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# Preparing Students for Team-Based Care for Vulnerable Populations

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## Abstract

Health professionals have an obligation to improve both the health of the individual and the public in a time of scarce resources. The Institute of Medicine (IOM), Healthy People Curriculum Task Force and professional education accreditation standards indicate the need for health care professionals to demonstrate competencies related to community engagement, basic health promotion skills and the ability to work effectively in interprofessional teams. An Interprofessional Course, *IPE 413: Developing Care for a Vulnerable Population* provides students the opportunity to collaborate to address health needs in cooperation with a community partner. Students work in teams to address the complex health care needs of an individual community member. The one hour elective course is open to students from nursing, occupational therapy, pharmacy, social work, and exercise science. Efforts are underway to explore the possibility of offering this course to medical students. Students are assessed on the knowledge and experience gained through this interprofessional experience using the Team Skills Scale and student reflections. Faculties from each of the disciplines utilize a collaborative model in the instructional design of the course. The content is co-taught and faculty not only role model interprofessional care, but also serve as mentors and resource personnel for the students as they work with their clients.

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## Introduction

Higher education in the health sciences is under multiple demands to prepare learners for the future of health care with a significant focus on team-based care, also known as interprofessional collaborative practice (IPCP). According to the American Hospital Association (AHA, 2015), practicing primary care providers are challenged to meet the current needs of health care populations. The AHA identifies that health care providers need “to practice to reach their potential in a team-based model of care delivery” (AHA, 2015, p. 5). In 2011, the Core Competencies for Interprofessional Collaborative Practice were established as the foundational skills all health care providers need for effective team-based care (Interprofessional Education Collaborative Expert Panel, 2011). Since this time, the accrediting bodies of the health science professions have put in place more stringent curricular requirements for interprofessional education (IPE) in order to prepare the health professions students for practice demands (Zorek & Raehl, 2013).

Currently, academic institutions are now charged with implementing interprofessional education in order to prepare health sciences students for team-based care. Academic institutions have used multiple pedagogies to help students attain skills in collaboration and team-based care including simulation, case analysis, and service-learning. Dow, Blue, Konrad, Earnest, and Reeves (2013) identified challenges facing interprofessional education in higher education among the health sciences in regards to attaining the skills described in the Core Competencies (Interprofessional Education Collaborative Expert Panel [IPEC], 2011). One unmet area for IPE is related to health care providers working in underserved areas with vulnerable populations (Dow et al., 2013). Dow and colleagues (2013) report that current IPE has not been adequately preparing health sciences students for the complexities of providing care to patients affected by health disparities due to multiple social factors. According to Dow et al, “a student planning to practice in a resource poor, primary care setting needs specific skills in teamwork, leadership, and follower-ship that bolster collaboration by allowing all health care professionals to practice at the top of their licensed abilities” (Dow et al., 2013, p.353).

An appropriate, yet complex pedagogy to prepare students for meeting the needs of vulnerable populations

is community-based service learning. Several models regarding this approach to IPE have begun to emerge in the literature as exemplars in meeting the gap identified by Dow et al. (2013). Frequently identified in the literature as a pedagogical approach is the use of free clinics, which involve collaborative faculty participation and student involvement (Moskowitz, Glasco, Johnson, & Wang, 2006; Shrader, Thompson, & Gonsalves, 2010; Wang & Bhakta, 2013; Arndell, Proffitt, Disco, & Clithero, 2014; Farlow, Goodwin & Sevilla, 2015). These types of clinics in underserved communities are one avenue for exposing students to IPE with vulnerable populations. Students report learning how to collaborate and meet community needs in free clinic settings. Educational experiences with underserved populations also allow students the opportunity to learn the importance of overlapping roles and how to collaborate with limited resources to meet patient needs. This article will identify how an interprofessional community-based clinic course for health professions students frame their understanding of IPCP and builds proficiency based on the IPEC Core Competencies.

## Background

An opportunity for interprofessional community-based service learning presented itself in the fall of 2009 at Creighton University, a small Midwestern Jesuit University. A blend of interprofessional collaboration and service-learning is not new and has been discussed and supported in the literature (Connors, Seifer, Sebastian, Cora-Bramble, & Hart, 1996; Clark, 1999; Sternas, O'Hare, Lehman & Milligan, 1999). However, with the recent publication of the Core Competencies for Interprofessional Collaborative Practice, the model of interprofessional community based service-learning is worth revisiting in order to reflect upon and apply the competencies (Interprofessional Education Collaborative Expert Panel, 2011).

The Heart Ministry Center (HMC), a non-profit entity located in Omaha, Nebraska, was established in response to increasing needs for food, clothing, shelter, and financial assistance in a low income community. Although basic needs were being addressed, the health care needs of this population, mainly uninsured minorities, remained largely unmet. To address these concerns, a group of health professions faculty (nursing, medicine, occupational therapy, pharmacy, social work, dentistry) from Creighton, in collaboration with HMC, explored

the possibility of offering free interprofessional health care services to members of this community. Hence, a health clinic evolved through a partnership between a community center and a university.

Faculty and students from nursing, pharmacy, medicine, and social work are responsible for the day-to-day management of the clinic. Through the faculty experience with the health science students, the educators identified a need to formalize the education occurring at the community partner site. This was critical in order to structure learning experiences and prepare students for the realities of the needs and desires of vulnerable clients. Faculty observations and conversations revealed a significant lack of knowledge demonstrated by students regarding how to address the needs of the vulnerable population being served at the clinic. Furthermore, the students were observed to lack a clear awareness of how to act and interact as part of a health care team. From these observations and discussions, the idea of an interprofessional course focused on developing the skills necessary to provide collaborative care for vulnerable populations emerged.

### Interprofessional Course

The course was designed by the faculty from exercise science, occupational therapy, nursing, pharmacy, and social work. This collaboration linking faculty from health professions programs and undergraduate programs is unique. The faculty team felt the elements of compassion and empathy are sorely underscored in many IPE endeavors involving both professionals and students. This motivated the team to offer the course at the community partner setting to ensure the students gained a “real world” experience outside the sheltered context of the university. In order to allow collaboration and address schedule conflicts, the course was designed as a hybrid learning experience requiring learning in the community, the classroom, and also in an online environment. The elective course was initially offered in the fall 2013 semester and again in the fall 2014 semester, with 8 and 27 students enrolled, respectively.

The course meets for eight weeks and focuses on acclimating students to their discipline and others on the teams, exploring the context of vulnerability, evaluating case scenarios, and promoting interprofessional dialogue and interactions between both students and

faculty. Table 1 (following page) describes weekly course content with objectives. The students engage in learning activities, discuss team skills, and develop a collaborative agreement to guide team interactions. In partnership with the community, individuals who are experiencing complex health issues are invited to participate as clients for the course. The community members are invited to a classroom session at the community partner site to share their experience with the health care system and their health concerns with their teams. Consistent with the Core Competencies, the focus of the teamwork for the course is patient-centered which also supports the tenets of the Triple Aim—care, health, and cost (Berwick, Nolan & Whittington, 2008). Students, with faculty supervision, conduct further assessment of the community member, with the community member’s consent, and develop a collaborative care plan for the client. Students are encouraged to reflect both individually and as a team.

### Methodology

Assessment of student learning in interprofessional education is needed to determine abilities to demonstrate the Core Competencies for Interprofessional Collaborative Practice. The Institute of Medicine (2015) report entitled *Measuring the Impact of Interprofessional Education on Collaborative Practice and Patient Outcomes* calls upon the need for rigorous and thorough assessment of interprofessional education. This document identifies the need for not only quantitative but also qualitative assessment. In an effort to understand the impact of the interprofessional community-based course, the researchers in this study utilized a mixed methods approach of both quantitative and qualitative assessment with the 27 students enrolled in the fall 2014 offering of the course. Of these 27 students, 9 were exercise science, 2 nurse practitioner, 6 occupational therapy, 7 pharmacy, and 3 social work. Approximately 44% of students were undergraduate and 56% were professional.

For quantitative assessment, The Team Skills Scale (Hepburn, Tsukuda, & Fasser, 1996) was used to assess students’ perceptions of knowledge, skills, and abilities of IPE. The Team Skills Scale measures perception of capabilities for effective team interactions and consists of 17 questions at 5 points each, for a maximum score of 85. In addition, the newer Student Perceptions of Inter-

**Table 1.** *Course Syllabus: Developing Care for a Vulnerable Population: An Interprofessional Collaborative Approach for Health Promotion*

Date	Topic	Learning Objectives	Learning Activities
Week 1	Introduction to Vulnerable Populations	By the end of the session, students will be able to: <ul style="list-style-type: none"> <li>• Develop an understanding of the challenges faced by vulnerable populations</li> </ul>	<ul style="list-style-type: none"> <li>• Required Reading: TBA</li> <li>• Engage in SPENT activity - <a href="http://playspent.org/">http://playspent.org/</a></li> <li>• Group discussion: Health care and vulnerable populations</li> <li>• Pre Course Survey</li> </ul>
Week 2	Community Partner Site Orientation	By the end of the session, students will be able to: <ul style="list-style-type: none"> <li>• Describe the mission and purpose of the community partner in an effort to understand vulnerable populations</li> </ul>	<ul style="list-style-type: none"> <li>• Prep activity – Review website of community partner - <a href="http://www.heartministrycenter.org/">http://www.heartministrycenter.org/</a></li> <li>• Site visit and orientation to community partner</li> <li>• Question and Answer Session</li> </ul>
Week 3	Introduction to Interprofessionalism	By the end of the session, students will be able to: <ul style="list-style-type: none"> <li>• Identify the benefits and challenges of interprofessional collaboration</li> </ul>	<ul style="list-style-type: none"> <li>• Interprofessional Education Collaborative Expert Panel. (2011). <i>Core competencies for interprofessional collaborative practice: Report of an expert panel</i>. Washington, D.C.: Interprofessional Education Collaborative.</li> <li>• Review the video case here: <a href="https://www.youtube.com/watch?v=6QYGHXC7QMQ">https://www.youtube.com/watch?v=6QYGHXC7QMQ</a> (about 20 minutes)</li> <li>• Online Discussion Board (initial posting due by 11:59 pm CST on 9/9/14 &amp; respond to peers by 9/12/14)               <ul style="list-style-type: none"> <li>○ Share a short definition of your profession. What would you do with this case?</li> <li>○ What did you learn from the Core Competencies? How do you think these influence health care?</li> </ul> </li> </ul>

**Table 1 (cont'd).** *Course Syllabus: Developing Care for a Vulnerable Population: An Interprofessional Collaborative Approach for Health Promotion*

<b>Date</b>	<b>Topic</b>	<b>Learning Objectives</b>	<b>Learning Activities</b>
Week 4	Team Training	By the end of the session, students will be able to: <ul style="list-style-type: none"> <li>Recognize the importance of interprofessional collaborative care in impacting vulnerable populations</li> </ul>	Reading: <ul style="list-style-type: none"> <li>Review this website: <a href="http://oisse.creighton.edu/Interprofessional%20Case%20Studies%20Resources.aspx">http://oisse.creighton.edu/Interprofessional%20Case%20Studies%20Resources.aspx</a></li> <li>Focus on the Interprofessional Team Reasoning Algorithm, Case Videos, Interprofessional Case Study 001, Learning Objectives and Study Questions for Case 001 and Individual And Team Work up for Case 001</li> </ul> Assignment: <ul style="list-style-type: none"> <li>Review the powerpoint – What Makes a Good Team</li> <li>Draft Team Commitment Form – consider all the elements of what makes a good interprofessional team</li> </ul>
Week 5	Identifying Needs of Vulnerable Population	By the end of the session, students will be able to: <ul style="list-style-type: none"> <li>Collaborate with faculty and community partner to identify and discuss community engagement activities</li> </ul>	<ul style="list-style-type: none"> <li>Case Analysis – Students will listen to a case of community members and develop interprofessional collaborative care skills</li> </ul>
Week 6	Introduction to Community Engagement Activities	By the end of the session, students will be able to: <ul style="list-style-type: none"> <li>Interact as an interprofessional team to address the needs of a vulnerable population</li> </ul>	<ul style="list-style-type: none"> <li>Review the plan for team interactions for community engagement</li> </ul>
Week 7	Community Engagement	By the end of the session, students will be able to: <ul style="list-style-type: none"> <li>Interact as an interprofessional team to address the needs of a vulnerable population</li> </ul>	<ul style="list-style-type: none"> <li>Team meetings – As a team schedule meetings with assigned client and develop comprehensive plan of care (you will need to meet with your client 2-4 times. Faculty will be available as a resource)</li> </ul>
	Course Closure	By the end of the session, students will be able to: <ul style="list-style-type: none"> <li>Summarize lessons learned through interprofessional community engagement with a vulnerable population</li> </ul>	<ul style="list-style-type: none"> <li>Share outcomes of program development</li> <li>Final Case Analysis</li> <li>Final Course Survey and Reflection</li> </ul>

professional Clinical Education-Revised (SPICE-R) (Fike et al., 2013) instrument was also used to assess student perceptions of appropriateness and benefits of IPE. It is a ten-question instrument, with each question at 5 points each for a maximum score of 50. The Team Skills Scale and SPICE-R instruments were administered prior to the course and again, after the course was completed. Total scores, pre- and post-intervention, for each student were compared using paired student *t* tests. A *p* value less than 0.05 was considered statistically significant.

In order to assess understanding of the Core Competencies in Collaborative Practice, at the end of the course students participated in a qualitative reflection which included the following questions: What did you like about the course? Describe three important aspects of interprofessional team care you will take with you in your future career? Twenty seven student responses were collected and compiled into a database for analysis by an interprofessional team of four researchers. Data was read thoroughly at least twice by four researchers who independently identified key words or phrases which exemplified points of the students' reflections. Subsequent evidence supporting each theme was also compiled. Researchers then met to discuss prevalent themes and select student quotations that exemplify these themes that summarize the research outcomes. The themes were then presented to the entire research team for final discussion and culmination.

## Results

There were statistically significant improvements for all independent Team Skills Scale (TSS) after the course intervention with the exception of two: "I recognize when the team is not functioning well" (pre 3.6+0.8, post 4.0+0.7,  $p=0.06$ ) and "I handle disagreements effectively" (pre 3.7+0.9, post 4.0+0.8,  $p=0.11$ ) (see Table 2, following page). Mean total TSS plus scores were pre-60.1+10.5 and post- 71.0+9.1,  $p<0.0001$ . The mean total SPICE-R scores also significantly improved, pre-45.0+3.5 and post- 47.0+3.3,  $p=0.004$  (see Table 3, following page). While there were trends towards improvement for all of the SPICE-R questions, only two achieved statistical significance (understanding the roles of other health professionals within an interprofessional team and clinical rotations are the ideal place for students to interact) (see Table 4, page 8).

The Core Competencies include four main themes: Values/Ethics for Interprofessional Practice, Roles/Responsibilities, Interprofessional Communication, and Teams and Teamwork. As described in Table 5 (page 8), the qualitative data from the students demonstrate a connection between the student reflections and the Core Competencies. In order to be an effective, collaborative team member, health care professionals must focus on patient-centered care and the ethical obligations to provide quality care which occurs most efficiently in collaborative practice. Students consistently reported an increased awareness of the ethical obligation of collaborative practice. The focus of the second Core Competency, roles and responsibilities, is on gaining knowledge of the practice capabilities of each member of the health care team, including the patient, and moving towards identifying the skills each team member will execute to maximize patient care. The students, in their reflections, continuously discussed the importance of understanding the roles and responsibilities of team members, including the patient. Interprofessional communication, the third Core Competency, relates to communicating as a team. This includes defining professional jargon, emitting a desire to collaborate both verbally and nonverbally, respectful communication, and active listening. Vulnerable patients have many needs so students reported not only learning how to communicate with the health care team, but also the patient. The last competency, teams and teamwork, identifies the importance of preparing for teamwork, addressing conflict, engaging team members, and managing team performance. Students reported coming to understand the importance of teamwork, especially in the case of working with vulnerable patients.

Overall, the qualitative reflections identify that an experience with a vulnerable patient can ensure students are able to gain competence in the Core Competencies. The student reflections indicate an understanding of the Core Competencies and the critical need for collaboration in providing care to vulnerable populations.

## Discussion

Both the SPICE-R, which measures attitudes, and the Teams Skills Scale, which measures students' perceptions of knowledge, skills, and abilities, were effective in detecting improvements after the course interven-

**Table 2.** *Comparison of Questions for the Team Skills Scale*

Item	Pre-Course	Post-Course	P Value
I function effectively in an interdisciplinary team.	3.5±0.9	4.3±0.7	0.0002
I treat team members as colleagues.	4.2±0.7	4.7±0.5	0.002
I identify contributions to patient care that different disciplines can offer.	3.6±0.9	4.3±0.8	0.0002
I apply my knowledge of healthcare in a team care setting.	3.4±0.7	4.2±0.7	<0.0001
I ensure that patient/family preferences/goals are considered when developing the team's care plan.	3.8±0.7	4.5±0.6	0.0001
I handle disagreements effectively.	3.7±0.9	4.0±0.8	0.11
I strengthen cooperation among disciplines.	3.6±0.9	4.1±0.9	0.008
I carry out responsibilities specific to my discipline's role on a team.	3.9±0.8	4.4±0.6	0.03
I address clinical issues succinctly in interdisciplinary meetings.	3.0±0.8	3.9±0.9	<0.0001
I participate actively at team meetings.	3.7±0.8	4.2±0.7	0.01
I develop an interdisciplinary care plan.	3.1±0.9	4.2±0.6	<0.0001
I adjust my care to support the team goals.	3.7±0.8	4.6±0.5	<0.0001
I develop intervention strategies that help patients attain goals.	3.7±0.8	4.2±0.7	0.003
I raise appropriate issues at team meetings.	3.4±0.9	4.0±0.9	0.001
I recognize when the team is not functioning well.	3.6±0.8	4.0±0.7	0.06
I intervene effectively to improve team functioning.	3.3±0.9	4.0±0.7	<0.0001
I help draw out team members who are not participating actively in meetings.	2.7±0.9	3.5±1.0	<0.0001

**Table 3.** *Comparison of Total Scores for Team Skills Scale and SPICE-R Instruments*

Mean Total Score Pre-Course (n=27)	Mean Total Score Post- Course (n=27)	P Value
TSS 60.1±10.5	TSS 71.0±9.1	<0.0001
SPICE-R 45.0±3.5	SPICE-R 47.0±3.3	0.004

**Table 4.** *Comparison of Questions for the SPICE-R Instrument*

Item	Pre-Course	Post-Course	P Value
Working with students from another health profession enhances my education.	4.8±0.4	4.9±0.3	0.08
My role within an interprofessional health care team is clearly defined.	3.7±0.7	4.1±1.1	0.05
Health outcomes are improved when patients are treated by a team that consists of individuals from two or more health professions	4.7±0.5	4.9±0.4	0.10
Patient satisfaction is improved when patients are treated by a team that consists of individuals from two or more health professions.	4.6±0.6	4.7±0.5	0.18
Participating in educational experiences with students from another health profession enhances my future ability to work on an interprofessional team.	4.8±0.4	4.8±0.4	1.0
All health professional students should be educated to establish collaborative relationships with members of other health professions.	4.8±0.4	4.7±0.5	0.71
I understand the roles of other health professionals within an interprofessional team.	3.8±0.7	4.5±0.6	0.0003
Clinical rotations are the ideal place within their respective curricula for health professional students to interact.	4.3±0.6	4.6±0.6	0.02
Health professionals should collaborate on interprofessional teams.	4.8±0.4	4.9±0.3	0.42
During their education, health professional students should be involved in teamwork with students from other health professions in order to understand their respective roles.	4.7±0.5	4.9±0.3	0.06

**Table 5.** *Core Competencies and Student Reflections*

Competency	Student Reflections
<i>Values/Ethics for Interprofessional Practice</i>	<ul style="list-style-type: none"> <li>• “Meet halfway with client; it is hard to all meet together and can be frustrating but to not take it personally; always be mindful of other professions and insights and how my profession can relate.”</li> <li>• “Working to benefit the client’s goals, and not just what I personally see as important.”</li> <li>• “Working with a vulnerable population only enhanced my experience and appreciation for what I have. It also opened my eyes to a lot larger picture of what is going on in Omaha as well as other areas of the country. It’s a real humbling realization of the struggles a lot of people have to go through.”</li> </ul>
<i>Roles and Responsibilities</i>	<ul style="list-style-type: none"> <li>• “I feel most importantly, I learned what other professions do. I will use this to know what kind of contributions others have to make as I am part of a health care team. I also know what expectations others have of me, and what my role is.”</li> <li>• “Listening to others is key. Everyone needs to pull their weight to be successful; the patient is the most important member of the team.”</li> </ul>
<i>Interprofessional Communication</i>	<ul style="list-style-type: none"> <li>• “I learned how to communicate with others to formulate a plan for our patient.”</li> <li>• “The importance of listening to others, what other professions can do, and how you can improve patient care with the help of many professions.”</li> </ul>
<i>Teams and Teamwork</i>	<ul style="list-style-type: none"> <li>• “Working together helped us work with our patient in more areas than just medications.”</li> <li>• “Working with other professions to collaborate and make sure each profession is practicing in their scope.”</li> </ul>

tion. The TSS was more sensitive in detecting changes for individual questions. The SPICE-R was less sensitive, potentially because students scored themselves higher at baseline for this instrument (45.0+3.5 out of a maximum of 50). The two Team Skills Scale questions that did not significantly improve suggest that students are still developing conflict resolution skills.

Nevertheless, the quantitative improvements in scores upon completion of the course indicate increased understanding and awareness of the value of collaborative practice when providing care in a vulnerable setting. The qualitative themed analysis also indicates that students embrace the Core Competencies for Interprofessional Collaborative Practice (Values/Ethics for Interprofessional Practice, Roles/Responsibilities, Interprofessional Communication, and Teams and Teamwork). The results indicate that students report surprise at the complexities of the issues with the community member volunteers.

## Conclusion

The IPE course not only serves a vital community need, it also addresses a critical educational component for today's healthcare professionals and provides additional service opportunities for students. The Institute of Medicine, the Healthy People Curriculum Task Force, and professional education accreditation standards indicate the need for healthcare professionals to demonstrate competencies related to community engagement, basic health promotion skills, and the ability to work effectively in interprofessional teams. One of the challenges educators currently face is how to ensure health sciences students engage in the most appropriate pedagogies to ensure students graduate ready to engage in interprofessional collaborative practice. This course provides students the opportunity to collaborate in teams in providing health care to patients in a vulnerable population who have limited access to health care, focusing on including the patient as a critical member of the team. The experiences of the course demonstrate the profound impact that such a course plays on ensuring students graduate from health sciences education with the skills needed to be effective collaborators. As academic institutions identify educational strategies to meet the accreditation standards for interprofessional education, this study exemplifies a course and an assessment protocol that can meet the educational outcomes set forth.

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