2-2017

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Journal of Interprofessional Education & Practice 7 (2017) 47–52

Contents lists available at ScienceDirect

Journal of Interprofessional Education & Practice

journal homepage: http://www.jieponline.com

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ARTICLE INFO

Article history:
Received 6 May 2016
Accepted 2 February 2017

Keywords:
Interprofessional education
Core competency
Patient-centered care
Interprofessional collaboration
Interprofessional model
Midwest Interprofessional Practice, Education, and Research Center

ABSTRACT

New models for delivering health care services are essential to the development of an environment where interprofessional teams work together collaboratively to provide quality care to communities. This article describes the history and development of the Midwest Interprofessional Practice, Education, and Research Center (MIPERC), a unique partnership among academic institutions, health professionals from multiple disciplines, and diverse practice partners. The Center provides an inter-institutional infrastructure for the development and implementation of interprofessional education and practice. As part of the infrastructure, a model has been developed as a guiding framework for the Center emphasizing the core competency domains of the Institute of Medicine (IOM), the recommendations of the Interprofessional Education Collaborative (IPEC), and the evaluation of Center's outcomes. Included in this discussion are the history, goals, infrastructure, and key products of the MIPERC and the sustainability efforts of this community model.

Introduction

This article describes the history and development of the Midwest Interprofessional Practice, Education, and Research Center (MIPERC), a unique partnership among health educational institutions, individual professionals from diverse disciplines, and multiple practice partners. The Center provides an infrastructure for the development of interprofessional education (IPE) and practice for the region. As part of the infrastructure, a model was developed to guide the Center emphasizing the World Health Organization's [WHO],[1] definition of IPE and Collaborative Practice, the core competency domains of the Institute of Medicine [IOM],[2] and the recommendations of the Interprofessional Education Collaborative [IPEC].[3] The purpose of this article is to share the MIPERC Model, the factors (both clinical and academic) that facilitated and challenged the Center's development, and plans for future MIPERC objectives.

Background and significance

As healthcare continues to be increasingly more complex, new models to deliver safe, accessible, patient centered care are essential.[4] Multiple factors influence changes in care delivery and the culture of health professional education,[5,6] including not only safety issues,[6] but also fragmentation of healthcare delivery,[7] breakdown in communication among health professionals,[8] rising health care costs, inadequate technological infrastructure for sharing information electronically,[9] and health professionals often working in silos.[10] Thus, new models should emphasize team care in learning and practice environments rather than silo models. The IOM publication, Crossing the Quality Chasm: A New Health System for the 21st Century, clearly identified the importance of interprofessional education and practice in providing safe, quality care.[11]

Declaration of interest: The authors report no declaration of interest in this study.

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http://dx.doi.org/10.1016/j.xjep.2017.02.001

The aging of the United States (U.S.) population,[12] increasing numbers of individuals with chronic conditions,[13] and the implementation of the Affordable Healthcare Act, have placed additional demands on an already stressed and fragmented healthcare delivery system. Interprofessional health care delivery models are needed to meet the burgeoning health care needs while containing escalating and unsustainable health care expenditures. In proportion to the Gross Domestic Product, U.S. healthcare costs have risen from 5% to 17.1% between 1960 and 2013 respectively (World Bank); the result is an increase in cost for health care that now exceeds an average of $8713 per citizen, which is the equivalent of approximately twice as much as other industrialized nations.[14] Although per capita health care spending from 2010 to 2013 had stabilized to 3.2% compared to 5.6% over the previous ten years,[4] spending is projected to increase 4.9% per capita from 2014 to 2024.[15] This unsustainable rate of increase is a strong signal that new approaches to healthcare delivery and reimbursement are needed.

Studies demonstrate that hospitals across the nation could save up to $8 billion by eliminating redundant tests, and as much as $5.8 billion through the elimination of preventable, hospital-acquired infections.[16] Studies have also demonstrated that effective interprofessional teams are able to reduce the costs of healthcare, as well as the length of time a patient receives care.[17] Blewett et al[17] found that in-patient geriatric services, where patients received standard care from interprofessional teams, spent an average of $2000 less per patient and decreased the average length of stay by seven days in contrast to comparison units. The benefits of these dramatic cost reductions and lengths of stay are twofold: they save the healthcare industry money and they allow practitioners to take care of more patients without sacrificing the quality of care.[17]

Many of the medical and health conditions commonly seen in today's health care system cannot be managed effectively by a single type of provider. Team-based care is one strategy to deliver effective care to individuals, families, and communities.[2] Other factors and processes actively driving the system toward team-based care are: care navigation, accountable care organizations, primary care, chronic care, palliative care, new incentives for performance, and “practicing at the top of your education”.[18] However, foundational work is needed to prepare faculty and practitioners to teach and deliver interprofessional, team-based care. Preparation includes education for academic and clinical faculty in IPE and interprofessional collaborative practice (IPCP). Students and practitioners may develop integrated care plans, grapple with the leveling of hierarchy, and reflect upon “Who should provide leadership at this moment in the patient's care management?” To be a collaborative member of a team, shared values, goals, objectives, and outcomes are needed.[19]

IPE plays a crucial role in developing effective communication with colleagues and patients.[1] Students should be immersed in interprofessional education at the beginning of their education and continue to use these skills into their practice. Related competencies range from communication and conflict resolution skills, to an understanding of team dynamics, and greater respect and understanding for contributions made by those from different professions.[20]

According to a report issued by the Lucian Leape Institute, medical schools across the nation are not adequately providing their students with the basic knowledge of high reliability principles and communication skills needed for the provision of safe patient care.[21] Similarly, a report by the IOM suggests the educational system is not providing nursing students with the skills to effectively improve patient care, and stresses the need for interprofessional training among nursing and other health professions students.[5] As healthcare providers search for better and more creative ways to increase the efficiency of their practices, it is becoming increasingly evident that interprofessional care is poised to become the gold standard of patient care.

Development of the Midwest Interprofessional Practice, Education, and Research Center

In 2007, the Vice Provost for Health at Grand Valley State University (GVSU) met with the President and Chief Executive Officer of Grand Rapids Medical Education Partners (GRMEP), and the Associate Dean for College-wide Assessment from Michigan State University College of Human Medicine (MSU-CHM), to develop the infrastructure for interprofessional education and practice for students across health professions programs. From this meeting, the three founding members established the West Michigan Interprofessional Education Initiative (WMIPEI). To accomplish the work of the Initiative, an infrastructure was created through the formation of a steering committee and six champion workgroups. A working alliance of community partners throughout the region began working together and is currently comprised of 24 member organizations. Collaborative partners include community healthcare agencies, hospital systems, rehabilitation and long-term care facilities, and individual community members. In 2009, Ferris State University (FSU) College of Pharmacy joined the WMIPEI partnership. In 2014, the founding members convened to discuss broadening the initiative to encompass the Midwest Region. This was done in response to queries from practice and educational organizations across Michigan and in Indiana and Wisconsin to join the Initiative. As a result of this broadening, WMIPEI was renamed the Midwest Interprofessional Practice, Education, and Research Center (MIPERC) in 2015 to better represent the expanding member base. At this same time, the MIPERC Advisory Council was established.

The community partners are central to the work of the Center. Collectively, these partners work with MIPERC to explore alternative, interprofessional approaches to provide curricula that integrate core competencies across healthcare disciplines into education and practice.

The mission of the MIPERC is to identify ways for the founding members and partners to develop collaborative, innovative, and interprofessional initiatives across disciplines, learning institutions, and health care systems. The MIPERC uses the definition of interprofessional education (IPE) and collaborative practice as defined by the World Health Organization, which states that IPE “occurs when (students from) two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes”.[1] Interprofessional collaborative practice occurs “when multiple health workers from different professional backgrounds provide comprehensive services by working with patients, their families, careers and communities to deliver the highest quality of care across settings”.[1] The goals of the MIPERC are to:

1. Integrate interprofessional learning throughout the curricula;
2. Identify, develop, implement, and assess interprofessional clinical experiences for teams of students to practice and learn about, from and with each other; and
3. Implement interprofessional scholarship across disciplines and institutions

Fig. 1 depicts the MIPERC model, titled “Midwest Model of Interprofessional Practice, Education, and Research: A Model Contributing to Transforming U.S. Healthcare.” The box on the left of the model identifies our learners and collaborative partners. The

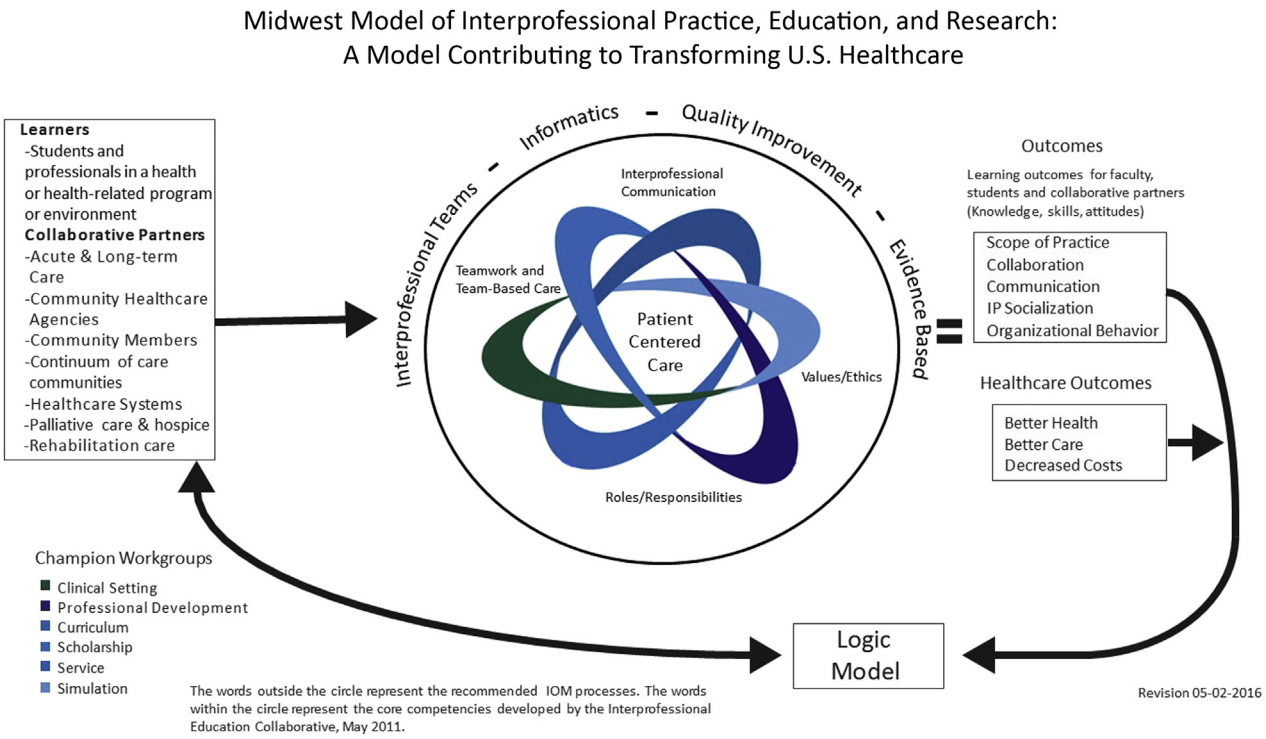

Fig. 1. The Midwest Interprofessional Practice, Education, and Research Center.

Initiative involves students from nursing, physician assistant studies, physical therapy, occupational therapy, speech language pathology, master's in public health, masters in health administration, allied health, social work, pharmacy, optometry and medical students and residents. The collaborative partners include three hospital systems and multiple hospitals, primary care practices, rehabilitation institutions, long-term care agencies, non-profit health and health-related agencies, and behavioral and primary care services. The Initiative is intended to be a broad community partnership infusing interprofessional education and practice into educational and health care delivery systems.

The MIPERC is led by an Interprofessional Education Steering Committee comprised of the founding academic partners and an Advisory Council comprised of the member organizations. On the bottom of the left side of the MIPERC Model the Champion Workgroups are noted. These six Champion Workgroups were appointed to accomplish the goals of the Initiative, each of which works on long-term goals as well as annually updated short-term goals. The six Champion Workgroups are: Clinical Setting, Professional Development, Curriculum, Scholarship, Service Learning and Simulation. The members and goals of these workgroups are detailed in Table 1.

In the center of the MIPERC Model is an elliptical figure with the IOM competencies (interprofessional teams, evidence-based practice, quality improvement, informatics) outside of the circle and the IPEC competency domains (values/ethics, roles/responsibilities, interprofessional communication, teamwork and team-based care) inside the circle. The elliptical has a central core to emphasize patient-centered care. The ends of the elliptical represent the six Champion Workgroups. The various colors are a representation of the founding members and major healthcare institutions.

Outcomes listed on the right side of the MIPERC Model include learning and healthcare outcomes. Learning outcomes encompass the knowledge, skills, and attitudes for each profession, which are learned in each discipline's education and are essential for the development of professional identity. In addition to professional identity, characteristics of team dynamics are a critical set of learning outcomes including: understanding the relationship of one's own and others' scope of practice, the art of collaboration among team members for best outcomes, the ability to communicate about safety behaviors, the importance of interprofessional socialization breaking down perceived hierarchy of care, and recognizing and being responsive to organizational systems behaviors. Health care outcomes category refers to the Institute of Healthcare Improvement's Triple Aim: better care, better health, lower costs.[22]

The final portion of the model is the Logic Model which informs the Steering Committee and Champion Workgroup of inputs/outputs and their impact on the outcomes, thus guiding the Initiative's evaluation. The inputs of the logic model include university and graduate medical education, regional community partners, the steering committee and workgroups. The outputs include the activities, products, and participation of members. The outcomes are measured as short- and long-term impact on the partner inputs and activities. The long-term goals for the workgroups have remained constant; the short-term goals are typically established and accomplished annually. Some examples of accomplishment include: collaborations with practice partners to create demonstration model units for interprofessional learning and care, development of interprofessional clinical preceptor orientation materials, provision of cross-professional in-services for faculty and community practice partners, creation of an annual IPE Health Expo, organization of an annual regional IP conference, implementation of a student IPE activity certificate, and formation of the PIPES (Promoting Interprofessional Education for Students) organization which provides opportunities for students to gain interprofessional experiences.

Successes and lessons learned

The MIPERC provides an infrastructure for the regional healthcare academic and practice community to work collaboratively on

Table 1
Midwest Interprofessional Practice, Education, and Research Center Champion Workgroups.

Champion Workgroup	Members from	Goals
Clinical setting	Acute Care, Primary Care, Health Education, Medical Education, Nursing, Physical Therapy	• Long-Term Goal: Develop model units for teaching interprofessional patient care and to institutionalize interprofessional education and practice across partner clinical environments • Short-Term Goal: 1) Continue to identify clinical settings to develop interprofessional staff and faculty teams, 2) Implement the MIPERC IPCP educational program in primary and long term care settings
Professional development	Biomedical Engineering, Nursing, Physical Therapy, Physician Assistant	• Long-Term Goal: Promote a life-long commitment to interprofessional practice for the provision of safe, patient-centered, cost effective, quality care • Short-Term Goal: 1) Create a Faculty Development certificate, 2) Develop a Health Disparity module
Curriculum	Medicine, Nursing, Pharmacy, Physical Therapy, Physician Assistant	• Long-Term Goal: The operationalization of IPE across the participating curriculums • Short-Term Goal: 1) Full implementation and refinement of the IPE student certificate, 2) Creating IPE for the current workforce, 3) Examine/identify how to align entry level programs for IPE
Scholarship	Hospital Research Departments, Nursing, Physician Assistant, University Research Faculty, Research Scientists	• Long-Term Goal: The implementation of interprofessional scholarship across disciplines and institutions • Short-Term Goal: 1) Review MIPERC annual conference abstract submissions, 2) Review MIPERC authorship guidelines 3) Develop multi-institutional IP mini-grant guidelines
Service learning	Pharmacy faculty, Occupational Therapy faculty, Speech Language Pathology faculty, Public Health faculty, Health Administration Faculty, Allied Health Sciences faculty and Physical Therapy faculty	• Long-Term Goal: The development of the infrastructure and implementation of community-based interprofessional team placement in service learning activities across each discipline's curriculum • Short-Term Goal: 1) All disciplines are involved in service learning as part of their curriculum, 2) An inventory of interprofessional student service learning projects across disciplines and institutions would identify service learning projects that either are interprofessional or have the capacity to be interprofessional
Simulation	Acute Care Settings Nursing, Medical Education, Medicine, Occupational Therapy, Physical Therapy	• Long-Term Goal: Develop interprofessional simulations to serve the educational programs and health care agencies of the region • Short-Term Goal: 1) Assist the MIPERC Curriculum Workgroup in providing interprofessional education activities through developing and assisting with two simulation events per academic year for PIPES, 2) Develop criteria for student simulation competition

the goals and objectives of infusing interprofessional education and practice into curricula and healthcare services. The Center has been beneficial in not only formal, but also informal, collaborations and implementation of interprofessional projects. The MIPERC conferences, products, and meetings have provided forums for faculty, administrators, and practitioners to explore and collaborate on numerous interprofessional activities.

The MIPERC collaborative partnership has produced many valuable outputs and has embedded IPE into the fabric of the region's healthcare community. Many interprofessional projects and activities have and continue to occur throughout the community and are stimulated by the champion workgroups, annual conference, and planned interprofessional activities. Monthly meetings through student organization such as PIPES (Promoting Interprofessional Education for Students), a Patient Safety Study in a children's hospital, and a student IPE activity certificate, all provide rich exposure and immersion experiences with other disciplines. A lived experience model for students develops familiarity with other professions as they learn and strengthen their own professional identities. Collaboration across professions provides patients with access to better healthcare as well as reduction of administrative costs.[1]

Challenges for the Champion Workgroups have been related to group dynamics and balancing tasks with process. Sometimes the workgroups are more task or process focused. An example is the development of a proposed community-wide internal review board (IRB) agreement for which there was initial support, but eventually the Workgroup was unable to develop a single agreement for all academic and clinical partners. However, even though a community-wide IRB agreement and process was not developed, sharing occurred among the universities and practice partners and common IRB requirements were established. Team dynamics may be fluid as leadership or group composition changes. As an example, one workgroup focused on a short term goal for a cyber-safety project and met with multiple stakeholders over two years' time; however, partners' interests shifted as leadership and related responsibilities changed, and the cyber-safety project was never implemented.

An annual Lunch & Learn series involving monthly speakers for academic faculty and workgroup members was initially difficult to schedule because of members' own professional work demands. However, on average 25 individuals from multiple organizations attend the monthly Lunch & Learn sessions. Current topics include virtual huddles, an inclusive elder care approach, a team approach

for the professional voice user, polarity in healthcare, pediatric palliative care team, community wide advance health care planning, and other educational or community interprofessional demonstration projects.

The ultimate challenge has been, and still is, to embed IPE in the participating curricula. Curriculum mapping across the programs to identify the common theoretical concepts, practices, and other learning across the academic programs was completed in the first year but the development of shared courses continues to be difficult to implement. Challenges to infusing interprofessional content across multiple discipline curriculums included: time and scheduling challenges, faculty workload for team teaching, full disciplinary curricula, and financial and physical resource constraints. Despite these challenges, members are participating due to the importance of IP and IPCP. Faculty and practitioners have focused on incorporating IP activities and IPCP clinical experiences across student programs. For example, IPE modules were developed, an annual health expo was designed, IPCP clinical immersion experiences were implemented at select clinical sites, and an IPE student certificate and piloted and launched.

Promoting Interprofessional Education for Students (PIPES) is an organization for social and professional interaction between students of different health professions. As of January 2016, PIPES attracts an attendance of 40–90 students at monthly meetings. In the past, activities have included exploring the core IPEC competencies of each discipline at selected meetings (i.e. Values/ethics), IPE student week with TED Med talks and interprofessional simulation, “Monday Morning Huddles with Hand-offs”, a disaster simulation, a film with debriefing on “How Inequality is Making us Sick”, a community colloquy of “Marijuana, Is America Going to Pot” and more. GVSU simulation staff members and faculty from two academic institutions coordinate and serve as advisors to PIPES.

Collectively, partners are exploring interprofessional approaches to providing curricula that integrate core competencies across healthcare disciplines into education and practice. The partnership aims to improve the educational and healthcare opportunities available to students while providing safe, quality care to patients. As part of an effort to embed interprofessional education and practice into the health care culture, the steering committee hosts an annual conference. Since 2009, the Center invites the health care community to a themed conference featuring national keynote speakers from multiple disciplines, a pre-conference workshop, networking opportunities, a MIPERC member meeting and luncheon, and poster and podium presentations.

Conclusion

Today, it is more critical than ever for students and practitioners across health professions to learn about, from, and with each other. As healthcare develops more sophisticated and technically advanced methods of care, the need to effectively coordinate data, communicate, and understand the roles and treatment plan contributions of others is critical. The need to provide safe, high quality, cost effective patient-centered care is central to interprofessional education and collaborative practice. Systematically implementing an IPE and practice community framework assists in creating positive outcomes. The MIPERC has created a unique infrastructure partnering across institutions (education and practice) as well as across disciplines. Through collective efforts and collaboration, a regional community-wide model to guide and facilitate work was developed. The MIPERC partnered to create community awareness and created on-going momentum and involvement through the annual conference and workgroups, and numerous other activities. Educational curricula were mapped out, a piloted safety study curriculum was developed, and opportunities for students to collaborate in team-based clinical settings have been developed and are continually being developed. Through the use of simulations, safe environments to practice skills and team work for learners at all levels have been developed. A major benefit of the Center is the ongoing sharing of resources, ideas, and the spontaneous engagement of multiple disciplines participating in educational interprofessional learning experiences. The work of the MIPERC is an example of one region and community's efforts to develop and implement a model for interprofessional education and practice and infuse interprofessional learning experiences into and across the curriculums of health professions programs and multiple health care agencies.

Acknowledgements

The authors would like to acknowledge and thank Dianne Wagner, Associate Dean for College-wide Assessment at Michigan State University College of Human Medicine, for her support. Dr. Wagner is a founding member of the Midwest Interprofessional Practice, Education, and Research Center (MIPERC), and as such has played an integral role in supporting infrastructure for interprofessional education and collaborative practice. Currently, Dr. Wagner serves on the MIPERC Steering Committee and the Simulation Champion Workgroup. Within these roles, Dr. Wagner provides leadership and guidance to her colleagues and the initiative.

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