SHORT REPORT

An innovative interprofessional curricular model for diverse partners who team up to support behavior change in individuals with chronic disease

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ABSTRACT
This project introduced nursing and graduate health sciences and psychology students to interprofessional education (IPE) concepts and engaged them in interprofessional skill-building. Exposure to and immersion in IPE competencies were accomplished through online modules, case workshops, and simulation-based experiences. Rather than having an acute care focus, these diverse IPE students engaged in teamwork to plan and prioritize lifestyle change. Evaluation over a 3-year period resulted in an 8-week 1 credit course that includes online modules and case content focused on chronic disease management in response to the challenge of aging populations’ increased longevity and chronic disease burden. Sample size was too small to make broad conclusions; however, we strongly recommend that IPE competencies be achieved using a developmental approach that includes not just exposure to the concept of collaborative practice but also immersion experiences that provide opportunities in skill-building for shared decision-making and teamwork.

Introduction
Interprofessional education (IPE) is a necessary step in preparing a collaborative practice-ready healthcare workforce that is better prepared to respond to local health needs (World Health Organization, 2010). Countries around the world face rising healthcare costs and scarce resources, including personnel, driving experimentation with different healthcare models (Fraher & Brandt, 2019). These changes in healthcare are mandating changes to the education of the healthcare workforce (National Academies of Sciences, Engineering and Medicine, 2019). In the United States, healthcare is shifting toward an outcomes-based provider payment model, creating the need for professionals and teams who have the skill to coach and support patients/clients toward sustainable healthy lifestyle changes. To meet the healthcare workforce needs in this changing delivery model, educational content, practices, and clinical experiences must be retooled (Cerra et al., 2015).

Fraher advised engaging a broader spectrum of previously untapped healthcare workers, focusing on teaching integrated care delivery, and requiring interprofessional collaboration during the educational process (Fraher & Brandt, 2019). In the US, interprofessional education opportunities for healthcare students have typically resided in large universities where traditional IPE partners (majors in medicine, nursing, dentistry, physical therapy) receive exposure to IPE competencies (Reeves & Barr, 2016). Less often, professions such as nutrition, health promotion, psychology, and exercise science are included, adding their value and expertise in achieving the desired lifestyle change.

We contend that engaging a diverse group of health profession partners who add value and expertise to achieve lifestyle change in IPE (Bailey & Klein, 2018) is an investment in the future workforce that is necessary to support the management of chronic disease and a contribution toward moving health systems from fragmentation to collaboration (American Association of Colleges of Nursing, 2019; Hark & Deen, 2017; Parks, 2016).

In this short report, we present how we designed an IPE curriculum directed toward the management of chronic disease for students from a variety of healthcare fields. This is a work in progress, as we embark on a plan of collecting longer-term data. Here, we present:

- A description of our curricular model and evaluation plan
- The process we undertook to devise the best course of action for this curriculum
- Lessons learned

The plan
Setting
A 4-year public university in the US with Carnegie R2 classification. Immersion activities occurred in the local community.

Faculty
Four faculty (health promotion, nursing, psychology, and nutrition) from the College of Nursing and Health Sciences and Psychology Department were involved in concept development, program implementation, and evaluation.
Staff
Director and staff from the Simulation Learning Center

Students
The IPE curriculum was developed for post-licensure baccalaureate Nursing students, graduate students in Health Promotion (Master’s) and Nutrition (Master’s), and Psychology (Master’s and PhD). Each year, IPE students were different. Students entered our educational process at different times within their academic trajectories, participated for varying lengths of time, and exited with different future aspirations. Some graduate students were in practice; others were pre-practice. To create our model, these differences were considered as we concluded that scaffolded learning would be our pedagogical approach, utilizing blended learning techniques such as online discussion groups, multimedia lessons, and face-to-face opportunities to engage in IP skill development.

Program components
Figure 1 presents the Logic Model that provides an overview of the curriculum, focused actions, and anticipated changes resulting from program activities. Three program components were designed, implemented, and evaluated over a 3-year period: online modules, case workshops, and simulation-based experiences.

Online modules consisted of an overview of IPE, an awareness of and value for collaborative practice (CP), and an introduction to the IPE Collaborative’s core competencies (Interprofessional Education Collaborative, 2016): professional roles and responsibilities, interprofessional communication, teamwork, and values and ethics.

Case Workshops (CWs) offered practice opportunities to engage in process skills and competencies central to CP before going ‘live’ with simulation. Cases represented individuals with Parkinson’s disease, depression, diabetes, cardiovascular disease, obesity, and cancer. The conditions selected based on prevalence and the call to address the need to understand the complexity of older adults’ needs for chronic disease management (Ferris et al., 2017). Social locations-demographic variations were represented across the cases, including gender, age (midlife—old-old), rural/urban, house/apartment, SES (occupation, education), race and ethnicity, social context (ie. Isolation, marriage, children, etc.), stage of disease (early to late) and co-morbidities.

Simulation-based experiences (SBEs) offered students practice in a realistic setting and interaction with Standardized Patients portraying clients with complex health needs that required behavior change to manage. SBE goals included integrating knowledge from other professions when making team decisions, development of a collaborative practice team treatment plan and negotiating the plan with the patient/client. Debriefings for case workshops and SBEs were facilitated by content experts from the IPE faculty team and a communication coach at the simulation center.

Evaluation design
The goal of the evaluation was to determine the content and processes that would best help students achieve IPE competencies. Program components were evaluated using existing

| Inputs                  | Activities                  | Outputs                          | Participation |
|-------------------------|-----------------------------|----------------------------------|---------------|
| University Staff        | An online course developed to raise awareness of value of collaborative practice: this what, where, why, who, and how of IPE | Graduate Students: Nursing, Psychology, Health Promotion, Nutrition |
| University Faculty      |                             |                                  |               |
| Consultant $$$          |                             |                                  |               |
| Actors for simulation   |                             |                                  |               |
| Classrooms              |                             |                                  |               |
| Simulation Lab          |                             |                                  |               |
| Resources (i.e., video, etc) |                           |                                  |               |

| Phase 1: Develop & Deliver of Online Course (Year 1) | Phase 2: Develop & Deliver Interprofessional Case Workshops (Year 2) | Phase 3: Adapt Previous Coursework & Deliver NEW COURSE MODEL, (Year 3) |
|-----------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------|
| Increased valuing of IPE                             | Increased involvement in planning & evaluation by faculty      | Improved shared decision making & teamwork by students        |
| Increased knowledge, skills, and attitudes by BOTH students and faculty | Improved resources to integrate into system wide curriculum | Increased motivation by students to learn in interdisciplinary teams |
| Workforce prepared to work collaboratively with focus on holistic patient-centered care | Successful accreditation | Additional investment by faculty to engage in IPE |

**Figure 1.** Logic model.
Program: IPE with Diverse Partners Logic Model. Situation: To develop an interprofessional education program that can be translated into UCCS curricula for future training of health professionals.
students. Additional measures were created that solicited student and faculty perceptions of learning experiences. Classifications of four levels of outcomes were used to select evaluation measures of student learning outcomes (Reeves & Barr, 2016). Evaluation results were used to guide curriculum development but are not reported here due to the small sample size. Table 1 includes how we mapped our evaluation onto Reeves & Barr’s model (Reeves & Barr, 2016).

**Lessons learned**

Lessons learned led us to our final curricular model: a 1-credit, 8-week elective course that includes 8 weeks of online modules, 2 in-person case workshops, and one simulation-based experience (Figure 1).

Evaluation of the online modules after our first delivery of the course revealed that although students were interested in IPE-CP, they expressed some dissatisfaction with online-only format: too much information and no application. Therefore, we streamlined the content, aligned module headings with IPEC competencies, and decided to add CW and SBEs, scaffolding online content/assignments to prepare students for these immersion experiences.

Initially, we added four newly created case workshops and two SBEs. Although students valued learning about and from other disciplines, they also reported that they lacked confidence in clearly and assertively communicating their own knowledge and opinions about so many cases. Therefore, we decided to pick a single case (Parkinson’s disease) for our final model in order to concentrate on interprofessional communication and teamwork rather than content knowledge in chronic disease.

Students also reported that during SBEs, collaborating to develop an action plan was different than they anticipated; they thought that the purpose of team meetings was to supply data person-by-person for a leader to organize. Moreover, faculty observations confirmed that although they had some broad ideas about treatment goals, students were still not confident in their own professional roles and were either too polite or felt too vulnerable to negotiate for their points of view. To improve understanding of disciplinary-specific roles and responsibilities and to ready students for the two CWs and one SBE, we added an assignment that required presenting relevant information from a research article from their discipline that addressed how to provide behavior change support for those with Parkinson’s disease. Also, in our revised curriculum, because students had two CWs prior to the SBE, they were more familiar with the case ahead of time, allowing directions and briefing time pre-SBE to be decreased so students would have more time with the Standardized Patient.

**Conclusion**

After 3 years of continued improvement in developing this IPE curriculum, we promote several recommendations for future curriculum development:

- The inclusion of a variety of health profession partners as interprofessional team members will bring greater professional knowledge and skills for chronic disease management. This allows providers to understand each other’s roles in scope of practice, and allows providers to better understand referrals when needed.

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**Table 1. Evaluation framework.**

| Level | Classification | Description | Program Components | Measurement | Year |
|-------|---------------|-------------|--------------------|-------------|------|
| 1     | Increased awareness | Learners’ views on learning experiences & their interprofessional nature | (1) Online Modules (2) Case Workshops (3) Simulation Experiences (SBEs) | Quizzes, Assignments, Case Workshop Satisfaction Survey, Post SBE survey & focus group | 1–3, 2,3 |
| 2a    | Modification of attitudes & perceptions | Changes in reciprocal attitudes or perceptions among participants | (1) Online Modules (2) Case Workshops (3) SBEs | W2 Literature Review Assignment, Case Workshop Satisfaction Survey, Post SBE debriefs, RIPLS pre-post (Parsell & Bligh, 1999), Collaboration and Satisfaction with Care Decisions (CSACD) (Baggs, 1994) | 3, 2,3, 1,2, 2,3 |
| 2b    | Acquisition of knowledge & skills | Change in knowledge and skills linked to IPE collaboration | Online Modules | Quizzes, Analyses of Assignments using rubrics | 1–3, 1–3 |
| 3     | Behavioral change | Change in proficiency of IPE competencies: Professional Identity, Roles & Responsibilities, Teamwork | (1) Case Workshops (2) SBEs | Collaboration and Satisfaction with Care Decisions (CSACD), [Student perceptions], Adapted iTOFT plus SBE Confidence Ratings Survey | 2,3, 2,3 |

The following framework developed by Reeves and Barr (2016) provided us with a means to organize data collection. Below is a description of each classification level, program components where student learning occurred, measurement tools used for evaluation, and years measured.

W = Week; CW = Case workshops; SBE = Simulation-based experiences.
• Although more time to develop interprofessional skills and knowledge about multiple chronic conditions might be desirable, our experience is that the equivalent of a 1-credit course, delivered in 8 weeks can effectively prepare students to be ready for pre-service interprofessional practice. We recommend that course content for understanding chronic conditions and behavior change be acquired in separate courses and IPE be infused into undergraduate and graduate curricula. Providing IPE experiences early can help students gain professional confidence and find their voice and the importance that their field contributes to patient/client care.

• It is integral to work with community partners to allow translation of education to practice as students transition into the working world. Academic sites where faculty have appointments within academia and the community can encourage IPE and embed IPE principles across practice settings.

• University departments should encourage faculty to become involved in IPE. Simply observing students practicing IPE competencies in case studies and SBEs can highlight gaps in their students’ knowledge in their fields and their ability to process information pertinent to their field. This awareness could improve/define coursework to address these deficiencies while simultaneously serving to introduce faculty to the benefits of IPE.

Declaration of interest
The authors report no conflict of interest. The authors alone are responsible for the content and writing of the article.

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Margaret Harris, PhD MS HC is an Associate Professor in the Department of Human Physiology and Nutrition. Her background includes expertise in nutritional epidemiology, obesity, and health programs development and leadership in communities. Her current research includes the study of dietary supplements and herbs while collaborating with the IPE curriculum development team.

Lynn Phillips, PhD RN, is an Assistant Professor in the Department of Nursing and the Simulation Learning Director. With 30 years’ experience in nursing and 19 years in nursing education, her passion is translating knowledge into active learning. As the Simulation Learning Center Director, she has the privilege of facilitating simulations that afford students and nurses the opportunity to practice behaviors and decision-making skills that translate into clinical practice.

Paige Whitney, MSc, is the Director of the Center for Active Living and the instructor of record for the streamlined 8-week IPE course. As a health promotion faculty member in the Helen and Arthur E. Johnson Beth-El College of Nursing and Health Sciences at University of Colorado Colorado Springs, Paige is responsible for facilitating health promotion programs for Colorado Springs community members which concurrently provide students from different disciplines hands-on interprofessional learning opportunities.

Judith Scott, PhD RN, is an educator in Population Health at the Beth-El College of Nursing and Health Sciences. Her students are a natural fit for IPE education, and Dr. Scott serves on the College’s IPE task force.

Mary Ann Kluge, PhD Professor Emerita (Health Promotion) helped launch IPE at UCCS 6 years ago and since retirement has served as a consultant to Johnson-Beth-El college.

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References
American Association of Colleges of Nursing. (2019). Interprofessional education. https://www.aacnnursing.org/Interprofessional-Education
Baggs, J. G. (1994). Development of an instrument to measure collaboration and satisfaction about care decisions. Journal of Advanced Nursing, 20(1), 176–182. https://doi.org/10.1046/j.1365-2648.1994.20010176.x
Bailey, R. A., & Klein, I. (2018). Engaging in nontraditional partnerships to improve population health. Journal of Clinical Pathways, 4(9), 37–40. https://doi.org/10.25270/jcp.2018.11.00044
Cerra, C., Drake, D., Sick, B., King, J. A., Chesney, M., & Luftiyaa, M. N. (2015). Building the foundation for culture change through the design, implementation, and assessment of an interprofessional education intervention. Journal of Nursing Education and Practice, 5(1), 46–48. https://doi.org/10.5430/jnep.v5n1p46
Ferris, R., Blaum, C., Kiwak, E., Austin, J., Esterson, J., Harkless, G., Oftehad, G., Parchman, M., Ness, P. H. V., & Tinetti, M. E. (2017). Perspectives of patients, clinicians, and health system leaders on changes needed to improve the health care and outcomes of older adults with multiple chronic conditions. Journal of Aging and Health, 30(5), 778–799. https://doi.org/10.1177/0898264317691166
Fraher, E., & Brandt, B. (2019). Toward a system where workforce planning and interprofessional practice and education are designed around patients and populations not professions. Journal of Interprofessional Care, 33(4), 389–397. https://doi.org/10.1080/13651823.2018.1564252
Hark, L. A., & Deen, D. (2017). Position of the academy of nutrition and dieticets: Interprofessional education in nutrition as an essential component of medical education. Journal of the Academy of Nutrition and Dietetics, 117(7), 1104–1113. https://doi.org/10.1016/j.jand.2017.04.019
Interprofessional Education Collaborative. (2016). Core competencies for Interprofessional collaborative practice: 2016 update. Author. https://nml.ulin.wisconsin.com/2fe8a3952b0b30336b41038c3704974737?AccessKeyId=DC06780E69ED19E2B3A5&disposition=0&alloworigin=1
J. Dallest, T., Moran, K., Dunston, M., Roberts, R., Eley, C., Bogossian, D., Forman, F., Bainbridge, D., Drynan, L., & Fyle, S. (2016). Introducing the individual teamwork observation and feedback tool (ITOFT): Development and description of a new interprofessional teamwork measure. Journal of Interprofessional Care, 30(4), 526–528. https://doi.org/10.3109/13561820.2016.1169262
National Academies of Sciences, Engineering, and Medicine. (2019). Strengthening the connection between health professions education and practice: Proceedings of a joint workshop. The National Academies Press. https://doi.org/10.17226/25407
Parks, T. (2016). Why your medical practice needs a health coach. https://www.ama-assn.org/practice-management/payment-delivery-models/why-your-medical-practice-needs-health-coach
Parsell, G., & Bligh, J. (1999). The development of a questionnaire to assess the readiness of health care students for interprofessional learning (RIPLS). Medical Education, 33(2), 95–100. https://doi.org/10.1046/j.1365-2923.1999.00298.x
Reeves, S., & Barr, H. (2016). Twelve steps to evaluating interprofessional education. Journal of Taibah University Medical Sciences, 11(6), 601–605. https://doi.org/10.1016/j.jturned.2016.10.012
World Health Organization. (2010). Framework for action on interprofessional education and collaborative process. https://apps.who.int/iris/handle/10665/70185