DEVELOPMENT OF INTERPROFESSIONAL EDUCATION MODULES FOR IMPLEMENTATION INTO THE DOCTOR OF NURSING PRACTICE CURRICULUM

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Ashley Grace Huot

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DEVELOPMENT OF INTERPROFESSIONAL EDUCATION MODULES FOR IMPLEMENTATION INTO THE DOCTOR OF NURSING PRACTICE CURRICULUM

By

Ashley Grace Huot

The Supervisory Committee certifies that this ***disquisition*** complies with North Dakota State University's regulations and meets the accepted standards for the degree of

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SUPERVISORY COMMITTEE:

Dean Gross

Chair

Carla Gross

Mykell Barnacle

Kara Falk

Lisa Montplaisir

Approved:

3/18/2014

Date

Carla Gross

Department Chair

ABSTRACT

In today's health care system, professionals must work together to achieve a common goal of improving patient care. Studies have shown that patients and families report lack of care coordination that result in repeat tests and procedures, unnecessary hospitalizations and difficult transitions from hospitals to home (Reinhard & Hassmiller, 2010). Interprofessional education (IPE) is an important approach for preparing health professional students to provide care that is patient centered and based in a collaborative team environment. Interprofessional education "occurs when two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes" (World Health Organization, 2010). The goal of these efforts is to develop knowledge, skills and attitudes that result in interprofessional team behaviors to carry into clinical practice (Buring et al., 2009).

Nurse practitioners will need to be equipped with the proper educational tools to work in a collaborative setting (Reinhard & Hassmiller, 2010). Current nursing education standards include requirements for interprofessional collaboration at the doctoral level of education (QSEN, 2012). The current Doctor of Nursing Practice (DNP) curriculum at NDSU has no specific objectives that focus on IPE and the AACN DNP essential competencies. The purpose of the project was to influence curricular change at NDSU to include IPE in the graduate nursing program. To meet that goal, three educational modules were developed based on core competencies of IPE. The titles of the modules were "Introduction to Interprofessional Education," "Interprofessional Communication" and "Patient Safety and Improving Quality in Health Care." The project was presented to the DNP faculty at NDSU to disseminate the findings and prove IPE's importance for DNP students. The modules were reviewed by IPE experts from local universities with overall positive feedback. Several recommendations for

improvement were provided to strengthen the content within the modules. Overall, there is a convincing need for the integration of interprofessional education into graduate nursing programs. The developed modules are a beginning to the process of integrating IPE into the DNP program at NDSU and will serve as a foundation to build on in coming months and years.

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DEDICATION

I would like to dedicate my dissertation to my two beautiful children, Quinn Marcella and Nixon James.

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LIST OF ABBREVIATIONS

AARP……………………………………………...……American Association of Retired Persons

IPE…………………………………………………………….... Interprofessional Education

IOM………………………..Institute of Medicine

HRSA……………………………………..……Health Resources and Services Administration

QSEN……………………………………..…..……Quality and Safety Education for Nurses

IPEC…………………….…………………….………Interprofessional Education Collaborative

AACN……………………………….…..…...American Association of Colleges of Nursing

NLNAC……………………………........…National League for Nursing Accrediting Commission

CCNE……………………………………..….…Commission on Collegiate Nursing Education

NDSU……………………………………………………...….North Dakota State University

DNP…………………………………………………………………Doctor of Nursing Practice

MPH…………………………………………………………...……Masters of Public Health

IDE…………………………………………………………...…..Interdisciplinary Education

CAIPE………………………………Centre for the Advancement of Interprofessional Education

UK……………………………………………………………………..…..…...United Kingdom

WHO……………………………………………………….….…...World Health Organization

MUSC…………………………………………….……….. Medical University of South Carolina

BEME…………………………………………..………Best Evidence Medical Education

NP…………………………………………………………………...…..Nurse Practitioner

AANP……………………………………...…….American Academy of Nurse Practitioners

IECPCP……………….............................Interprofessional Education for Collaborative Patient-Centered Practice

SBAR………………………………......Situation, Background, Assessment, Recommendation

JCAHO…………………………………...…Joint Commission on Accreditation of Healthcare Organizations

CHAPTER ONE. INTRODUCTION

Background and Significance

In today's health care system, professionals must work together to achieve a common goal of improving patient care. An aging population creates demand for more health care services. More people of all ages are living with chronic diseases, with nearly half of Americans affected by diabetes, hypertension, arthritis, cardiovascular disease, and mental health conditions. In 2009 the American Association of Retired Persons (AARP) published a report on chronic conditions in which patients and families reported lack of care coordination that resulted in repeat tests and procedures, unnecessary hospitalizations and difficult transitions from hospitals to home (Reinhard & Hassmiller, 2010).

Interprofessional education (IPE) is an important approach for preparing health professional students to provide care that is patient centered and based in a collaborative team environment. Interprofessional education "occurs when two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes" (World Health Organization, 2010). The goal of these efforts is to develop knowledge, skills and attitudes that result in interprofessional team behaviors and competence. The engaging principle of IPE is that once health professionals start working together in the clinical setting, patient outcomes will improve. The main goal of IPE is for students to learn how to function in an interprofessional team and carry the knowledge and skills into their future practice (Buring et al., 2009).

Research has found that interprofessional teams improve quality of care, lower costs, decrease patient's length of hospital stay, and decreases medical errors (Buring et al., 2009). Numerous national health organizations support IPE including the World Health Organization,

American Public Health Association, National Academies of Practice, American Association of Colleges of Nursing, American Association of Colleges of Pharmacy, and the Institute of Medicine (Buring et al., 2009). The Institute of Medicine has endorsed and promoted IPE since the 1970s but lack of substantial research until recent years has failed to support IPE is superior to traditional, uniprofessional format (Remington, Foulk, & Williams, 2006). In the last decade, the IOM has published two reports that have examined patient safety, cost, quality, and access in health care and stimulated a new sense of urgency to transform the health care system which includes a resurgence of interest of IPE into the learning curriculum (Brandt, 2011). The United States health care system is significantly driven by economics and is slowly moving toward the direction that no one provider profession or model can create or reform the processes to address system issues independently but rather collaboratively (Brandt, 2011).

There have been several recent activities, milestones and events that have contributed to the current resurgence of interest in IPE in the United States. The *Institute for Healthcare Improvement* has created an Open School with online courses and programs focused on patient safety and quality using collaboration. In 2003 the IOM published a report *Health Professions Education: A Bridge to Quality.* Five core competencies were developed for all health professions students to master in their programs prior to graduation. Many schools have used these competencies to guide curriculum development. They include: (1) provide patient centered care, (2) employ evidence-based practice, (3) apply quality improvement, (4) utilize informatics and (5) work in interdisciplinary teams. An additional IOM report, *The Future of Nursing: Leading Change, Advancing Health*, released in October 2010, explores the role of nursing in response to health care reform and system redesign with recommendations that include the incorporation of IPE and Interprofessional Collaborative Practice. The Health Resources and

Services Administration (HRSA), an agency of the U.S. Department of Health and Human Services, has been a key funder of IPE programs. Recently support has increased around team-based training to improve patient safety through the developed of the TeamSTEPPS curriculum. The Robert Wood Johnson Foundation has made a large investment in the QSEN program of quality and safety education for nurses, which identifies teamwork and collaboration competencies as a key component for graduate program curriculum (Brandt, 2011).

A key IPE effort is the development and release of the Interprofessional Education Collaborative (IPEC) report, *Core Competencies for Interprofessional Collaborative Practice: Report of an Expert Panel* in May 2011. Several national agencies including the American Association of Colleges of Nursing, American Association of Colleges of Osteopathic Medicine, Association of Schools of Public Health, American Association of Colleges of Pharmacy, American Dental Education Association, and Association of American Medical Colleges all collaborated to develop four competency areas for IPE. These areas include: values and ethics, roles and responsibilities, interprofessional communication, teamwork and team-based care and learning experiences, and educational strategies to achieve them. Even with the abundance of evidence supporting the use of IPE, use of the concept is not the norm in colleges and universities across the United States (Buring et al., 2009).

Statement of the Problem

Addressing the current challenges of health care is going to require a transformation of the workforce. There is a shortage of nurses and other health care professionals which is going to become more critical as the population continues to age and the demand for health care increases. Increasing the number of clinicians alone will not solve the problem. There is a call for health professionals to be better prepared to care for patients with multiple chronic conditions

in all settings. Nurse practitioners will need to be equipped with the proper educational tools to carry out chronic disease management, transitional care, prevention activities, and quality improvement in a collaborative setting (Reinhard & Hassmiller, 2010).

As stated, the IOM has made some important conclusions about ways to reach these goals and are focused on three objectives for change including: advancing education transformation, removing barriers to practice and enhancing nursing leadership. They have stated that interprofessional collaboration and education are threads woven throughout each pillar and essential to success. People have argued that the uniprofessional approach to health professions education both in pre-qualification and post-qualification stages, is insufficient to support effective collaboration, and thus reform with the introduction of IPE is needed (Reeves et al., 2012). Studies have demonstrated how effective coordination and communication among health professionals can enhance the quality and safety of patient care (Buring et al., 2009). Health professionals working collaboratively as integrated teams draw on individual and collective skills and experience across disciplines.

Nurse practitioners are going to be called upon to fill the gap in primary care and learning how to work collaboratively is an essential component of the educational curriculum. Current nursing education standards include requirements for interprofessional collaboration. The American Association of Colleges of Nursing (AACN) identifies interprofessional learning as an expected competency for baccalaureate, masters, and doctoral preparation (AACN, 2012). Accrediting bodies such as the National League for Nursing Accrediting Commission (NLNAC) and Commission on Collegiate Nursing Education (CCNE) seek evidence of interprofessional education in nursing curriculum (NLNAC, 2011; CCNE, 2009). Furthermore, the Quality and Safety Education for Nurses (QSEN) initiative lists teamwork and collaboration as one of its six

core competencies for graduate level knowledge, skills and attitudes. QSEN defines teamwork and collaboration as functioning within nursing and interprofessionally to improve patient safety and care (QSEN, 2012). These agencies have proposed that IPE activities should be initiated in undergraduate health professional program and continued into post-graduate programs (QSEN, 2012).

The current Doctor of Nursing Practice (DNP) curriculum at NDSU does not have a specific IPE course that meets the objectives and competencies as mentioned. The IPE content is infrequent and currently spread throughout the DNP curriculum in clinical and professional role courses. In the required coursework in the DNP program there are no objectives that specifically focus on IPE and the essential components. There have also been no regularly scheduled clinical applications with other health profession students. Studies have shown no evidence to support that health professionals can learn interprofessional skills without being educated (Hall & Weaver, 2001). Lack of faculty support has proven to be a major barrier to implementation of IPE into nursing curriculums. Curran, Sharpe, and Forristall (2007) believed that faculty attitudes are barriers to successful implementation of IPE. They surveyed health professions faculty and concluded that gender and experience with IPE significantly affected faculty attitudes toward IPE and stated that, “In terms of IPE evaluation, the findings also highlight the importance of measuring baseline attitudinal constructs as part of systematic evaluative activities when introducing new IPE initiatives with academic settings” (p. 896).

Purpose of the Project

The project is aimed at influencing curricular change at NDSU to include IPE in the graduate nursing curriculum. To meet that goal, three interprofessional education (IPE) modules

were developed for the potential of future implementation into the graduate didactic nursing curriculum at NDSU. There is also the possibility to engage the additional disciplines of pharmacy, public health and other health care disciplines at NDSU along with health care institutions in the area. The modules are proposed to provide graduate students and faculty with an increased knowledge of interprofessional learning and the impact on caring for persons using an interdisciplinary approach. The IPE modules have the potential to enhance the existing DNP, Pharmacy Doctorate, Master's of Public Health (MPH) and additional programs to be determined by providing an additional learning opportunity and clinical application of interprofessional learning. The target audience for the curricular change will be the DNP program at NDSU. The findings and results of the project will be presented to the faculty to impact and guide the implementation of IPE. To obtain content evaluation, the modules will be reviewed by IPE experts across the region and given a survey to provide feedback on the IPE modules. With the already existing IPE course in the undergraduate nursing program at NDSU, the proposed educational modules will provide the DNP program with the necessary information about IPE to carry into their professional role. The modules will aim at meeting the core competencies for Interprofessional Collaborative Practice as outlined by IPEC:

1) Working with individuals of other professions to maintain a climate of mutual respect and shared values.

2) Using the knowledge of one's own role and those of other professions to appropriately assess and address the health care needs of the patients and populations served.

3) Communicate with patients, families, communities, and other health professionals in a responsive and responsible manner that supports a team approach to the maintenance of health and the treatment of disease.

4) Apply relationship-building values and the principles of team dynamics to perform effectively in different team roles to plan and deliver patient/population-centered care that is safe, timely, efficient, effective, and equitable (IPEC, 2011).

CHAPTER TWO. LITERATURE REVIEW OF EVIDENCE BASED PRACTICE

History of Interprofessional Education

In the last 40 years, the literature regarding interprofessional education (IPE) and interprofessional collaborative practice provides ample evidence of the positive impact on the quality of patient care (Baldwin, 1996). In 1972 the Institute of Medicine (IOM)'s report, *Educating for the Health Team*, first introduced the need to educate health professions' students on delivering health care using a team-based approach. As a result, the concept of "interdisciplinary education" (IDE) appeared. In the following years, IDE in the United States has been slow to take hold in health care, while interest soared in the United Kingdom and Canada (Blue, Brandt, & Schmitt, 2010). More recently the word interdisciplinary was replaced by the term interprofessional. The Centre for the Advancement of Interprofessional Education (CAIPE) was established in the UK in 1987; and in 2002, the term interprofessional education was defined by the CAIPE and accepted internationally. CAIPE states that IPE "occurs when two or more professions learn with, from and about each other to improve collaboration and the quality of care" (CAIPE, 2002). In Canada, the *Journal of Interprofessional Care* and the *Journal of Research in Interprofessional Practice and Education* were established in the 1980's to support and disseminate evidence-based knowledge regarding interprofessional practice, education, and research. IPE continues to advance particularly in the United Kingdom, Canada, and Australia, but continues to lag behind in the United States.

A systematic review of the literature conducted by Barr, Koppel, Reeves, Hammick, and Freeth (2005) revealed that 54% of the "higher quality" studies evaluating the IPE internationally came from the US, while 33% were from the United Kingdom. In 1999, a landmark report from

the Institute of Medicine (IOM), *To Err is Human*, addressed the alarming numbers of deaths as a result of medical error and called for the intensive efforts of leadership to address the associated factors and issues (IOM, 1999). In 2001, the IOM published another report titled, *Crossing the Quality Chasm.* The report made an urgent call for a fundamental change to close the quality gap in health care (IOM, 2001). Subsequently, the 2003 IOM report, *Health Professions Education: A Bridge to Quality*, reported the gap between quality care and patient safety. The IOM (2003) report highlights the educational training and experiences inadequacies of healthcare professionals in working together to meet societal health care delivery needs. The IOM suggests the importance of health professions' to develop common core competencies including: conveying patient-centered care, collaborating in interprofessional teams, practicing evidence-based medicine, focusing on quality improvement, and using information technologies.

Research has found that practice-based interprofessional collaborations (IPC) interventions can lead to positive changes in health care (Zwarenstein et al., 2009). Also, the medical and nursing literature stresses the importance of developing policy changes and promotion of IPE in health science education and using IPE as a mechanism for improving quality health for all Americans (Aiken, 2005; Liston, Fischer, Way, Torre, & Papp, 2011). Additionally, the World Health Organization's Framework for Action on Interprofessional Education and Collaborative Practice urges policy-makers, educators, decision-makers, community leaders and global health advocates to make interprofessional education and collaborative practice a priority (WHO, 2010). In the UK and Canada, IPE has been infused through centralized and government-based initiatives, but in the United States IPE has been adopted by limited groups due to previous limited funding sources and opportunities.

There has been, however, in recent years a resurgence and interest in IPE in the United States because of the recent IOM reports that have linked the quality of health care and patient safety with IPE. As a result, there has been an increase in federal grants and resources made available for use in educational and health care practice settings focusing on IPE. With the passage of the 2010 Patient Protection and Affordable Care Act that seeks to establish coordinated health care effort for all Americans, IPE may in fact play a more central role in these efforts (Cerra & Brandt, 2011).

Use of Interprofessional Education

Interprofessional education (IPE) is an important approach in preparing health profession students to provide patient care in a collaborative team environment. There is an abundance of evidence supporting the use of IPE in health education students, but many universities including NDSU have not fully implemented the clinical application of the concept at the graduate level. Although the undergraduate nursing program and Pharmacy Doctorate have already collaborated, the graduate program has not fully incorporated IPE into the graduate curriculum. The IOM recommends that all universities provide faculty and students with the opportunity to engage in IPE and use that knowledge in a clinical setting (Institute of Medicine, 2010).

In conducting a literature review of interprofessional education, there is a lack of research based IPE studies conducted in educational settings in the past, but there has been a recent increase in the last five years. Many of the documented studies have examined the use of IPE in clinical settings and more specifically in settings outside the United States. IPE has advanced much farther in Canada and the United Kingdom compared to the United States. There are also several different types of interprofessional education formats that have been documented and

evaluated. These include: one or more modules inserted into new or existing curricula, IPE within clinical practice as one element, a common curriculum across all professions, eLearning in parallel with other courses, or one or more IPE courses as part of the curriculum (Thistlethwaite, 2012). At Laval University in Quebec City, funding was received from Health Canada to design, implement and evaluate an integrated interprofessional education program for family medicine, nursing, and social work students. The program included initial training in IPE, practical training in primary care, continuing education on IPE, and communications and information technologies in support of IPE. The result of the evaluation of the program showed that the educational approach used was successful and effective and is currently being used at the University (Bilodeau et al., 2010).

An additional study done in Ontario was designed to evaluate the impact of interprofessional team development for health care professionals who are practicing (Bajnok, Puddester, MacDonald, Archibald, & Kuhl, 2012). The impact of IPE on team functioning, team member satisfaction, ability to work efficiently both individually and as a team, and patient well-being were all discussed using a specific evaluation framework titled the W(e)Learn IPE Framework. Data were collected using surveys and focus-group interviews and analysis demonstrated that the program was successful in educating health professionals on interprofessional care and assisted in sustaining the team building process in the workplace (Bajnok et al., 2012).

Another documented study that looked at the application of IPE into clinical practice took place in Nova Scotia and involved the collaboration of medicine, nursing, and pharmacy in cancer care (Mann, Sargeant, & Hill, 2009). The objectives were to develop common approaches to care for patients with cancer by enhancing interprofessional collaboration through

a better understanding of roles, responsibilities and scopes of practice. In total, 411 participants attended the sessions and questionnaires were used to assess transfer of learning into practice. Positive changes to interprofessional interactions were improved communication, increased confidence and assertiveness in working with other professions. Participants were highly supportive of IPE with increased support by nurses and pharmacists (Mann et al., 2009). The Seamless Care Model is another IPE model that was developed at a university in Nova Scotia. The goal was to develop students' interprofessional patient-centered collaborative skills through experiential learning. Interprofessional teams included students from medicine, nursing, pharmacy, dentistry, and dental hygiene working together to care for patients transitioning from acute care to the community. The focus was on assisting patients with a chronic illness to become more active in their health care management with input from several different disciplines (Mann et al., 2009).

A paper written by Bridges and colleagues in 2011 showcased three universities in the United States that have implemented curricula models of collaborative and interprofessional education. At Rosalind Franklin University of Medicine and Science, a one-credit pass/fail course has been designed as a requirement for all first year health science students. Students focus on a collaborative approach to patient-centered care with an emphasis on team interaction, communication, service learning, evidence-based practice and quality improvement. The three components of the course include a didactic portion, service learning component, and clinical application. The students are grouped into 16-member interprofessional teams with a faculty or staff member that serves as a mentor. The article does not discuss evaluation of the model, but does state that students have yielded positive comments and outcomes related to IPE (Bridges et al., 2011).

At the University of Florida, the Interdisciplinary Family Health course is also a required course for all first-year students in the Colleges of Medicine, Dentistry, Pharmacy, Nursing, Public Health, Nutrition and Health Professions. The course lasts for two semesters and is based on four home visits provided by an interprofessional team of three members. The groups meet six times during the year and are responsible for different tasks and learning objectives and each home visit has an assigned assignment based on the competencies of patient care, interpersonal and communication skills and professionalism. The second semester includes the presentation of the project to the family and the rest of the class. Due to the fact that the supervising faculty does not meet the family directly, no medical, nursing, dental or pharmaceutical care is provided to the families. The article does state that evaluation and faculty feedback is done, but no specifics are discussed (Bridges, Davidson, Odegard, Maki, & Tomkowiak, 2011).

The University of Washington developed the Center for Health Sciences Interprofessional Education (CHSIE) in 1997 to provide courses on IPE to medical, pharmacy, nursing, social work, public health and dentistry students. The course catalog includes more than 50 collaborative interprofessional courses along with co-curricular service learning and training activities. There are a couple ongoing experiential training programs being conducted at the University of Washington. The first includes interprofessional student teams collaborating to provide urgent care to simulated patients. The SPARX program has been developed to provide health science students with activities to expose students to successful practitioners who provide care to rural and medically underserved populations. In 2009-2010, the program offered 13 seminars, panels and forums and seven service projects focusing on caring for different populations using IPE (Bridges et al., 2011). The authors of the article also listed four factors that are essential to the success of interprofessional programs and activities. The factors include:

administrative support; interprofessional programmatic infrastructure; committed, experienced faculty; and importance of acknowledging student efforts through awards, certificates and grades (Bridges et al., 2011).

The University of Minnesota is considered one of the leaders in guiding interprofessional education in the United States. In 2006, the Deans from the six different health professions schools at the university created the Center for Interprofessional Education. They are currently operationalizing 1Health which is a program consisting of three phases that all health professional students are required to be involved in to meet the defined competencies of professionalism/ethics, communication and teamwork. Phase I is an introductory course for all students that focuses on face-to-face interaction and incorporating online resources of IPE. Phase II occurs in the middle of a student's academic career and is concentrated on building a toolkit of skills for interprofessional collaboration. Phase III allows students to engage with community-based partners and apply IPE knowledge into clinical practice (University of Minnesota, 2013). An example of a course that is offered to students at the University of Minnesota is titled "CLARION Case Competition." Interprofessional teams of four students are given a case study and must create a root cause analysis. The team presents the case to a panel of judges who evaluate the analysis in the context of real world standards of practice. Another available course is titled "Interprofessional Diabetes Experience." Students are given the opportunity to learn about diabetes through hands-on learning in an interprofessional environment using online activities centered on how a team can provide optimal care to patients with diabetes. An additional opportunity available at the U of M is the Phillips Neighborhood clinic. The clinic is a multidisciplinary, student-run, free clinic staffed by health professional

students and preceptors. Students from all health professionals can participate at the clinic fostering an interprofessional team environment (University of Minnesota, 2013).

The Medical University of South Carolina (MUSC) has also developed a program in hopes to increase interprofessional collaboration among students from different health professions including medicine, nursing, pharmacy, and dental undergraduate and graduate students. The Presidential Scholars Program is a two-semester extracurricular experience for about 40 students who apply and are selected based upon their academic performance and interest in interdisciplinary learning. Teams of eight or nine students work together on a focused topic with emphasis on health policy and population-based themes. Evaluation of the program is done on an annual basis using surveys and focus group discussion. Results have been positive and the program has been sustained for seven years with continued interest. Like many other studies, the long term influence of the program and a validated survey has not been developed to fully analyze its impact related to IPE (Ragucci, Steyer, Wager, West, & Zoller, 2009).

An example of using eLearning and interprofessional education was done at the University of Ottawa. An online interprofessional learning resource was developed for physicians, pharmacists, nurse practitioners, and nurses practicing in a long-term care facility. The learning resource consisted of eight online modules that the health professionals would complete and at the conclusion of every other module, the interprofessional team would meet to discuss and apply the material to clinical practice. After completion of the entire resource, learners were significantly more likely to engage in different aspects of collaborative practice and expressed an improvement in team functioning and communication (MacDonald, Stodel, & Chambers, 2008).

The concept of IPE has shown to be difficult to prove even with the abundance of evidence supporting the use of IPE in health care. Based on an interpretative approach to synthesizing the data, one can summarize that the support for IPE is positive throughout the literature. A large Cochrane review published in 2003 was looking at studies to prove whether IPE was a possible way to improve patient care by increasing collaboration between health care professionals (Zwarenstein, Reeves, & Barr, 2003). None of the 1042 studies selected met the inclusion criteria and the author was unable to make a positive conclusion on IPE (Zwarenstein et al., 2003). Since this time, the studies have shown more conclusive and positive results related to IPE. In 2005 Barr and colleagues explored quantitative and qualitative studies of IPE and found 107 studies meeting criteria with nearly 80% of the activities occurring in individuals who are post-licensure and involved nursing, medicine, allied health professions and social work (Barr et al., 2005). Ireland and colleagues (2008) also explored the effectiveness of IPE and only found 17 out of 225 studies that met inclusion criteria. The results of the studies were positive in comparing the outcomes of IPE versus non-IPE programs, but the outcomes were still unclear (Ireland, Gibbs, & West, 2008). An additional review done in 2009 identified six studies evaluating the effectiveness of IPE on patient care outcomes and professional practice. Four of the six studies showed positive outcomes on patient satisfaction, teamwork, error rates, and mental health competencies while the other two found no impact on patient care or practice (Reeves et al., 2009).

Evaluation of the effectiveness of IPE has also proven to be difficult, adding to the limited understanding of the direct effects of the concept. In studies conducted there has been an over-reliance on pre- and post- test assessments of knowledge and skills and many of the evaluations have focused on only a few of the outcomes of IPE (Mann et al., 2009). Studies

have focused and evaluated attitudes and perception related to IPE, rather than behaviors. Additional factors that have contributed to difficulties in building evidence about the effectiveness of IPE include variation in the scope and depth of educational outcomes, terminology used across the interventions, quality of the evaluations and context of the application (Barr et al., 2005; Zwarenstein & Reeves, 2006). There is a lack of instruments to measure collaborative behaviors and most of the evaluation of IPE has been conducted at the level of participant satisfaction or reaction rather than on changes in knowledge, attitudes, and behavior (Thistlethwaite, 2012).

The Best Evidence Medical Education (BEME) review done in 2007 evaluated 21 studies and concluded that as a whole IPE is well received and helps those involved develop knowledge and skills for working in a collaborative setting as well as understanding the roles and responsibilities of other professionals. The BEME review did not find as much evidence that IPE results in more positive attitudes towards other health care professionals, but did highlight the importance of faculty development for effective delivery of IPE (Hammick et al., 2007). There has also been limited long-term evaluation of IPE as many projects have failed to explore sustainability and longevity of IPE. One study done in Sweden followed health care professionals who have been using IPE concepts for six years, which resulted in significantly greater confidence in working with other professionals than other students who have not had training and education in interprofessional practice (Wilhelmsson et al., 2009).

Due to multiple factors including geographic location, rigid course schedules, and the traditional uniprofessional focus in health professions education, the incorporation of IPE into nursing education has been limited. Some additional barriers to implementation of IPE include: challenge of scheduling IPE across multiple programs, limited resources to develop and

implement IPE, questions about who will take on the costs of shared programs and resources, lack of recognition by administration that IPE is part of faculty workload, and faculty and administrative resistance to change (National League for Nursing, 2012).

Nurse Practitioners and IPE

With the growing number of nurse practitioners practicing in primary care settings, ensuring that NPs are educated on multidisciplinary, collaborative care is essential to providing the best possible care. The role of the NP in chronic illness care provides a wider clinical context for developing a caring relationship with patients, offers autonomy to the NP all while still working within collaborative relationships with physicians and other disciplines.

The American Academy of Nurse Practitioners (AANP) strongly supports the patient-centered and team-based care models. The AANP states that health care professionals must embrace the overlapping knowledge and skills of different disciplines and learn to collaborate to increase access to high quality health care (AANP, 2012). The current curriculum in the DNP program at NDSU does not offer specific IPE course objectives providing students with the opportunity to become educated on interprofessional education. The state of North Dakota has proposed that there will be a shortage of over 200 physicians by the year 2020 (North Dakota Area Health Education Center, 2013). Currently there are about 500 nurse practitioners practicing in North Dakota (The Henry J. Kaiser Family Foundation, 2011; North Dakota Board of Nursing, 2012). In North Dakota, nurse practitioners are independent providers and do not need physician oversight for diagnosing and treatment plans or physician supervision for prescribing medications. Nurse practitioners will be looked upon to continue to fill the role of

primary care providers in North Dakota and will need to increase their knowledge of working in collaboration with other disciplines as well as the other providers.

A study conducted at the University of California at Los Angeles Medical Center added nurse practitioners to a multidisciplinary team to attempt at increasing the continuity of care provided to patients at the hospital (Vazirani, 2010). The NP led daily multidisciplinary rounds, providing case management, patient education, as well as ensuring proper communication among the team members. The program reduced length of stay and costs, improved communication and collaboration among team members, and decreased readmission and mortality rates (Vazirani, 2010).

There is limited documented research pertaining specifically to nurse practitioners and interprofessional education. There are, however, many sources that make reference to the success of nurse practitioners as leaders of health care teams and their ability to work in collaboration with other disciplines. In health care teams NPs are able to assemble their holistic training and practice, link the medical and nursing frame of knowledge, and thereby are better able to contribute to the social coordination of knowledge exchange within teams of health professionals (Quinlan & Robertson, 2010). In the study conducted by Quinlan and Robertson (2010) on the communicative power of nurse practitioners in multidisciplinary teams, results showed that NPs play a crucial role in facilitating mutual understanding and effective communication between others within multidisciplinary teams. An example of using interprofessional education and nurse practitioners in the clinical setting was done at North Shore-Long Island Jewish Hospital (Woolforde, 2012). An orientation program using simulation for newly hired nurse practitioners working alongside physician assistants and registered nurses to become educated on the hospital's policies, standards and procedures was done incorporating

the concepts of IPE. The specific results were not available, but they demonstrate positive outcomes related to IPE and nurse practitioners (Woolforde, 2012).

Interactive Online Education

The Internet has become an important source for health-related education. Research has reported both positive and negative student perceptions toward online learning at both undergraduate and graduate levels of education. As advanced practice nursing programs move toward becoming all doctorate programs, distance education will be more commonplace (Hedger, 2008). Online education has opened the door to provide opportunities for nurses who may not have access to graduate education because of various reasons. Online education is also convenient and available to those who have job commitments, family or other situations that limit access to on-campus resources (Huckstadt & Hayes, 2005). There is an increased challenge in nursing education to prepare students who are equipped to meet the needs of a diverse and aging population with complex health needs in a society where access to health care providers is hindered by location and economics (Hedger, 2008). Using the Internet and telemedicine to provide rural health care has proven to be effective and efficient, but may also be used as an influential learning device to educate graduate nursing students on skills that are willingly applicable to practice. There have been studies done examining online delivery in advanced practice nursing and several benefits have been documented (Hedger, 2008).

Huckstadt and Hayes (2005) published an article examining the effectiveness of two interactive online learning modules for advanced practice nurses. The topics of the two modules were low back pain and common dermatological problems. The modules included learning objectives, pretest and post-tests and a comprehensive bibliography for further study. After the

modules were constructed, each was sent to a panel for expert review. Participants then submitted evaluation responses to gain feedback on the modules. Overall, the responses were positive and the modules were described as innovative, time saving, convenient, available and economical (Huckstadt & Hayes, 2005). Using case studies has proven to challenge learners to acquire information and use evidence-based practice as it applies to clinical situations. Another study conducted by Anderson and Mercer in 2004 compared nurse practitioner education using face to face classes with online delivery and found there were no differences in application between the two groups (Anderson & Mercer, 2004). Halter and colleagues found that doctoral students consistently expressed satisfaction using the Internet as an educational tool in their programs (Halter, Kleiner, & Hess, 2006). Using voice-over slide shows with video attached rather than a typical slide presentation has been associated with better success and has greater appeal to learners (Hedger, 2008).

Debate has also surrounded the feasibility of learning in an online community. Web-based learning has been viewed by some as "failing to provide a meaningful community" and lacks the physical presence that learning requires (Moule, 2006, p 371). Ensuring that students do not face access problems to a computer or have admission difficulties to the learning environment are important indicators of success in online education. Confirming that students possess the necessary computer skills and have technical support available is also important (Moule, 2006). Ultimately, the future of online education is dependent on well-structured, interactive and substantive programs. Educators need to be continually assessing and evaluating the changing needs of advanced practice nurses and adapting the programs to meet the needs of the students. Research has begun on the optimal development of online learning environments to support interprofessional education. Developing online education related to IPE should follow

best practices for e-learning with special consideration to recognize the clinical context of IPE. In order for education to be effective, it must result in the actual translation into practice of the skills taught (Luke et al., 2009). To overcome the barriers of learning interprofessionally such as time, scheduling and geography, online learning must allow for sharing of resources and expertise among disciplines. D'Eon has reported three key characteristics of IPE related to online learning. First, students must be challenged with learning activities and tasks that increase in complexity. Second, IPE should use the five elements of cooperative learning: positive interdependence, face-to-face promoted interaction, individual accountability, interpersonal and small-group skills and group processing. Lastly, experiential learning should be used to challenge students using case-based scenarios to test their knowledge and abilities (D'Eon, 2005).

Online delivery has the potential to solve logistical barriers associated with interprofessional education. A study conducted in Canada by Evans, Sonderlund, and Tooley looked at the effectiveness of a fully online IPE unit and its impact on students' attitudes and knowledge associated with IPE (2013). There were 88 students who completed the unit and completed a pre- and post-test evaluation. Results showed that fully online IPE may be an effective way to improve students' understanding, but that additional research is required (Evans et al., 2013). Research is ongoing regarding the best method to deliver IPE. According to Clouder, research points toward a "blended" learning approach with online activities being the central element and face-to-face interaction incorporated into the learning process (2008). As advanced practice nursing programs move toward the doctor of nursing practice degree, online education delivery will be more commonplace and faculty and students will need to be equipped with the tools to support these services (Hedger, 2008).

CHAPTER THREE. THEORETICAL FRAMEWORK AND PROJECT OBJECTIVES

IECPCP Framework

The Interprofessional Education for Collaborative Patient-Centered Practice (IECPCP) framework was developed by D'Amour and Oandasan in 2005 based on research done for Health Canada. Written permission was granted by Danielle D'Amour to use and publish the framework for use in this dissertation. The framework provides linkages between interprofessional education and collaborative practice and has been used internationally for planning, implementing and evaluating IPE. The framework is made up of two circles and is based on the assumption that education and practice are interdependent in enhancing patient care. The first circle is for education and the second is for practice. The first circle includes factors that affect a health professional learner's capacity to become a knowledgeable collaborative practitioner. The circle focuses on the micro (teaching), meso (institutional) and macro (systemic) factors. At the micro level, the learner, educator and learning context issues are addressed and the importance of incorporating students into collaboration is fostered.

The focus of IPE is on the learning process and the content presented. The content must include knowledge, skills, and attitudes that are centered on interprofessional practice and the learning process needs to incorporate strategies that shape mindfulness and build respect for other disciplines (D'Amour & Oandasan, 2005). Interpersonal skills must be developed by students as well in order to be effective at collaboration and communication. The learner is at the core of the first circle and is affected by all the factors that influence his or her ability to gain the competencies needed to be able to work collaboratively with other health care professionals. The second circle is made up of processes and factors that affect patient care outcome in

collaborative practice settings. The patient is at the core of the second circle and is influenced by the professional's collaborative practice. At the meso- or institutional level, leadership and administration must be supportive in order for IPE to be successful. The macro- or systemic level looks at the accreditation and licensure bodies that must provide support for IPE initiatives (D'Amour & Oandasan, 2005). The proposed project will focus on the educational component of the framework.

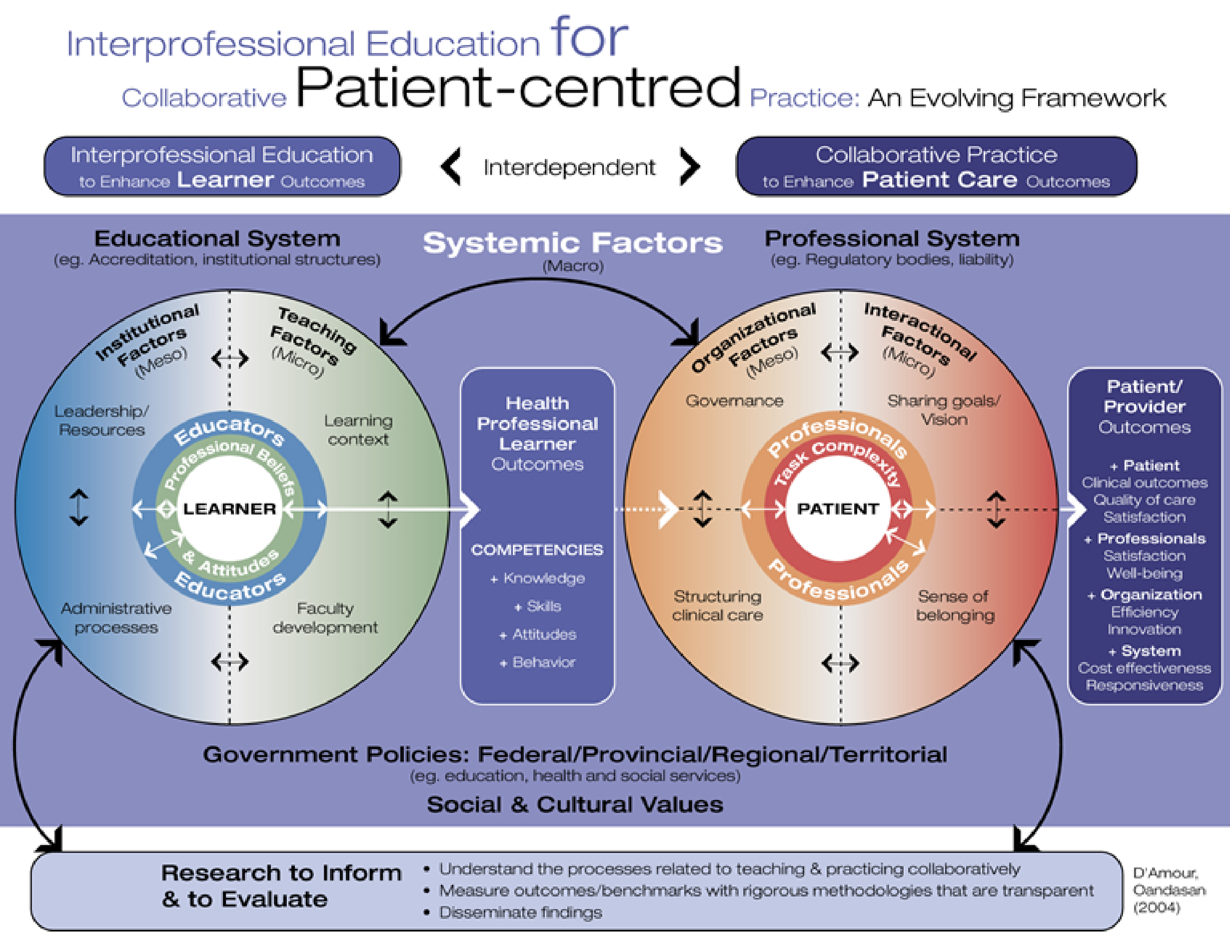

Figure 1. IECPCP framework. Reprinted from "Interprofessionality as the field of interprofessional practice and interprofessional education: An emerging concept," by D. D'Amour and I. Oandasan, 2005, *Journal of Interprofessional Care, Supplement 1*, p. 11. Copyright 2004 by D'Amour and Oandasan. Reprinted with permission.

The educational system refers to the accredited institution where health professional work or are trained. Educational systems are influential in advancing interprofessional practice and the impact is greatest when there is support for structured interprofessional activities. At NDSU, the undergraduate nursing program has an IPE course that is a requirement for the nursing, pharmacy and allied science students. The course will also be available to dietetic and social work students in the near future. With support from current faculty, IPE in the graduate program has great potential to be successful. The learner is at the core of the educational circle and is defined as pre- and post-licensure students involved in structured IPE learning activities in undergraduate or graduate programs. For the purpose of the project, focus will be on graduate DNP students. The learner has professional beliefs and attitudes that are already established from previous experiences. These are influenced by several factors including stereotypes of other health care professionals, media and public perceptions, educator's attitudes regarding collaborative competencies, and also his or her own attitudes. Graduate nursing students have a unique perspective on collaboration as they have all had experience in working in health care teams. Providing them with additional beneficial information regarding IPE that is specific and relevant to professional nursing practice is vital. Educators are those who carry out interprofessional education responsibilities and are responsible for the delivery of IPE competencies to the students.

The left side of the educational circle discusses the institutional factors that affect interprofessional education. The factors include: leadership, resources, and administrative processes that influence beliefs and attitudes regarding collaborative practice and the capacity to deliver interprofessional learning experiences. Leadership pertains to administrators that have the power to push forward the agenda and provide resources to strive and attain goals related to

IPE. Administrative processes encompass policies and methods for implementing IPE initiatives that include important decisions as well as financial incentive as needed. Examples may include: scheduling, voluntary versus mandatory courses, and grading procedures. In order for IPE to be successful at NDSU, the College of Pharmacy, Nursing, and Allied Sciences, DNP faculty, and administrators must be supportive of the concept and willing to put forth effort and strive toward positive outcomes.

The right side of the educational circle focuses on the teaching factors of IPE. The teaching factors include learning context and faculty development that influence the beliefs and attitudes that affect the distribution of interprofessional learning experiences. The learning context is responsible for addressing the questions relating to who, what, when, and how of IPE. Faculty development refers to ensuring faculty members are supported as they provide interprofessional education as ultimately their beliefs and attitudes toward collaboration influence learners. All of the discussed terms fit together and strive to achieve health professional learner outcomes that are needed in order to work collaboratively. The competencies describe certain knowledge, skills, attitudes and behaviors that have been identified as elements of collaboration. The modules developed each have specific learner objectives that strive toward obtaining the competencies needed to successfully practice collaboratively (D'Amour & Oandasan, 2005).

Congruence of the Project to the Organization's Goals

In relation to the objectives of interprofessional education, the curriculum of the North Dakota State University Doctor of Nursing Practice Program Outcomes prepares graduates to:

1) Translate knowledge from nursing science, ethics, social, biological, and other sciences to benefit practice effectiveness and the health of individuals, families, communities, organizations, and populations.

2) Collaborate with other health disciplines and with makers of policy (public and institutional) to create and implement policy and practices that promote accessibility to health care and work toward elimination of health disparities (NDSU Graduate Handbook).

The proposed development and implementation of the IPE modules and its contents into the DNP program at NDSU will focus on the stated outcomes that relate to collaboration and interdisciplinary care. The graduate level QSEN competencies written by the American Association of Colleges of Nursing (AACN) also guide the objectives for curriculum in graduate level programs including the DNP program at NDSU. There are several AACN competencies listed that are related to IPE including:

1) Analyze self and other team members' strengths, limitations, and values and demonstrate awareness of personal strengths and limitations as well as those of team members.

2) Understand the roles and scope of practice of each interprofessional team member including patients, in order to work effectively to provide the highest level of care possible.

3) Work with team members to identify goals for individual patients and populations and function competently within one's own scope of practice as a member of the health care team.

4) Analyze strategies that influence the ability to initiate and sustain effective partnerships with members of nursing and interprofessional teams.

5) Integrate into practice interprofessional competencies as developed (e.g., IPEC teamwork, collaboration, understanding each other's roles, communication) and commit to interprofessional and intraprofessional collaboration.

6) Choose communication styles that diminish the risks associated with authority gradients among team members and take value in the solutions obtained through systematic interprofessional collaborative efforts (American Association of Colleges of Nursing, 2012).

Project Objectives

The overall objective of the project is to develop three interprofessional education modules with intent at incorporating the modules into the DNP curriculum at NDSU. To implement change in the DNP program, the DNP faculty will need to appreciate the importance of IPE and why IPE should be added into the curriculum. There is an abundance of evidence supporting the use of IPE in health professional educational studies. With the increasing shortage of primary care providers in North Dakota, nurse practitioners will be used to close that gap and provide comprehensive care to patients. Having the knowledge and willingness to work collaboratively as a team member and team leader will be essential in practice as a practitioner. By having access to IPE information, health professional graduate students and faculty at NDSU will be able to develop a foundation of knowledge regarding interprofessional collaborative practice.

Objective One

Develop three interprofessional education modules for the graduate level nursing curriculum in accordance with the necessary competencies of IPE including an introduction to IPE, roles of the interprofessional team, interprofessional communication, and quality and safety in health care teams. Each module will contain specific objectives related to the content provided.

Objective Two

Evaluate the developed IPE learning modules by obtaining feedback through a survey of IPE experts using content evaluation of the developed IPE modules.

Objective Three

Present the developed educational modules to DNP faculty at NDSU to gain feedback and influence curricular change to include IPE in the DNP curriculum.

CHAPTER FOUR. DESIGN AND IMPLEMENTATION

Project Design

Given that accreditation standards for all levels of nursing education include a requirement for IPE, development of IPE modules that could be implemented into the graduate nursing curriculum at NDSU was the focus of the project. The proposed project included the development of three educational modules with associated objectives to present to faculty in the DNP program. The modules were reviewed by the committee members and ideas for improvement were made and completed. The modules were then distributed to IPE experts from North Dakota State University and the University of North Dakota. Feedback of the modules was obtained through a survey of the experts after the modules were reviewed. The project and its findings were also presented to DNP faculty at a scheduled meeting.

Evidence Based Intervention Plan

There are documented elements that are critical for implementing IPE into educational programs. First, NDSU has identified that interprofessional education is a goal of the Department of Nursing as an IPE course has already been implemented into the undergraduate nursing curriculum. Second, there has been administration and faculty within the Department of Nursing that support IPE initiatives. Administrators within the department need to establish relationships with other health care programs in order for IPE to be successful.

Specific components of the educational modules were developed to outline the objectives in accordance with the QSEN competencies that relate to interprofessional education. There are several successful teaching methodologies for IPE that have been documented in the literature and were discussed in above sections. The type of methodology chosen to be used for the IPE

modules was online learning using power-point presentations with voice over narration provided by Ashley Huot, DNP-S. The power-point presentations allow students to utilize both visual and audio learning and can be viewed multiple times individually or presented to a large group of students.

Evaluation of the modules was completed by members of the advisory committee along with designated IPE experts from various educational organizations who have reviewed the modules to gain feedback. Topics were chosen based on the essential competencies of IPE found in the literature. Topics include: introduction to interprofessional education, roles and scope of practice among other health care disciplines, interpersonal and interprofessional communication, collaboration in the health care team, strategies to integrate patients and families into the health care team, sources of conflict, conflict resolution, barriers to team functioning and strategies that support effective teamwork, and safety and quality in health care teams. The content included in the modules was built off the information included in the undergraduate nursing IPE course. DNP students have clinical experience and have already been exposed to collaborating in health care teams. The modules developed focused on content appropriate for graduate level education and providing information that can be used for students as nurse practitioners.

The first module is titled "Introduction to Interprofessional Education." The objectives of the module include:

1) Examine the emerging importance of interprofessional education (IPE).

2) Define interprofessional education and develop understanding of the background of IPE.

3) Develop understanding of how IPE contributes to aspects of clinical practice.

4) Define the various roles within the health care team and identify the key features of a well-functioning team.

5) Identify barriers to making and working in a team.

The module begins with two open-ended questions to spark the learner's interest and get him/her thinking about interprofessional education. Next, as discussed in the literature review, there are documented benefits and drawbacks to IPE that are presented to the learner. The learner is then asked to view a YouTube video that discusses basic information regarding IPE. The material presented in the video is a reinforcement of content presented in the modules. After the video, the background of IPE is presented along with the core competencies and the role of IPE in nursing curriculum. The next slides include the definition of IPE and related concepts and a more in-depth discussion regarding the benefits of IPE with specific examples of how these benefits are accomplished. The first module concludes with information regarding teamwork, scope of practice, as well as barriers to IPE which are all important concepts. Each module ends with a list of references that were used to create the module and provides the learner a source for additional information. See Appendix A for the first IPE module.

The second learning module is titled "Interprofessional Communication." The learning objectives include:

1) Describe the importance of communication.
2) Define communication and discuss the standards of effective communication.
3) Recognize the connection between communication and medical error.
4) Identify barriers as well as benefits to effective interprofessional communication.

5) Describe strategies for information exchange.

6) Identify and describe sources of conflict and barriers to conflict resolution in health care teams.

7) Explicate team and individual strategies for conflict resolution in interprofessional teams.

The module begins with two diagrams to start the discussion on IPE. The diagrams are not specific to interprofessional communication, but offer a good introduction and review of information discussed in the first module. The next slides go through the a basic definition of communication, importance of communication in health care, the principles of communication, and where communication fits into the essentials of collaborative practice. Interprofessional communication is then defined followed by a discussion about the barriers and benefits associated with communication in health care teams. The next topic discussed is information exchange strategies. The information used was a summary from the TeamStepps IPE curriculum on interprofessional communication (TeamsTEPPS Fundamental Course, 2008). The four different types of information exchange strategies are discussed with the additional of a YouTube video further explaining the SBAR method of communication. Communication and conflict is the next topic with inclusion of sources of conflict and strategies to conflict resolution for health care teams. The last two slides are a summary of the module with a reference page for additional resources also available for the learner. See Appendix B for the second IPE module.

The final module is titled "Patient Safety and Improving Quality in Health Care." The objectives of the module include:

1) Identify emerging views of quality in health care.

2) Examine the definitions of quality and safety.

3) Describe the current safety crisis and key elements from the IOM report.

4) Discuss the four key questions that need to be considered when we explore safety.

5) Identify the types of errors and provide examples.

6) Discuss the importance of a mandatory reporting system.

7) Describe ways to improve safety and medical liability and sources of adverse events.

8) Define root cause analysis and near miss.

The topics of safety and quality are often seen together in the literature related to IPE. The module begins with definitions of quality improvement and patient safety both as defined by the IOM. The first part of the module discusses quality factors and the important role that quality plays in health care along with how quality and safety fit in with the collaborative competencies. Some statistics related to quality and safety are then presented followed by some questions for the learner to consider related to medical errors. This is a lead into the next topic discussing different types of errors and factors contributing to errors in health care teams. Mandatory reporting systems are the subsequent subject presented in the module. Barriers to reporting errors along with components of successful mandatory programs are presented. The Patient Safety and Quality Improvement Act of 2005 was an important piece of legislation aimed at improving patient safety through voluntary and confidential reporting of events that negatively affect patients (U.S. Department of Health and Human Services, 2012). Goals related to the act along with sources of adverse events data are discussed. The last two topics related to quality and safety that are presented in the learning module include root cause analysis and near misses.

A root cause analysis is an important topic to understand as it must be done whenever any sentinel event occurs in health care. According the JCAHO, communication is the most important critical factor associated with sentinel events (Joint Commission, 2007). The last slide in the module provides the learner with links to two different documents related to patient safety and quality. The first one was published by the AHRQ and provides examples of patient safety practices and the second is the annual list of patient safety goals put out by JCAHO. Both prove to be valuable resources for health care professionals practicing in all health care settings. A list of references concludes the module for additional information the learner may desire to access. See Appendix C for the third IPE module.

The developed modules have the potential in the future to be used in a graduate level IPE course to be developed. The IPE modules were made with the intention to not only be facilitated into the DNP program at NDSU, but have the potential to be implemented into any graduate nursing program. The content evaluation survey was distributed and completed by IPE experts from the region and results were interpreted and used to improve the content within the IPE modules.

Implementation of the modules and other IPE competencies and activities into the graduate nursing curriculum will involve curricular change and need for support from faculty and administration. A planned presentation on IPE was given to the DNP faculty at NDSU to aid in the influence of policy change. The presentation was given during a monthly meeting and the content of the presentation included the definition of IPE, the importance of IPE in health care, the influence of collaborative care, and key initiatives related to IPE. Also covered in the presentation included a brief overview of the literature review conducted, challenges, barriers, support and facilitators needed for the implementation of IPE, and the role of nurse practitioners

in collaborative practice. Potential teaching methods and activities for graduate level students were also proposed to the DNP faculty. The three developed IPE modules were discussed along with the objectives of each module. A conversation among the faculty concluded the presentation regarding the specifics of integrating IPE competencies and activities into the DNP program at NDSU. The discussion included possible solutions of overcoming the barriers of bringing disciplines together to apply the concepts of IPE and disciplines that should be involved in IPE at the graduate level. The use of the developed modules was also discussed and recommendations were made that the modules would appropriate for use in a graduate level IPE course at NDSU. See appendix E for the PowerPoint presentation.

Resources

The resources for the project proved to be quite minimal throughout the development and implementation process. A significant amount of time and effort was put forth by Ashley Huot, DNP-S to develop the power-point modules. Evidence-based review of literature on existing graduate level IPE modules and educational materials that have been done at other universities were also referenced when designing the modules. The content evaluation survey was also developed by Ashley Huot, DNP-S with approval from the supervisory committee and given to the IPE experts. The IPE experts were chosen with assistance from the advisory committee who verbally agreed to review the modules. The modules and evaluation survey were distributed electronically through e-mail to the advisory committee as well as the IPE experts. As stated above, permission to use and publish the IECPCP model was obtained through e-mail (Appendix G) from Danielle D'Amour, the author who designed and originally published the model. No other additional resources other than the advisory committee and IPE experts were utilized to complete the project.

CHAPTER FIVE. EVALUATION

Method of Evaluation

The method chosen to evaluate the three educational modules created was an expert content evaluation using a survey developed by Ashley Huot, DNP-S. Due to the fact that the modules were not specifically implemented to a group of students for the project, IPE experts were chosen with the assistance of the advisory committee to view the modules and complete the survey provided. To ensure consistency in responses, all of the IPE experts were provided with the same evaluation survey. The survey was electronically delivered through e-mail to the IPE experts along with the modules. After completion, the survey was e-mailed back to Ashley Huot, DNP-S for interpretation of results. The survey was comprised of eleven statements with a Likert scale for the expert to rate his/her response. The Likert scale was provided as such: 1=disagree, 2=agree, 3=neutral, 4=strongly agree, NA=not applicable. A section was also available for additional comments to be provided by the reviewers. See Appendix D to view the evaluation survey.

Description of Survey Respondents

The developed IPE modules were reviewed by three health care professionals of varying backgrounds. The respondents were chosen based on recommendation from committee members, Dean Gross and Carla Gross. The first respondent was an MSN, BSN, RN and a full-time assistant professor of nursing at NDSU. She currently is an instructor in the undergraduate IPE course at NDSU. The second respondent was an MSN RN and a quality improvement coordinator at Sanford Health in Fargo and a PhD student in nursing at the University of North Dakota (UND). He currently is also an instructor in the undergraduate IPE course at NDSU.

The third respondent was an MS, RN and a clinical associate professor and chair of the undergraduate nursing department at UND. She currently is a member of the interprofessional health care team at UND. Their participation in reviewing the modules and completing the survey was voluntary. The modules were also sent to and reviewed by two additional IPE experts, but the survey was not completed and available to include in the project.

Results

The modules were reviewed by three IPE experts from local universities as abovementioned. The survey was filled out after the expert reviewed all three modules and returned via email to Ashley Huot, DNP-S. Each expert also provided constructive criticism and recommendations on ways to improve the modules and strengthen the content. The recommendations will be discussed further in the following chapters. The questions will be stated with the average result from the completed surveys. The Likert scale provided on the survey was: 1=disagree, 2=neutral, 3=agree, 4=strongly agree, NA=not applicable. Average responses were calculated by adding the value of each question and dividing the total by three to get the average response result. The first statement of the survey was asking if the modules promoted the application of interprofessional competencies. The average response was three. The next statement was asking if the content was appropriate for graduate level education. The average response was 2.7. The third statement was questioning if the content in the modules was appropriate and relevant to NP practice. The average response was three. The fourth statement inquired if the content in the modules contributed to achieving the stated learning objectives. The average response was 3.7. The fifth question was examining if the content included policies and regulations relevant to interprofessional practice. The average response was 2.3. The sixth statement was questioning if the content in the modules included knowledge and skills necessary

for interprofessional collaboration and teamwork. The average response was 3.3. The seventh questioned the experts if they thought the content was applicable to a variety of healthcare contexts. The average response was three. The next two questions were asking the experts if the content was delivered in a clear, concise and easy to understand manner and if the content in the modules was engaging. The average responses were 3.3 and 3, respectively. The tenth statement inquired if the respondents felt that the facilitator demonstrated knowledge regarding interprofessional practice. The average response was 3.3. The final question was examining if the IPE modules were a valuable experience and if the experts would recommend them to others. The average response was three. The overall average result calculated by totaling all the average values and dividing by eleven was 3.1. There was variation in the responses among the survey respondents, but overall they were positive. To account for those differences, explanation and recommendations for improving the modules was provided in the comments section of the survey and will be discussed.

Explanation of Objectives

Objective One

The first objective of the project was to develop three interprofessional education modules for the graduate level nursing curriculum in accordance with the necessary competencies of IPE including an introduction to IPE, roles of the interprofessional team, interprofessional communication, and quality and safety in health care teams. Each module will contain specific objectives related to the content provided. The objective was met as the three modules were developed and included the listed competencies and objectives abovementioned. The modules or components of the modules will potentially be used in a one credit hybrid course

available for third year DNP students at NDSU beginning with those admitted to the program in 2013. The specifics of the IPE course is yet to be determined as well as the role of the developed modules.

Objective Two

The second objective of the project was to evaluate the developed IPE learning modules by obtaining feedback through a survey of IPE experts using content evaluation of the developed IPE modules. The objective was met as a survey was developed by Ashley Huot, DNP-S and sent to five IPE experts with responses and comments available from three of the five experts.

Objective Three

The third and final objective was to present the developed educational modules to DNP faculty at NDSU to gain expert feedback and influence curricular change to include IPE in the DNP curriculum. The objective was met as the project was presented to members of the DNP faculty during a scheduled monthly meeting. The faculty present was receptive to the project and voiced support for the addition of IPE into the graduate nursing curriculum. The final specifics of the curricular change are to be determined with the tentative addition of an IPE course in the near future.

CHAPTER SIX. DISCUSSION AND RECOMMENDATIONS

Interpretation of Results

The purpose of the survey provided to the IPE experts was to gain feedback and assess the quality of the modules through content evaluation. The author of the modules was striving for the IPE experts to agree or strongly agree with all eleven statements on the survey. Even though this was not obtained, the overall response was positive and the average values demonstrate that the experts felt the modules were overall very well done. There are, however, areas that could be improved and additional topics that would be valuable to cover to ensure all competencies and concepts associated with IPE are covered and appropriate for graduate level education.

The survey provided allowed the respondents to provide narrative feedback based on their opinion of the IPE modules. Given the varying backgrounds and educational levels of the respondents, the reactions were wide-ranging, but overall positive in nature. Specific comments were provided stating that the modules were very well done. Some of the comments were solely recommendations of changing word selection or entering a specific citation within the modules. In regards to the first module, a specific recommendation was referring to slide 12 in the module. The information on the slide discusses the benefits of IPE according to research and the expert suggested the following slides should go into more depth specifically discussing the stated benefits. Another expert recommended that the Core Competencies for Interprofessional Collaborative Practice be referenced and used as discussion points in the first module. She stated these competencies are the basis of the concept of IPE and would be a good way to set the tone

for all three modules. In the developed modules, several of the competencies are discussed, but not explicitly defined and listed as such.

In regards to the second module on interprofessional communication, there were fewer comments and recommendations for change. One expert commented that the content in module two was cited appropriately and consistent with graduate level work. A recommendation to strengthen the content would be to add in specific scenarios or examples of good and poor team function related to specifically nurse practitioners working in teams. To meet the recommendation, vignettes or case studies could be added to the modules to create more of an interactive component. Feedback on the third module related to quality and safety was also positive. One recommendation for change was to add in metrics related to quality measures for various health professionals and discuss how an interprofessional team should work together to impact those quality measures. Included in this could also be a discussion on how compensation is tied to quality. A final suggestion for module three was to add in information related to mandatory reporting and the obligations that go along with that for health professionals. There were a few additional topics related to IPE one respondent felt that should be covered for graduate level students. These two topics include multidisciplinary peer review and ongoing performance evaluations. Overall, the suggestions for change are important and valuable information to assist in strengthening and improving the content of the developed modules.

Limitations

Interprofessional education is an emerging concept with numerous concepts and increasing amount of information available for review. The modules were developed using a literature review conducted by Ashley Huot, DNP-S, but was not inclusive of all the information

available on IPE. The concepts used in the modules were chosen based on the literature review and were felt to be important to include in the curriculum for nurse practitioners. Ideally, having nurse practitioner students' view the modules would be beneficial to evaluate the IPE learning content further and explore the role of IPE in graduate nursing curriculum. Upon completion of the modules, having the students meet face-to-face and discuss the material presented would also be of value to answer questions and clarify concepts. As stated, IPE involves health care professionals of all disciplines learning and working together. The evaluation of the modules was limited to review by IPE experts within the nursing profession. To gain further in-depth evaluation, assessment from other disciplines may also prove to be beneficial. The number of IPE experts who reviewed the modules was limited to three. The modules were originally sent to five experts, but only three responded with a completed survey. A review by additional representatives on IPE would provide additional benefit, but outside the scope of this DNP project. The implementation of IPE into a nursing curriculum is a complex process with support and facilitation needed that is beyond the scope of this project. The developed modules were designed to start the process and to get the faculty, staff and students in the graduate nursing program at NDSU more aware about IPE and its importance in the DNP curriculum.

Recommendations for NDSU

The IPE curriculum for the graduate nursing program at NDSU is in the beginning stages. The developed learning modules have the potential to be expanded and specifically implemented in the DNP program. The project should be continued and expanded on to possibly be incorporated into a graduate IPE course that could be offered to not only DNP students, but also to pharmacy, dietician, and public health students. Simulation has also been incorporated into IPE at other institutions and would be an appropriate method for students to practice and use the

IPE concepts discussed in the modules. Based on the research and results of the project, if an IPE course would be developed at NDSU, a hybrid course consisting of both on-line and in-class discussions would be most appropriate for graduate education, specifically DNP students.

The modules created will serve as a good introduction and foundation to IPE for the students. With the modules being online, students will be able to have access to them at various locations and can view them multiple times to reinforce the concepts. A recommendation would be to have either a face-to-face or online discussion with the students after completion of the modules to clarify the topics discussed and give the students an opportunity to ask questions and provide feedback. An additional goal within the graduate nursing department at NDSU is to develop a faculty practice clinic for the DNP students to complete clinical coursework. This would be an excellent opportunity for the DNP students to collaborate with other health care professional students to provide health care for faculty members at NDSU. The responsible parties for the continued IPE curriculum include members of the advisory committee who have expressed interest in the topic, Dean Gross and Carla Gross. Ensuring there is support from other faculty members as well as the students will be vital in furthering the application pertaining to interprofessional education at NDSU.

Research on IPE has not proven the most effective teaching methodology to educate graduate nursing students. There are several methods in the literature that have been trialed and peer reviewed. QSEN put together a list of teaching strategies that include a link to the strategy, the title, the author, organization and date of publishing. At the graduate level, the teaching strategies should be focused on preparing students to analyze implications of patient-centered care, assess levels of decisional conflict, create organizational cultures so patient preferences are supported, and eliminate barriers to patient-centered care environments (Emard, 2014). The

approaches to IPE in graduate programs must go beyond teaching students how to work side by side with other health care professionals and move towards functioning effectively within nursing and other disciplines (Emard, 2014).

The common strategies that have been used and are being recommended for use at NDSU include small group discussions, patient case analysis, large group lectures, clinical teaching with direct patient interaction, simulation, e-learning, shadowing other disciplines, and written assignments related to IPE. An important aspect of all of the abovementioned strategies is to give students an opportunity to discuss the topic presented with other students and the instructor via either an on-line or in-class discussion. An approach that has proven to be popular in graduate nursing programs is problem-based learning (PBL). An example would be to give an interdisciplinary group of students a patient narrative to read and discuss as a group. After discussion of the scenario, the group would be asked a set of questions related to various aspects of IPE to answer and present to a large group.

Another methodology that is similar to PBL is using case studies and simulation. The students can work in teams to address a particular case study with the input of various health care disciplines. This type of tactic would fit well into a practicum course and give students opportunities to use critical thinking skills along with the application of IPE competencies. The addition of vignettes and case studies was also a suggestion from one of the IPE experts who reviewed the modules. A specific area to use the case studies would be putting a nurse practitioner as the team leader and providing good and bad examples of how to work in a team with other health professionals. To meet the recommendation provided by a survey respondent of adding in specific quality metrics from various disciplines, activities could be done to have students research the metrics of a discipline outside of his or her own area of practice. The

students would then come together as a group with a proposed scenario and discuss with the other teams members how working in a team influences quality for all the disciplines involved. The proposed activity is one of several ways the topic could be covered.

In reference to the addition of the two topics abovementioned, multidisciplinary peer review and ongoing performance evaluation, information should be added to the developed modules. Information should include a definition of these concepts as well as their relationship and importance in interprofessional education. Specific examples of activities to incorporate explaining these concepts could be done using the already discussed teaching strategies. Another revision that would be recommended would be the addition of the Core Competencies of Interprofessional Education as defined by the Interprofessional Education Collaborative Expert Panel into the first module (2011). Ensuring that students are aware of the objectives and purpose of IPE is important for laying the groundwork in the beginning and developing a sound knowledge base.

For IPE to be successful at the graduate level at NDSU barriers must be overcome and support from all levels of the institution will be necessary. Financial support should be obtained from the institution itself or with the aid of grant money. Staff and faculty support is also particularly important as well as buy-in from those in leadership positions. A major barrier that will need to be addressed is the logistics of bringing disciplines together at the same time to practice and apply the interprofessional skills. Gaining support and educating other departments on IPE will need to occur so the importance and integration of IPE becomes a priority to not only those within the nursing department, but across other health care disciplines. Since NDSU does not having a medical school, partnering with a health care facility such as Sanford Health or the Veterans Affairs Health facilities would be necessary to involve future physicians in IPE

activities. Additional recommendations to increase staff knowledge on IPE would be to have a core group attend training in IPE facilitation or develop a workshop/seminar for all health sciences faculty to increase understanding and enhance skills needed for IPE implementation.

Implications for Practice

Interprofessional education is becoming a part of accreditation standards for schools of pharmacy, nursing, dentistry, and medicine (QSEN, 2014). The importance of team in health care is well documented. Teamwork has been shown to enhance communication and increase the efficiency of patient care (Health Canada, 2004). Incorporating IPE concepts and competencies into all levels of nursing education is vital to ensure graduates are prepared on how to practice collaboratively. There are many documented benefits of IPE discussed in the literature and in above sections. Working collaboratively with other disciplines will be pertinent to all areas of practice including hospital, clinic, and public health settings. Being able to apply the competencies and skills learned about IPE in an appropriate and useful manner is vital as working in health care teams can be challenging due to high workloads, assorted professional backgrounds, and differing levels of education (Hall, Harvey, Meerabeau, Muggleston, 2004).

Nurse practitioners have been called upon to fill the gap in serving as leaders of the health care team. Working collaboratively with other disciplines is a daily occurrence and being educated on IPE prior to starting practice is vital to its success. Also with the increasing prevalence of chronic diseases and advancements in health care technology, the need for coordinated, multidisciplinary care is increasing. Complications met when working with other health professions often stem from lack of knowledge of different roles and a lack of teamwork skills. IPE in health education is proposed to correct these deficits when integrated properly

(Page et al., 2009). An important implication of IPE is its effect on the formation of competent patient care teams. Crucial health care services may be neglected if a practitioner is not exposed to the service during his/her training. For example, a social worker is specially trained to discuss advanced care planning and end-of-life decision making. Patients have also voiced that social workers are the preferred professional to discuss these topics. An interprofessional team who is comprised of a social worker who is utilized to provide these services benefits the patient by providing comprehensive care (Page et al., 2009). Interprofessional teams also have the potential to improve care of those in hospital settings. Combining the roles of a nurse case manager, social worker, pharmacist, and primary care provider to develop a discharge plan for the patient that includes community resources, medication adherence, and provider follow-up may decrease readmission rates (Page et al., 2009). Interprofessional education is a broad concept with an abundance of positive implications that directly relates to nurse practitioners working effectively in health care teams.

Dissemination of IPE and its core competencies is important at the educational and clinical level. As a part of the project, the findings and results were presented to DNP faculty at NDSU. This was necessary to meet the goal of influencing curriculum change and moving forward in getting IPE integrated into the DNP curriculum at NDSU. The project will also be presented during a poster presentation in April 2014 at NDSU to target additional faculty and health care professionals. An application will be submitted to Sanford Health to present the project during a nursing symposium in May 2014. The opportunity would provide information on IPE to various health professionals and leaders at Sanford, a large health institution and popular clinical site utilized by DNP students at NDSU. Additional opportunities for

dissemination would be submission of the project to a nursing journal and presenting the project and information on IPE to other health professional departments within and outside of NDSU.

Implications for Future Research

As discussed, the research on interprofessional education is increasing and ongoing all over the United States as well as internationally. With the limited research specifically focusing on IPE in graduate nursing programs, conducting research on the most effective methods to deliver IPE concepts to graduate students should be done. The educational modules developed for the project were reviewed by IPE experts, but not specifically reviewed by DNP students. Administering the modules to students and gaining feedback would assist in determining if the modules were an effective delivery method for IPE. Research focusing on the extent of knowledge new and experienced nurse practitioners have on IPE concepts as well as their comfort level in working with other disciplines would also be important. The literature also lacked discussions about doctoral-level teaching methods specifically in the online environment. Using the developed modules to carry out this research at NDSU could be done in the future as well. In the undergraduate nursing program at NDSU there is one specific course focusing on IPE objectives. In graduate nursing programs, students have previous clinical experience working with other disciplines. Taking that experience into consideration and exploring if one specific IPE course in a DNP program versus including IPE objectives and activities throughout the coursework could be an additional topic for research.

Application to DNP roles

Interprofessional education as a concept encompasses several of the roles a DNP student must develop in the journey to becoming a successful and competent nurse practitioner. The consultant/collaborator is an obvious role that is included in the IPE content. Working in

collaboration with other disciplines as well as patients and their families is a necessary skill nurse practitioners must possess. Nurse practitioners prepared with a DNP degree are educated to be equipped with enhanced leadership skills to strengthen practice and health care delivery. Using these leadership skills when working in healthcare teams has the potential to improve professional relationships as well as patient care. When working in health care teams, the nurse practitioner will need to serve as an advocate for their profession as well as for patients and families. Staying current on health care policy as well as becoming involved in professional organizations are important for both interprofessional practice and establishing oneself as an advocate in health care. The research on IPE in continuous and constant and as discussed, there is much additional research that needs to be done on the use of IPE in graduate level nursing programs. The DNP must be proficient in analyzing and using research to effectively improve his or her collaborative components of practice.

The Institute of Medicine along with the American Association of Colleges of Nursing (AACN) and National Organization of Nurse Practitioner Facilities (NONPF) have all made statements and developed standards for the DNP degree to include guidelines related to evidenced-based practice, health information systems and interprofessional collaboration (AACN, 2006 & NONPF, 2006). Being an expert clinician involves the evaluation and translation of evidenced-based practice into the clinical setting. Expertise in collaboration includes examining complex practice or organizational issues through participation and leadership in health care teams by acting as a consultant as well as partaking in the development of models and policies (AACN, 2006). The DNP as a change agent works to transform advanced practice nursing. Educating health professionals in teams goes beyond the traditional method of discipline specific models of education. Becoming involved in IPE and working towards its

implementation into graduate nursing education as well as applying the skills in clinical practice will be changing the way nurse practitioners have been educated and practiced in the past. Lastly, the DNP serves as an educator to patients and families in clinical settings on a daily basis. A DNP also may choose to work in an educational institution as a faculty member teaching future health professionals. In either of the educator roles, the aspects of IPE may be used. Caring for patients using a team approach is proving to be an effective method and as discussed IPE is a growing concept across universities.

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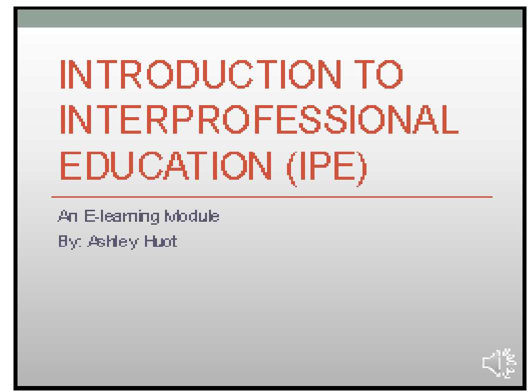
APPENDIX A. IPE MODULE: INTRODUCTION TO IPE



Objectives

- Upon completion of this module the learner will be able to:
- Examine the emerging importance of interprofessional education (IPE)
- Define interprofessional education and develop understanding of the background of IPE
- Develop understanding of how IPE contributes to aspects of clinical practice
- Define the various roles within the healthcare team and identify the key features of a well functioning team
- Identify barriers to making and working in a team

Questions to consider

- Have you ever heard about interprofessional education? What does IPE mean to you?
- What would you like to learn about IPE?

What the literature says…

- Benefits of IPE:
  1) Patient centeredness
  2) Improved quality of care and better coordination between care settings
  3) Access to care
  4) Trust and respect
- Potential drawbacks of IPE:
  1) Ability to work interprofessionally is dependent on the experience of the practitioner
  2) Comfort of practitioner with subject matter
  3) Current educational systems that are ill-designed to prepare professionals for interdisciplinary practice

Video Introduction to IPE

- http://www.youtube.com/watch?feature=player_detailpage&v=O-83eDYIFP4

Background of IPE

- 50-100,000 Americans die each year from preventable medical errors
- Equates to $17-30 billion dollars per year
- Culprits= staff communication, teamwork, system failures
- Also shortage over 4 million health care workers around the world
- Several institutions have turned toward IPE to improve teamwork and collaboration

Where IPE all started…

- Endorsed by IOM since 1970s: lack of research
- IOM reports "*Health Professions Education: A Bridge to Quality*" & *The Future of Nursing: Leading Change, Advancing Health*
- Role of nursing and need for IPE in curriculum & practice
- 5 Core Competencies:
  - (1) provide patient centered care
  - (2) employ evidence-based practice
  - (3) apply quality improvement
  - (4) utilize informatics
  - **(5) work in interdisciplinary teams**

  ***Becoming part of accreditation standards for pharmacy, medicine, nursing, dentistry**

IPE Worldwide

- **IPE has become an international trend…**
  - Center for the Advancement of Interprofessional Education (CAIPE)
  - Interprofessional education for collaborative, patient-centered practice (IECPCP) initiative has been carried out in Canada
  - Canadian Interprofessional Health Collaborative (CIHC) was funded by Health Canada to support this initiative
  - In 2008, Australasian Interprofessional Practice and Education Network (AIPPEN) was developed in Australia
  - IPE has been adopted in other countries too:
  - New Zealand, Norway, Spain, and Japan

Definitions

- **IPE occurs "when two or more professions learn from and about each other to improve collaboration and the quality of care"**
- **Goal of IPE:** develop knowledge, skills and attitudes that result in interprofessional team behaviors and competence.
- Ideally, IPE should be incorporated throughout the entire curriculum in a vertically and horizontally integrated fashion

Related Concepts

Multiprofessional Education (MPE): professions learn side-by-side, often no interaction between professionals

Interdisciplinary Education: more academically oriented; focuses on cohering fragmented knowledge of different disciplines

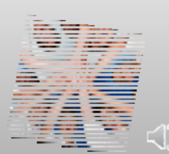
Another question to consider…

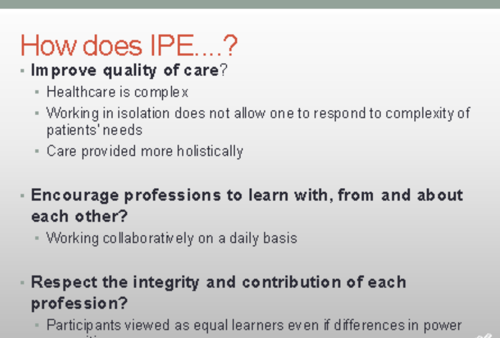
Are there settings where it might be more of a challenge to introduce interprofessional learning care? Why?

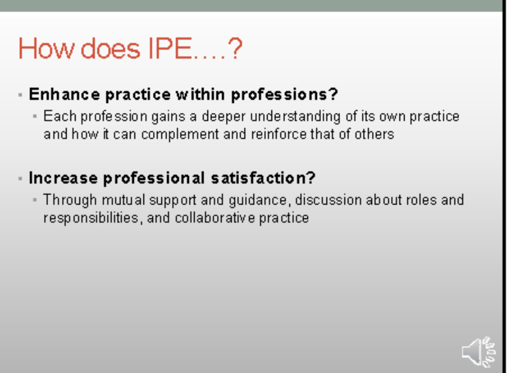
Benefits of IPE

***The main goal of IPE**:
- Students will learn how to function in an interprofessional team and carry the knowledge and skills into their future practice

- **Research has found that interprofessional teams:**
  - Improve quality of care
  - Lower costs
  - Decrease patient's length of hospital stay
  - Decrease medical errors

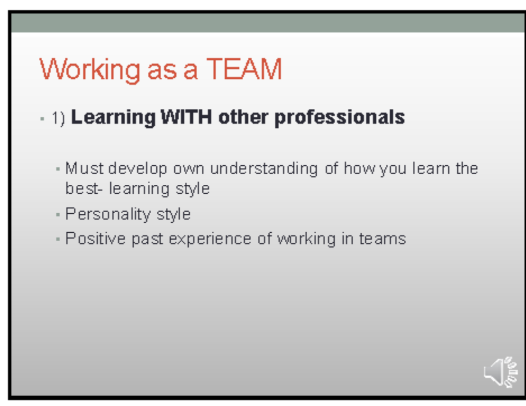


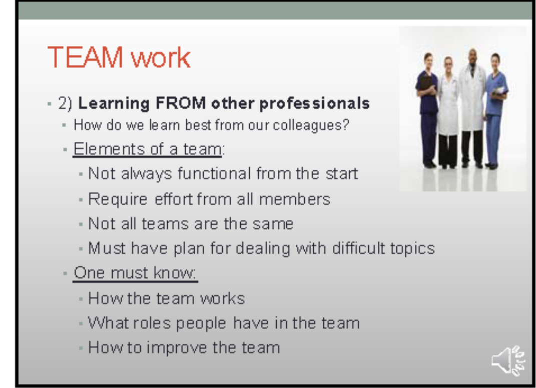


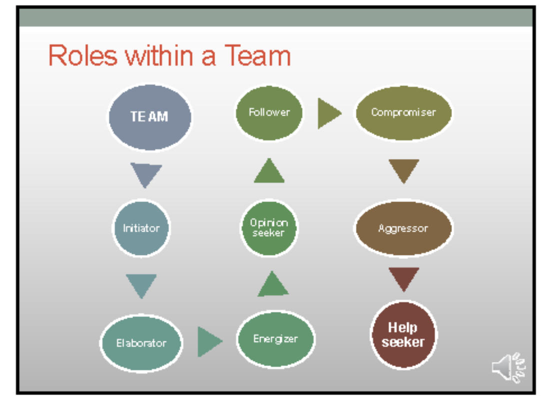


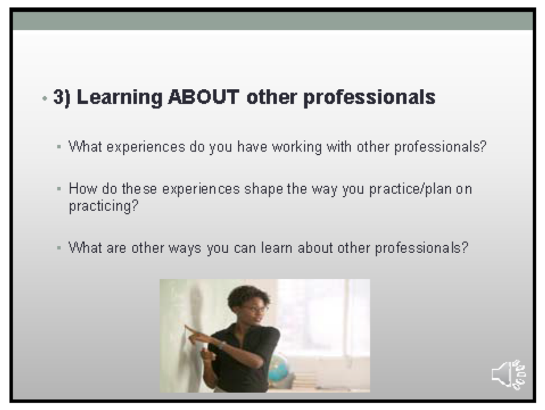
Before engaging in IPE one must…

- See value in IPE
- Want to have the experience of learning and working as a team
- Understand own professional role
- Have a healthy professional identity

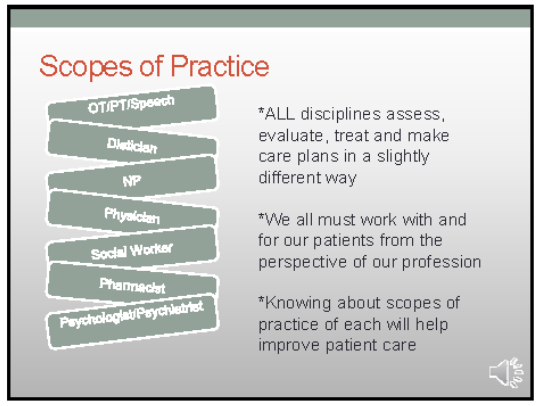




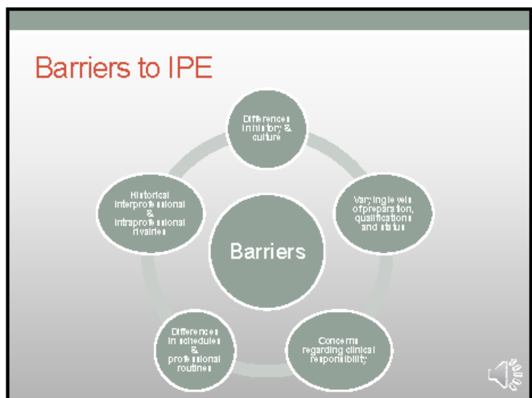




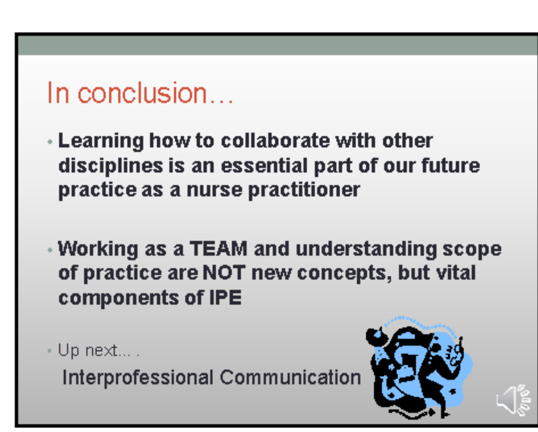
3) Learning ABOUT other professionals
What experiences do you have working with other professionals?
How do these experiences shape the way you practice/plan on practicing?
What are other ways you can learn about other professionals?



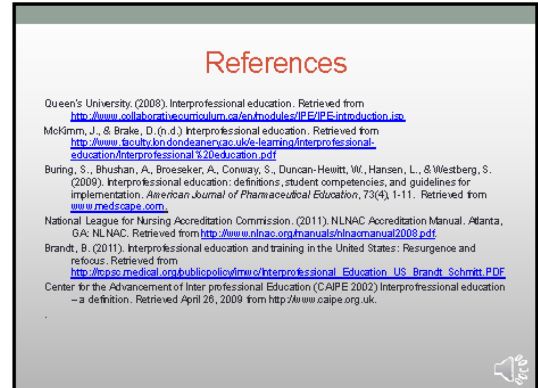
Scopes of Practice
OT/PT/Speech
Dietician
NP
Physician
Social Worker
Pharmacist
Psychologist/Psychiatrist
*ALL disciplines assess, evaluate, treat and make care plans in a slightly different way
*We all must work with and for our patients from the perspective of our profession
*Knowing about scopes of practice of each will help improve patient care



Barriers to IPE
Barriers
Differences in history & culture
Varying levels of preparation, qualifications and status
Concerns regarding clinical responsibility
Differences in schedules & professional routines
Historical interprofessional & intraprofessional rivalries



In conclusion…
Learning how to collaborate with other disciplines is an essential part of our future practice as a nurse practitioner
Working as a TEAM and understanding scope of practice are NOT new concepts, but vital components of IPE
Up next… .
Interprofessional Communication



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Brandt, B. (2011). Interprofessional education and training in the United States: Resurgence and refocus. Retrieved from http://rcpsc.medical.org/publicpolicy/imwc/Interprofessional_Education_US_Brandt_Schmitt.PDF
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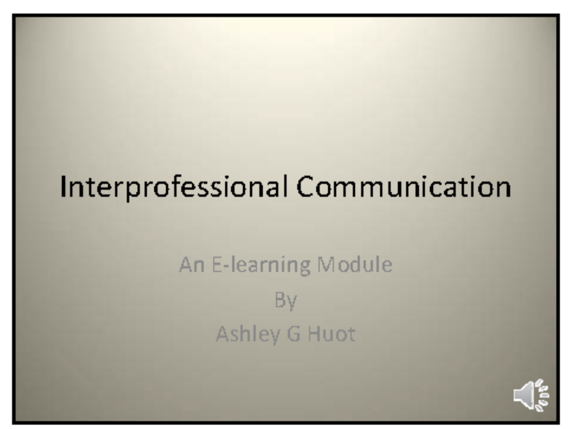
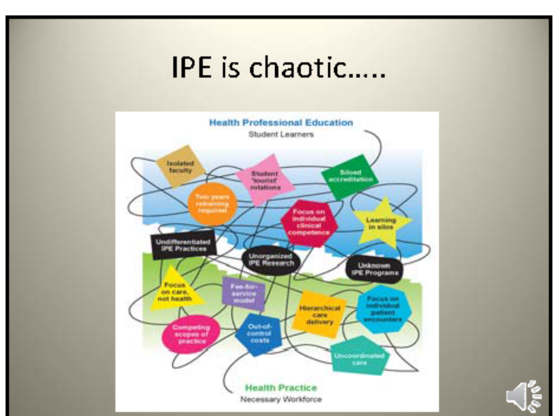
APPENDIX B. IPE MODULE: INTERPROFESSIONAL COMMUNICATION

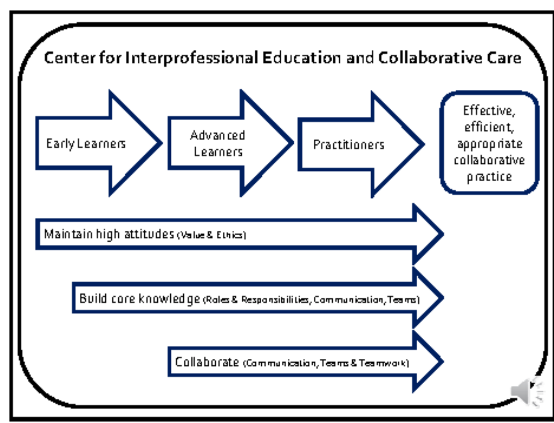


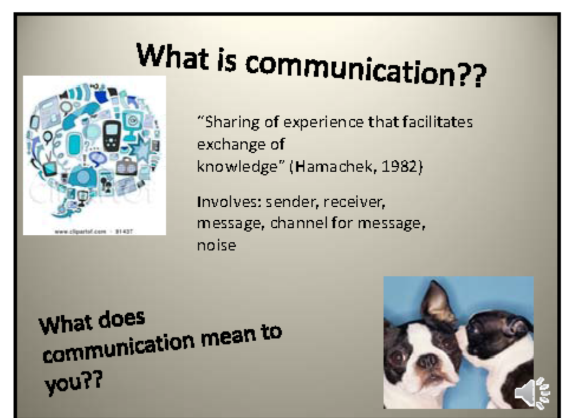
Objectives

Upon completion of this learning module the learner will be able to:

1. Describe the importance of communication.
2. Define communication and discuss the standards of effective communication.
3. Recognize the connection between communication and medical error.
4. Identify barriers as well as benefits to effective interprofessional communication.
5. Describe strategies for information exchange.
6. Identify and describe sources of conflict and barriers to conflict resolution in healthcare teams.
7. Explicate team and individual strategies for conflict resolution in interprofessional teams.







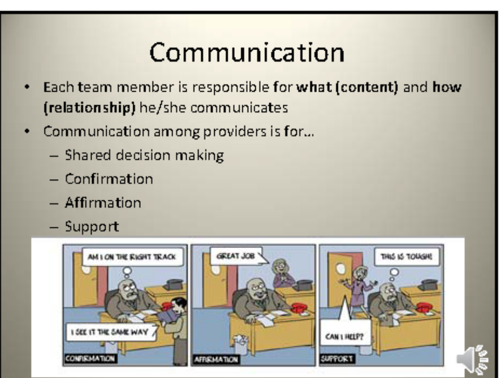
Principles of Communication

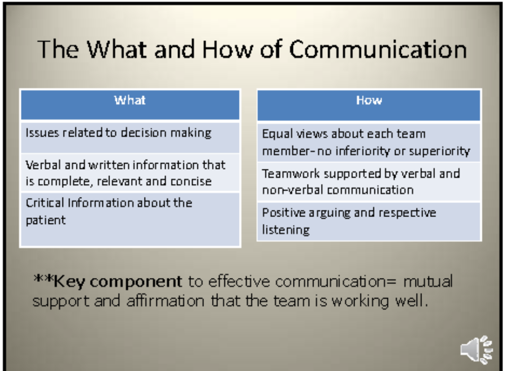
- Can be intentional or unintentional
- Impossible to NOT communicate
- Irreversible
- Unrepeatable
- Involves cognitive and affective information
- Involves different channels
- Clear, complete, timely, & brief

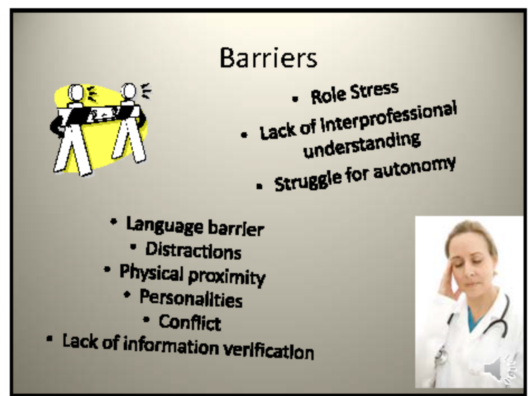
Competency

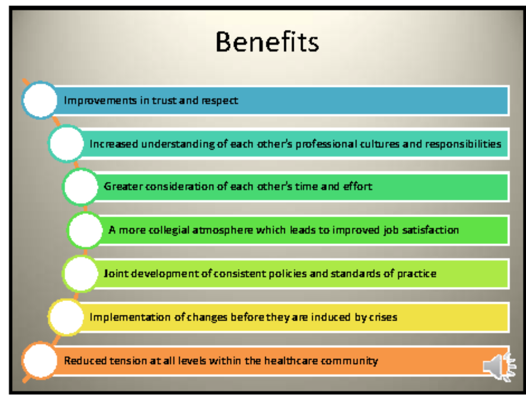
- "Communicate with patients, families, communities, and other health professionals in a responsive and responsible manner that supports a team approach to the maintenance of health and the treatment of disease."

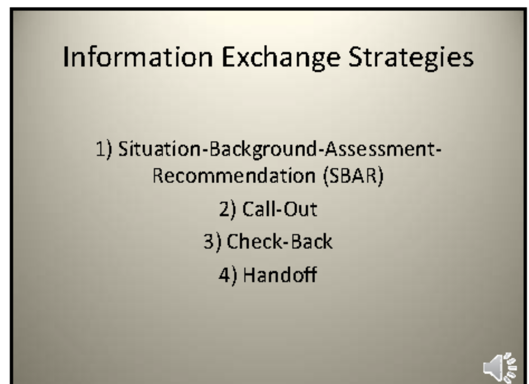
Core Competencies for Interprofessional Collaborative Practice
Report of an Expert Panel
2011 American Association of Colleges of Nursing, American Association of Colleges of Osteopathic Medicine,
American Associa
Colleges of Pharmacy, American Dental Education Association, Association of American Medical Colle
Association of Schools of Public Hea

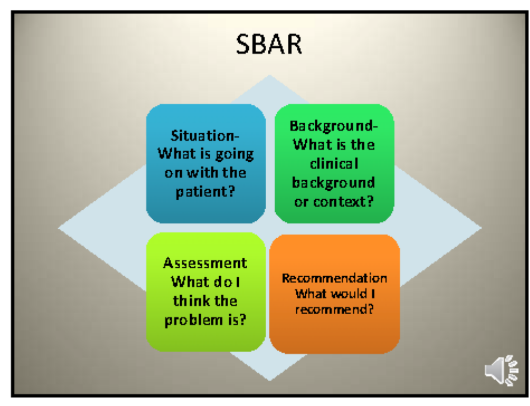


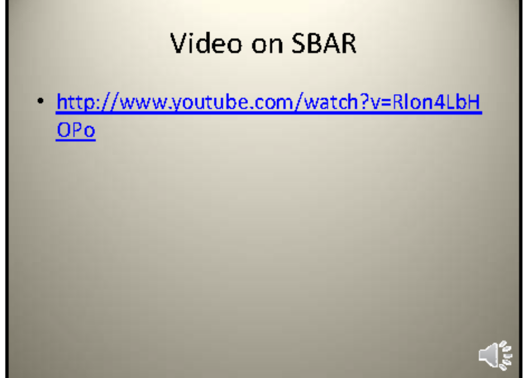


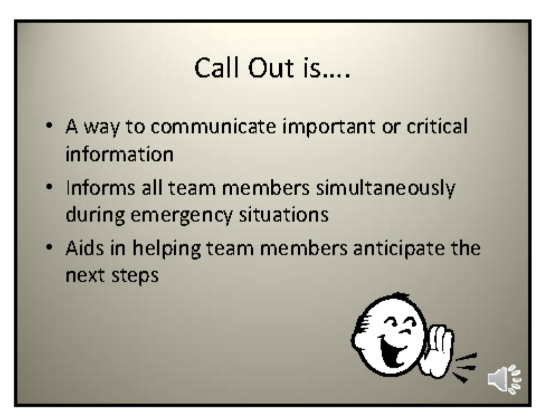

Barriers
Role Stress
Lack of interprofessional understanding
Struggle for autonomy
Language barrier
Distractions
Physical proximity
Personalities
Conflict
Lack of information verification

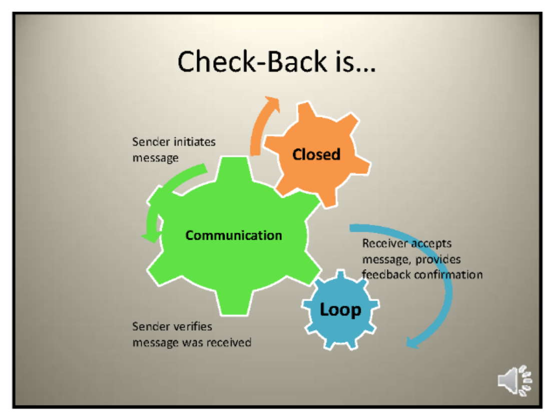

Benefits
Improvements in trust and respect
Increased understanding of each other's professional cultures and responsibilities
Greater consideration of each other's time and effort
A more collegial atmosphere which leads to improved job satisfaction
Joint development of consistent policies and standards of practice
Implementation of changes before they are induced by crises
Reduced tension at all levels within the healthcare community


Information Exchange Strategies
1) Situation-Background-Assessment-Recommendation (SBAR)
2) Call-Out
3) Check-Back
4) Handoff


SBAR
Situation- What is going on with the patient?
Background- What is the clinical background or context?
Assessment What do I think the problem is?
Recommendation What would I recommend?


Video on SBAR
http://www.youtube.com/watch?v=Rlon4LbHOPo

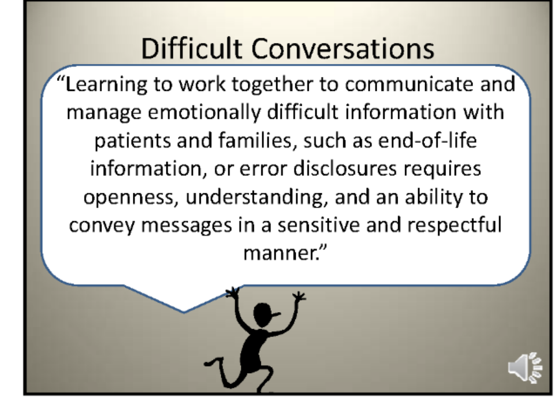

Call Out is....
A way to communicate important or critical information
Informs all team members simultaneously during emergency situations
Aids in helping team members anticipate the next steps

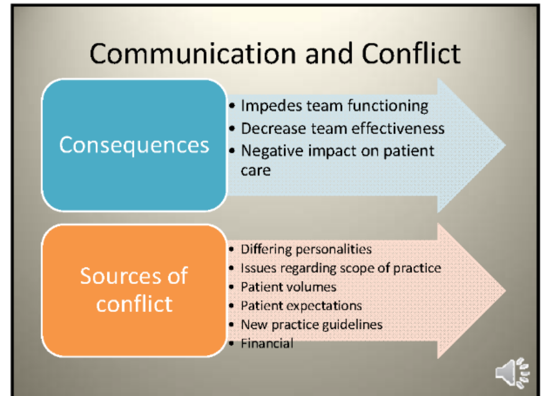


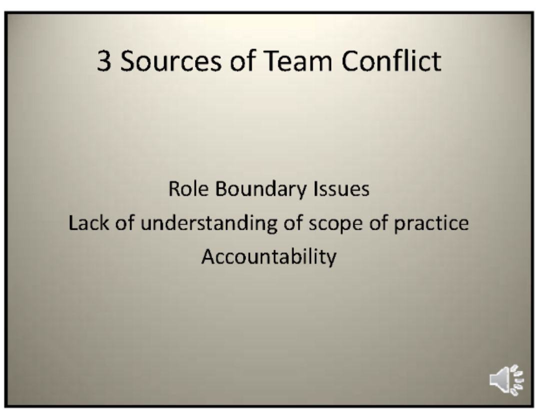
Rationale of a Handoff

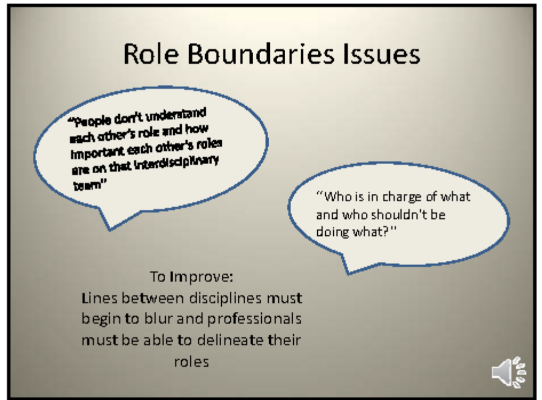
Per the Joint Commission:

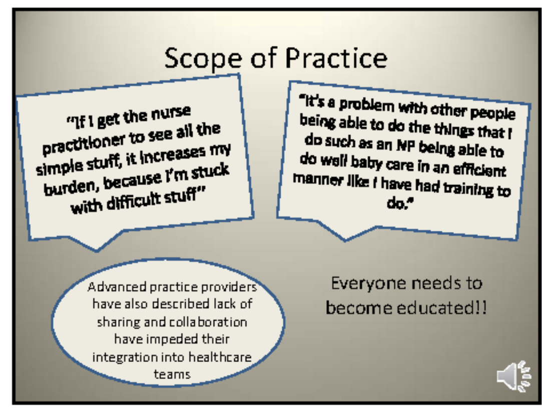
"The primary objective of a handoff is to provide accurate information about a patient's/client's/resident's care, treatment and services, current condition, and any recent or anticipated changes. The information communicated during a handoff must be accurate to meet patient safety goals."

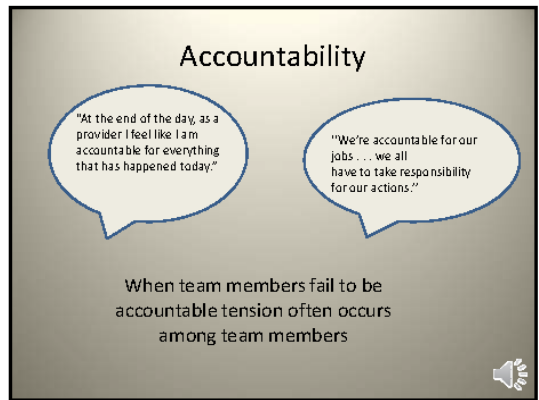


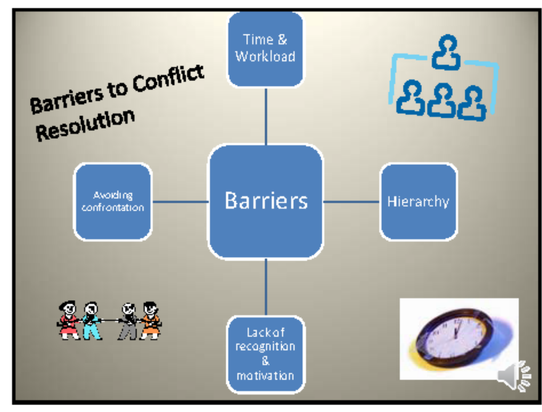






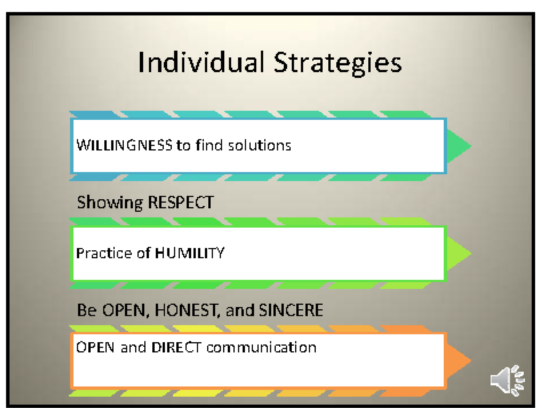






Strategies to Conflict Resolution

- Development of conflict resolution protocols
- Reliance on leadership of the organization to negotiate and resolve the conflict
- Strategies often enacted by team leads
- A good leader must:
  - Have an open door policy
  - Accessible
  - Non-judgemental
  - Good listeners



Summary

- Conflict is unavoidable….
- Need to be armed with an understanding of potential barriers to resolution
- Must develop strategies to resolve conflict in a timely fashion
- Will improve both team functioning and patient care

Communicating in a TEAM

- Communicate in a BRIEF, CLEAR and TIMELY format
- Seek information from all available sources
- VERIFY and SHARE information
- Practice communication tools and strategies as often as possible

Resources

Suter, E., Arndt, J., Arthur, N., Parboosingh, J., Taylor, E., & Deutschlander, S. (2009). Role understanding and effective communication as core competencies for collaborative practice. *Journal Of Interprofessional Care, 23*(1), 41-51. doi:10.1080/13561820802338579

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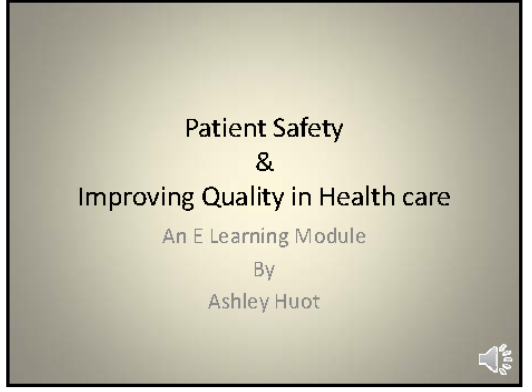
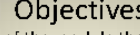
Suter, E., Arndt, J., Arthur, N., Parboosingh, J., Taylor, E., & Deutschlander, S. (2009). Role understanding and effective communication as core competencies for collaborative practice. *Journal Of Interprofessional Care, 23*(1), 41-51. doi:10.1080/13561820802338579

Northouse P, Northouse L.(1998). Health communication: Strategies for health professionals. Stamford, CT: Appleton & Lange.

APPENDIX C. IPE MODULE: PATIENT SAFETY AND QUALITY IN HEALTH CARE





Objectives

Upon completion of the module the learner will be able to:

1. Identify emerging views of quality in health care.
2. Examine the definitions of quality and safety.
3. Describe the current safety crisis and key elements from the IOM report.
4. Discuss the four key questions that need to be considered when we explore safety.
5. Identify the types of errors and provide examples.
6. Discuss the importance of a mandatory reporting system.
7. Describe ways to improve safety and medical liability and sources of adverse events.
8. Define root cause analysis and near miss.

What is Quality Improvement?

"Process of using data to monitor the outcomes of care processes and using improvement methods to design and test changes to continuously improve the quality and safety of health care systems."

(Institute of Medicine)

Patient Safety

"Minimizes risk of harm to patients and providers through both system effectiveness and individual performance."

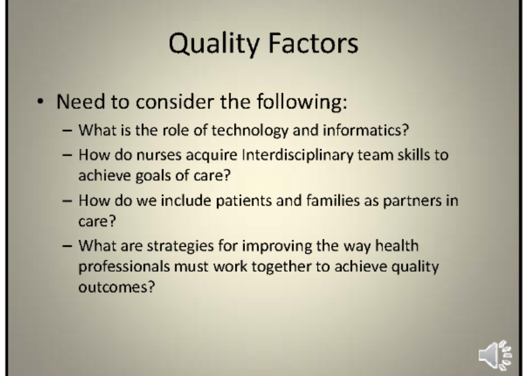
(IOM)

Quality and Safety

- Quality and safety are in a sense inseparable
- Creating a culture of safety is part of building a system of continuous quality improvement

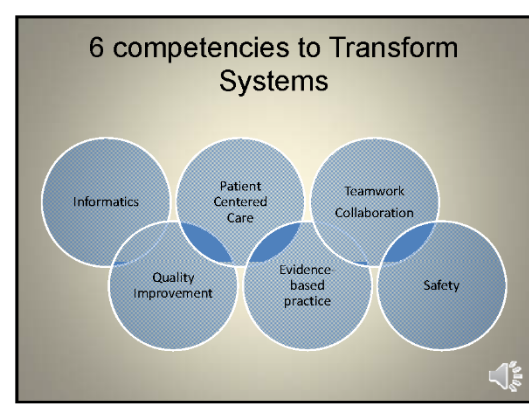
As health care providers....

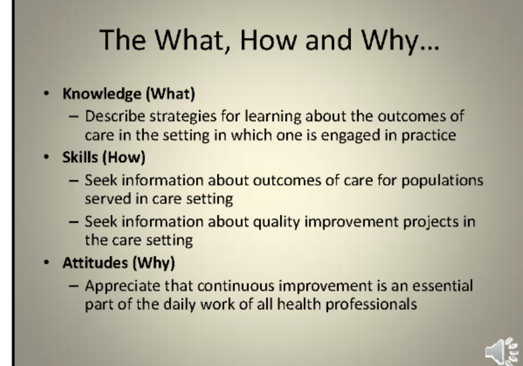
- Decrease quality=decrease satisfaction
- Decrease satisfaction=workforce shortages
- Health professionals run the systems
  - WE can *improve* our systems if we possess the competencies required to make improvement a part of daily work

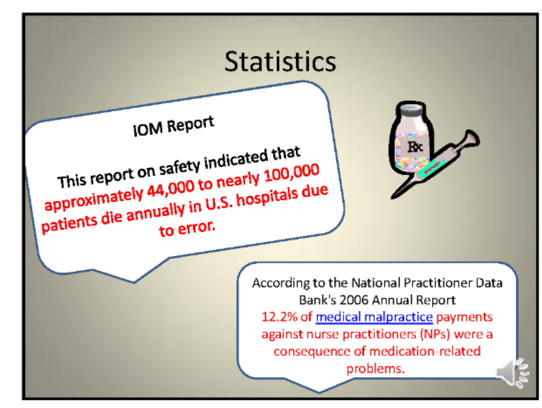


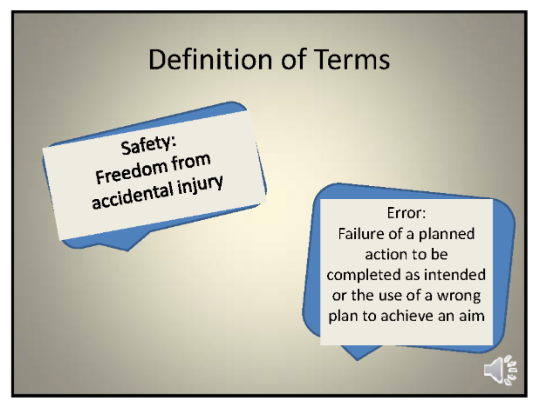
"All health professionals should be educated to deliver patient-centered care as members of an interdisciplinary team, emphasizing evidence-based practice, quality improvement approaches, and informatics."

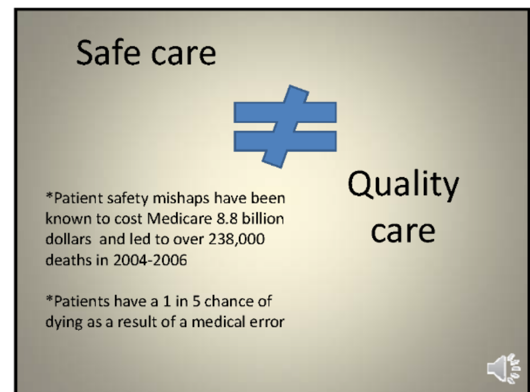
Committee on Health Professions Education
Institute of Medicine (2003)

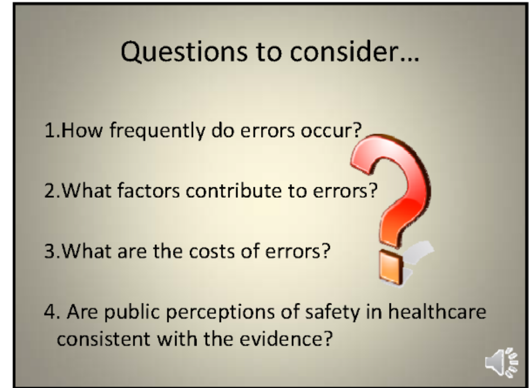


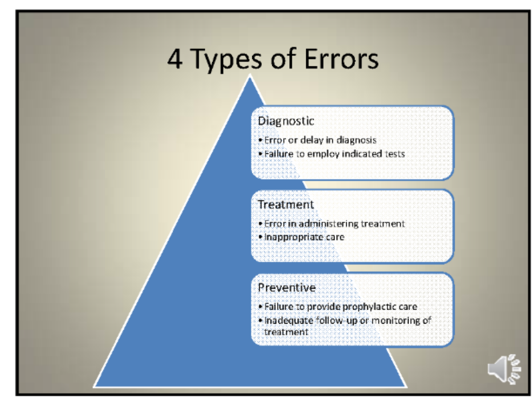


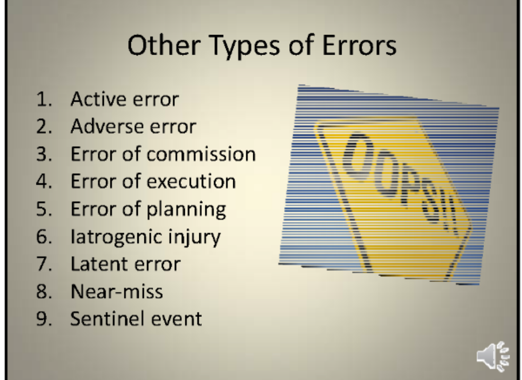


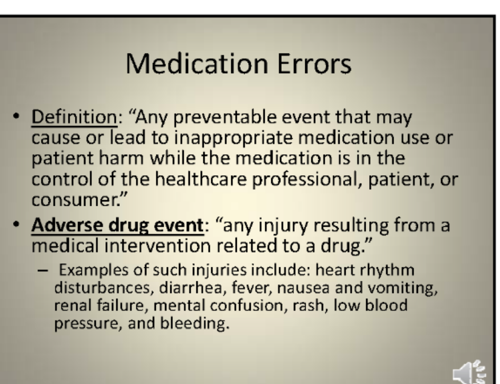

Definition of Terms
Safety:
Freedom from
accidental injury
Error:
Failure of a planned
action to be
completed as intended
or the use of a wrong
plan to achieve an aim


Safe care
Quality
care
*Patient safety mishaps have been
known to cost Medicare 8.8 billion
dollars and led to over 238,000
deaths in 2004-2006
*Patients have a 1 in 5 chance of
dying as a result of a medical error


Questions to consider…
1.How frequently do errors occur?
2.What factors contribute to errors?
3.What are the costs of errors?
4. Are public perceptions of safety in healthcare
consistent with the evidence?


4 Types of Errors
Diagnostic
• Error or delay in diagnosis
• Failure to employ indicated tests
Treatment
• Error in administering treatment
• Inappropriate care
Preventive
• Failure to provide prophylactic care
• Inadequate follow-up or monitoring of
treatment


Other Types of Errors
1. Active error
2. Adverse error
3. Error of commission
4. Error of execution
5. Error of planning
6. Iatrogenic injury
7. Latent error
8. Near-miss
9. Sentinel event
OOPS!!


Medication Errors
• Definition: "Any preventable event that may
cause or lead to inappropriate medication use or
patient harm while the medication is in the
control of the healthcare professional, patient, or
consumer."
• Adverse drug event: "any injury resulting from a
medical intervention related to a drug."
– Examples of such injuries include: heart rhythm
disturbances, diarrhea, fever, nausea and vomiting,
renal failure, mental confusion, rash, low blood
pressure, and bleeding.

Other factors that Contribute to Error

Patient non-compliance:

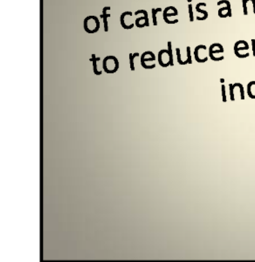
accidental or unintentional non-adherence to a therapeutic regimen

Technology:

computerized documentation/electronic healthcare record (EHR), provider order entry system (POES), drug order entry system

"Building safety into processes of care is a more effective way to reduce errors than blaming individuals."

(IOM, 1999)



Mandatory Reporting System

- Holds providers accountable for serious patient injuries and deaths
- Operated by state regulatory programs that can investigate and issue penalties or fines for wrong-doings

What should be reported?

Barriers to reporting errors

- Fear the provider and facility will be subject to legal reprisal
- Fear of increased malpractice rates
- Adverse harm to professional reputation
- Loss of personal confidence
- Increased anxiety regarding making future errors

Successful Mandatory Programs

3 components

1) Provider feels safe from reprisal
2) Provider is not blamed or rebuked
3) Reporting of the event is possible using a 1 page form

Patient Safety and Quality Improvement Act of 2005

- **Goal:** improve patient safety by encouraging voluntary and confidential reporting of events that adversely affect patients
- Created **Patient Safety Organizations** (PSOs)
- Promoted establishment of **Network of Patient Safety Databases** (NPSD)

4 Goals to Improve Safety and Medical Liability

1) Reduce the rates of preventable patient injuries
2) Promote open communication between physicians and patients
3) Ensure patients access to fair compensation for legitimate medical injuries
4) Reduce liability insurance premiums for health care providers

Sources of Adverse Event Data

- Voluntary and mandatory reporting
- Document review
- Automated surveillance
- Monitoring patient progress to identify circumstances when adverse events might occur

Root Cause Analysis

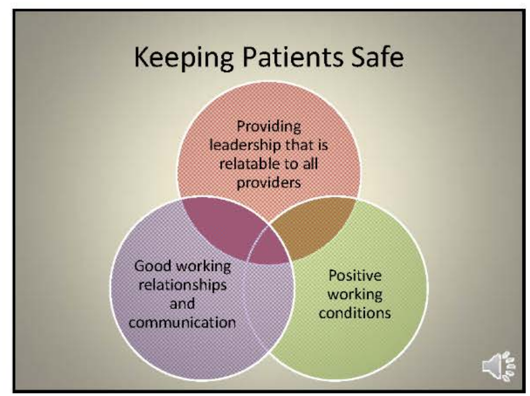
- **1) Root causes are underlying causes.**
- **2) Root causes are those that can reasonably be identified.**
- **3) Root causes are those over which management/practitioners have control.**
- **4) Root causes are those for which effective recommendations can be generated.**

Root Cause Analysis

- MUST be done for any sentinel event that occurs
- Done by a team with a good leader using "no blame" approach
- Is NOT done:
  - 1) Intentionally unsafe acts
  - 2) Criminal acts
  - 3) Situations involving alcohol/substance abuse by employees
  - 4) Alleged or sustained patient abuse

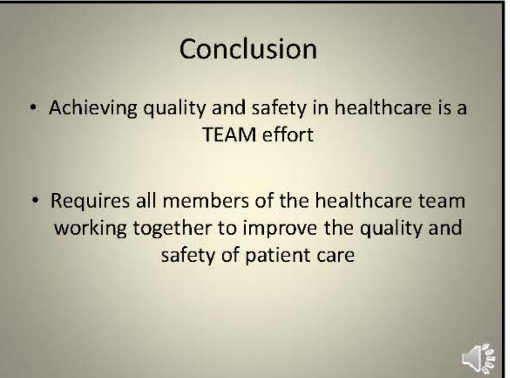
Near-Misses

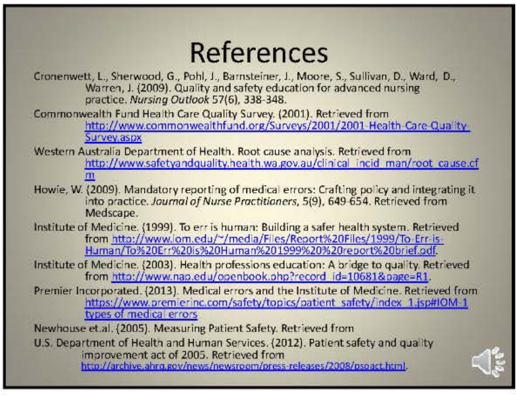
- **Errors that could harm a patient but do not**
- Provides info about weaknesses in the delivery system and ways to prevent causing harm
- **Must be reported**!!
- If not reported can create negative lessons such as:
  - Keeping secrets
  - Fear of what may have happened
  - Missed opportunity to learn how to prevent an error


Keeping Patients Safe
Providing leadership that is relatable to all providers
Good working relationships and communication
Positive working conditions

What does Quality look like?
Improves Outcomes
Values teamwork
Embraces a just culture
Questions welcomed
No "I" in teamwork
Evidenced-based decision making

The AHRQ report, *Making Healthcare Safer: A Critical Analysis of Patient Safety Practices*
http://www.ahrq.gov/clinic/ptsafety/pdf/ptsafety.pdf
JCAHO Annual Safety Goals
http://www.jcipatientsafety.org/show.asp?durki=9335
STOP


Conclusion
• Achieving quality and safety in healthcare is a TEAM effort
• Requires all members of the healthcare team working together to improve the quality and safety of patient care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Newhouse et.al. (2005). Measuring Patient Safety. Retrieved from
U.S. Department of Health and Human Services. (2012). Patient safety and quality improvement act of 2005. Retrieved from http://archive.ahrq.gov/news/newsroom/press-releases/2008/psoact.html.

APPENDIX D. EVALUATION TOOL FOR IPE MODULES

Evaluation of Interprofessional Education Modules

Please answer the following questions by circling the number that most accurately reflects your opinion about each of the following statements concerning the IPE learning modules.

1=disagree; 2=neutral; 3=agree; 4=strongly agree; NA=not applicable

1. The modules promoted the application of IP competencies. 1 2 3 4 NA
2. The content was appropriate for graduate level education. 1 2 3 4 NA
3. The content in the modules was appropriate and relevant to NP practice. 1 2 3 4 NA
4. The content in the modules contributed to achieving the stated learning objectives.

   1 2 3 4 NA
5. The content included policies and regulations relevant to IP practice. 1 2 3 4 NA
6. The content included knowledge and skills necessary for IP collaboration and teamwork.

   1 2 3 4 NA
7. The content was applicable to a variety of health care contexts. (e.g. hospital, community)

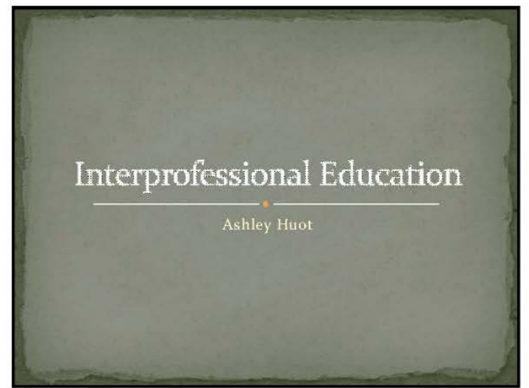
   1 2 3 4 NA
8. The content was delivered in a clear, concise and easy to understand manner. 1 2 3 4 NA
9. The content in the modules was engaging. 1 2 3 4 NA
10. The facilitator demonstrated knowledge regarding interprofessional practice. 1 2 3 4 NA
11. Overall, the IPE modules were a valuable experience and I would recommend them to others.

    1 2 3 4 NA

Additional comments:

Thank you for taking the time to view the modules and provide feedback. Your feedback is greatly appreciated.

APPENDIX E. INTERPROFESSIONAL EDUCATION POWERPOINT PRESENTATION



What is IPE?

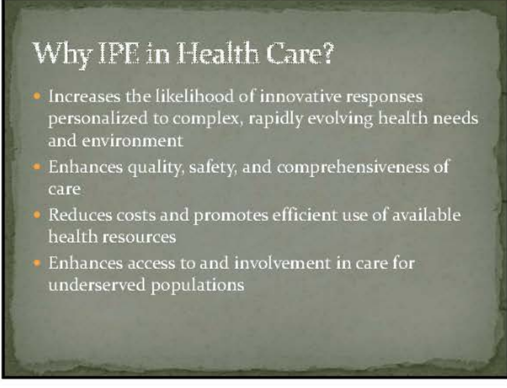
IPE occurs "when two or more professions learn from and about each other to improve collaboration and the quality of care"

(World Health Organization, 2010)

- Goal of IPE: develop knowledge, skills and attitudes that result in interprofessional team behaviors and competence.
- Ideally, IPE should be incorporated throughout the entire curriculum in a vertically and horizontally integrated fashion

Why IPE?

"....all health professionals should be educated to deliver patient-centered care as members of an interdisciplinary team, emphasizing evidence-based practice, quality improvement approaches and informatics."



Influence of Collaborative Care

1) Improved health outcomes for those with chronic and/or multiple diseases
2) Increased access to health care for rural and urban underserved populations
3) Efficiencies and cost savings
4) Improved safety as a result of reduced medical errors and better coordinated care

Influence of Collaborative Care

5) Increases in patient, family, and community satisfaction, involvement and empowerment
6) Collaborative care also brings patients, families, and communities into the health system as partners with health professionals
7) Human resource benefits
8) Workforce benefits

Support for IPE

- Institute of Medicine
- HRSA- key funder of IPE programs
- Robert Wood Johnson Foundation- QSEN competencies
- AACN & AANP
- Interprofessional Education Collaborative (IPEC) report, *Core Competencies for Interprofessional Collaborative Practice: Report of an Expert Panel* in May 2011
- DNP Essentials (VII: Interprofessional Collaboration for Improving Patient and Population Health Outcomes)

What does the Literature Say?

- Publications describing IPE has increased dramatically since 2005
- Most IPE activities/programs have been implemented in academic health centers
- Studies have taken place in:
  - U.S. (41%), Canada (20.5%), UK/Ireland (14.5%), Australia (7.2%)

Outcomes of Studies

- Many studies report positive outcomes in the area of student learning about:
  - Attitudes towards IPE and/or other professions
  - Knowledge about professional roles
  - General enjoyment/satisfaction with IPE activities
  - Skills (team communication)

*Few report patient-related outcomes

Educational Approaches Used

- Wide variety
- Examples:
  - Small Group Discussion (Most common)
  - Patient Case Analysis
  - Large group lecture
  - Clinical teaching
  - Reflective exercises
  - Simulation
  - E-learning
  - Community based projects
  - Shadowing
  - Written assignments

Bottom Line

- Interprofessional collaborative practice strengthens health systems and improves health outcomes for individuals, communities and populations
- IPE competencies should be incorporated into graduate nursing education

Challenges of Integration of IPE

- Traditional discipline specific models of education
- Perceptions of health professions and professional competencies
- Varying knowledge of IPE and teamwork
- Practice experiences with other health professions

Barriers

- Faculty:
  - Time
  - Curricular changes needed to implement IPE
  - Scheduling of IPE into curricula
  - Evaluation strategies for different disciplines
- Students:
  - Interest and value of IPE (learner level compatibility)
- Organizational:
  - Schedules
  - Tuition
  - Registration
  - Credits versus non-credits
  - Policy changes

Facilitators needed

- Endorsement of IPE by university and nursing department
- Integration of IPE as a continuum in the DNP curriculum
- Commitment of faculty, students and health professions providers to IPE

Support for IPE

- Collective, sustained commitment
- Documented results
- Integration with other health care disciplines
- Active communication
- Community partnerships
- Willingness from all to take bold steps to transform how we prepare DNP students

Nurse Practitioners and IPE

- Growing number of NPs in primary care- need to be educated on collaborative care to provide best possible care
- Growing shortage of primary care physicians in ND-NPs will be looked upon to fill the gap
- AANP strongly supports team-based care models
- Studies are lacking specifically related to IPE and NPs
- Many sources make reference to NPs and their ability to be health care teams leaders
- Growing number of graduate nursing programs with IPE curriculum

Conclusions...

- IPE is growing
- Slowly becoming part of accreditation standards for nursing, medicine and pharmacy
- Gaps in how IPE activities are reported in the literature
- Growing support for the link between IPE and improved quality of care, patient safety and patient outcomes
- Need to continue to conduct scholarly work on effectiveness of IPE and link to improving health

Just a start...

- 3 educational modules created based on IPE competencies
  - 1) Introduction to IPE
  - 2) Interprofessional Communication
  - 3) Patient Safety and Quality in Healthcare teams

  - Modules are being reviewed by IPE experts to gain feedback
  - Need for continuation of project with implementation of modules to DNP students

APPENDIX F. EXECUTIVE SUMMARY

Project Summary

Interprofessional education (IPE) is an important approach for preparing health professional students to provide care that is patient centered and based in a collaborative team environment. Interprofessional education "occurs when two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes" (World Health Organization, 2010). Current nursing education standards include requirements for interprofessional collaboration at the doctoral level of education (QSEN, 2014). The current Doctor of Nursing Practice (DNP) curriculum at NDSU has no specific objectives that focus on IPE and the AACN DNP essential competencies. Studies have shown no evidence to support that health professionals can learn interprofessional skills without being educated (Hall & Weaver, 2001). The purpose of the project was influence curricular change at NDSU to include IPE in the graduate nursing program. To meet that goal, three educational modules were developed based on core competencies of IPE. The titles of the modules were "Introduction to Interprofessional Education," "Interprofessional Communication" and "Patient Safety and Improving Quality in Healthcare." The project was then presented to the DNP faculty at NDSU to disseminate the findings and prove IPE's importance for DNP students. The modules were reviewed by IPE experts across the region with overall positive responses.

Background

In today's health care system, professionals must work together to achieve a common goal of improving patient care. An aging population creates demand for more health care services. More people of all ages are living with chronic diseases, with nearly half of Americans

affected by diabetes, hypertension, arthritis, cardiovascular disease, and mental health conditions. In 2009 the American Association of Retired Persons (AARP) published a report on chronic conditions in which patients and families reported lack of care coordination that resulted in repeat tests and procedures, unnecessary hospitalizations and difficult transitions from hospitals to home (Reinhard & Hassmiller, 2010). Interprofessional education (IPE) is an important approach for preparing health professional students to provide care that is patient centered and based in a collaborative team environment. The goal of these efforts is to develop knowledge, skills and attitudes that result in interprofessional team behaviors and competence. The engaging principle of IPE is that once health professionals start working together in the clinical setting, patient outcomes will improve. The main goal of IPE is for students to learn how to function in an interprofessional team and carry the knowledge and skills into their future practice (Buring et al., 2009). Research has found that interprofessional teams improve quality of care, lower costs, decrease patient's length of hospital stay, and decreases medical errors (Buring et al., 2009). Nurse practitioners are going to be called upon to fill the gap in primary care and learning how to work collaboratively is an essential component of the educational curriculum. Current nursing education standards include requirements for interprofessional collaboration. The Quality and Safety Education for Nurses (QSEN) initiative lists teamwork and collaboration as one of its six core competencies for graduate level knowledge, skills and attitudes. QSEN defines teamwork and collaboration as functioning within nursing and interprofessionally to improve patient safety and care (QSEN, 2012). These agencies have proposed that IPE activities should be initiated in undergraduate health professional program and continued into post-graduate programs (QSEN, 2012).

Process

The project is aimed at influencing curricular change at NDSU to include IPE in the graduate nursing curriculum. To meet that goal, three interprofessional education (IPE) modules were developed based on core competencies of IPE for the potential of future implementation into the graduate didactic nursing curriculum at NDSU. The three modules were created using a PowerPoint template with voice over narration. There is a list of objectives at the start of each module to help the learner focus on the important topics included in each module. The modules were then reviewed by three IPE experts from local universities. The experts included two from North Dakota State University and one from the University of North Dakota. The content of the modules was evaluated to gain feedback and suggestions on means to improve the content. Each expert was given an eleven question survey with a Likert based scale to rate various components on the modules. A section was also available for comments. The DNP faculty at NDSU is the target audience for the curricular change. A planned presentation of the project including the developed modules and future recommendations was also given to faculty members to inform of the importance of IPE in a graduate level nursing program.

Findings and Conclusions

There is currently an undergraduate IPE course in the nursing program at NDSU. There has shown to be strong support from faculty members to engage and integrate IPE into the graduate nursing program as well. The results of the survey completed by the IPE experts were positive with average responses ranging from 2.3 to 3.7 with an overall average response of 3.1. The respondents had several suggestions for ways to improve the content in the modules and additional information that would be helpful for integrating IPE into graduate nursing

curriculum. Before implementing the modules into the DNP program, the recommendations should be explored further and changes made based on the comments from the IPE experts. Additional reviews by other IPE experts would also be helpful to gain further suggestions and ensure the modules are of highest quality.

Recommendations for Action

There is strong evidence to support the importance of IPE in graduate level nursing programs. The IPE curriculum for the graduate nursing program at NDSU is in the beginning stages. The developed learning modules have the potential to be expanded and specifically implemented in the DNP program. A first step would be to have current DNP students view the modules and provide feedback through a survey. The project then could be continued and expanded on to be incorporated into a graduate IPE course that could be offered to not only DNP students, but also to pharmacy, dietician, and public health students. Simulation has also been incorporated into IPE at other institutions and would be an appropriate method for students to practice and use the IPE concepts discussed in the modules. The modules created will serve as a good introduction and foundation to IPE for the students. With the modules being online, students will be able to have access to them at various locations and can view them multiple times to reinforce the concepts. A recommendation would be to have either a face-to-face or online discussion with the students after completion of the modules to clarify the topics discussed and give the students an opportunity to ask questions and provide feedback.

Research on IPE has not proven the most effective teaching methodology to educate graduate nursing students on IPE. There are several methods in the literature that have been trialed and peer reviewed. The approaches to IPE in graduate programs must go beyond teaching

students how to work side by side with other health care professionals and move towards functioning effectively within nursing and other disciplines. The common strategies that have been used and are being recommended for use at NDSU include small group discussions, patient case analysis, large group lectures, clinical teaching with direct patient interaction, simulation, e-learning, shadowing other disciplines, and written assignments related to IPE. A hybrid course consisting of on-line and in-class discussions would be recommended.

For IPE to be successful at the graduate level at NDSU barriers must be overcome and support from all levels of the institution will be necessary. Financial support should be obtained from the institution itself or with the aid of grant money. Staff and faculty support is also particularly important as well as buy-in from those in leadership positions. A major barrier that will need to be addressed is the logistics of bringing disciplines together at the same time to practice and apply the interprofessional skills. Gaining support and educating other departments on IPE will need to occur so the importance and integration of IPE becomes a priority to not only those within the nursing department, but across other health care disciplines.

Interprofessional education is becoming a part of accreditation standards for schools of pharmacy, nursing, dentistry, and medicine (QSEN, 2014). The importance of team in healthcare is well documented. Teamwork has been shown to enhance communication and increase the efficiency of patient care (Health Canada, 2004). Incorporating IPE concepts and competencies into all levels of nursing education is vital to ensure graduates are prepared on how to practice collaboratively. There are many documented benefits of IPE discussed in the literature and in above sections. Working collaboratively with other disciplines will be pertinent to all areas of practice including hospital, clinic, and public health settings. Being able to apply the competencies and skills learned about IPE in an appropriate and useful manner is vital as

working in healthcare teams can be challenging due to high workloads, assorted professional backgrounds, and differing levels of education (Hall, Harvey, Meerabeau, Muggleston, 2004). Using the findings and developed modules from the discussed project will serve as a foundation to integrate interprofessional education into the DNP program at North Dakota State University.

APPENDIX G. PERMISSION TO USE IECPCP MODEL

Dear Ms Huot,

It is my pleasure to give you the permission to use the IECPCP framework for your thesis and to publish the framework.

Sincerely,

Danielle D'Amour

Danielle D'Amour, inf., Ph.D.

Professeure titulaire

Faculté des sciences infirmières

Chercheure Centre FERASI et IRSPUM

Université de Montréal

Tél. 514-343-7578

danielle.damour@umontreal.ca

APPENDIX H. TIMELINE OF PROJECT PHASES

In collaboration with the supervisory committee chair, the project leader finalized the topic for the proposed project in February 2013. Research and review of literature was compiled and refined in February and March 2013. Committee members were finalized in early April 2013 to include Dean Gross, Carla Gross, Mykell Barnacle, Kara Falk and Lisa Montplaisir, all of whom are NDSU faculty members. The project proposal was formulated and presented to the supervisory committee in late April 2013. Approval was granted by the committee, and the modules were constructed during the summer months of 2013 and completed by August 2013. Content evaluation of the educational modules was started and completed during the fall/winter of 2013. Data from the evaluation was then compiled and analyzed and a final defense was completed on March 18, 2014.