



Introduction

According to the Interprofessional Education Collaborative (2011), pre-licensure health professions students develop collaborative practice skills by progressing through three competency development stages: exposure (introductory foundations learning), immersion (case-based, team-based learning), and competency (clinical simulation, collaborative practice learning). At the stage of competency, healthcare simulation education is the teaching-learning strategy most often utilized. Simulation education is a bridge between classroom learning and real-life clinical experience.

Literature has shown that interprofessional collaborative practice simulation and the incorporation of standardized patients (SPs) significantly improves students' retention of knowledge and perceptions about patient-centered, team-based collaborative practice compared to other forms of simulation (Emmert & Cai, 2015).

To enrich students' learning experience, team objective structured clinical examinations (TOSCEs) were designed to allow structured interprofessional clinical encounters with SPs. Students received formative feedback from facilitators, peers and SPs. The purpose of this study was to assess for changes in students' self-reported interprofessional competence and cultural awareness and sensitivity following the interprofessional TOSCE.

References

Emmert, M. C., & Cai, L. (2015). A pilot study to test the effectiveness of an innovative interprofessional education assessment strategy. *Journal of Interprofessional Care*, 29(5), 451–456. <https://doi.org/10.3109/13561820.2015.1025373>

Interprofessional Education Collaborative Expert Panel. (2011). Core competencies for interprofessional collaborative practice: Report of an expert panel. Washington, D.C.: Interprofessional Education Collaborative.

MacDonald, C. J., Archibald, D., & Trumpler, D. (2018). Interprofessional collaborative competencies attainment survey (ICCAS). *National Center for Interprofessional Practice and Education*. <https://nexusipe.org/advancing/assessment-evaluation/interprofessional-collaborative-competencies-attainment-survey-iccas>

Pasricha, A. (2012). Developing a measurement tool to assess medical students' cultural competency. *University of Ottawa Journal of Medicine*, 2, 44–47. <https://www.yumpu.com/en/document/read/33962963/cultural-competency-uo>

Methods

Five standardized, interprofessional patient-centered cases were written and peer evaluated

- Each case: utilized 32 times to conduct 160 standardized patient TOSCEs
- Each TOSCE occurred over the course of 8 hours, at 30 minutes/event
- All cases intentionally integrated cultural sensitivity awareness factors that contribute to health disparities and social determinants of health
- 11 standardized patients were needed to run the event

A maximum of 3 students from 4 disciplines were grouped together per TOSCE

Disciplines included:

- dental hygiene
- nursing
- pharmacy
- physician assistant

Case topics were developed

Case topics included:

- 1) medical interviewing
- 2) medication reconciliation
- 3) transitions of care
- 4) primary care
- 5) medical emergencies

Pre- and post- surveys were distributed electronically to all students who participated in the TOSCEs. The survey instruments included MacDonald et al.'s (2018) revised Interprofessional Collaborative Competencies Attainment Survey (ICCAS), which evaluated attainment of interprofessional competence, and Pasricha's (2012) Cultural Awareness Sensitivity Tool (CAST), which assesses improvement in cultural sensitivity. The surveys were distributed via email to all TOSCE-participating students, with each student receiving their own unique individualized link to complete the pre-/post- surveys. Descriptive statistics and dependent T-tests were used to assess the differences in ICCAS and CAST scores pre- and post- TOSCE.



Results

A total of 321 students consented, completed the pre-surveys, and participated in 1 to 4 TOSCEs. Of those, 90% also completed the post-surveys. Overall, results demonstrated a statistically significant attainment of interprofessional collaborative competence ($t(288)=16.72, p<0.001$), as well as an improvement in cultural awareness and sensitivity upon TOSCE participation ($t(274)=4.39, p<0.001$).

	Total (N)	289	Dental Hygiene	Nursing	Pharmacy	Physician Assistant
Race (%)	White	57.90	36.84	22.53	66.67	
	Black/African American	0.00	15.79	5.50	1.45	
	Asian	5.26	15.79	22.53	14.49	
	Hispanic/Latino	5.26	21.05	2.75	5.80	
	Non-resident alien	10.53	0.00	38.46	1.45	
	Unknown Race-ethnicity	21.05	5.26	6.59	2.90	
Gender (%)	Two or more races	0.00	5.26	1.65	7.25	
	Male	0.00	21.05	35.71	18.84	
ICCAS Score	Female	100.00	78.95	64.29	81.16	
	Pre: Mean (SD)	2.85 (0.45)	3.21 (0.91)	2.97 (0.74)	3.49 (0.69)	
	Post: Mean (SD)	3.72 (0.73)	3.84 (0.82)	3.63 (0.72)	3.78 (0.71)	
CAST Score	t-value	t(18)=4.48, p<.001*	t(18)=4.78, p<.001*	t(181)=14.64, p<.001*	t(68)=6.13, p<.001*	
	Pre: Mean (SD)	3.63 (0.41)	4.01 (0.50)	3.74 (0.41)	3.82 (0.30)	
	Post: Mean (SD)	3.66 (0.76)	4.17 (0.43)	3.87 (0.40)	3.87 (0.34)	
	t-value	t(17)=0.08, p=0.938	t(16)=0.83, p=0.417	t(173)=4.18, p<.001*	t(65)=2.13, p=0.037*	

*Statistically significant differences are denoted by an asterisk

Conclusions

Communication and teamwork are core skills health care students will utilize on clinical rotations and once in professional practice. Experiences that allow students to practice these skills in real-time provide better preparation for rotations and practice. Incorporating TOSCEs requires advanced planning and adequate resources, including both time and financial commitment; however, these experiences allow low-stakes, high-impact opportunities to prepare for direct clinical care.

TOSCEs provide interactive patient-centered experiences where students can practice working together to assess patients, collaborate effectively, and formulate care plans in a standardized manner.

- Benefits: invaluable, standardized learning experiences with particular focus on communication and teamwork
- Challenges: coordination and timing