents did not differ in their average evaluations of male and of female dental hygiene students', instructors', patients', dentists' and dental hygienists' attitudes towards male vs. female dental hygiene students.

Conclusions: Dental hygiene program directors are more favorable concerning decreasing the gender imbalance in dental hygiene programs than faculty members. Future research should focus on ways to increase gender diversity in these programs.

BACKGROUND

- Gender equality is defined as a basic human right. It is the state of equal access to resources and opportunities regardless of gender.¹
- Research is needed to investigate if there are barriers that prevent male applicants to gain access to dental hygiene programs.
- The dental hygiene profession and the nursing profession have historically been known for the dominance of women in the profession with no significant increase of male students over the years.² Although the nursing profession has existed for much longer than the dental hygiene profession, there is still a gender gap in nursing and in nursing schools.²
- These gender inequities might affect especially male patients' satisfaction with their healthcare services because male patients might not have a choice of a healthcare professional from their own gender background.
- Gaining a better understanding of dental hygiene program directors' and educators' thoughts concerning this gender imbalance could provide the basis for exploring how to change it.

OBJECTIVES

The objectives were to explore the differences in dental hygiene program directors' vs. faculty members'

- attitudes concerning gender inequalities among dental hygiene students and among dental hygienists.
- perceptions of the consequences of being a male vs. female dental hygiene student.

METHODS

This is a cross-sectional study that was determined to be exempt from Institutional Review Board (IRB) oversight by the Health Sciences and Behavioral Sciences IRB (# HUM00161336) at the University of Michigan, Ann Arbor, MI.

Respondents: Data were collected from 133 dental hygiene program administrators and faculty (see Table 1).

Procedure: A recruitment email was sent to 367 dental hygiene program directors. The email informed them about the research and provided a link to an anonymous web survey. It asked for their own and their faculty members' responses.

Materials: The survey consisted of three parts: Part 1 inquired about background characteristics; Part 2 assessed respondents' attitudes concerning gender inequality among students and dental hygienists; Part 3 asked about consequences of being a male vs. female dental hygiene student or dental hygienist.

Statistical analyses: The data were analyzed using SPSS. Descriptive statistics such as frequency distributions and means were used to provide an overview of the results. Independent sample t-tests were used to compare the average responses of program directors vs. faculty members.

Table 1: Overview of the background characteristics

Background characteristics	Frequencies N = 133	Percentages
Number of		
- program directors	65	48.9%
- faculty members	46	34.6%
- both	22	16.5%
Gender:		
- male	9	6.8%
- female	123	93.2%
Age:	Mean: 50.51	Range: 27-73
Type of faculty member:		
- full time	101	75.9%
- part time	32	24.1%

Objective 1 was to explore how dental hygiene program directors vs. faculty members' attitudes towards gender inequalities among dental hygiene students and dental hygienists differ. Table 2 shows that program directors agreed on average more strongly that they would like to see more male dental hygienists in the U.S., more male students in dental hygiene programs in general and in their own program than faculty members. In comparison to faculty members, they also agreed more strongly that it would be better for the profession if there were more male dental hygienists.

Table 2: Program directors' vs. faculty members' average attitudes towards male dental hygiene students and dental hygienists

Attitudinal responses related to the gender imbalance in dental hygiene programs	Program directors N=65	Faculty N=46	p
I would like to see more male dental hygienists practicing in the U.S.	4.34	3.93	0.004
I would like to see more male students enrolled in dental hygiene programs.	4.34	3.96	0.006
I would like to see more male students enrolled in our dental hygiene program.	4.37	3.93	0.002
Dental hygiene students would have a better educational experience if classes would have at least some male students.	3.60	3.26	0.086
Dental hygiene students would have a better educational experience if classes would have equal numbers of male and female students.	3.06	2.63	0.028
It would be better for the dental hygiene profession, if there were more male dental hygienists.	3.96	3.36	<0.001
Male dental hygienists would have a more difficult time finding jobs in dental offices than female dental hygiene students.	2.42	2.46	0.831
Some patients would appreciate having a male dental hygienist.	3.91	3.78	0.372
Some patients would not like to be treated by a male dental hygienist.	3.17	3.02	0.426
Dentists would respect dental hygienists more if there were more male dental hygienists.	2.78	2.50	0.156
Having less than 2% of dental hygienists in the US being male is not a problem.	2.08	2.61	0.006

Legend:
1 Answers ranged from 1 = disagree strongly, 2 = disagree, 3 = neutral, 4 = agree to 5 = agree strongly.



RESULTS

Objective 2 was to explore the differences in dental hygiene program directors vs. faculty members' perceptions of the consequences of being a male vs. female dental hygiene student. Table 3 shows that the two groups of respondents did not differ in most of their average evaluations of differences among male vs. female dental hygiene students. Faculty members agreed on average more strongly that male dental hygiene students would be more likely to be accepted when they apply, to have a previous degree and to enroll in dental school after graduation compared to program directors.

Table 3: Program directors' vs. faculty members' responses concerning comparisons of female vs. male dental hygiene students

Compared to female dental students, male dental hygiene students are more likely to:	Program directors	Faculty	p
- apply to dental hygiene programs.	1.95	2.24	0.067
- be accepted when they apply.	2.51	3.13	0.001
- have another degree before entering the hygiene program.	2.57	3.00	0.003
- have better grades in classroom-based education.	2.15	2.39	0.056
- do better academically than female dental hygiene students.	2.11	2.22	0.379
- do better clinically than female dental hygiene students.	2.14	2.28	0.292
- be perceived negatively by female dental hygiene students.	2.12	2.00	0.379
- be perceived positively by male instructors.	3.02	3.20	0.331
- be perceived positively by female instructors.	3.08	3.11	0.888
- be perceived negatively by male patients.	2.40	2.24	0.238
- be perceived negatively by female patients.	2.32	2.26	0.645
- be perceived negatively by male dentists.	2.26	2.39	0.876
- be perceived negatively by female dentists.	2.29	2.26	0.811
- be perceived negatively by male dental hygienists.	1.95	2.04	0.479
- be perceived negatively by female dental hygienists.	2.03	2.04	0.927
- be involved in organizations during their education.	2.95	3.00	0.776
- be perceived to be a better leader.	2.60	2.82	0.192
- be perceived to be more knowledgeable.	2.42	2.54	0.392
- graduate from the program in a timely fashion.	3.02	3.17	0.332
- enroll in dental school after graduating from dental hygiene.	2.72	3.04	0.034
- have problems with finding a job.	2.20	2.28	0.588

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

DISCUSSION

- The number of respondents in especially the group of dental hygiene faculty members was rather low and generalizations of the findings should therefore be done with caution.
- However, it seems justified to say that program directors held more favorable attitudes concerning reducing gender inequalities among dental hygiene students and dental hygienists and saw greater benefits in reducing gender imbalances than dental hygiene faculty members.
- When program directors and faculty members were asked to compare female vs. male dental hygiene students' characteristics, they did not differ in most responses.
- Limitations: The response rate was low and the results should therefore interpreted with care.
- Suggestions for future research: Future research should recruit more dental hygiene faculty members to respond to this survey.

CONCLUSIONS

- Based on these data it can be concluded that educational interventions are needed to create experiences that increase dental hygiene program directors' and faculty members' awareness related to the gender imbalance in the dental hygiene profession. And its consequences.
- It is important to support male dental hygiene students in their solo role to allow them to have positive expectations for their future professional lives.
- Providing a basic understanding of program directors' and faculty members' attitudes towards male dental hygiene students and male dental hygienists can support efforts to decrease the gender imbalance in this profession.
- Understanding perceptions of male dental hygiene students and their experiences could help to develop interventions to change this situation.

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We want to thank the respondents for taking the time to respond to this survey.

HPE Day Abstract 807

Title: Dental Hygiene Faculty' Considerations of Gender Inequity in Dental Hygiene Programs: A National Survey

Authors: Al-Jazaeri, S, Noor, F, Salman, M, Inglehart MR

Purpose: In 2016, the United States Department of Labor reported that only 2.9% of dental hygienists and less than 3% of dental hygiene students in the U.S. were male. The objectives were to explore how dental hygiene program directors vs. faculty members evaluate this gender imbalance and (b) predict the attitudes of male and of female dental hygiene students, instructors, patients, dentists and dental hygienists towards male vs. female dental hygiene students.

Methods: In this cross-sectional study, data were collected with an anonymous web-based survey from 133 dental hygiene program directors and faculty members in the U.S.

Results: Program directors agreed on average more strongly that they would like to see more male dental hygienists in the U.S. (5-point scale with 5 = agree strongly: 4.34 vs. 3.93; $p=0.004$), more male students in dental hygiene programs in general (4.34 vs. 3.96; $p=0.006$) and in their own program (4.37 vs. 3.93; $p=0.002$) than faculty members. In comparison to faculty members, they also agreed more strongly that it would be better for the profession if there were more male dental hygienists (3.35 vs. 3.95; $p<0.001$). However, the two groups of respondents did not differ in their average evaluations of male and of female dental hygiene students', instructors', patients', dentists' and dental hygienists' attitudes towards male vs. female dental hygiene students.

Conclusion: Dental hygiene program directors are more favorable concerning decreasing the gender imbalance in dental hygiene programs than faculty members. Future research should focus on ways to increase gender diversity in these programs.

Medical Students Demonstrate Low Levels of Financial Literacy and High Interest In Finance Literacy Education



Anderson Lee IV, Jamaal Tarpeh, Kristian Black, Jesse Wilson, Niki Matsuko, Michael Englesbe M.D., Gurjit Sandhu Ph.D.
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INTRODUCTION

- \$196,520** Average debt of medical students graduating in 2018
- 3%** Rise in medical student debt compared to the previous year
- < 55%** Score of physicians in training on financial literacy assessments
- Does level of financial literacy affect desire for financial literacy education during medical training?

METHODS

- A 51 item questionnaire was developed to assess financial literacy, desire for financial literacy education, and demographics factors.
- Anonymous, web-based survey administered to a convenience sample of first year (M1) through fourth year (M4) students at the University of Michigan.
- Respondents were able to complete the survey from April to May 2019. (N=224)
- This value was used to define proficiency for the financial literacy assessment.

RESULTS

- 38%** was the average score on financial literacy assessment.
- 77%** of medical students ranked improving financial literacy as extremely or very important.
- 89%** of medical students believed they should receive financial literacy training as a part of their medical training.

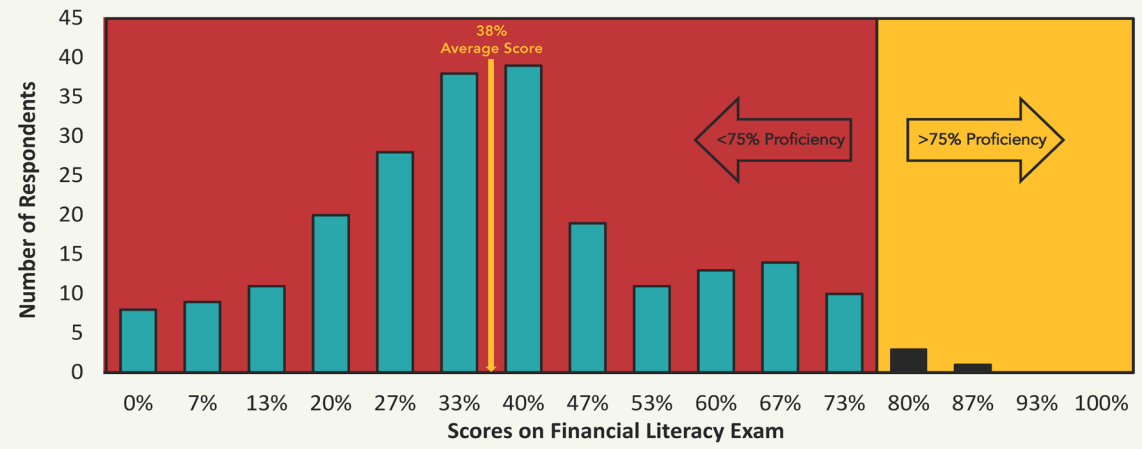
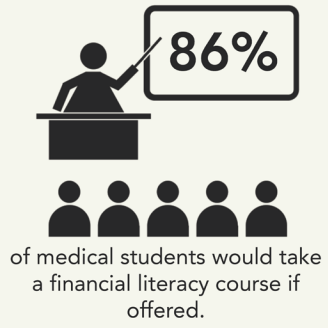


Figure 1. Histogram depicting medical student performance on the financial literacy assessment portion of the questionnaire.

CONCLUSION

- Low levels of financial literacy continue to be detected in medical students.
- Medical trainees express a strong desire for adding financial literacy development to medical education curriculum.
- It is likely that medical students are aware of their limited financial literacy and welcome the opportunity to address that knowledge gap.

Integrating financial literacy development into medical school education has the potential to increase personal financial stability, professionally enhance strategic financial decisions, and improve overall wellness in trainees.

HPE Day Abstract 808

Title: Medical Students Demonstrate Low Levels of Financial Literacy and High Desire In Finance Literacy Education

Authors: Anderson Lee IV, Jamaal Tarpeh, Kristian Black, Jesse Wilson, Niki Matsuko, Michael Englesbe M.D., Gurjit Sandhu P.h.D, University of Michigan, Ann Arbor, MI, USA

Background: The average graduating debt for 2018 medical school graduates was \$196,520. This is a 3% increase from the year prior. As a result of high debt load, it is imperative that medical students are prepared to responsibly manage this burden. Previous studies have shown that medical students, residents, and fellows answer fewer than 55% of financial literacy questions correctly, reflecting low levels of financial literacy. Furthermore, higher levels of financial literacy have been associated with increased financial stability and overall wellness in medical professionals. Despite these findings, there are no requirements for financial literacy development in medical school curriculum. While exorbitant debt is acknowledged among learners, it is not well understood how level of financial literacy affects the desire for financial literacy education during medical training.

Objective: The objective of this study is to explore the relationship between financial literacy among medical students and their desire for financial literacy education during medical training.

Methods: From April to May 2019, a cross-sectional, anonymous, web-based survey was administered to a convenience sample of first-year (M1) to fourth-year (M4) medical students at the University of Michigan Medical School. Respondents voluntarily answered a 51-item multiple-choice survey designed to assess their financial literacy, assess desire for financial literacy education during medical school, and demographic factors. For the portion of the survey that was used to assess financial literacy, proficiency was defined as answering greater than 75% of items correctly for each respondent. Cohort proficiency on each item was defined as greater than 75% of respondents selecting the correct answer.

Results: 265 of 680 (39%) medical students completed the survey. Overall, respondents correctly answered 5.64 (37.6%) of the financial literacy questions, reflecting a low level of financial literacy among the cohort. Thirteen items captured low levels of literacy and two items showed proficiency. No respondent correctly answered all of the fifteen financial literacy items. Four respondents were considered proficient based on their number of correct answers. Improving their financial literacy was extremely important or very important to 77.32% of students. 88.89% of students believed that medical students should receive financial literacy as a part of their medical training and 86.57% of students said that they would take a related course if it was offered.

Conclusions: Low financial literacy levels continue to be detected among medical students. In addition, medical trainees express a strong desire for adding financial literacy development to medical education curriculum. It is likely that medical students are aware of their limited financial literacy and welcome the opportunity to address that knowledge gap. Integrating financial literacy development into medical school education has the potential to increase personal financial stability, professionally enhance strategic financial decisions, and improve overall wellness in trainees.

A New Frontier: Developing Competencies in Health Sciences Education Innovation

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Background

- R.I.S.E. (Research. Innovation. Scholarship. Education) aims to improve learning and teaching for better health.
- To achieve this goal, we sought to **identify innovation competencies** deemed most **essential to personal and professional development in innovation** within HSE.

Methods

- We compiled a list of **15 possible innovation competencies** and associated definitions, based on a review of the literature.¹⁻³
- In April 2019, members of the RISE Core team (n=6) and the Advisory Council (n=31) were invited to rank order the list of potential competencies, via an online survey, based on their **perceived level of importance for supporting innovation**.
- Participants represented **diversity** among employee/learner classification, HSE specialties, and innovation expertise and experience.

Results

- **Twenty-four individuals** completed the rank-ordering survey.
- **Seven** competencies were adopted based on the aggregated mean rankings (Table 1).

Lessons Learned

- These innovation competencies have been used to **guide RISE funding decisions, design curricula**, and develop assessments to **track longitudinal competency development** among our community.
- During the design of our assessments, we learned the importance of **clarifying competency definitions** to ensure assessors could differentiate behaviors that represent each distinct competency.

Future Application and Next Steps

- We will continue to use these competencies to **develop new and innovative assessments**.
- Next steps include examining the validity of scores generated by our competency assessments.

Table 1. Mean Rankings of Potential Innovation Competencies

INNOVATION COMPETENCY	MEAN (SD)
Creativity: thinks beyond traditional ideas, rules, and patterns to generate meaningful alternatives	3.6 (3.3)
Initiative: independently or collaboratively develops, assesses, and operationalizes ideas that foster positive changes, while overcoming real and perceived constraints that often impede the launching of ideas	4.7 (3.1)
Visioning: assesses future directions and risks based on existing and potential opportunities and threats to implementation	6.3 (3.9)
Intelligent Risk-taking: weighs potential benefits and disadvantages of an action or choice to assume calculated risks	6.4 (3.3)
Intellectual Curiosity: acquires new knowledge, challenges beliefs and knowledge constructs, and seeks explanations—even when the application of that new learning isn't immediately apparent	6.5 (4.3)
Critical Thinking: pinpoints the actual nature and cause of problems and the dynamics that underlie them to logically identify strengths and weaknesses of alternative approaches	7.1 (4.2)
Teamwork: effectively and efficiently collaborates with others in a diverse group; works with stakeholders to assimilate ideas and needs towards outcomes and solutions	7.7 (3.6)
Effective Communication: provides consistent, efficient, and meaningful information; listens carefully to others to ensure message is understood; tailors messaging to audience	9.0 (3.5)
Nonconformity: challenges the status quo in order to set ambitious goals that challenge established practices, especially if tradition impedes improvements	9.1 (4.8)
Enterprising: initiates and leverages available resources to further a goal	9.1 (3.6)
Networking: identifies and engages internal and external stakeholders in common interest/goal	9.3 (2.9)
Leadership: motivates or persuades others to achieve a goal by communicating a vision, committing to the cause of the organization and inspiring trust	9.5 (4.2)
Perceptiveness: recognizes situational forces that promote and inhibit change	9.7 (4.3)
Flexibility: willingness to change or compromise according to the situation and/or new information	9.8 (3.7)
Self-efficacy: trust and expressed confidence in one's abilities, talents, and judgement that s/he is capable of achieving a certain outcome	12.3 (4.0)

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HPE Day Abstract 811

Title: A New Frontier: Developing Competencies in Health Sciences Education Innovation

Authors: Zaidi, Mangrulkar, Morgan, Ross

Background: The Research. Innovation. Scholarship. Education. (RISE) initiative aims to foster education innovation competency across the health sciences at Michigan Medicine. To achieve this goal, we sought to identify innovation competencies deemed most essential to personal and professional development in innovation within health sciences education (HSE). Developing competencies was necessary to ensure forward movement and development within the HSE innovation space.

Actions, Methods, or Intervention: We compiled a list of 15 possible innovation competencies and associated definitions, based on a review of the literature.¹⁻³ This initial list included: creativity, initiative, teamwork, networking, visioning, intelligent risk-taking, enterprising, critical thinking, nonconformity, intellectual curiosity, flexibility, perceptiveness, positive self-efficacy, effective communication, and leadership. In April 2019, all members of the RISE Core team (n=6) and the RISE Advisory Council (n=31) were invited to rank order the list of potential competencies, via an online Qualtrics survey, based on their perceived level of importance for supporting innovation. Participants represented diversity among employee/learner classification, HSE specialties, and expertise and experience within HSE innovation.

Results: A total of 24 individuals completed the rank-ordering survey. Data were summarized based on the aggregate ranking of each competency. We decided a priori to take a data-driven approach to determine the most endorsed 6-8 competencies for this context. Based on the mean rankings (mean rank-ordering: 3.63-12.29) the sharpest demarcation was between the seventh highest-ranked competency (mean ranking: 7.67) and the eighth-ranked competency (mean ranking: 9.04). Therefore, we adopted seven innovation competencies: creativity, critical thinking, initiative, intellectual curiosity, intelligent risk-taking, teamwork, and visioning.

Lessons Learned: These innovation competencies have been used to inform an evidence-based selection process, guide RISE funding decisions, and to develop a 360 assessment to track longitudinal competency development among our community. During the design of our assessments, we learned the importance of clarifying the definition used for each of these competencies to ensure assessors are able to differentiate behaviors that represent each distinct competency.

Future Application and Next Steps: We will continue to use these competencies to develop new and innovative assessments. Next steps include examining the validity of scores generated by our competency assessments.

IMPACT OF LEVEL OF ACADEMIC DEGREE ON HEALTHCARE PROVIDER PERCEPTIONS OF INTERPROFESSIONAL COLLABORATION

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BACKGROUND

- Effectiveness of using interprofessional health care teams to improve patient health outcomes and access to care has been well researched, but barriers to provider participation in interprofessional collaboration (IPC) still exist.
- For example, stereotypes or misconceptions of other team member's level of academic degree (associate, bachelors, masters, doctorate) may influence the provider's attitude toward participation in IPC.
- Healthcare professionals often have their first experiences with IPC while in their training programs, therefore, health profession faculty play an important role in establishing norms, attitudes, and practice culture of future health professionals when engaging in IPC.
- Understanding and predicting factors influencing behaviors is important in developing future IPC activities.
- Assessing a provider's attitudes, opinions, or confidence through the lens of behavior theories can help researchers to further understand what attributes motivate someone to perform or engage in a certain behavior as well as reasonably predict the person's intention to do so.
- There are few studies investigating the influence of level of academic degree specifically on a providers' willingness to collaborate with other members of the healthcare team or with a dental hygienist.

AIMS

The aims of the study were to determine if:

- Level of academic degree of those outside their own discipline affects healthcare providers' perception of IPC.
- Level of academic degree of those outside their own discipline affects healthcare providers' willingness to collaborate with other members of the interprofessional team.
- Dental hygienists' own level of academic degree affects their self-confidence in contributing to the interprofessional team.

METHODS

- A 22 item, digital survey was created with the U-M Survey Research Center. Eligible participants were licensed healthcare providers with U-M faculty appointments. (HUM#00162953).
- Attitudinal questions were based on two established behavioral theories, Theory of Planned Behavior and Social Cognitive Theory, and assessed perceptions, attitudes, intentions, and self-efficacy toward IPC with providers who held different levels of academic degree than their own.
- An email invitation and link were sent via the U-M Center for Interprofessional Education to the academic deans of the nine U-M health professions education schools for dissemination to their faculty.

RESULTS

- Forty-six of the respondents indicated they most often think of collaborating with people who have similar academic degrees as their own.
- Ninety-five percent indicated they are comfortable taking recommendations on patient treatment from a provider with a doctoral/professional degree and 55% are comfortable taking treatment recommendations from a provider with an associate degree (Table 3).
- Ninety-seven percent of providers were confident in their ability to contribute to the interprofessional team.
- Self-confidence levels of the dental hygiene respondents were consistent with those of other professions (Table 4).

Table 1. Demographic characteristics of respondents.

Characteristics	Respondents N=179
Gender	
Male	79 (44%)
Female	102 (56%)
Prefer not to answer	1 (0.6%)
Age	
Mean (SD)	49.5 (13.1)
Range	26-81
Profession	
Medicine	52 (29%)
Dentistry	42 (23%)
Dentistry (Dental Hygiene)	19 (11%)
Nursing	24 (13%)
Physical Therapy	14 (8%)
Pharmacy	12 (7%)
School of Social Work	7 (4%)
Academic Degree Level	
Associate degree	0 (0%)
Bachelor's degree	7 (4%)
Master's degree	30 (17%)
Doctoral/Professional degree	142 (79%)
Years in Practice	
0-5	17 (10%)
6-10	34 (19%)
11-15	26 (15%)
16-20	17 (10%)
21-25	18 (10%)
26 +	67 (37%)
Role	
Practitioner/Clinician	83 (47%)
Educator	65 (37%)
Researcher	18 (10%)
Administrator	11 (6%)
Public Health	1 (0.5%)
Experience with IPE/IPC	
Yes	166 (93%)
No	13 (7%)

Table 2. Respondents' perceptions of collaborating with healthcare providers with lesser academic degrees. (6-point scale with 1 = positive and 6 = negative)

Attitudes and Perceptions Index (alpha=0.944)	Doctoral degree (n=129)	Master's degree (n=28)	Bachelor's degree (n=6)	P<0.05
Beneficial for the patient or harmful for the patient	1.70	1.93	2.50	0.088
Pleasant for me or unpleasant for me	1.78	1.96	2.33	0.271
A good use of my time or not a good use of my time	1.77	1.96	2.83	0.018
Useful or worthless	1.65	1.79	2.67	0.020

Table 3. Respondents' comfort in taking treatment recommendations from healthcare providers with different academic degree types. (6-point scale with 1 = "Strongly Disagree" and 6 = "Strongly Agree")

Willingness to Collaborate Index (alpha=0.801)	Doctoral degree (n=129)	Master's degree (n=28)	Bachelor's degree (n=6)	P<0.05
Health care provider with a doctoral degree.	5.60	5.57	5.33	0.571
Health care provider with a master's degree.	5.40	5.57	5.50	0.523
Health care provider with a bachelor's degree.	5.02	5.32	5.50	0.182
Health care provider with an associate degree.	4.54	4.79	4.50	0.615

Table 4. Respondents' confidence in collaborating with healthcare providers with higher, lesser, or the same academic degree. (6-point scale with 1 = "Strongly Disagree" and 6 = "Strongly Agree")

Self-Efficacy Index (alpha=0.893)	Dentistry (n=35)	Medicine (n=38)	Nursing (n=22)	Dental Hygiene (n=17)	Physical Therapy (n=12)	Pharmacy (n=10)	P<0.05
Health care providers with higher academic degrees.	5.46	5.49	5.71	5.29	5.67	5.70	0.578
Health care providers with lesser academic degrees.	5.49	5.60	5.74	5.29	5.833	5.80	0.426
Health care providers with the same academic degree.	5.60	5.611	5.77	5.53	5.75	5.80	0.698

LESSONS LEARNED

- While faculty value IPC in improving patient outcomes, their perceptions of other healthcare providers' level of academic degree may play a role in their willingness to collaborate with other providers.
- Despite an institution's positive culture of IPC, faculty buy-in and stereotypes about provider level of academic degree need to be addressed.
- These results indicate a need to create a more level playing field among the varying professions and a culture in which each provider is valued to the full extent of their license.

NEXT STEPS

- Future research should investigate why faculty value the role of providers with lesser degrees but are less likely to seek collaboration or treatment recommendations from those providers.
- Researchers should also explore interventions to promote provider participation in IPC that address behavioral factors related to provider attitudes, confidence, and intentions.

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Title: Impact of Level of Academic Degree on Healthcare Provider Perceptions of Interprofessional Collaboration

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Background: Effectiveness of using interprofessional health care teams to improve patient health outcomes and access to care has been well researched, but barriers to provider participation in interprofessional collaboration (IPC) still exist. For example, stereotypes or misconceptions of other team member's level of academic degree (associate, bachelors, masters, doctorate) may influence the provider's attitude toward participation in IPC. Healthcare professionals often have their first experiences with IPC while in their training programs, therefore, health profession faculty play an important role in establishing norms, attitudes, and practice culture of future health professionals when engaging in IPC. Understanding and predicting factors influencing behaviors is important in developing future IPC activities. Assessing a provider's attitudes, opinions, or confidence through the lens of behavior theories can help researchers to further understand what attributes motivate someone to perform or engage in a certain behavior as well as reasonably predict the person's intention to do so. The purpose of this study was to determine if health profession faculty perceptions of a provider's academic degree level affect their willingness to collaborate with other providers. Specifically, this study explored whether differing academic degree levels affect a provider's attitude, opinion, or confidence related to IPC.

Actions, Methods, or Interventions: This study was determined to be exempt from oversight by the Health Sciences and Behavioral Sciences Institutional Review Board at the University of Michigan (U-M) (HUM#00162953). A 22 item, digital survey was created with the U-M Survey Research Center. Eligible participants were licensed healthcare providers with U-M faculty appointments. Attitudinal questions were based on two established behavioral theories, Theory of Planned Behavior and Social Cognitive Theory, and assessed perceptions, attitudes, intentions, and self-efficacy toward IPC with providers who held different levels of academic degree than their own.

Results: Respondents (n=179) primarily included faculty in medicine (29%), dentistry (23%), nursing (13%), dental hygiene (11%), physical therapy (8%), and pharmacy (7%). Ninety-five percent indicated they are comfortable taking recommendations on patient treatment from a provider with a doctoral/professional degree and 55% are comfortable taking treatment recommendations from a provider with an associate degree. Almost half (46%) of respondents indicated they think of collaborating with people with similar academic degrees as their own most often. Ninety-seven percent of providers were confident in their ability to contribute to the interprofessional team. Self-confidence levels of dental hygiene respondents were consistent with those of other professions.

Lessons Learned: While faculty value IPC in improving patient outcomes, their perceptions of other healthcare providers' level of academic degree may play a role in their willingness to collaborate with other providers. Despite an institution's positive culture of IPC, faculty buy-in and stereotypes about provider level of academic degree need to be addressed. These results indicate a need to create a more level playing field among the varying professions and a culture in which each provider is valued to the full extent of their license.

Future Applications and Next Steps: Future research should investigate why faculty value the role of providers with lesser degrees but are less likely to seek collaboration or treatment recommendations from those providers. Researchers should also explore interventions to promote provider participation in IPC that address behavioral factors related to provider attitudes, confidence, and intentions.