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Integrating Interprofessional Education into an Academic Enrichment Program

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Abstract

INTRODUCTION Interprofessional education (IPE) is widely accepted as an important aspect of health professional programs. However, there is limited IPE research focused in the pre-health professional student population. The aim of this study was to measure pre-health student perceptions of IPE and their knowledge of other health professions during a summer academic enrichment program.

METHODS Students who had completed their first or second year of college studies participated in the six week Summer Health Professions Education Program (SHPEP) funded by the Robert Wood Johnson Foundation. Students engaged in IPE through an online module, as well as small group activities.

RESULTS Fifty-three students who participated in the 2017 SHPEP demonstrated statistically significant positive changes in IPE perceptions using the SPICE-R2 assessment tool. In addition, student perceived knowledge of the scope of practice of dental providers, physician providers, and public health professionals also improved.

RESULTS Our results suggest introducing pre-health students to IPE opportunities broadens their understanding of different healthcare professions' roles and responsibilities, as well as team leadership that is influenced by context rather than traditional hierarchies.

CONCLUSION Additional research engaging pre-health students in IPE is needed. However, initial findings suggest a positive impact in engaging early learners in IPE.

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Implications for Interprofessional Practice

- Exposure to interprofessional education (IPE) activities at the pre-health professional program level improves student perceptions of IPE.
- IPE activities focused on flattening traditional healthcare hierarchies improve student perceptions of who can lead a healthcare team.

Introduction

There are several successful examples of academic enrichment programs in the United States targeting students interested in health careers. The documented successes of these programs are typically reflected in improved participant admission practice test scores (Johnson, Woolfolk, May, & Inglehart, 2013), academic skills, and basic science knowledge (Markel, Woolfolk, & Inglehart, 2008). The primary purpose of academic enrichment programs is to increase the amount of information and resources provided to underserved/underrepresented students, facilitating the development of a diverse competitive applicant pool. The academic pipeline goal is for those students to matriculate into professional schools.

A widely recognized enrichment program funded by the Robert Wood Johnson Foundation (RWJF), in association with the Association of American Medical Colleges and the American Dental Education Association (ADEA) is the Summer Health Professions Education Program (SHPEP). Formally known as the Summer Medical and Dental Education Program (SMDEP), the SHPEP program was created to enlarge the academic scope for its participants. SHPEP is a free, six-week academic enrichment program designed for college freshmen or sophomores interested in pursuing healthcare careers. The thirteen SHPEP sites across the United States develop and implement unique programs but are required to incorporate standard topic areas. Starting in 2016, SHPEP sites were required to integrate interprofessional education (IPE) into their respective curricula.

IPE is becoming more recognized in health education and is defined as “When students from two or more professions learn about, from and with each other” (World

Health Organization [WHO], 2010). Since 1972, the Institute of Medicine (1972 & 2003) and the World Health Organization (2010) have promoted educating students together with the ultimate goal of fostering collaboration among health professions in healthcare delivery. In 2011, the Interprofessional Education Collaborative Panel (IPEC) established four competencies and thirty-eight sub-competencies for interprofessional collaborative practice (IPEC, 2011). The four competencies (Roles/Responsibilities, Interprofessional Communication, Values/Ethics for Interprofessional Practice, and Teams and Teamwork) were reaffirmed in 2016 with revisions made to the now thirty-nine sub-competencies (IPEC, 2016). The competencies and sub-competencies guide the development of IPE training experiences in the United States (IPEC, 2016).

Literature Review

The literature is inconclusive on when to incorporate IPE in health profession curricula (Hudson, Lethbridge, Vella, & Caputi, 2016; Anderson & Thorpe, 2008). Proponents of early inclusion advocate offering education opportunities prior to students developing stereotypes or strong professional identities to improve team development (Langendyke, Hegazi, Cowin, Johnson, & Wilson, 2015). However, others suggest including IPE later in the curriculum once learners have gained more experience and understand their professional roles (Gilbert, 2005; Playford & Hagues, 2009; Barr, 2002).

Research introducing IPE at the pre-professional program level is limited (Hoffman & Harnish, 2007). In this article, a pre-professional program student is defined as not having applied and/or accepted admission into a health professional program. A literature search in multiple databases returned four articles. Of the four articles, three assessed IPE perceptions and/or knowl-

edge after an IPE experience. One of the articles measured perceptions without an IPE intervention. Two of the articles included pre-professional students in the United States, and one represented students in Canada. The articles varied in types of program offered, including a semester-long course, a one day intervention, and a six-week summer program.

The most similar program to SHPEP was a six-week Summer Academic Enrichment Program offered through Virginia Commonwealth University, which included students with professional interest in dentistry, medicine, pharmacy, and physical therapy (Dumke, VanderWielen, Harris, & Ford-Smith, 2016). Dumke et al. (2016) reported statistically significant positive changes in student perceptions in three subscales (attitudes toward team efficiency, attitudes toward team value, and teamwork and collaboration) across the Attitudes Toward Health Care Teams Scale (Leipzig et al., 2002) and the Revised Readiness for Interprofessional Learning Scale (McFadyen, Webster, & Maclaren, 2006) after participation in the program.

Dacey et al. (2010) and Hoffman and Harnish (2007) both measured the roles and responsibilities domain, using the Readiness for Interprofessional Learning Scale and an institutional-developed survey, respectively. Hoffman and Harnish (2007) evaluated first year college students, and Dacey et al. (2010) included students at various undergraduate levels. Outcomes from both research studies indicated a positive improvement in student IPE perceptions.

The aims of our study included measuring pre-health professional student IPE perceptions pre- and post-SHPEP engagement using the Student Perceptions of Interprofessional Clinical Education-Revised instrument, version 2 (SPICE-R2). In addition, student perceptions regarding what professions can lead a health team and knowledge about other health professional roles was assessed.

Methods

Eighty students who had completed their first or second year of college with no more than sixty credit hours were accepted into the SHPEP. The Louisiana State University Health Sciences Center-New Orleans (LSUHSC-NO) site of SHPEP is a partnership between our schools of medicine, dentistry, and public health, as well as our Center for Interprofessional Education and

Collaborative Practice (CIPECP). Prior to acceptance into the SHPEP, the students declared interests in medicine, dentistry, or public health. Students participated in an online six-week module created by the National Center for Interprofessional Practice and Education. In addition to an online component, students attending the SHPEP at LSUHSC-NO engaged in small IPE group activities on a weekly basis during the six-week program. In addition to small group activities, faculty from various health programs visited the classroom to provide information on the educational and training requirements of their respective fields, such as physical therapy, clinical laboratory science, and occupational therapy. Students participated in six two-hour IPE sessions over a period of six weeks.

Data Collection

On the first and last IPE sessions, students were asked to use an electronic device to complete a sixteen-question survey. Students were asked to identify if they had completed their first or second year of college and declare a health profession/provider career of interest. The third question asked students to identify familiarity with nineteen health professions based upon a three point Likert scale (1=unfamiliar, 2=limited understanding, 3=familiar). The fourth question asked students to rate their level of agreement on a list of healthcare providers and their respective ability to lead a healthcare team (1=strongly disagree; 5=strongly agree). The remaining ten questions were representative of the SPICE-R2. The SPICE-R2 is a validated, standardized instrument utilized to assess IPE perceptions in early learners enrolled in a health professional program. The SPICE-R2 instrument (Table 1) includes ten items distributed across three factors: Interprofessional Teamwork and Team-based Practice (four items), Roles/Responsibilities for Collaborative Practice (three items), and Patient Outcomes from Collaborative Practice (three items). Students rate their level of agreement/disagreement to items using a 5-point Likert-type scale (1=strongly disagree, 5=strongly agree). Cronbach's alpha was calculated to assess the reliability of the overall SPICE-R2 instrument and the three subscales (acceptable: 0.70 - 0.80, good: > 0.80).

The last question on the survey was open-ended and asked students to discuss "*How do you see yourself collaborating with others in order to improve the health of the communities we serve?*" The open-ended ques-

tion was asked on both the pre- and post-survey. The CIPECP Director and the SHPEP Program Director analyzed the responses for themes. Prior to analysis, the responses were categorized by pre-responses only, post-responses only and paired responses. Research was approved by the Institutional Review Board at LSUHSC-NO (#9940).

Table 1. *SPICE-R2 Questions and Respective Factors*

Question	Factor
Working with students from different disciplines enhances my education.	Teamwork
My role within an interprofessional team is clearly defined.	Roles/Responsibilities
Patient/client satisfaction is improved when care is delivered by an interprofessional team.	Patient Outcomes
Participating in educational experiences with students from different disciplines enhances my ability to work on an interprofessional team.	Teamwork
I have an understanding of the courses taken by, and training requirements of, other health professionals.	Roles/Responsibilities
Healthcare costs are reduced when patients/clients are treated by an interprofessional team.	Patient Outcomes
Health professional students from different disciplines should be educated to establish collaborative relationships with one another.	Teamwork
I understand the roles of other health professionals within an interprofessional team.	Roles/Responsibilities
Patient/client-centeredness increases when care is delivered by an interprofessional team.	Patient Outcomes
During their education, health professional students should be involved in teamwork with students from different disciplines in order to understand their respective roles.	Teamwork

Results

Seventy-seven students participated in the pre-survey, and fifty-nine students participated in the post-survey. The data was cleaned for missing responses. Fifty-three paired data sets were analyzed (dentistry interest, $n=11$; public health interest, $n=6$; medicine interest, $n=36$). Thirty-three students were in their second year of college, and twenty students were in their first year of study. Descriptive statistics for the SPICE-R2 across all students and the dentistry, medicine, and public health groups are reported in Table 2.

The overall change in SPICE-R2 survey scores for all students was statistically significant (0.51 , $p < 0.0001$) as well as the change in SPICE-R2 within the dental, medical, and public health student groups ($p=0.0156$, $p < 0.0001$, $p=0.0313$, respectively). The change in survey scores was not statistically significant across the three student groups. We also found statistically significant differences for the change in mean score among all students for Factor 1 ($p=0.0364$), Factor 2 ($p < 0.0001$), and Factor 3 ($p < 0.0001$). Next we evaluated the change in mean student score by program interest and found statistically significant differences in the mean change in dental and medical student

Data Analysis

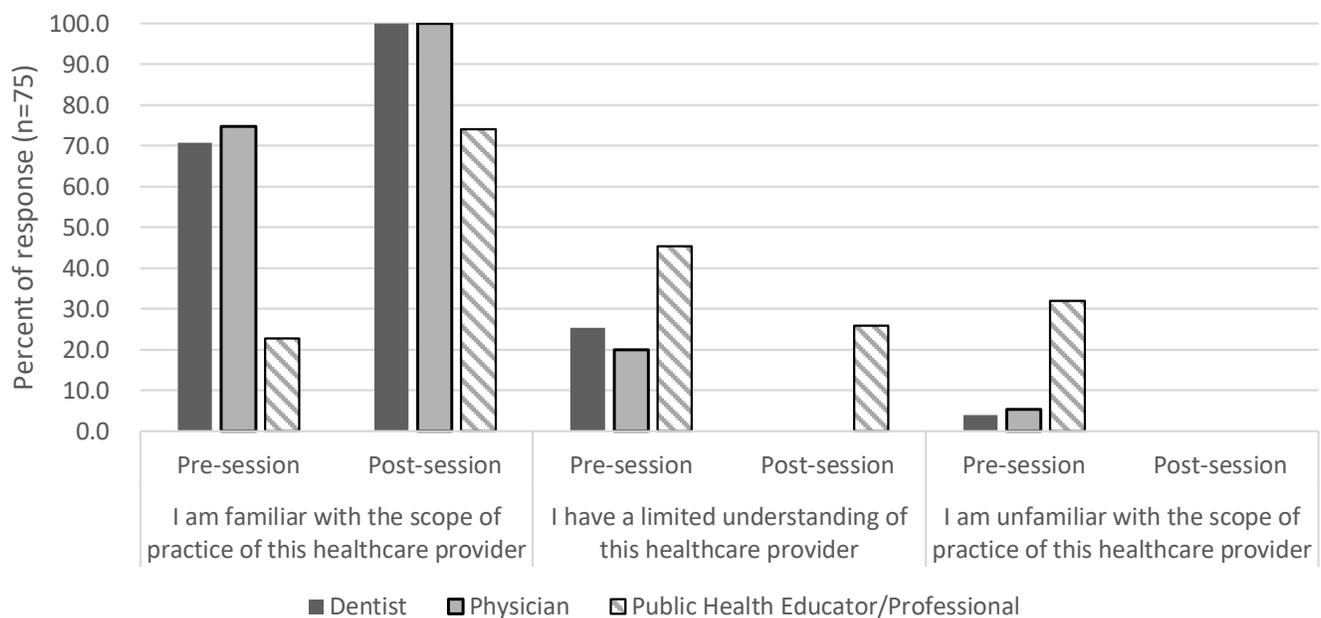
Quantitative analyses were performed using the SAS (version 9.4). The pre/post paired comparisons were carried out using the Wilcoxon signed-rank test. All tests were two-tailed using alpha level of .05

scores for Factor 2 ($p=0.0078$, $p < 0.0001$, respectively) and medical student scores for Factor 3 ($p < 0.0001$). The mean change by student interest for Factor 1 was not significant. Reliability of the overall 10-item SPICE-R2 instrument was good at 0.90 and reliability for the subscales was also good (Interprofessional Teamwork and Team-based Practice 0.89, Roles/Responsibilities for Collaborative Practice 0.90, and Patient Outcomes from Collaborative Practice 0.90).

To measure participants' perceived understanding of health professions, we analyzed the change in self-reported understanding of the scope of practice of dentists, physicians, and public health educators/professionals (Figure 1). Prior to participation in SHPEP, over seventy percent of the participants responded that they were familiar with the scope of practice for dentists and physicians, whereas over seventy percent of participants were either unfamiliar or had a limited understanding of the scope of practice for public health practitioners at the beginning of the program. At the end of the program all participants responded they were familiar with the scope of practice for dentists and physicians, and over seventy percent were familiar with the public health practitioner's scope of practice.

Table 2. SPICE-R2 Questions and Respective Factors, * notes statistical significance

	Pre-Survey Mean (SD)	Post-Survey Mean (SD)	Post-Pre Survey Mean (SD)	p-value
SPICE-R2				
All Students	3.99 (0.43)	4.50 (0.62)	0.51 (0.65)	<0.0001*
Dentistry	4.05 (0.47)	4.46 (0.43)	0.41 (0.42)	0.0156*
Medicine	3.96 (0.45)	4.48 (0.71)	0.52 (0.75)	<0.0001*
Public Health	4.05 (0.32)	4.70 (0.33)	0.65 (0.41)	0.0313*
Factor 1 - Interprofessional Teamwork and Team-based Practice				
All Students	4.45 (0.50)	4.58 (0.64)	0.12 (0.62)	0.0364*
Dentistry	4.36 (0.36)	4.57 (0.48)	0.20 (0.40)	0.1875
Medicine	4.47 (0.54)	4.53 (0.72)	0.07 (0.70)	0.2948
Public Health	4.54 (0.49)	4.83 (0.26)	0.29 (0.37)	0.2500
Factor 2 - Roles/Responsibilities for Collaborative Practice				
All Students	3.47 (0.69)	4.41 (0.65)	0.94 (0.93)	<0.0001*
Dentistry	3.76 (0.58)	4.36 (0.48)	0.61 (0.47)	0.0078*
Medicine	3.39 (0.71)	4.40 (0.73)	1.01 (1.03)	<0.0001*
Public Health	3.44 (0.69)	4.56 (0.46)	1.11 (0.89)	0.0625
Factor 3 - Patient Outcomes from Collaborative Practice				
All Students	3.90 (0.61)	4.50 (0.69)	0.60 (0.85)	<0.0001*
Dentistry	3.94 (0.74)	4.42 (0.45)	0.48 (0.77)	0.0742
Medicine	3.87 (0.57)	4.49 (0.77)	0.62 (0.84)	<0.0001*
Public Health	4.00 (0.70)	4.67 (0.67)	0.67 (1.19)	0.2813

Figure 1. Scope of practice pre- and post-session

We then examined the participants' responses, using a 5-point Likert scale (Strongly Disagree = 1 to Strong Agree = 5), pre- and post-session, to questions on eight healthcare professions' ability to lead a healthcare team (Table 3). Overall the mean increase in Likert score for a healthcare professional leading a team was statisti-

cally significant for nurses (0.36, $p=0.352$), physical therapists (0.36, $p=0.236$), physician assistants (0.40, $p=0.0149$), registered dietitians (0.51, $p=0.0237$), and respiratory therapists (0.64, $p=0.0008$). The mean score for physicians decreased but was not statistically significant.

Table 3. *Leading a healthcare team pre- and post-session results, * notes statistical significance*

	Pre-Survey Mean (SD)	Post-Survey Mean (SD)	Post-Pre Survey Mean (SD)	p-value
Leading a healthcare team				
Dentists	4.04 (0.94)	4.26 (1.21)	0.23 (1.53)	0.0963
Nurses	3.68 (0.96)	4.04 (1.29)	0.36 (1.39)	0.0352*
Nurse Practitioners	4.06 (0.85)	4.15 (1.26)	0.08 (1.49)	0.2352
Physical Therapists	3.79 (0.84)	4.15 (1.22)	0.36 (1.26)	0.0236*
Physicians	4.58 (0.72)	4.34 (1.22)	-0.25 (1.45)	0.3903
Physician Assistants	3.81 (0.94)	4.21 (1.10)	0.40 (1.31)	0.0149*
Registered Dietitians	3.53 (0.95)	4.04 (1.27)	0.51 (1.68)	0.0237*
Respiratory Therapists	3.51 (0.95)	4.15 (1.15)	0.64 (1.44)	0.0008*

The last question on the survey was “How do you see yourself collaborating with others in order to improve the health of the communities we serve?” Participant responses varied in length from one to three sentences. Twenty-seven paired responses were assessed. Four participants included communication as being a key component to collaboration on both the pre- and post-survey, and one participant focused on collaborating for prevention. It was also noted that eight students who discussed what he/she would do to improve the health of communities on the pre-survey, changed the perspective to working with others to improve health on the post-survey question.

Discussion

There are numerous studies internal and external to the United States which have reported positive perceptions of IPE after engagement in IPE experiences in early learners enrolled in health professional programs. Proponents of early inclusion of IPE advocate for education prior to developing stereotypes or negative attitudes towards other professions (Horder, 1995; Leaviss, 2000; Herzberg, 1999). However, previous studies reported students enrolled in health professional programs have already developed stereotypes of other professions as early learners (Tunstall-Pedoe, Rink, & Hilton, 2003; Hean, Clark, Adams, & Humphris, 2006). Therefore it is important to determine if pre-health professional students can be positively influenced through IPE expe-

riences prior to enrollment in a professional program.

The results of the study are similar to results presented by Dumke et al. (2016). In both studies, validated IPE perception instruments were used as assessment tools, and IPE perceptions positively changed post-IPE experience. LSUHSC-NO SHPEP participant perceived knowledge of the scope of practice of a dentist, physician, and public health professional increased from pre- to post-program. Our results suggest introducing pre-health students to IPE opportunities broadens their understanding of different healthcare professions' roles and responsibilities, as well as team leadership that is influenced by context rather than traditional hierarchies.

Our SHPEP IPE program included discussions focused on differentiating between hierarchical leadership and leading a team when indicated based upon the patient's needs. A study by Hean et al. (2006), reported higher agreement among early learners in professional programs when asked about the leadership abilities of various professions. Students rated physicians as having the highest level of leadership qualities, followed by social workers and midwives (Hean et al., 2006). In another study, health professional students also rated physicians the highest in leadership qualities pre-IPE intervention (Ateah et al., 2001). However, post-IPE students rated all professional involved equally regarding leadership skills. The pre-means from our study

were higher for dentists, nurse practitioners, and physicians indicating a greater level of agreement on who can lead a healthcare team. Our post-IPE experience results show a change in participant perception favoring other health professions ability to lead a health team post-IPE experience.

IPE research in pre-health professional students is extremely limited in the United States and needs to be explored further. All previous studies measured perception changes immediately after the IPE experience(s). Future research should follow these students from a longitudinal perspective into health professional programs to determine if differences in perceptions, stereotypes and/or knowledge exists between pre-health students exposed to IPE and those with no IPE exposure. In addition, comparing pre, post, and change scores between pre-health and health professional students to determine if there are any differences that can help provide insight on the most beneficial time to engage students in IPE.

As research in early exposure to IPE continues to expand, it will be important to include an introduction to various health professions, discussing similarities and differences in academic preparation, training, and skills. Limitations of the study include the lack of SPICE-R2 validity in the pre-health student population, a small sample size, a single group design, and one institution. SHPEP participants do represent geographical diversity in that they attend various colleges throughout the United States. Students who participate in SHPEP are categorized as underserved or underrepresented and are interested in pursuing a degree as a health professional. Future research comparing IPE perceptions and learning across multiple universities or colleges engaged in the SHPEP would strengthen the current literature and is currently being investigated as a follow-up to this study. Additionally, research comparing pre, post, and change scores between pre-health and health professional students could provide insight on the most beneficial time to engage students in IPE.

Conclusion

Through academic accreditation standards and programmatic requirements, research is emerging on the positive impact of IPE. Inclusion of IPE in an academic enrichment program exposes pre-health professional students to the importance of collaboration and has the potential to influence typical negative stereotypes which

exist prior to admission into a health professional program. Dental programs offering a summer enrichment program should consider collaborating across their respective institutions to include an IPE component in support of healthcare education transformation.

References

- Anderson, E. S., & Thorpe, L. N. (2008). Early interprofessional interactions: Does student age matter? *Journal of Interprofessional Care*, 22(3), 263-282. <https://doi.org/10.1080/13561820802054689>
- Ateah, C. A., Snow, W., Wener, P., MacDonald, L., Metge, C., Davis, P., . . . Anderson, J. (2011). Stereotyping as a barrier to collaboration: Does interprofessional education make a difference? *Nurse Education Today*, 31(2), 208-213. <https://doi.org/10.1016/j.nedt.2010.06.004>
- Barr, H. (2002). *Interprofessional education- today, yesterday and tomorrow*. Fareham, UK: Centre for the Advancement of Interprofessional Education (CAIPE). Retrieved from https://www.unmc.edu/bhecn/{_}documents/ipe-today-yesterday-tmmw-barr.pdf
- Dacey, M., Murphy, J. I., Anderson, D. C., & McCloskey, W. W. (2010). An interprofessional service-learning course: Uniting students across educational levels and promoting patient-centered care. *The Journal of Nursing Education*, 49(12), 696-699. <https://doi.org/10.3928/01484834-20100831-09>
- Dumke, E. K., VanderWielen, L., Harris, K. A., & Ford-Smith, C. D. (2016). Interprofessional education in an enrichment programme for prospective health sciences students. *Journal of Interprofessional Care*, 30(2), 245-247. <https://doi.org/10.3109/13561820.2015.1089224>
- Gilbert, J. H. V. (2005). Interprofessional learning and higher education structural barriers. *Journal of Interprofessional Care*, 19 Suppl 1, 87-106. <https://doi.org/10.1080/13561820500067132>
- Hean, S., Clark, J. M., Adams, K., & Humphris, D. (2006). Will opposites attract? Similarities and differences in students' perceptions of the stereotype profiles of other health and social care professional groups. *Journal of Interprofessional Care*, 20(2), 162-181. <https://doi.org/10.1080/13561820600646546>
- Herzberg, J. (1999). Tribes or teams? The challenge of multiprofessional education. *Hospital Medicine*, 60(7), 516-518. <https://doi.org/10.12968/hosp.1999.60.7.1159>
- Hoffman, S. J., & Harnish, D. (2007). The merit of mandatory interprofessional education for pre-health professional students. *Medical Teacher*, 29(8), e235-42. <https://doi.org/10.1080/01421590701551672>

- Holder, J. (1995). Interprofessional education for primary care and community care: Present state and future needs. In K. Soothill, L. Mackay & C. Webb (Eds.), *Interprofessional relations in health care* (pp. 140-162). London: Edward Arnold.
- Hudson, J. N., Lethbridge, A., Vella, S., & Caputi, P. (2016). Decline in medical students' attitudes to interprofessional learning and patient-centredness. *Medical Education*, 50(5), 550-559. <https://doi.org/10.1111/medu.12958>
- Institute of Medicine. (1972). *Educating for the health team: Report of the conference on the interrelationships of educational programs for health professionals*. Washington, DC: National Academies Press.
- Institute of Medicine. (2003). *Health professions education: A bridge to quality*. Washington, DC: National Academies Press.
- Interprofessional Education Collaboration. (2011). *Core competencies for interprofessional collaborative practice: Report of an expert panel*. Washington, DC: Interprofessional Education Collaborative.
- Interprofessional Education Collaboration. (2016). *Core competencies for interprofessional collaborative practice: 2016 update*. Washington, DC: Interprofessional Education Collaborative.
- Johnson, K. P., Woolfolk, M., May, K. B., & Inglehart, M. R. (2013). Effect of an enrichment program on DAT scores of potential dental students from disadvantaged backgrounds. *Journal of Dental Education*, 77(8), 1063-1071.
- Langendyk, V., Hegazi, I., Cowin, L., Johnson, M., & Wilson, I. (2015). Imagining alternative professional identities: Reconfiguring professional boundaries between nursing students and medical students. *Academic Medicine: Journal of the Association of American Medical Colleges*, 90(6), 732-737. <https://doi.org/10.1097/ACM.0000000000000714>
- Leaviss, J. (2000). Exploring the perceived effect of an undergraduate multiprofessional educational intervention. *Medical Education*, 34(6), 483-486. <https://doi.org/10.1046/j.1365-2923.2000.00678.x>
- Leipzig, R. M., Hyer, K., Ek, K., Wallenstein, S., Vezina, M. L., Fairchild, S., . . . Howe, J. L. (2002). Attitudes toward working on interdisciplinary healthcare teams: A comparison by discipline. *Journal of the American Geriatrics Society*, 50(6), 1141-1148. <https://doi.org/10.1046/j.1532-5415.2002.50274.x>
- Markel, G., Woolfolk, M., & Inglehart, M. R. (2008). Feeding the pipeline: Academic skills training for pre dental students. *Journal of Dental Education*, 72(6), 653-661.
- McFadyen, A. K., Webster, V. S., & Maclaren, W. M. (2006). The test-retest reliability of a revised version of the readiness for interprofessional learning scale (RIPLS). *Journal of Interprofessional Care*, 20(6), 633-639. <https://doi.org/10.1080/13561820600991181>
- Playford, D., & Hagues I. (2009). Problem-based-learning effectively teaches patient-centred interprofessional care to medical, nursing and allied health students. *Focus on Health Professional Education: A Multi-Disciplinary Journal*, 10(3), 51-56.
- Tunstall-Pedoe, S., Rink, E., & Hilton, S. (2003). Student attitudes to undergraduate interprofessional education. *Journal of Interprofessional Care*, 17(2), 161-172. <https://doi.org/10.1080/1356182031000081768>
- US Department of Health and Human Services. (2014). *Oral health strategic framework 2014-2017*. Washington DC: Author. Retrieved from: <https://www.hrsa.gov/sites/default/files/oral-health/oralhealthframework.pdf>
- World Health Organization. (2010). *Framework for action on interprofessional education and collaborative practice*. Geneva: WHO Press. Retrieved from: http://www.who.int/hrh/resources/framework_action/en/

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