THE PRESIDENT'S FELLOWS' FINDINGS:

Interprofessional Education at the University of Maryland, Baltimore

UNIVERSITY of MARYLAND
THE FOUNDING CAMPUS

THE PRESIDENT'S FELLOWS

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TABLE OF CONTENTS

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INTRODUCTION

The University of Maryland, Baltimore (UMB) houses seven graduate schools in downtown Baltimore, enrolling over 6,000 students who will become future leaders in health care, social work, law, and the biomedical sciences. With students in such close proximity to one another, collaboration between professions would seem inevitable; however, our intellectual capital is increasingly contained within the silos of our respective disciplines—we are adjacent but insular.

The demands on our health care and human services systems grow more complex each year, with collaboration between professions becoming increasingly crucial. Although the lines separating our health care and human services professions have become progressively blurry, our approach to education has not kept pace with this changing landscape. In order to provide patient- and client-centered care, the walls separating our professions must crumble.

Interprofessional education (IPE) will empower our next generation of leaders to excel in their disciplines by establishing an appreciation of the interconnectedness of these professions early in their careers. Through interdisciplinary collaboration, each professional gains a deeper understanding of the value of each team member and a more thorough understanding of one's own role in a broader context.

This report aims to explore how IPE is offered, embraced, and used at UMB. We begin by establishing common terms and definitions surrounding IPE and follow with an assessment of the current state of IPE initiatives at UMB. An analysis of survey data collected from UMB students and faculty concerning current opinions on IPE at UMB follows. Next, we break down the costs, benefits, and challenges to formalizing an IPE curriculum at UMB. Finally, we propose recommendations on how best to advance IPE at UMB.

BACKGROUND

IPE occurs when students from two or more disciplines learn about, with, and from each other.[1] Its goal is to teach effective communication skills and collaboration among health care and human services professionals. At the university level, the goal of IPE is to provide interprofessional training such that students will enter the workforce as effective team members. Professionals who have been educated in collaborative, team-based units through IPE understand how to optimize their individual skills and provide better services to patients and clients.[2] When health care professionals have these skills, health care system fragmentation decreases, and health-related outcomes improve.[3]

IPE is a practical, strategic tool for improving health care delivery by altering the way health care providers and human services professionals interact with one another to provide efficient, effective care. Collaborative practice in the medical workplace can improve patient access to health services, decrease the length of hospital stays, and improve outcomes for patients with chronic diseases.[4] IPE is also associated with improved patient safety and decreased mortality rates by preventing avoidable complications and clinical errors.[5] By changing the way health care and human services providers think about and collaborate with each other, the culture of the work environment and the attitudes of the workforce can change, thus improving staff experiences while providing tangible benefits to patients and clients.[3]

Two factors determine the development and delivery of IPE: educator-related factors and curriculum-related factors. Educator-related factors pertain to the staff and faculty responsible for funding, developing, managing, and delivering IPE, as well as policies that outline institutional vision, commitment, and resource-sharing.[6] Curriculum-related factors comprise the content of IPE and delivery mechanisms. This includes programming, courses, logistics, scheduling, and student assessment. The curriculum should be problem-based and feature action learning to reflect real-world, collaborative scenarios.[7] Additionally, consideration should be taken to ensure appropriate facilities and space designed for collaborative learning exist, and that a culture which encourages shared decision-making takes precedence.[8]

Regional associations and academic centers have been created to promote IPE and collaboration across the globe. The World Health Organization Study Group on Interprofessional Education and Collaborative Practice conducted an international investigation to determine the current status of IPE, identify best practices, and identify examples

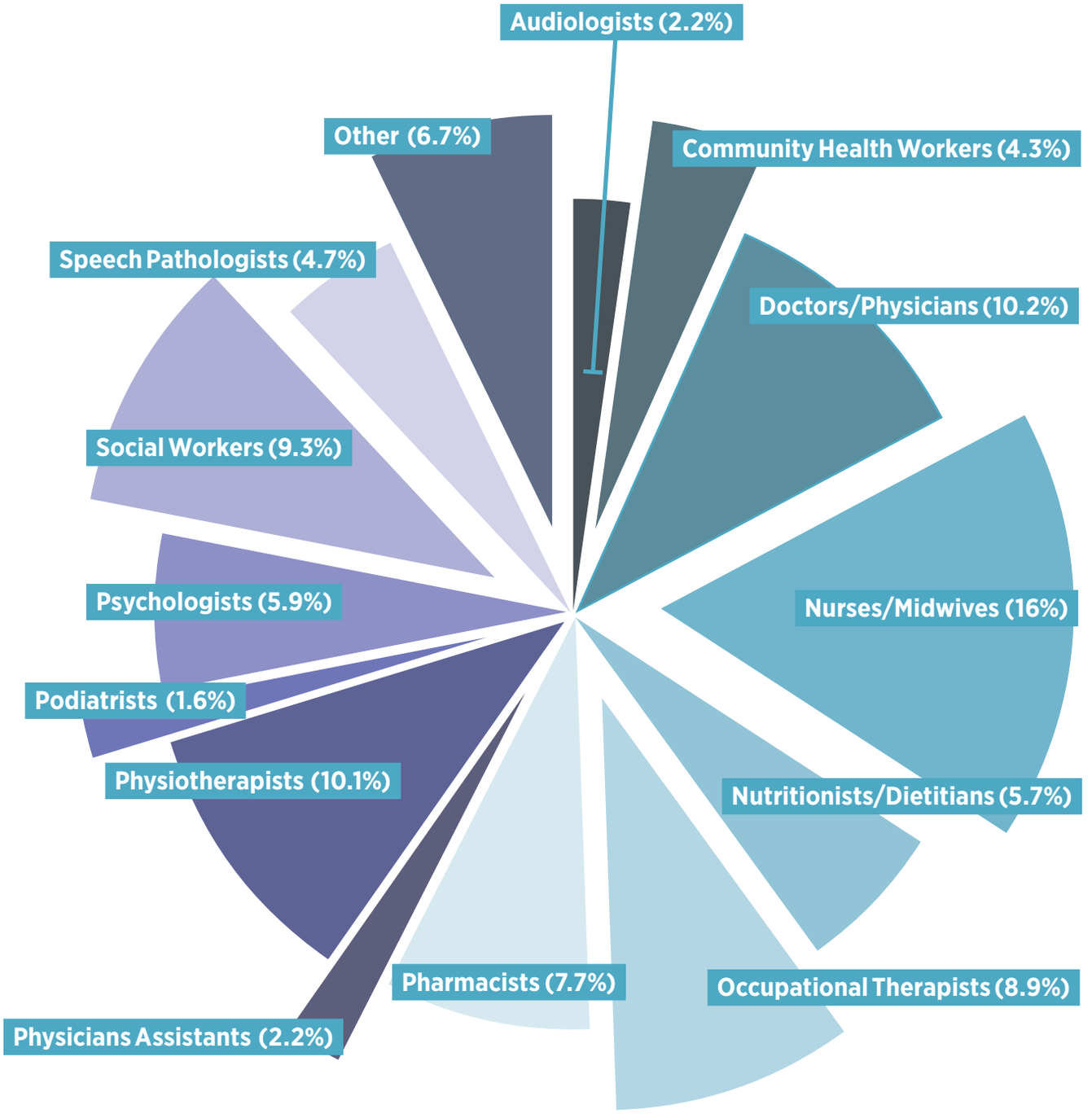


Figure 1. Types of Learners Who Received Interprofessional Education.[1]

of successes and barriers.[1] Investigators received responses from 396 respondents in 42 countries, and found that IPE takes place worldwide with students from a wide range of disciplines (see **Figure 1**). In environments where IPE is employed, a variety of assessment modalities are used to evaluate students. For example, students can be assessed in group situations, on individual assignments, and/or through written assessments. Although IPE is typically delivered face-to-face, information technology is increasingly drawn upon to scale reach, capacity, and capability in facilitating IPE.[9]

THE HISTORY OF IPE AT THE UNIVERSITY OF MARYLAND, BALTIMORE

Over the past couple of decades, numerous successful models of IPE programs have been initiated by different departments and organizations on campus. These opportunities can be found in the classroom and in clinical, community service, and research settings.

IPE in the Classroom

IPE in the classroom has historically existed in one of the following three contexts:

1. Courses co-taught by faculty from different professional schools at UMB.
2. Courses open for enrollment to students of different disciplines.
3. A combination of (1) and (2).

Although these courses usually are not a core requirement for any degree program, students can receive elective credit that will count towards their degree. These courses provide a structured way to introduce students to interprofessional education, as well as help them define their roles and the roles of other professions on an interprofessional team. For example, "Justice at the Intersection of Social Work and the Law" is a course that focuses on the professional collaboration between social workers and lawyers. Students from the School of Social Work and the School of Law may enroll, and this course is co-taught by faculty members from both schools.[10]

Since many of these courses enroll students from different disciplines, the faculty members from each school collaborate in order to coordinate an appropriate course schedule that will accommodate the schedules of students from the schools involved. Most of these courses take place during the regular semester, in which interested students look at their own individual schedule to see if they are eligible for enrollment. However, there are courses that try to take advantage of overlapping time periods during each school's scheduled breaks. An example is the "Geriatric and Palliative Care" course, which is scheduled during the winter semester. Originally, this scheduling was able to accommodate dental, dental hygiene, medical, nursing, pharmacy, physical therapy, and social work students. However, as different programs filled their January sessions with coursework addressing their own unique curricular interests, only students from the pharmacy program were able to participate in this course for academic credit. Although the course is still a good model of IPE, featuring an interdisciplinary group of faculty and guest lecturers, students have limited

opportunities to interact with the other professional schools by enrolling. The original promise of the course—to provide interprofessional context, interaction, and discussion between students and faculty at different schools—remains unfulfilled.

IPE in Clinical Settings

In addition to curricular-based IPE opportunities, clinical opportunities for interprofessional development exist at UMB. These clinical, team-based activities give students a chance to apply their knowledge to both real patients and simulated cases. During the process, students identify the unique role that their profession can contribute to the team and become familiar with the roles of the other professions.

One successful clinical model for interprofessional education is the Geriatric Assessment Interdisciplinary Team (GAIT) program, sponsored by UMB's Geriatrics and Gerontology Education and Research (GGEAR) program.[11] In 1995, this program was established as a one- to two-day rotation during which students are divided into interdisciplinary teams to assess geriatric patients and to make recommendations based on the assessment. Each GAIT project's theme—such as palliative care or pain management—is emphasized for the duration of the exercise and in student presentations. During the first year of GAIT's existence, the program had a total of 17 participants from various disciplines, including the law, medicine, nursing, occupational therapy, and social work programs. In 2013, the program expanded to include a total of 143 participants from the allied health management, dental, dental hygiene, gerontology, law, medicine, nursing, nutrition, occupational therapy, pharmacy, physical therapy, physician assistant, social work, speech and language therapy, and therapeutic recreation programs.[12] This program gives UMB students a chance to not only interact with other UMB students but also with students from other programs from surrounding schools in Maryland.

"...students identify the unique role that their profession can contribute to the team..."

The President's Clinic also models an IPE experience in a clinical setting.[13] Started by UMB President Dr. Jay Perman in October 2010, the President's Clinic invites a team of dentistry, law, medicine, nursing, pharmacy, and social work students to participate in a weekly pediatric clinic rotation. Each session consists of a one-hour didactic session focusing on interdisciplinary approaches to case scenarios and is followed by four hours in clinic. During the clinical session, students work together to collect patient history, perform physical exams, conduct patient presentations, and propose treatment plans to discuss with the patient's family. The students not only learn from each other but also from faculty from the Schools of Social Work, Pharmacy, Medicine, and Nursing.

The JACQUES Initiative of the Institute of Human Virology at the University of Maryland School of Medicine organizes the Preparing the Future (PTF) program, which allows students to work on interdisciplinary teams to address the goals of the White House's National HIV/AIDS Strategy.[14] In 2011, the PTF program launched by training medical and nursing students to integrate HIV testing into their future practices. After the initial success of the program, the PTF program was expanded to incorporate the campus' goals for interprofessional education. In addition to medical and nursing students, the PTF program now includes social work, law, pharmacy, and dental

students. Through the PTF program, students participate in workshops related to HIV/AIDS, cultural competence, and iPE. The students then apply their classroom knowledge in case studies, HIV testing sessions, and HIV clinics.

UMB students can gain additional interdisciplinary clinical experiences with the Global Medical Brigades (GMB) chapter at UMB.[15] Since the establishment of the GMB chapter at UMB in 2011, there have been four medical mission trips to deliver basic health care services and supplies to communities who live in resource-limited settings abroad. Each weeklong clinic provides medical, dental, pharmacy, and OB-GYN services. During the 2014 trip, the staff featured two doctors, one dentist, one pharmacist, one pharmacy assistant, and one OB-GYN specialist. Student participants came from the social work, nursing, public health, pharmacy, and graduate programs.

There are also abundant opportunities for students interested in participating in simulated clinical IPE opportunities. The Interprofessional Patient Management Competition (IPMC) was established with this goal in mind. This event, established in the 1990's by the University of Maryland Student Society of Health-System Pharmacy at the School of Pharmacy, is an annual campus-wide student competition that allows interdisciplinary teams to apply their patient care knowledge and skills to an interprofessional patient case.[16] Seven teams competed in the 2013 competition, each comprised of one student from each of the dental, medical, pharmacy, law, social work, nursing, and physical therapy programs.

IPE in Community Service

There are also opportunities for UMB students to engage in IPE-centered community service. Some of these initiatives are student-organized, such as annual health fairs. These health fairs coordinate student volunteers from different disciplines to provide educational materials and health services to local residents. Interprofessional Student Learning and Service Initiatives (ISLSI) also coordinates many community service learning events each year. ISLSI organizes programs such as the President's Student Leadership Institute, which trains student leaders and engages them in service learning[17].

IPE in Research

Many UMB faculty and students collaborate in cross-disciplinary research. For example, the School of Medicine's Office of Student Research (OSR) sponsors structured research programs in which students can learn from members of different disciplines through research projects, seminars, and research forums.

The University's efforts in global health research have also created opportunities for faculty and students to work on interdisciplinary teams. In 2008, under a Fogarty Grant, a small group of like-minded faculty from the seven UMB schools established the Global Health Interprofessional Council (GHIC). The GHIC created the Student Center for Global Education in April 2012 and the Center for Global Education Initiatives in November 2013 to provide administrative support for global health initiatives.

One research initiative sponsored by the GHIC is the Malawi Project. The Malawi Project is an annual interprofessional summer program that engages an interdisciplinary team of students in Malawi to explore topics ranging from maternal health to HIV.[18] After four successful years, the Malawi Project evolved into the Interprofessional Global Health Grant Program. Under this program, faculty members can propose research projects centered in different countries. Students are then matched to a project based on their interests.[19] This program

encourages faculty to submit project proposals for global health projects and awards funding only to the projects that incorporate an IPE component. As a result, this program guides faculty to look at their projects holistically in order to identify ways to involve students from different professions on the same research team.

Development of a More Formalized Approach to IPE

Prior to the launch of the Center for Interprofessional Education in November 2013,[20] these IPE opportunities were frequently "siloed" within the respective professional school or sponsoring organization. These early IPE efforts were programmed by individual school departments and organizations that have individually recognized the need for IPE and are equipped with their own resources to incorporate IPE components into their programs.

"...the programs can leverage a central theme to attract students and faculty from different disciplines under a common interest."

An advantage of this approach to IPE is that by adding onto already-existing programs, the programs can leverage a central theme to attract students and faculty from different disciplines under a common interest. In addition, since some programs have specific areas of interest, they can receive funding from organizations with similar concentrations. For example, the Preparing the Future program, with its focus on students working on interdisciplinary teams to address the goals of the White House's National HIV/AIDS Strategy, is funded through the Gilead Sciences' HIV FOCUS program and the Baltimore City Health Department.

However, a disadvantage of this approach is that without a central structure to coordinate and advertise these IPE initiatives, many students and faculty are not aware of these opportunities. For example, the GAIT program is usually advertised directly to groups of students who are interested in geriatrics rather than campus-wide.

With the incorporation of IPE as a central theme of UMB's 2011-2016 strategic plan, the University has made great strides to create a formalized approach to IPE.[21] UMB's Center for Interprofessional Education was launched in November 2013 to coordinate the expansion of current IPE initiatives and to support the implementation of new ones. The IPE Center is led by a team of faculty from several UMB schools and will provide the core leadership for coordinating the University's IPE efforts, including piloting cross-disciplinary initiatives, promoting faculty development, and fostering staff support for inter-professional education. The Center will also collaborate with the Student Center for Global Education and the Center for Community Engagement.

In addition to providing more central leadership and structural support to the university's IPE efforts, the formalized approach to IPE defines the funds available to support these IPE initiatives, allocated in accordance with the University's strategic plan. Currently, the University has allocated $125,000 in recurring personnel support and $50,000 in one-time personnel support. There is also $190,000 for recurring support, which goes towards faculty development, IPE seed grants, and IPE programs.

This formalized approach to IPE implementation

complements the existing IPE opportunities that are already well established at UMB. For example, the IPE center hosted the second annual IPE Day earlier in February 2014, in which students from all the UMB schools were invited to learn about IPE and participate in interdisciplinary case discussions. Many of the sponsors of the already existing IPE programs on campus, such as leaders from the JACQUES Initiative and the Student Center for Global Education, were able to contribute to IPE Day by leading case discussions based on their areas of expertise. For example, members of the Student Center for Global Education led an interdisciplinary case discussion on ethical issues in global research. This formalized effort to implement IPE campus-wide both complements and strengthens the individual IPE efforts by providing a platform which IPE leaders can use to promote their programs.

With the traditional individual IPE efforts and the new formalized IPE efforts working side by side, the University is able to continue expanding its strong IPE programs to foster an IPE culture within the UMB community.

5 Components of Successful IPE Programs

1: Awareness

What is awareness?
Awareness means communicating IPE facts and myths, establishing IPE's importance in professional education, and garnering participation in IPE. This includes

- Knowing what IPE is and what it is not.
- Realizing its importance as a core value.
- Promoting involvement and buy-in from students, faculty, and staff.
- Targeting the right "customers."

Why does awareness matter?
Any IPE infrastructure that is put in place is useless if the initiatives themselves—and their educational importance—are not communicated in the right way to the right people.

What does a lack of awareness actually affect?
A formalized IPE push that lacks awareness affects many aspects of the movement. Instead of supporting the culture change, it tends to raise the barriers to implementation even higher. The aspects affected are listed below:

- **Participation**: A lack of IPE awareness leads to a lack of participation from students, faculty, and staff.
- **Funding**: A lack of participation makes funding efforts difficult if little proven traction exists.
- **Attitudes and (Mis)Perceptions**: The lack of awareness of a desired culture change fosters continued "siloing" of schools.
- **Champions**: Poor awareness prevents the crucial emergence of student, faculty, and staff champions who are the drivers of this culture change.

2: Funding

What is funding?
Funding involves the financial support of the formalized IPE movement from both UMB and outside organizations. This includes

- **Internal** strategic plan commitments for the longevity of our IPE movement.
- Supplemental grants from **external** foundations to support new IPE initiatives and the training of IPE-inexperienced faculty and staff to administer IPE.

Information for several foundations that fund IPE initiatives are listed below:

Josiah Macy Jr. Foundation

Mission: Preparing collaborative, practice-ready healthcare providers and enhancing interprofessional education through E-learning.

Project Interests: Interprofessional education and teamwork, new curriculum content, new models for clinical education, career development in health professions education and education for the care of underserved populations.

Website: http://www.macyfoundation.org/

Robert Wood Johnson Foundation

Mission: To improve the health and health care of all Americans.

Project Interests: Service demonstrations; gathering and monitoring of health-related statistics; public education, training, and fellowship programs; policy analysis; health services research; technical assistance; communications activities; and evaluations.

Website: http://www.rwjf.org/

Gordon & Betty Moore Foundation

Mission: Patient care focuses on eliminating preventable harms and unnecessary health care costs through meaningful engagement of patients and their families in a supportive, redesigned health care system.

Project Interests: Patient and family engagement, including bringing all stakeholders together for learning opportunities.

Website: http://www.moore.org/

John A. Hartford Foundation

Mission: To put geriatrics expertise to work in all health care settings by advancing practice change and innovation; supporting team-based care through interdisciplinary education of all health care providers; supporting policies, regulations, and a health care infrastructure that promote better care; and developing and disseminating new evidence-based models that deliver better, more cost-effective health care.

Project Interests: Interprofessional leadership in action, linking education and practice, developing and disseminating models of care, tools and measures for quality care, and policy and communications.

Website: http://www.jhartfound.org/

Why does funding matter?

Without financial support, many IPE efforts simply cannot move forward.

What does a lack of funding actually affect?

- **Faculty training:** Lack of funding limits the number of trained and experienced faculty and staff educating students from other professions alongside faculty/staff from other professions.
- **Course implementation:** The limited number of trained and experienced faculty to teach IPE results in difficulty supporting and/or creating IPE initiatives.
- **Student and faculty incentives:** Funding is critical for participation incentives for co-curricular IPE groups, IPE survey prizes, and IPE event catering.
- **Participation:** Without funding to provide the necessary resources (training and incentives), participation suffers.
- **Champions:** Poor funding prevents the crucial emergence of drivers of change.

3: Incentives

What are incentives?

Providing the necessary incentives to compensate for an increased workload, either perceived or actual, is critical to the movement.

Why do incentives matter?

The importance of incentivizing IPE is due to the following factors:

- Students typically requesting scholarly compensation.
- Faculty and Staff requesting financial support for training and course implementation as well as scholarly compensation in the form of tenure inclusion and "buy-backs."

What does a lack of incentives actually affect?

- **Participation:** Limited incentivization is likely to result in limited participation from both students and educators.
- **Attitudes and (Mis)Perceptions:** Increased workload expectations with curricular and co-curricular IPE integration without incentives is likely to result in negative attitudes toward IPE.
- **Faculty training:** A lack of both financial and scholarly incentives will prevent the majority of faculty from seeking IPE-specific training to better educate our professionals.
- **Course implementation:** Limited incentivization, which affects IPE participation, attitudes, and proper training, culminate to prevent implementation of new initiatives.
- **Champions:** Poor incentivization prevents the emergence of our drivers of change.

4: Logistics

What are Logistics?

Our definition of logistics in regards to IPE contains descriptions of both "siloed" education and scheduling. Siloed education refers to the separation of disciplines into distinct silos, both physically on campus and educationally. Scheduling describes the issue of non-cohesive academic schedules across programs and schools.

Why do logistics matter?

Siloing of programs fosters "turf wars," making IPE and the accompanying culture change much harder to implement. Misaligned academic schedules restrict a more inclusive and more formalized implementation of IPE.

What is actually affected by logistical difficulties?

- **Participation**: Siloing and schedule disparities limit the ability of students, faculty, and staff to participate in and contribute to IPE efforts.
- **Attitudes and (Mis)Perceptions:** The possibility of turf wars brought about by siloing cultivates negative attitudes between schools and programs.
- **Course Implementation:** Misaligned schedules and siloing make implementation of more shared learning difficult.
- **Champions:** Logistical difficulties prevent the emergence of our drivers of change.

5: Professional Development

What is professional development?

Professional development refers to the interprofessional education of students and the proper training of faculty and staff to administer that interprofessional education.

Why does professional development matter?

Professional development is important because a lack of faculty and staff IPE training or experience becomes evident in student outcomes, defeating the purpose of IPE movement.

What is actually affected by a lack of professional development?

- **Attitudes and (Mis)Perceptions:** Limited professional development of faculty and staff, if perceived by students, likely leads to low confidence in faculty and staff.

- **Course implementation:** Trained and experienced faculty could be hesistant to team up with untrained and inexperienced faculty, limiting the offerings of IPE on campus.
- **Participation:** Any perceived weaknesses in faculty or staff administering IPE could result in a loss in confidence or ability and lead to a lack of participation.
- **Champions:** The common theme present in all five components of a successful IPE program is CHAMPIONS, CHAMPIONS, CHAMPIONS!

METHODS & DATA ANALYSIS

As home to seven professional schools, UMB is uniquely situated to lead an educational revolution in the field of IPE. The central role of IPE education in advancing collaborative practice is evidenced throughout the literature.[22]

Establishing an IPE program is challenging, however, and leading programs at other academic institutions are still in their infancy. Recognized challenges include leadership commitment, faculty and student interests, coordination across programs, coordination of academic calendars and class schedules, faculty development, resources, and professional attitudes or silos.[23] Outlining and implementing a successful, sustainable IPE program at UMB must work within the unique circumstances at UMB. Awareness of the existing perceptions, successes, and barriers is an important step in the process.

"...UMB is uniquely situated to lead an educational revolution in the field of IPE."

To this aim, students, faculty, and staff in the UMB community were invited to participate in an online survey designed to evaluate existing attitudes toward IPE, existing barriers for IPE, and ideas for IPE program models. In addition, IPE viewpoints were solicited from UMB professors and deans at each school, invited guest lecturers on IPE, academic leaders at national universities with recognized IPE programs, and leaders of local agencies in order to meet the project's objective of understanding the current state of IPE at UMB and the way forward.

The Readiness for InterProfessional Learning Scale (RIPLS), as adapted by McFayden et al., was the instrument selected to assess the UMB students' readiness for IPE.[24,25] The RIPLS instrument is a 19-item Likert scale questionnaire that rates a participant's agreement with statements on shared learning and the attributes needed for teamwork, professional practice, personal growth, relationships, and benefits to patients on a scale from 1 (strongly disagree) to 5 (strongly agree) in order to explore educational outcomes. The McFadyen et al. version includes four subscales: (1) teamwork and collaborative skills, (2) negative professional identity, (3) positive professional

identity, and (4) roles and responsibilities. RIPLS is one of only two psychometrically-validated tools for assessing interprofessional learning.[26] The subscales are often used to generate a composite score based on the total number of questions (e.g., subscale 1 includes nine questions for a total composite score of 45); however, the survey data were normalized to a 5-point score for consistency. Negative items were not reverse-coded—as suggested by McFadyen et al.—and reflect an actual negative attitude.

UMB faculty and staff's IPE views were evaluated using a modified version of the RIPLS survey instrument.[27] This instrument includes three subsections: (1) a 7-item Likert scale evaluating attitudes towards health care teams,[28] (2) an 8-item Likert scale evaluating attitudes towards interdisciplinary work teams,[24] and (3) an 8-item Likert scale evaluating attitudes towards interprofessional learning in the academic setting.[29] Like the RIPLS survey, the Likert scale ranged from 1 (strongly disagree) to 5 (strongly agree). A "not applicable" selection was included for faculty and staff and given a zero (0) rank.

All survey responses were analyzed using descriptive statistics (frequency counts and means) for a semi-quantitative and qualitative evaluation of the response data. Independently-developed qualitative and quantitative questions on general IPE considerations and learning models were also included in the survey. These supplemental survey questions were derived from general themes identified in the IPE literature on best practices and potential barriers. Additionally, interviews with external and internal academic leaders were conducted either in person, by phone, or via email, using a standardized question bank to provide a holistic understanding of IPE in an academic setting.

Characteristics of Study Participants

The pool of survey participants included 6205 students, 2852 faculty members, and 5006 staff employees.[30] A total of 759 students, 165 faculty, and 327 staff employees completed the survey. Additional details are provided in the following tables (**Tables 1 – 3**).

The School of Social Work had the largest number of student participants, followed by the School of Pharmacy. In the faculty and staff groups, the School of Medicine had the largest proportion of participants. Response data for the UMB Graduate School faculty are low since students and faculty are primarily affiliated with other departments and schools.

Table 1. Student Participants by School and Matriculation

	Dental (75)		Grad School (77)		Law (85)		Medicine (86)		Nursing (119)		Pharmacy (113)		Social Work (164)		Other (10)	
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
1st	22	29%	27	35%	22	26%	20	23%	64	54%	39	35%	73	45%	2	20%
2nd	27	36%	16	21%	25	29%	33	38%	40	34%	28	25%	76	46%	2	20%
3rd	17	23%	15	19%	33	39%	14	16%	10	8%	31	27%	13	8%	3	30%
4th	8	11%	6	8%	5	6%	16	19%	3	3%	13	12%	2	1%	2	20%
5th	1	1%	13	17%	0	0%	3	3%	2	2%	2	2%	0	0%	1	10%

"Other" affiliations were joint degree programs and two medical school professions.

Table 2. Faculty Participants by School and Tenure

	Dental (11)		Grad School (1)		Law (7)		Medicine (60)		Nursing (32)		Pharmacy (21)		Social Work (18)		Other (8)	
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
< 5 years	3	27%	1	100%	5	71%	18	30%	11	34%	7	33%	7	39%	4	50%
5-9 years	3	27%	0	0%	1	14%	18	30%	9	28%	6	29%	6	33%	0	0%
10-14 years	1	9%	0	0%	1	14%	13	22%	9	28%	4	19%	2	11%	1	13%
15-19 years	1	9%	0	0%	0	0%	4	7%	2	6%	1	5%	0	0%	0	0%
≥ 20 years	3	27%	0	0%	0	0%	7	12%	1	3%	3	14%	3	17%	3	38%

"Other" affiliations were research and medical school subspecialties.

Readiness for Interprofessional Learning Among Students

The RIPLS results summarized in **Table 4** characterize UMB students' readiness for IPE. Mean response scores comprised only those students with complete data on the RIPLS questions, or 653 students. Participants with an "other" affiliation are excluded from the "by school" groupings but are included in the total mean scores.

The RIPLS teamwork and collaboration subscale mean scores show a strong belief among UMB students that teamwork and collaboration are essential for academic training and will ultimately improve professional competency. The mean UMB student score is 4.27, with all individual schools rating higher than 4.00. The School of Pharmacy students are most strongly in favor of collaborative learning, followed by the School of Social Work students. There is an association between the positive outcomes of teamwork and adoption of a team-based approach to training future health profession students.[24] Based on these data, UMB students are ready for a fundamental paradigm shift towards IPE.

The second and third RIPLS subscales assess the perceived tensions between retaining professional identities and autonomy (negative professional identity) and willingness to share resources (positive professional identity). Overall, UMB students do not believe that shared academic learning is a waste of time, nor do they feel that it hinders developing one's professional identity (mean score of 2.08). Rather, students are willing to share knowledge, resources, and skills to improve the quality of patient care and services (mean score of 4.09). As in subscale 1, the School of Pharmacy and the School of Social Work are leading the charge at UMB, favoring team-based learning over academic silos.

The fourth subscale on roles and responsibility gauges students' understanding of their professional roles in relation to other roles. In particular, this subscale evaluates students' perceptions about health care team structure. The closer to 5 the fourth subscale score is, the stronger the belief that one's profession is subservient to another discipline and the higher the uncertainty about contributing on professional teams. The mean UMB student score was 2.40, which indicates a good understanding of professional roles on health care teams and the importance of respecting other professions. The three schools with the least clarity on professional roles and responsibilities in the team context are the School of Law, the Graduate School, and the School of Dentistry, with mean scores of 2.75, 2.64, and 2.61, respectively.

Readiness for Interprofessional Learning Among Faculty and Staff

An understanding of faculty and staff attitudes

Table 3. Staff Participants by School and Tenure

	Dental (7)		Grad School (3)		Law (14)		Medicine (129)		Nursing (15)		Pharmacy (28)		Social Work (27)		Central Admin (26)		ASA (19)		Other (29)	
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
< 5 years	3	43%	2	67%	10	71%	62	48%	6	40%	14	50%	16	59%	9	35%	11	58%	18	62%
5 - 9 years	3	43%	0	0%	2	14%	31	24%	5	33%	7	25%	6	22%	4	15%	3	16%	5	17%
10 -14 years	0	0%	0	0%	1	7%	23	18%	1	7%	2	7%	2	7%	4	15%	3	16%	4	14%
15 - 19 years	0	0%	0	0%	1	7%	4	3%	2	13%	1	4%	2	7%	3	12%	1	5%	2	7%
> 20 years	1	14%	1	33%	0	0%	9	7%	1	7%	4	14%	1	4%	6	23%	1	5%	0	0%

ASA = Academic and Student Affairs

"Other" affiliations included a diverse array of operations, public safety, and facilities related staff.

towards IPE is essential for developing and sustaining IPE initiatives. Since the faculty readiness assessment was a compilation of different survey instruments and each attitude subgroup includes both positive and negative indicators, a composite score was not calculated. The survey results are summarized in **Table 5**.

The data show strong positive indicators for embracing IPE at UMB among faculty and staff. Mean scores on the positive benefits of health care teams were greater than 4.0 for both faculty and staff. Interestingly, a large proportion of faculty and staff believe that working in health care teams is too time-consuming a task to reap the benefits, with mean scores near 3.0. However, both faculty and staff view IPE positively and agree that IPE experiences before graduation will benefit students and the delivery of health care services. While faculty support UMB students taking IPE courses (mean scores >4.0), there are mixed emotions about teaching students from other schools (mean scores <3.5). The results highlight a strong belief that interprofessional learning in the academic setting is a logistical challenge.

Table 4. **Readiness for Interprofessional Learning among UMB Students (1-5 scale, where 1 is "Strongly Disagree" and 5 is "Strongly Agree").**

	Dental (N=68)	Graduate School (N=74)	Law (N=78)	Medicine (N=75)	Nursing (N=102)	Pharmacy (N=96)	Social Work (N=150)	Total (N=653)
Learning with other students will help me become a more effective member of a team.	4.19	4.05	4.08	4.33	4.33	4.47	4.46	4.31
Patients/clients would ultimately benefit if professional/graduate students worked together to solve patient problems.	4.38	4.23	4.17	4.41	4.59	4.58	4.70	4.48
Shared learning with other professional/graduate students will increase my ability to understand workplace problems.	4.09	4.09	4.05	4.27	4.36	4.47	4.47	4.30
Learning with other professional/graduate students before qualification would improve relationships after qualification.	4.12	3.95	3.94	4.25	4.17	4.35	4.31	4.18
Communication skills should be learned with other professional/graduate students.	4.15	4.15	3.95	4.17	4.21	4.51	4.35	4.24
Shared learning will help me to think positively about other professions.	4.07	3.84	3.94	4.05	4.15	4.34	4.25	4.13
For small group learning to work, students from different disciplines need to trust and respect each other.	4.25	4.14	4.01	4.32	4.50	4.56	4.46	4.35
Team-working skills are essential for all professional/graduate students to learn.	4.26	4.22	4.21	4.39	4.45	4.54	4.50	4.40
Shared learning will help me to understand my own limitations.	3.91	3.78	3.81	3.99	3.88	4.26	4.23	4.02
Teamwork and Collaboration Composite Score	4.16	4.05	4.02	4.24	4.29	4.45	4.41	4.27
I don't want to waste my time learning with other professional/graduate students.	2.04	2.20	2.28	1.97	2.07	2.05	1.72	2.01
It is not necessary for professional/graduate students to learn together.	2.37	2.43	2.65	2.25	2.30	2.05	1.99	2.26

	Dental (N=68)	Graduate School (N=74)	Law (N=78)	Medicine (N=75)	Nursing (N=102)	Pharmacy (N=96)	Social Work (N=150)	Total (N=653)
Professional problem-solving skills can only be learned with students from my own department/program.	2.10	2.20	2.12	2.13	1.97	1.96	1.67	1.98
Negative Professional Identity Composite Score	2.17	2.28	2.35	2.12	2.11	2.02	1.79	2.08
Shared learning with other professional/graduate students will help me to communicate better with patients/clients and other professional	4.15	3.97	3.97	4.19	4.14	4.46	4.39	4.22
I would welcome the opportunity to work on small group projects with other professional/graduate students.	4.06	3.70	3.86	3.93	3.89	4.29	4.15	4.01
Shared learning will help to clarify the nature of patient/client problems.	3.96	3.74	3.92	4.01	4.03	4.30	4.32	4.09
Shared learning before qualification will help me become a better team worker.	3.94	3.65	3.74	4.11	4.02	4.40	4.22	4.05
Positive Professional Identity Composite Score	4.03	3.77	3.88	4.06	4.02	4.36	4.27	4.09
The function of nurses and therapists is mainly to provide support for doctors.	2.69	2.24	2.65	2.21	1.86	2.50	1.75	2.19
I'm not sure what my professional role will be.	2.22	2.78	2.74	2.33	2.00	2.22	2.03	2.28
I have to acquire much more knowledge and skills than other professional/graduate students.	2.93	2.89	2.85	3.20	2.56	2.74	2.32	2.72
Roles and Responsibility Composite Score	2.61	2.64	2.75	2.58	2.14	2.49	2.03	2.40

Table 5. Attitudes Towards Health Care Teams among UMB Faculty and Staff (1-5 scale, where 1 is "Strongly Disagree" and 5 is "Strongly Agree").

Attitudes towards health care teams	Faculty (N=131)	Staff (N=206)
Developing an interprofessional patient/client care plan is excessively time-consuming.	2.84	2.98
The interprofessional approach makes the delivery of care more efficient.	4.14	4.15
Developing a patient/client care plan with other team members avoids errors in delivering care.	4.33	4.13
Working in an interprofessional manner unnecessarily complicates things most of the time.	1.92	2.54
In most instances, the time required for interprofessional consultations could be better spent in other ways.	1.90	2.40
Having to report observations to a team helps team members better understand the work of the health professionals.	4.33	4.21
Team meetings foster communication among members from different professions or disciplines.	4.53	4.33
Attitudes towards interprofessional education		
Clinical problem solving can only be learned effectively when students are taught within their individual department/school.	1.83	2.48
Students in my professional group would benefit from working on small group projects with other health care students.	4.40	4.09
Interprofessional learning will help to clarify the nature of patient problems for students.	4.32	4.07
It is not necessary for undergraduate health care students to learn together.	1.84	2.08
Learning with students in other health professional schools helps students to become more effective members of a health care team.	4.46	4.30
Interprofessional learning among health care students will increase their ability to understand clinical problems.	4.40	4.27
Interprofessional learning will help students to understand their own professional limitations.	4.39	4.16
Learning between health care students before qualification would improve working relationships after qualification.	4.41	4.08
Attitudes towards interprofessional learning in the academic setting		
Interprofessional learning should be a goal of this campus.	4.45	4.29
Students like courses that include students from other academic departments.	3.77	3.75
Faculty should be encouraged to participate in interprofessional courses.	4.27	4.21
Faculty like teaching students in other academic departments.	3.50	3.29
Faculty like teaching with faculty from other academic departments.	3.64	3.41
Interprofessional efforts weaken course content.	1.96	2.22
Interprofessional courses are logistically difficult.	3.73	3.00
Accreditation requirements limit interprofessional efforts.	2.99	3.24

BARRIERS

Survey data measuring readiness for interprofessional education depicts a general acceptance and "readiness" to take the next steps in implementing IPE on UMB's campus. As many universities can attest, it is not only a university's "readiness" that is important in furthering IPE but also the way in which the university acknowledges and overcomes the barriers preventing such implementation from occurring. Therefore the question arises: "What is stopping UMB from taking the next steps in implementing IPE?"

The five barriers currently preventing UMB from taking the next steps in IPE are as followings:

1. Awareness
2. Funding Concerns
3. Logistics
4. Incentives
5. Professional Development

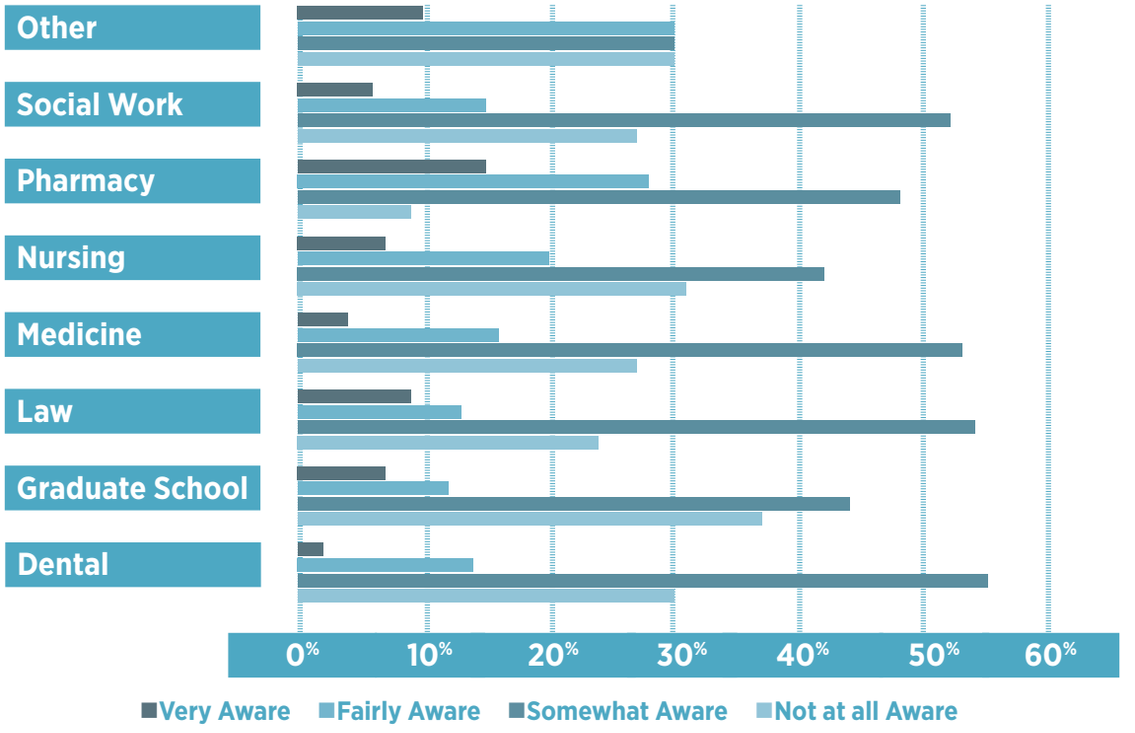
In this section, these five barriers are explored in-depth as well as faculty, staff, and student's reactions to them. A detailed recommendation section will follow drawing from survey data on the five barriers and interviews with UMB faculty and staff and faculty and staff from other universities currently pioneering the way in IPE.

Barrier 1: Awareness

Awareness of the definition of IPE

Two themes arose from the survey regarding awareness—awareness or an understanding of what IPE is and awareness of IPE events and efforts on campus. Students were asked to define IPE in the survey. This produced varying definitions on the role and purpose of IPE (see **"Survey Responses: What is IPE?"** insert on the following page). One student gave the following definition: "Multidisciplinary and cohesive education that helps different professionals work together to achieve greater goals." Another student defined IPE as "students of various professional tracts interacting to learn from each other." These definitions are very similar to the standard definition developed by the WHO in 2010.[1] While many students gave standard definitions of IPE, other students saw IPE as a nuisance or did not even know what it was (see IPE definitions page). A few students stated they had never heard of IPE until now while one student stated that it was "[k]inda silly, we have to repeat a lot to catch other schools up." If some students do not even know what IPE is, how can UMB expect them to take an active role or champion IPE efforts on campus?

Graph 1. How Aware are You of Interprofessional Events/Efforts on Campus?



Survey Responses: What is IPE?

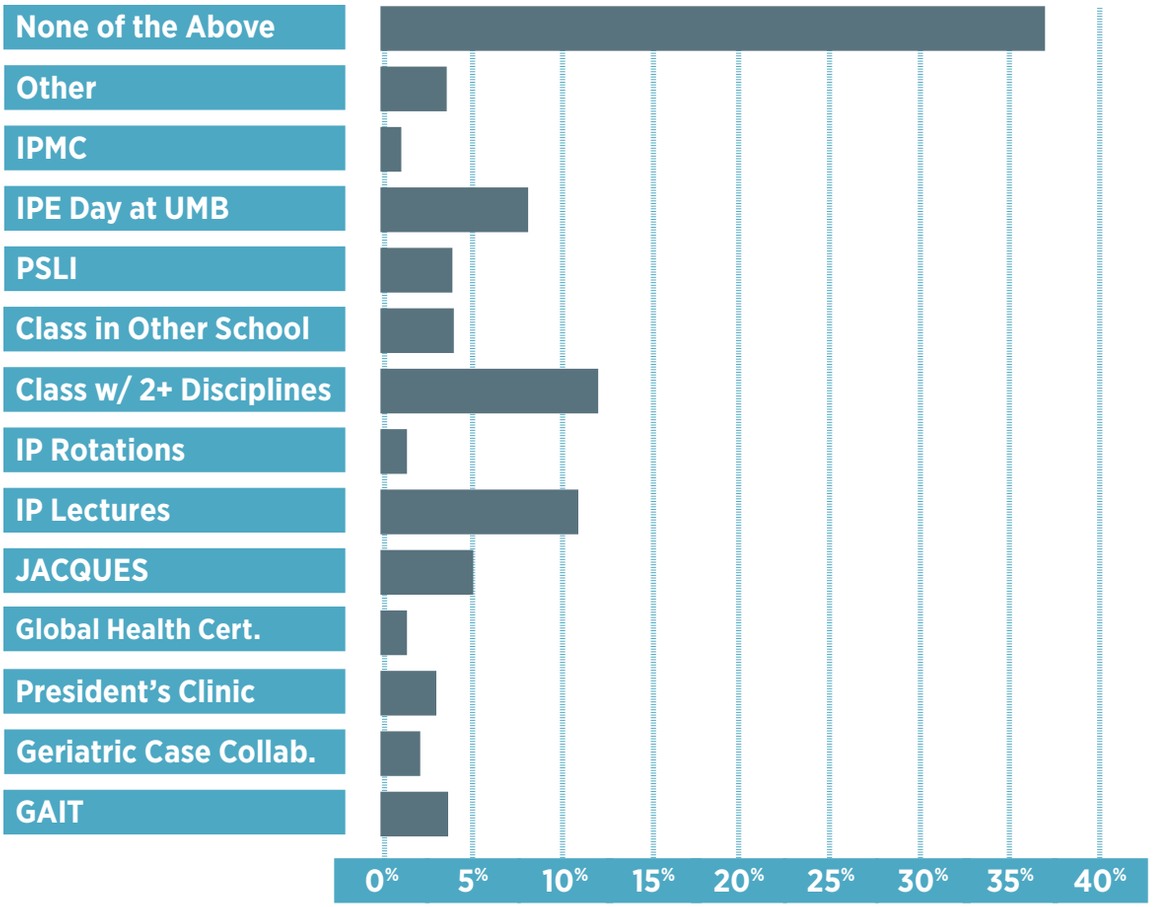
IPE Aware Definitions

- "To me IPE is the process by which a wide variety of professionals reflect on and develop ways of practicing that provides an integrated and cohesive way that meets the needs of individuals, their families, and the overall community they dwell in."
- "Learning with and about other health professions."
- "Multidisciplinary and cohesive education that helps different professionals work together to achieve greater goals."
- "IPE is learning about and with other professions in a variety of environments."
- "I would define IPE as opportunities to learn alongside professionals from other disciplines, in order to foster a greater understanding that spans disciplines and to learn to appreciate the viewpoints."

IPE Not Aware Definitions

- "I guess trying to integrate all the schools together."
- "I have no definition for this concept."
- "I would like to know more about it, honestly."
- "Networking among peers from different career paths to exchange information for mutual benefit."
- "UMB campus-wide social network."

Graph 2. What IPE Activities Have You Been Involved In? (Check All That Apply)



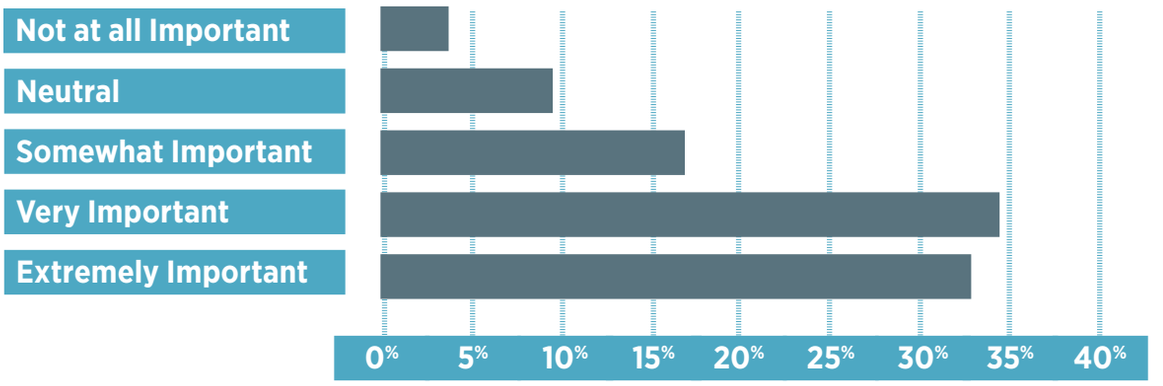
Likewise, if some students do not see the benefits to IPE how can UMB expect IPE to reach the next level of implementation?

Awareness of IPE Efforts on Campus

In addition to a lack of awareness regarding the definition of IPE, there also appears to be a general lack of awareness of IPE events and efforts across schools (**Graph 1**). Almost all schools reported that they were only somewhat aware of IPE events on campus. This is only one step above the lowest measure ("not at all aware"). However, in examining the two extremes ("very aware" vs "not at all aware"), the Pharmacy respondents (15.24%) and students claiming an "other" status (10%) reported being the most aware, while students from the Graduate School (36.49%), Nursing School (31.19%) and Dental School (30.14%) self-reported as being the least aware.

Although some schools reported having a higher percentage of awareness of IPE efforts than others, **Graph 2** shows that four out of ten students are not participating in any of IPE initiatives offered on UMB's campus. This lack of awareness of what IPE is and lack of awareness of the IPE efforts offered on campus may translate into a general lack of attendance at IPE events and thus a barrier to championing IPE throughout UMB.

Graph 3. How Important are the Following Forms of Support to Integration of IPE into Your Teaching or Department?—Financial Support for Course



Barrier 2: Funding Concerns

The second major barrier preventing the furtherance of IPE on UMB's campus is funding concerns for faculty, staff, and students. **Graph 3** shows that two out of three faculty and staff members consider financial support to be very to extremely important. However, **Graph 4** shows the current supports as interested faculty (35.33%) and faculty and staff development (33.79%). Only about 13% of faculty and staff members consider UMB financial backing a current support. There is no doubt that the support of faculty and staff is needed to carry out successful IPE efforts on university campuses. However, UMB cannot expect full participation or support if faculty and staff are worried about how IPE will be funded and sustained.

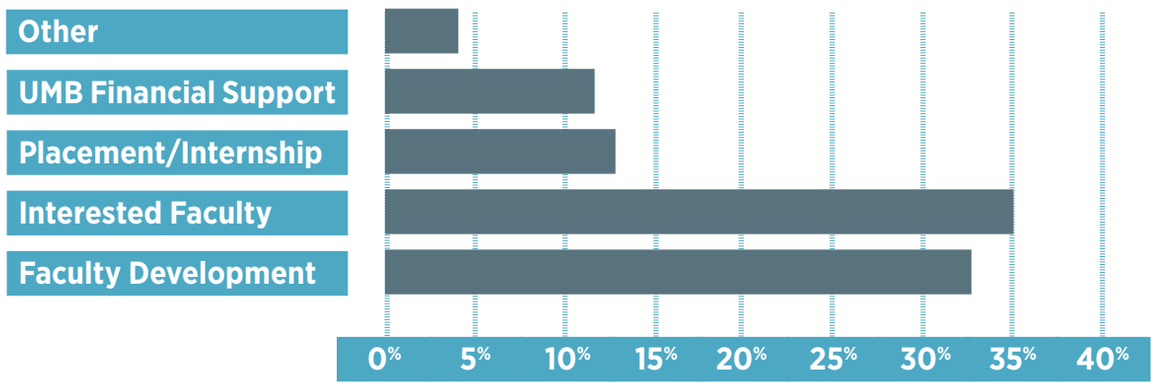
Likewise, students are equally concerned that IPE will be funded through increases in tuition. **Graph 5** shows that more than half (54.55%) of student are very to extremely concerned that implementing IPE at UMB will result in higher tuition costs. While this appears to be a conflict in that faculty and staff need financial support for course implementation and students do not want increases in tuition costs, a delicate balance between the two needs to be made.

Barrier 3: Logistics

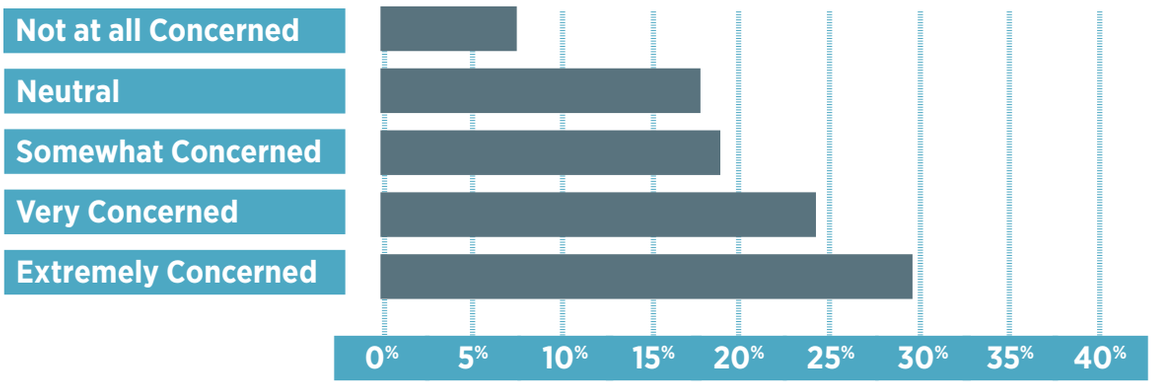
Siloed Education

The third major barrier arising from the survey data

Graph 4. What Supports Do You Think Currently Exist at UMB for IPE?



Graph 5. How Concerned are You about the Following Possible Impacts of Implementing IPE on Campus?—Higher Tuition



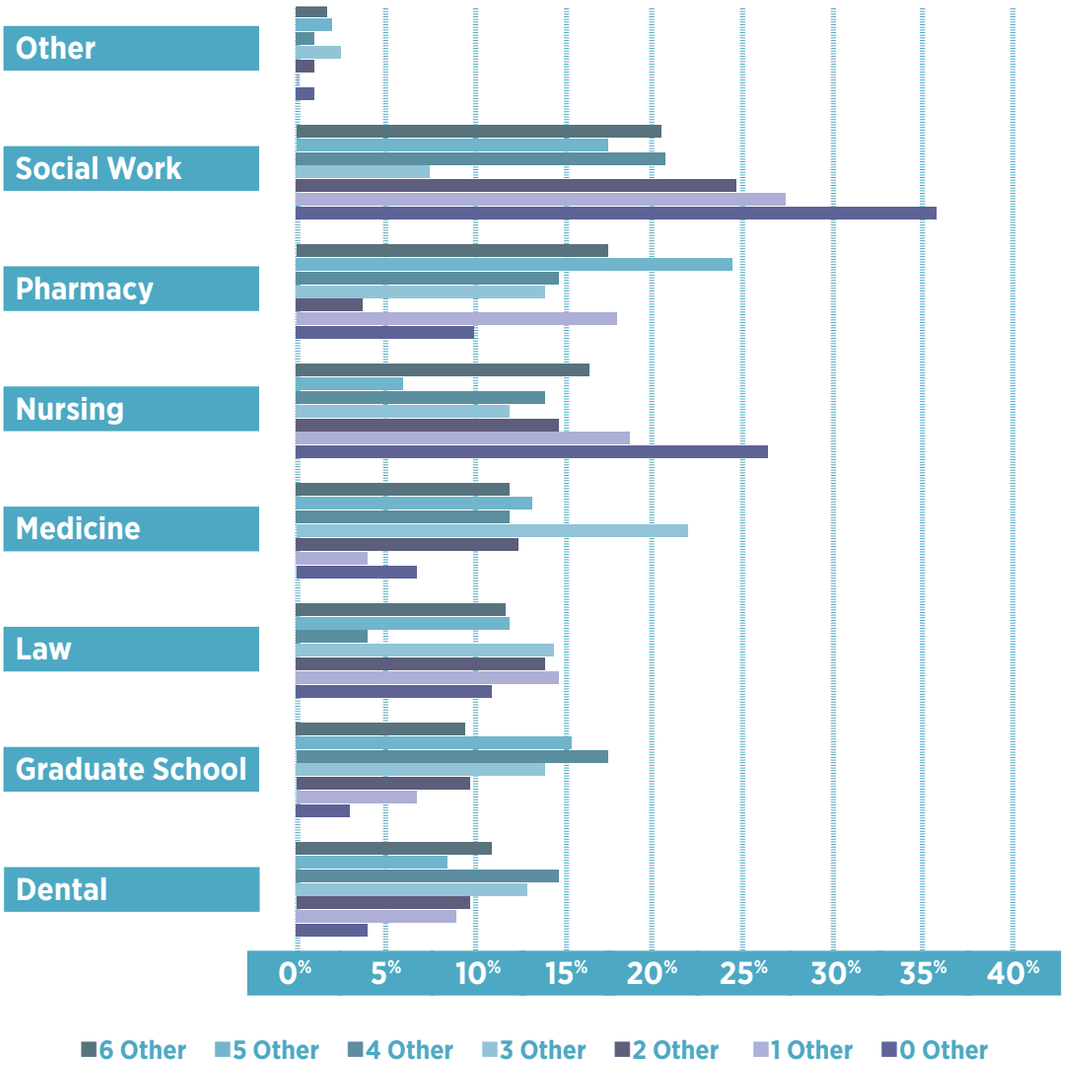
were logistical concerns, such as siloed education and scheduling conflicts. The question, "How many UMB students/faculty have you interacted with on campus?" was posed to students in the hopes of understanding students' natural inclinations toward interacting with each other. This will show students' current abilities to infuse IPE into the culture here at UMB. In **Graph 6**, student respondents from the School of Social Work appear to be leading the way for both high and low levels of interaction. Looking just at schools with no other interaction with students or faculty ("0 other interactions with student/faculty"), about 35% of Social Work student respondents and about 25% of Nursing student respondents self-reported to have the least amount of interaction. However, looking at the category of 6 and above interactions, the School of Social Work (20.61%), School of Pharmacy (17.58%) and School of Nursing (16.36%) reported having the most amount of interaction. Both the School of Social Work and School of Nursing appear on both high and low ends of interaction. One reason for this could be the higher number of Social Work and Nursing student responses to the survey. Another possible reason could be that it reflects the multiple types of students at UMB. For example, the awareness barrier showed that some students were very aware and very involved while other students were not.

In order to move forward with IPE on UMB's campus, students will need to begin to infuse IPE into their culture. In order to do this, students will have to interact more with other students, professionals, faculty, and staff on campus. Again, Pharmacy students reported a high level of interaction and a high level of awareness (see **Graph 1)**. This may suggest that the School of Pharmacy is cultivating students to enter the champion role.

Scheduling Conflicts

A follow-up question was posed asking students why they haven't interacted with other UMB students and faculty (see **"Survey Responses: Conflicts"**). One student respondent stated, "[There have been] no opportunities presented that I have been capable of attending (mostly due to scheduling conflicts)." In analyzing these results, the words "opportunity" and themes of conflict continued to emerge. The following student went into more detail regarding a lack of opportunity because of conflicts: "[There are] not enough opportunities that coincide with [my] schedule. For example, 2 out of 5 days, I'm not on campus because of [having a] field [placement] in a different part of the state. If an event falls on

Graph 6. How Many Other UMB Schools' Students/Faculty Have You Interacted with on Campus (Socially or Academically)?

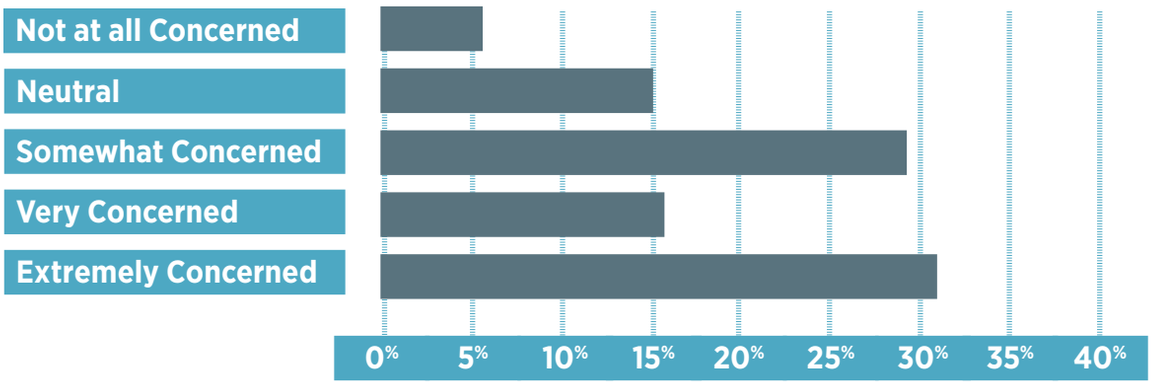


that day, there's no way I can attend, especially when it's in the middle of the day." These quotes depict the dilemma facing students who want to participate in IPE events and yet are not able to do so because of prior commitments. In order to move to the next stage of IPE at UMB, there needs to be events and efforts that are convenient for the unique schedules held by most UMB students. This includes making events for commuter and night-time students as well as for students who are returning to the academic setting who may have families and jobs to consider.

Barrier 4: Incentives

Incentives also plays a significant role for faculty, staff, and students. **Graph 7** shows that students move between being somewhat concerned

Graph 7. How Concerned are You about the Following Possible Impacts of Implementing IPE on Campus?—Greater Workload



Survey Responses: Conflicts

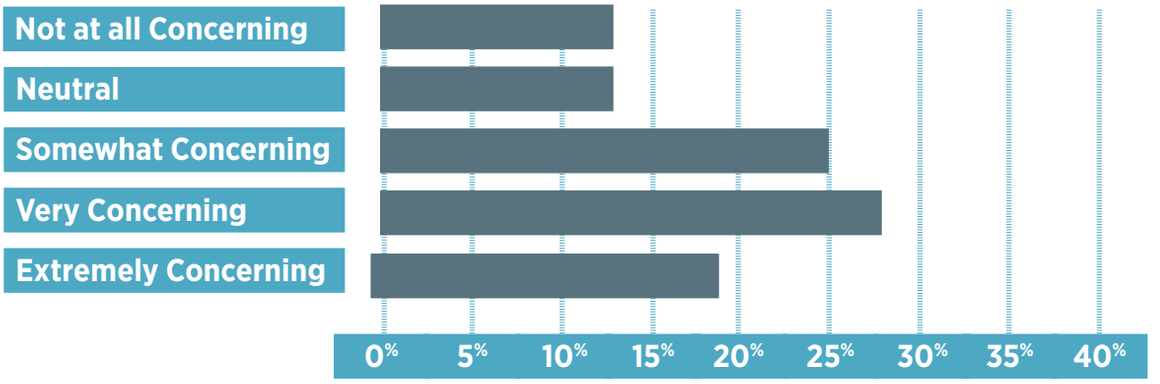
Why haven't you interacted with other UMB schools?

- "No opportunity. Events sometimes scheduled on my field days."
- "No opportunities presented that I have been capable of attending (mostly scheduling conflicts)."
- "Not enough opportunities. I've missed the last few!"
- "Separated by location."

Why haven't you been to other UMB schools' buildings?

- "I have no need to visit other school buildings. I am limited on time and do not have the luxury of checking out the other schools."
- "I don't have a lot of free time, and I don't have a reason to go to the other buildings."
- "No time to explore because I am taking night classes after work."
- "I have been working in the field for more than 10 years. It is impossible for me to quit my job and attend school full-time because I have other obligations and responsibilities. If UMB wants to become a more diverse community, it should consider offering programs that meet the needs for mature and returning students."

Graph 8. For Your School/Department, How Concerning to You are the Following Barriers to IPE at UMB?—There Are No Incentives To Do This



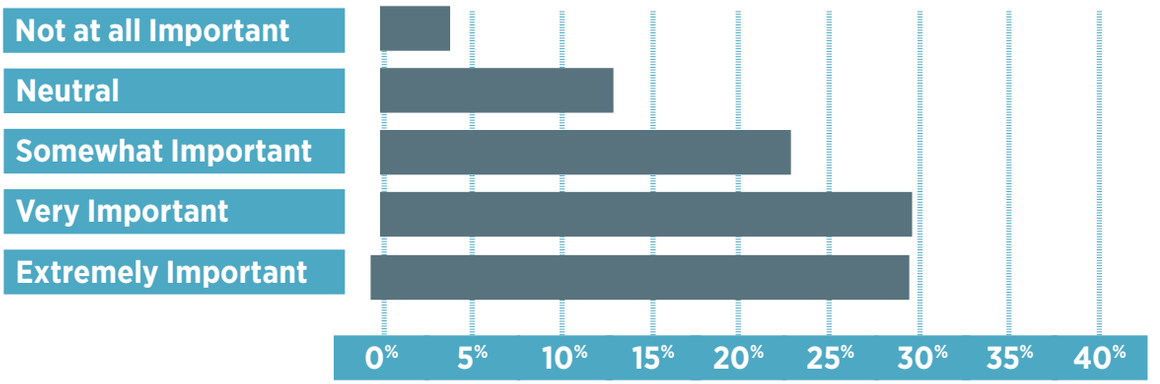
(29.87%) and extremely concerned (31.17%) about having a greater workload as a result of implementing IPE efforts on campus. This indicates the need to find a balance between satisfying students' readiness and desire to have IPE on campus and creating an even heavier workload on an already rigorous academic schedule.

Faculty and staff also indicated they were concerned about incentives. **Graph 8** shows that more than half (53.75%) of faculty and staff are somewhat to very concerned that there are no incentives to implement IPE on UMB's campus. This is very concerning for the future of IPE on UMB's campus because six out of ten faculty and staff members consider incentives including inclusion in promotion and tenure criteria to be very to extremely important (**Graph 9**). Additionally, many students and faculty may interpret a lack of incentives as an indication that the University places little importance on IPE. If incentives are present, it may help encourage those less familiar with IPE to take more of a leadership role and help champion this effort.

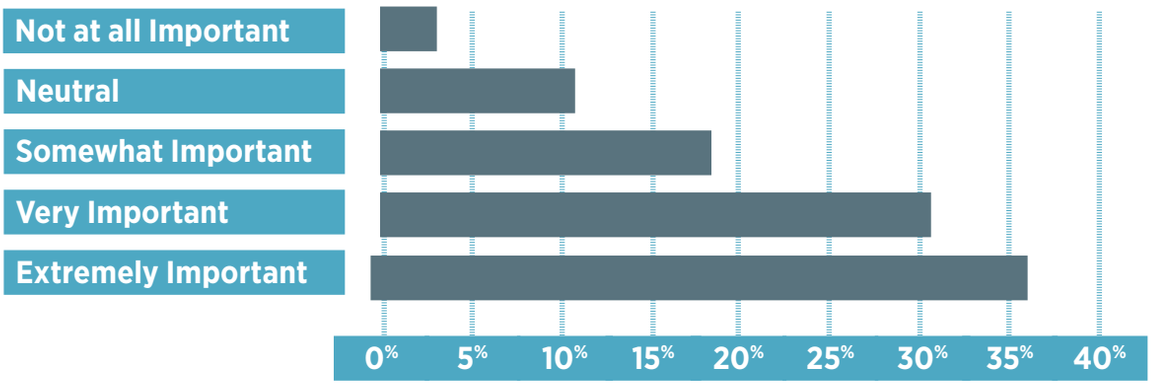
Barrier 5: Professional Development

The final barrier is professional development. **Graph 10** shows that over two-thirds of faculty and staff members consider training in approaches to teaching in an interprofessional setting to be

Graph 9. How Important are the Following Forms of Support to Integration of IPE into Your Teaching or Department?—Incentives (e.g. Recognition and Inclusion)



Graph 10. How Important are the Following Forms of Support to Integration of IPE into Your Teaching or Department?—Training in Approaches to Teaching in an IPE Setting)

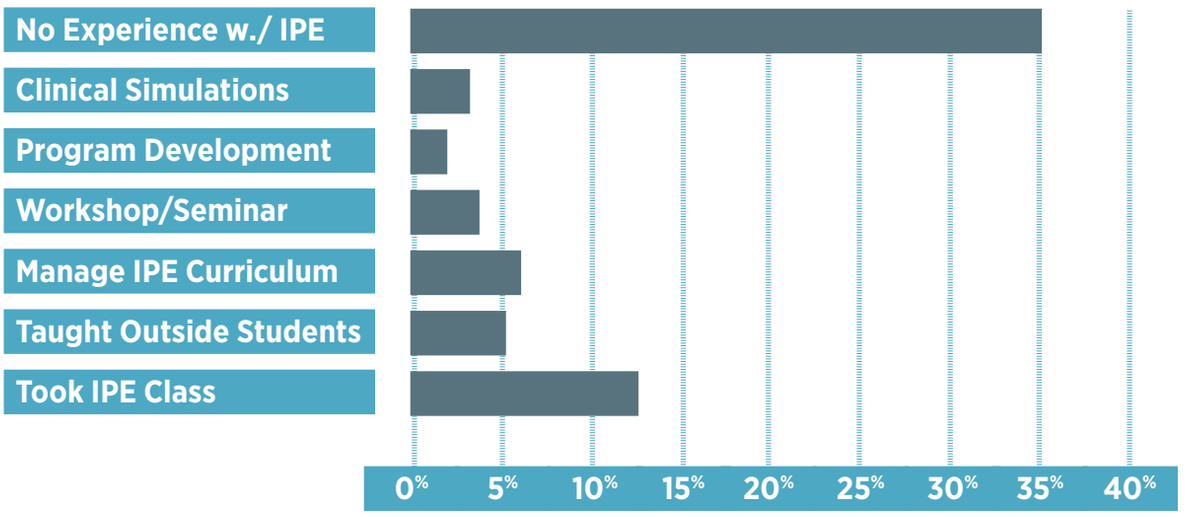


very to extremely important. Despite this, **Graph 11** shows that over one-third of faculty and staff report having no experience with IPE. In **Graph 4**, faculty and staff listed professional development as a current support at UMB. While there is a desire to have trainings in approaches to integrating IPE into faculty and staffs' departments, faculty and staff are not using these trainings to actually implement IPE on campus. Thus, professional development poses a unique threat to UMB as it is both wanted by faculty and staff but also a possible way to continue not fully committing to the IPE initiative on campus. In addition, these barriers may show that a combination of incentives, funding, and professional development for faculty and staff may have a greater impact on faculty and staff actually implementing IPE within their teachings and departments.

Summary

While there is a general "readiness" for IPE on UMB's campus, the campus-wide survey revealed five main barriers that are currently preventing UMB from taking IPE from a simple idea in a

Graph 11. What is Your Experience with IPE?



strategic plan to something that is infused into the University's culture. The first barrier (awareness) revealed that some students at UMB are unaware of the definition of IPE and unaware of IPE initiatives on campus, which may translate into a general lack of participation in IPE events and efforts. The second barrier (funding) indicated that a delicate balance between increased costs for students and financial support for course planning and implementation for faculty and staff needs to be considered in order to sustain IPE. The third barrier (logistics) revealed that students generally report having little interaction with students, faculty, and staff from other schools or departments. A general lack of interaction may perpetuate siloed education at UMB, which can prevent IPE from being infused into the culture at UMB. Additionally, scheduling conflicts pose specific logistical concerns for students that want to participate in these IPE efforts but are unable to do so because of prior commitments to school activities. The fourth barrier (incentives) showed that students want a balance between workload and additional IPE efforts and that faculty and staff want to be recognized and compensated for the IPE work they do at UMB. The final barrier (professional development) showed that while faculty and staff consider professional development important and a current support, this does not tranlsate to actual IPE experience at UMB. In order to take IPE to the next level, students, faculty and staff will not only need to be aware of and trained in IPE initiatives but will need UMB's support in order to infuse IPE into the culture at UMB and in the local communities.

RECOMMENDATIONS

As UMB continues to strive towards creating a culture of IPE that is woven throughout students' curriculum and co-curricular activities, it is essential to address the barriers of awareness, funding, logistics, incentives, and professional development. The recommendations outlined below are first steps that UMB can take towards its goal of incorporating IPE as a core instructional value that every student at UMB has exposure to during their time on campus. These recommendations are broken into five categories to correspond with the five main barriers identified, which are as follows:

1. Awareness
2. Funding
3. Logistics
4. Incentives
5. Professional Development

Awareness

New Student Orientation

In order to effectively create a culture of IPE, it is important to introduce students early on in their degree programs to what IPE is and how they can become involved in IPE activities at UMB. New student orientation provides a prime opportunity to inform students about IPE opportunities on campus, encourage students to attend open events hosted by other professional schools within UMB, and emphasize the importance of IPE as it relates to their profession. This will enable the seed of IPE to be planted from the very beginning so that students are aware of IPE opportunities on campus, know that IPE is an objective of building the future professional leaders of tomorrow, and understand how IPE may play a role in their future professions to improve patient or client care.

Faculty/Staff Liaison

An important element needed to broaden awareness about IPE at UMB among students, faculty, and staff is to have clear, consistent communication. Designating a faculty or staff liaison at each professional school will enable communication about IPE opportunities to be streamlined for students, staff, and faculty. Ideally, these liaison will be IPE champions in their respective schools. The individual selected as the faculty or staff liaisons will be the point person for communication between their school and UMB's Center for Interprofessional Education. This liaison will be responsible for maintaining communication with the Center, as well as referring students, staff, and faculty to appropriate resources related to IPE.

For example, if a student wanted to learn more about how to become involved in IPE co-curricular activities mentioned during their new student orientation, they would immediately know who to contact within their school for more information, which would be this faculty or staff liaison. The faculty or staff liaison would be positioned and equipped to refer the student to the appropriate resources related to the IPE opportunities the student expressed interest in participating in.

IPE Website

To expand awareness beyond the UMB community, it is important to have an easily accessible means of communicating this information externally. To accomplish this, a website will need to be created that houses all information related to IPE efforts at UMB. For instance, this website can house the following information:

- Historic timeline of IPE initiatives at UMB
- Current IPE opportunities open to students, staff, and faculty
- All courses available for enrollment to students of multiple schools
- Contact information for each IPE opportunity
- Links to stories published on *The Elm* related to IPE initiatives
- Links to calendar events on *The Elm* for upcoming IPE activities

"...it is essential to address the barriers of awareness, funding, logistics, incentives, and professional development."

Funding

In order for UMB to maintain its current IPE initiatives on campus and expand in the future with new IPE courses and co-curricular activities, the barrier of funding will need to be adequately addressed.

IPE Funding Workgroup

An IPE Funding Workgroup should be established that is comprised of at least one representative from each school at UMB. This workgroup will have two main goals. The first goal is to work collaboratively to negotiate terms for sharing tuition dollars and compensating faculty instructors for IPE courses open to enrollment for students from more than one school. The second goal of the workgroup is to develop one cohesive funding policy that establishes how IPE courses and co-curricular activities will be funded. This policy should include internal and external sources of fundingand indicate how funds from each source will be appropriated to sustain IPE initiatives.

Logistics

Minimizing and eliminating logistical issues is another critical aspect that must be overcome in order to expand IPE opportunities at UMB. Even if students are aware of IPE opportunities, and UMB is able to source the funds necessary to implement new IPE initiatives, without addressing scheduling issues, many students will still be left unable to participate in IPE activities. Overcoming scheduling and related logistical issues is a crucial component in effectively expanding IPE opportunities to UMB students.

Auditing Schools' Academic Calendars

The first step that must be taken to overcome logistical issues related to scheduling is conducting a comprehensive audit of each schools' academic

calendars. During the audit, focus should be given to identifying free time periods (e.g. school breaks when classes are not scheduled and when students should typically not be fulfilling internship, field placement, or clinical requirements) that overlap between programs, and examining how to maximize these periods to provide IPE opportunities. It is also recommended that schools work together to find ways to align academic calendars more closely between programs and schools to allow more students to participate in IPE opportunities. Furthermore, by aligning academic calendars more closely, it will be easier to schedule and offer new IPE courses that are open to enrollment from students of more than one school.

Incentives

Recognizing student, staff, and faculty efforts and achievements will be an important element as UMB moves forward in expanding its culture of IPE. Oftentimes, IPE courses are not a requirement for students to complete their degree programs; rather, students may choose to take IPE courses as electives. Furthermore, IPE co-curricular activities are not a requirement for graduation, and students must elect to go above and beyond the requirements of their programs to participate in IPE initiatives. As a result, students can see IPE as an increase in their workload and time commitment. Although participating in IPE courses and co-curricular activities surely benefits students, finding ways to reward the effort, time commitment, and work put into participating in these initiatives will help boost enthusiasm for seeking out and participating in IPE initiatives. In addition, it will be important for UMB to find a way to compensate staff and faculty in monetary and non-monetary ways when they support and facilitate IPE initiatives at UMB. This is especially true for faculty who undertake the task of teaching IPE courses open for enrollment to students of more than one school.

IPE Faculty, Staff, and Student Incentives Workgroup

An IPE Faculty, Staff, and Student Incentives Workgroup should be established and tasked with determining how to appropriately compensate faculty, staff, and students for their efforts in planning, supporting, facilitating, and participating in IPE opportunities. The goals of this workgroup are two-fold. First, the workgroup will work to determine how faculty contributions to IPE will be evaluated and counted towards promotions, tenure, or "buying back" time, and how staff contributions will be recognized and appropriately compensated. For faculty, this will include contributions to both designing and teaching IPE courses as well as involvement with IPE co-curricular activities. The second goal of this workgroup is to determine in what ways student involvement in IPE initiatives will be recognized. This could include awards, honors, and certificates that would recognize students for going above and beyond the requirements of their program to include additional interprofessional training into their education by participating in IPE opportunities

Professional Development

As UMB expands its current IPE offerings and continues to create a culture of IPE, professional development will play an important role in ensuring faculty, staff, and students are adequately trained in contemporary methodologies, knowledgeable about current research, and have a space to share information related to IPE.

IPE Colloquia

It is recommended that UMB establishes an IPE Colloquia that will function as a think tank for IPE training and professional development. This IPE Colloquia will provide an opportunity for students, faculty, staff, and UMB leadership to come together and have meaningful discourse on IPE. It will

also be a place to propose IPE-related research and connect individuals interested in conducting research with faculty or students of other schools. The colloquia could also recommend programming related to IPE that could be held at UMB, such as seminars, workshops, or speakers. Ideally, This would be a place for different IPE champions to come together with those newly acquainted with IPE to discuss and find ways to implement IPE at UMB.

THE WAY FORWARD

IPE aims to foster a collaborative environment for providing the most optimized care to our patients and clients. By focusing on IPE during professional education, we develop a culture based on effective collaboration in providing patient-centered medicine with the hope of addressing the current fragmentation and rising costs with the United States healthcare system. The campus-wide survey indicates that students, faculty, and staff at the UMB agree that integrating a structured IPE curriculum would not only benefit the overall student experience but would also better prepare them for future professional teamwork. The campus' overall positive attitudes toward IPE learning provides a great foundation to continue to build upon.

However, despite the numerous IPE programs offered on campus, such as the President's Student Leadership Institute, the Interprofessional Patient Management Competition, and the Geriatric Assessment Interdisciplinary Team program, there are still barriers to utilizing these opportunities. There exists an overwhelming lack of awareness of and consensus on the goals, direction, and opportunities of IPE's mission among students, faculty, and staff. Additionally, as previously described, UMB needs to fund, sustain, and expand current initiatives; resolve scheduling conflicts; reduce the siloing of current professional programs; balance incentivization and workload; and foster professional development through IPE learning. There also exists a need to bridge the gap between the desire for and the implementation of a more cohesive, integrated IPE curriculum on campus.

UMB has leadership buy-in, administrative resources, financial support, and a new Center for Interprofessional Education to drive the IPE initiative. In moving forward, the President's Fellows suggest utilizing the new Center for Interprofessional Education as the nexus of IPE planning to provide the necessary resources, support, and leadership for implementing a more integrated IPE curriculum. Many of the aforementioned recommendations, such as the IPE Colloquia and Funding Workgroups could be coordinated through the efforts of the Center for IPE, where it would act as a central hub to unite the various initiatives at UMB together. The Center has the potential to be a key player in moving the campus toward a more cohesive IPE curriculum.

UMB is poised as a unique campus due to its integration of clinical and nonclinical professions and due to its position as a leading innovator in

research. The University's financial resources, faculty support, and progressive leadership ensure its continued success in the realm of higher education. Students, faculty, and staff are now calling on the institution to better integrate IPE into the UMB experience. Transitioning to a cohesive IPE academic model will effect change on an organizational, structural, and attitudinal level, which will require a constant push from our student, faculty, and staff champions.

Let us leverage the resources of the campus and the forward thinking of the University's peers, colleagues, and leadership to building a legacy of IPE at UMB.

REFERENCES

1. World Health Organization. (2010). Framework for action on interprofessional learning and collaborative practice. Retrieved from http://whqlibdoc.who.int/hq/2010/WHO_HRH_HPN_10.3_eng.pdf
2. Borrill, C., West, M., Dawson, J., Shapiro, D., Rees, A., Richards, A.,...Carter, A. (2000). Team work and effectiveness in health care: Findings from the health care team effectiveness project. *British Journal of Healthcare Management, 6*(8), 364-371. Retrieved from http://homepages.inf.ed.ac.uk/jeanc/DOH-glossy-brochure.pdf
3. Reeves, S., Perrier, L., Goldman, J., Freeth, D., & Zwarenstein, M. (2013). Interprofessional education: Effects on professional practice and healthcare outcomes. *The Cochrane Database of Systematic Reviews, 3*, 1-47. doi: 10.1002/14651858.CD002213.pub3
4. UK Department of Health. (2001). *Working together, learning together: A framework for lifelong learning for the NHS* (UK Department of Health Publications Ref. #25725). Retrieved from http://webarchive.nationalarchives.gov.uk/20130107105 354/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_4058896.pdf
5. Mickan, S. (2005). Evaluating the effectiveness of health care teams. *Australian Health Review, 29*(2), 211-217. PMID: 15865572
6. Stone, N. (2007). Coming in from the interprofessional cold in Australia. *Australian Health Review, 31*(3), 332-340. PMID: 17669054
7. Freeth, D., Hammick, M., Reeves, S., Koppel, I., & Barr, H. (2005). *Effective interprofessional education: Development, delivery, and evaluation.* Oxford, England: Blackwell Publishing Ltd.
8. Newton, C., Bainbridge, L., Ball, V. A., & Wood, V. I. (2013). Health care team challenges: An international review and research agenda. *Journal of Interprofessional Care, 27*(6), 529-531. doi: 10.3109/13561820.2013.800848
9. Ho, K., Jarvis-Selinger, S., Lauscher, H., Cordeiro, J., & Scott, R. (Eds.). (2012). *Healthcare delivery in the information age: Technology enabled knowledge translation for eHealth, principles and practice.* New York, NY: Springer.
10. University of Maryland Francis King Carey School of Law. (2014). Course

Catalog. Retrieved from http://www.law.umaryland.edu/academics/program/curriculum/catalog/course_details.html?coursenum=558Q.

11. University of Maryland, Baltimore. (2013). Geriatric assessment interdisciplinary team (GAIT). Retrieved from http://www.umaryland.edu/geri-ed/gaitt.html

12. University of Maryland, Baltimore. (2013). Geriatric assessment interdisicplinary team (GAIT) eighteenth annual report. Retrieved from http://www.umaryland.edu/geri-ed/gaitt.html

13. University of Maryland, Baltimore. (2013). Office of the president. Retrieved from http://www.umaryland.edu/offices/president/

14. Institute of Human Virology. The JACQUES Initiative. (2013). Preparing the future. Retrieved from http://www.jacques.umaryland.edu/ptf/

15. Global Brigades. (2014). Medical Global Brigades at University of Maryland, Baltimore. Retrieved from http://www.globalbrigades.org/empowered/chapter/university-of-maryland-baltimore-medical-brigades-chapter/brigade/umb-medical-dental-january-2014-honduras

16. University of Maryland School of Pharmacy. (2014). Interprofessional patient management competition 2014. Retrieved from http://www.pharmacy.umaryland.edu/studentorg/ashp/

17. University of Maryland, Baltimore. (2013). Office of interprofessional student learning & service initiatives. Retrieved from http://www.umaryland.edu/islsi

18. University of Maryland, Baltimore. (2013). The Malawi project. Retrieved from http://global.umaryland.edu/ghic/malawi/

19. University of Maryland, Baltimore. (2013). Student center for global education: Global opportunities. Retrieved from http://global.umaryland.edu/students/opportunities/

20. University of Maryland, Baltimore. (2013). The president's message [Press Release]. Retrieved from http://www.umaryland.edu/offices/president/newsletter/2013/PRESIDENTS-NEWS-2013-Nov.pdf

21. University of Maryland, Baltimore. (2011). Strategic plan 2011-2016: Redefining collaboration. Retrieved from http://www.umaryland.edu/strategicplan/docs/Strategic%20Plan.pdf

22. Institute of Medicine. (1972). *Educating for the health team*. National Academy of Sciences.

23. Reeves, S., Tassone, M., Parker, K., Wagner, S., & Simmons, B. (2012). Interprofessional education: An overview of key developments in the past three decades. *Work, 41*(3):233-245.

24. Parsell, G., & Bligh, J. (1999). The development of a questionnaire to assess the readiness of health care students for interprofessional learning (RIPLS). *Medical Education, 33*, 95–100.

25. McFayden, A.K., Webster, V., Strachan, K., Figgins, E., Brown, H., & McKechnie, J. (2005). The readiness for interprofessional learning scale: A possible more stable sub-scale model for the original version of the RIPLS. *Journal of Interprofessional Care, 19*, 595–603.

26. Thannhauser, J., Russell-Mayhew, S., & Scott, C. (2010). Measures of interprofessional education and collaboration. *Journal of Interprofessional Care. 24*(4), 336-349.

27. Curran, V., Sharpe, D., & Forristall, J. (2007).

Attitudes of health sciences faculty members towards interprofessional teamwork and education. *Medical Education, 41*(9), 892-896.

28. Heinemann, G., Schmitt, M., & Farrell, M. (2002). Attitudes toward health care teams. In: Heinemann, G.D., & Zeiss, A.M. (Eds.), T*eam performance in health care: Assessment and development* (pp. 155-159). New York, NY: Kluwer Academic/Plenum.

29. Gardner, S., Chamberlin, G., Heestand, D., & Stowe, C. (2002). Interdisciplinary didactic instruction at academic health centres in the United States: attitudes and barriers. *Advanced Health Science Education, 7,* 179–190.

30. University of Maryland, Baltimore. (2013). Office of institutional research and accountability. Retrieved from http://www.umaryland.edu/institutionalresearch

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