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SHORT REPORT



Supporting health system transformation through an interprofessional education experience focused on population health

Kari F. Brisolaro^a, Sonia Gasparini^b, Alison H. Davis^c, Shane Sanne^d, Sandra Carlin Andrieu^e, Jerald James^f, Donald E. Mercante^a, Raquel Baroni De Carvalho^g, and Tina Patel Gunaldo^h

^aSchool of Public Health, Louisiana State University Health Sciences Center – New Orleans, New Orleans, LA, USA; ^bSchools of Medicine and Graduate Studies, Louisiana State University Health Sciences Center – New Orleans, New Orleans, LA, USA; ^cSchool of Nursing, Louisiana State University Health Sciences Center – New Orleans, New Orleans, LA, USA; ^dSchool of Medicine, Louisiana State University Health Sciences Center – New Orleans, New Orleans, LA, USA; ^eSchool of Dentistry, Louisiana State University Health Sciences Center – New Orleans, New Orleans, LA, USA; ^fSchool of Allied Health Professions, Louisiana State University Health Sciences Center – New Orleans, New Orleans, LA, USA; ^gDepartment of Pharmacology, Louisiana State University Health Sciences Center – New Orleans, New Orleans, LA, USA; ^hCenter for Interprofessional Education and Collaborative Practice, Louisiana State University Health Sciences Center – New Orleans, New Orleans, LA, USA

ABSTRACT

The purpose of the study was to determine the impact of an interprofessional education (IPE) experience on first year students across all schools of a health sciences center on the topic of pediatric immunizations. The authors conducted a pre-/post-test at Louisiana State University Health Sciences Center-New Orleans with 731 first year students from 25 academic programs encompassing all six schools (Allied Health, Dentistry, Graduate Studies, Medicine, Nursing and Public Health). In the four questions related to the Interprofessional Education Collaborative (IPEC) sub-competencies and the three questions related to professional role regarding immunizations, there was a statistically significant difference in the pre-/post-test survey results ($P < 0.0001$). Student learning related to the collaboration needed to make a larger impact on patient outcomes was demonstrated through assessment of an open-ended question. IPE experiences can improve first-year students' perceptions of IPEC sub-competencies regarding the importance of population health and teamwork. By utilizing a population health focus with IPE activities, novice learners are equipped to learn and apply collaborative practice skills along with recognizing the importance of promoting overall health and well-being instead of just health care.

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Introduction

A new vision for health education in the United States (U.S.) has recently emerged, expanding the focus from healthcare delivery to including overall health and well-being of individuals and populations (NASEM, 2017). This educational shift is also mirrored through the expansion of Interprofessional Education Collaborative (IPEC) sub-competencies (IPEC, 2016), which now include population health, one of three dimensions of the Institute of Healthcare Improvement's Triple Aim. While interprofessional education (IPE) is growing in the U.S., the inclusion of population health into IPE experiences is limited (Brandt, Lutfiyya, King, & Chioreso, 2014).

Immunizations are an example of a population health measure, which supports the overall health and well-being of individuals and populations. The U.S. pediatric immunization schedule has increased child life expectancy and is estimated to have prevented 42,000 deaths and 20 million cases of disease (Zhou et al., 2014). Healthy People 2020, the U.S. framework for improving the health of citizens, has identified immunizations and infectious diseases as one of the forty-two core topics affecting population health (Healthy People 2020, 2017).

In the U.S., medical, nursing, pharmacy, physician assistant and public health professions are primarily affiliated with providing immunizations and related education. Because of the small group of health professions actively engaged in this process, the questions arise: "What would the health impact be if more health professionals supported a consistent public health message, and if each health professional inquired about immunization status and educated patients about immunizations during office visits?" Faculty within the Louisiana State University Health Sciences Center-New Orleans, Center for Interprofessional Education and Collaborative Practice welcomed a topic focused on pediatric immunizations based upon the 2016 IPEC updated report, a new vision for health education and recent news of a mumps outbreak in a neighboring state. In addition, expanding education to include population health focused topics can be precursors to health system transformation.

Background

A total of 731 first year students from 25 academic programs at LSUHSC-NO were required to attend a two-hour IPE event focused on pediatric immunizations. Prior to attending the

event, students were asked to review the Healthy People 2020 immunization and infectious diseases topic webpage and the Immunization Action Coalition website. On the day of the event, the students initially gathered in large lecture halls to view a 25-minute presentation delivered by the Louisiana Department of Health. For the remainder of the session, students gathered in 50 interprofessional teams, comprised of 14–16 students in each group, representing up to eight professional programs. The culminating team project was the development of an office policy that would address parental concerns regarding immunizations. As a team, students were asked to agree upon how they would address parents who did not want to have their children immunized, and parents who did not want their children to be exposed to non-immunized children in a clinical setting. The students developed a “waiting room/treatment room” poster that represented their office policy and presented their poster to a larger group at the end of the event.

Methods

Data collection

A pre-posttest design was used and pre- and post-survey data were paired through an anonymous identifier. Student participation in the surveys was voluntary and anonymous. Informed consent was implied by the completion of surveys. Basic demographic data were collected, such as gender identity, school and program. The pre and post-surveys included seven questions using a Likert scale from 1 (Strongly Disagree) to 5 (Strongly Agree); four questions assessed perceptions of IPEC sub-competencies (Figure 1) and three questions assessed perceptions about the applicability of the immunization topic to respective professional roles. An open-ended question targeted interprofessional learning by asking “How was your understanding of a team approach to health affected by attending the IPE event?” Additionally, the post-survey included three questions to gauge the impact of the activity on changes in interprofessional perception regarding immunization.

Data analysis

Prior to analysis of quantitative data, the data set was cleaned to include only paired pre-post completed surveys. Data were reported as mean (SD). Analyses were performed using the Statistical Analysis System (version 9.4). Inspection of the distribution of difference scores for each question revealed symmetric distributions. Given this symmetry and the large sample size, the primary analyses of pre/post paired comparisons were carried out using paired t-tests. Due to the discrete nature of the outcome variables and small sample sizes, the Wilcoxon signed rank test was used in the secondary analyses by programs. A point bi-serial correlation was used to measure the relationship between education on immunization in respective programs and subsequent perception of the topic of immunizations within professional roles. Means were considered to be significantly different when $P < 0.05$.

Ethical considerations

The Institutional Review Board at LSUHSC-NO (#9604) approved the study design and surveys.

Results

The pre-survey was completed by 621 students, and 625 students completed the post-survey (response rates of 84.0% and 85.5%, respectively), which resulted in 529 paired data sets that were analyzed. The difference between pre- and post-survey means was calculated along with the standard deviations and P values (Figure 1). Only when utilizing all student data was significance found for all four IPEC sub-competency questions ($P < 0.0001$). Upper and lower 95% confidence intervals were also calculated for each question including all student responses (Question VE1: 0.19L 0.33U; Question TT3: 0.25L 0.40U; Question CC6: 0.06L 0.19U; Question RR4: 0.47L 0.64U).

Students were asked on the pre-survey if they had been educated on immunizations in their respective programs. The response was either yes or no. The students who had not

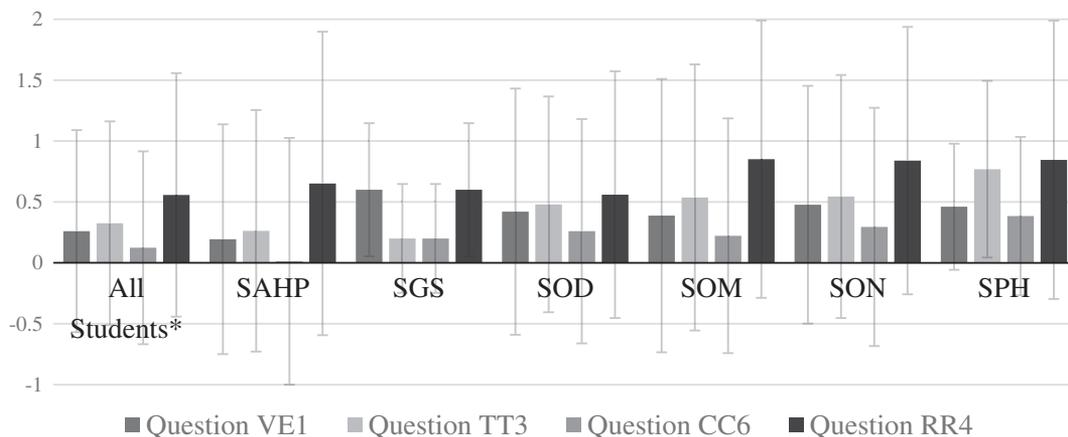


Figure 1. Pre-post survey means for questions related to the IPEC subcompetencies by school.

*SAHP = School of Allied Health, SGS = School of Graduate Studies, SOD = School of Dentistry, SOM = School of Medicine, SON = School of Nursing, SPH = School of Public Health; VE3 = Values/Ethics sub-competency 3, TT3 = Teams and Teamwork sub-competency 3, CC6 = Interprofessional Communication sub-competency 6, RR4 = Roles/Responsibilities sub-competency 4

Box 1. Student responses related to understanding of a team approach to health as affected by attending the IPE event

- "I understand now that as a whole, all professional teams are helpful in informing patients about the importance of vaccines and to educate them." (Dental Hygiene)
- "I now realize that all health professionals share the responsibility to educate patients on immunizations. However, each profession deals with checking up on immunization status differently – i.e. how often and when they ask." (Physical Therapy)
- "I shared this IPE event with a vast array of allied health professionals. Many do not deal directly with vaccinations, but it is important that all health professionals work as a team (even when not in the room together) to accomplish the missions of public health." (Medicine)
- "I now have confidence that professionals in different areas of healthcare can work together to eradicate disease and better the health of mutual patients." (Dentistry)

received formal education on immunizations responded more positively to the post-survey questions regarding their role in immunization outreach/education. Statistical significance, $P = 0.045$, was found for the statement "the topic of immunizations applies to me as a future health professional" using a point-biserial correlation using Spearman's correlation (correlation coefficient -0.165). The two other statements indicated correlation, but were not significant: "I have a professional role in the area of developing office policy on pediatric immunizations" ($CC = 0.017$, $P = 0.789$) and "I have an influential role in communicating information about immunizations" ($CC = -0.109$, $P = 0.148$).

Students were asked "How was your understanding of a team approach to health affected by attending the IPE event?" Three hundred forty-eight students provided a response to the question that varied in length from one word to three sentences. Sixteen of these responses reflected thinking towards transforming health delivery using a collaborative approach (Box 1).

Discussion

Previous studies have indicated IPE experiences can improve student understanding of the importance of interprofessional collaboration in everyday practice (Muzyk et al., 2017). The IPE experience conducted had an overall positive impact on student self-perceptions of interprofessional competencies.

IPE and collaborative practice still have a limited sphere of influence, mostly due to the lack of research evidence regarding their impact on the health-specific outcomes detailed in the Triple Aim, including population health (Lutfiyya, Brandt, & Cerra, 2016). Our results provide a step forward in this direction. Those students who had not received formal education on immunizations prior to IPE event indicated a more positive response on the post-survey when asked to rate "the topic of immunizations applies to me as a future health professional." While providing a vaccination does not apply to all health professionals, an office policy focused on patient/family education impacts everyone working on the team. Having a unified and standardized team approach for

immunization verification, education and follow-up are procedural components that can directly affect outcomes. This shift in student perceptions has the potential to positively influence future practice as a health professional.

By introducing students to IPE activities integrating public health/population health measures early in their education, novice learners can develop foundational collaborative-practice skills along with recognizing the importance of promoting overall health. In addition, these activities do not require specific professional diagnostic and treatment knowledge, which is commonly required in clinical case application learning activities. In programs preparing future health professionals, education and awareness of how to improve the health of a community is a step in the right direction for health system transformation. As an institution of higher education encompassing the training of a multitude of health professions, we have the opportunity to build interprofessional teams and facilitate a dialog of consistency to address population health concerns like immunizations.

Study limitations

The primary limitation of the study is the reliance on self-reported analysis of perceptions of IPEC sub-competencies and the applicability of the immunization topic to respective professional roles. There is also a limitation to the generalizability of the study due to data collection conducted via a single interaction. This risk was mitigated through the large sample size.

Disclosure statement

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