

METHODS

BACKGROUND

Few Schools of Medicine and Nursing have made IPE an integrated requirement during the clinical/clerkship years. There remains a lack of studies using validated objective measures to report the impact of IPE on student competencies for team-based care delivery.

At the University of Virginia, CCBPMs formed the basis for a series of 4 IPE workshops integrated into the clinical years with objective evaluations of student competencies. The workshops provided learning about diverse patients, illnesses, and care settings:

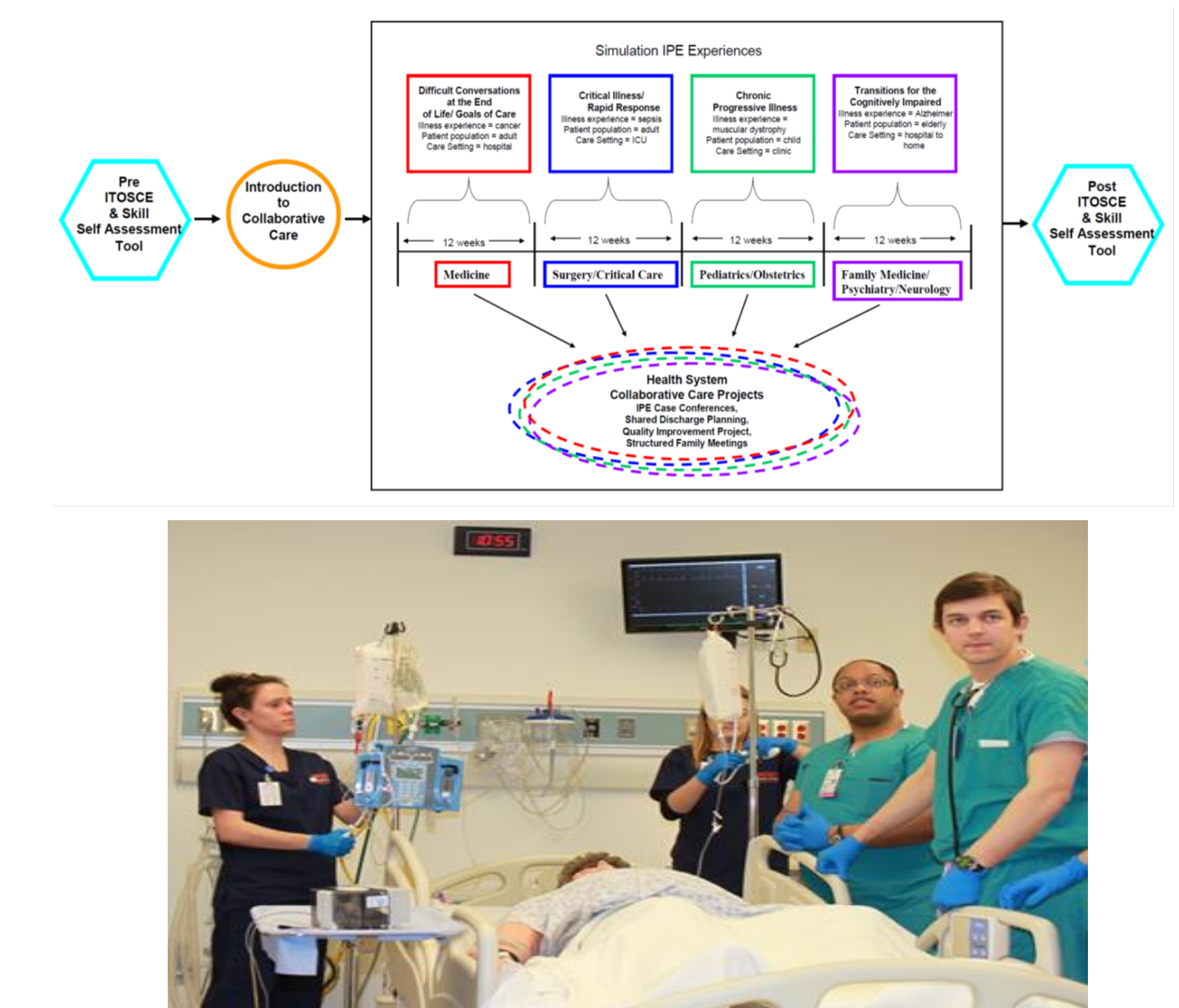
- 1) Rapid Response/Critical Care,
- 2) Difficult Discussions at the End-of-Life,
- 3) Chronic Progressive Pediatric Illness, and
- 4) Transition in Care for the Cognitively-Impaired Adult.

From 2011-2013, 458 third-year medical and nursing students attended the workshops and participated in longitudinal evaluations of the IPE workshops.

Clinical experts created CCBPMs for the four clinical scenarios. The CCBPMs included a set of profession-specific and teamwork behaviors necessary for effective clinical practice. A checklist of 15 behaviors formed a Collaborative Behaviors Observational Assessment Tool (CBOAT) for the Difficult Discussions and the Rapid Response scenarios, with separate versions for medical and nursing students. Higher CBOAT scores represented performance of more desired behaviors.

Interprofessional Teamwork Objective Structured Clinical Examinations (ITOSCEs) were created for the Difficult Discussion and the Rapid Response scenarios. In each ITOSCE, the student engaged individually with a standardized patient (SP) and a standardized clinician. SPs were rigorously trained to rate student behaviors using the CBOATs, and students also rated themselves.

Prior to the series of IPE workshops, all third-year medical and nursing students completed the Team Skills Scale (TSS) and 2 baseline ITOSCEs. During the following 12 months, the students engaged in either 2 (year 1) or 4 (year 2) IPE workshops. Post-ITOSCEs and the TSS were then repeated after the clerkship/clinical year.



RESULTS

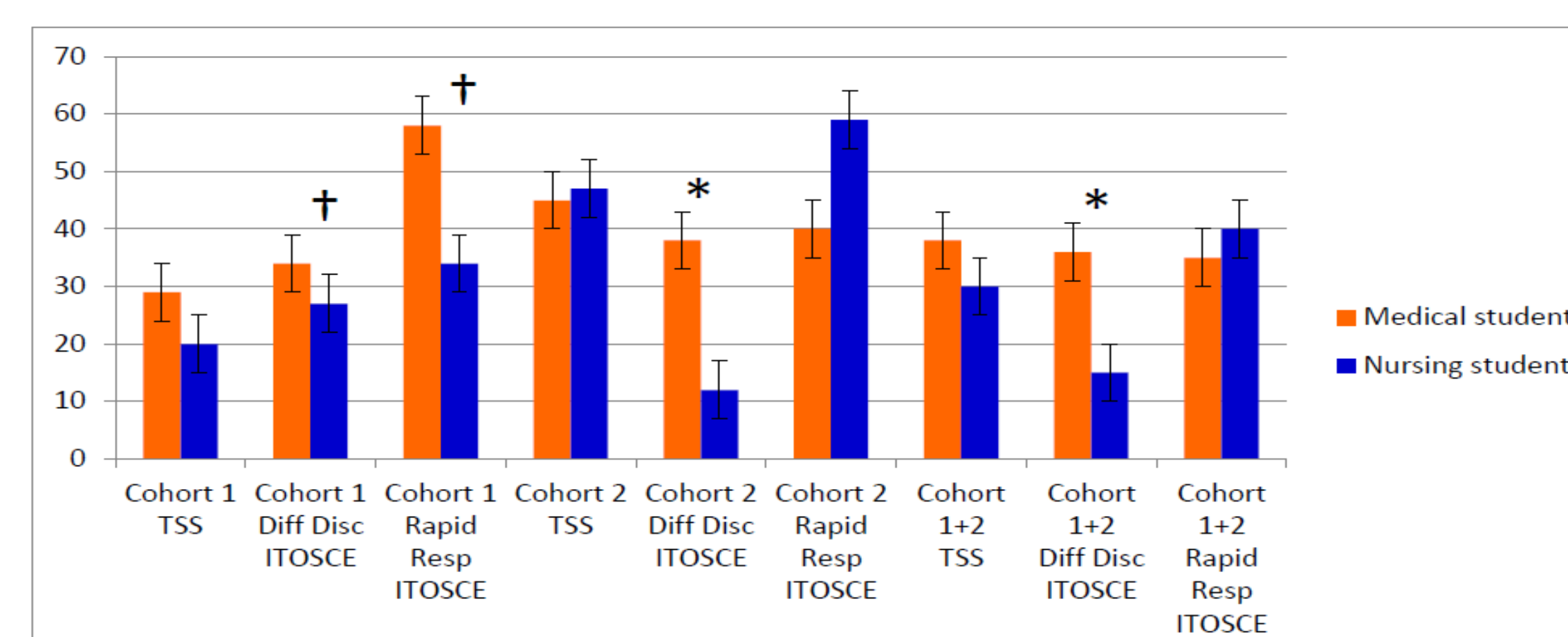
	Medical Students							Nursing Students								
		% Post vs Pre Improvement in Team Skill Scale	% Post vs Pre Improvement in Total ITOSCE CBOAT Scores: Difficult Discussions	% Post vs Pre Improvement in Total ITOSCE CBOAT Scores: Rapid Response				% Post vs Pre Improvement in Team Skill Scale	% Post vs Pre Improvement in Total ITOSCE CBOAT Scores: Difficult Discussions				% Post vs Pre Improvement in Total ITOSCE CBOAT Scores: Rapid Response			
									Pre-ITOSCE before workshop		Pre-ITOSCE after workshop					
	N		SP rating	Student rating	SP rating	Student rating	N		SP rating	Student rating	SP rating	Student rating	SP rating	Student rating		
Cohort 1	140	29 *	34*	35*	58*	30*	80	20*	27 ⁷	29*	8	23 ⁷	34*	18*		
Cohort 2	143	45*	38*	33*	40*	33*	78	47*	12 ⁸	31*	-1	17 ⁸	59*	30*		
Cohorts 1 + 2	283	38*	36*	33*	35*	32*	158	30*	15*	30*	2	18 ⁸	40*	24*		

* = $p \leq 0.001$, † = $p \leq 0.01$

Did self-perceived and objectively measured IP competencies (TSS and CBOAT scores) of medical and nursing students improve after participating in the series of IPE workshops?

Post-IPE Changes in Team Skill Scale Scores and ITOSCE CBOAT Scores:
TSS Scores: Scores for medical students and nursing students in both cohorts increased.

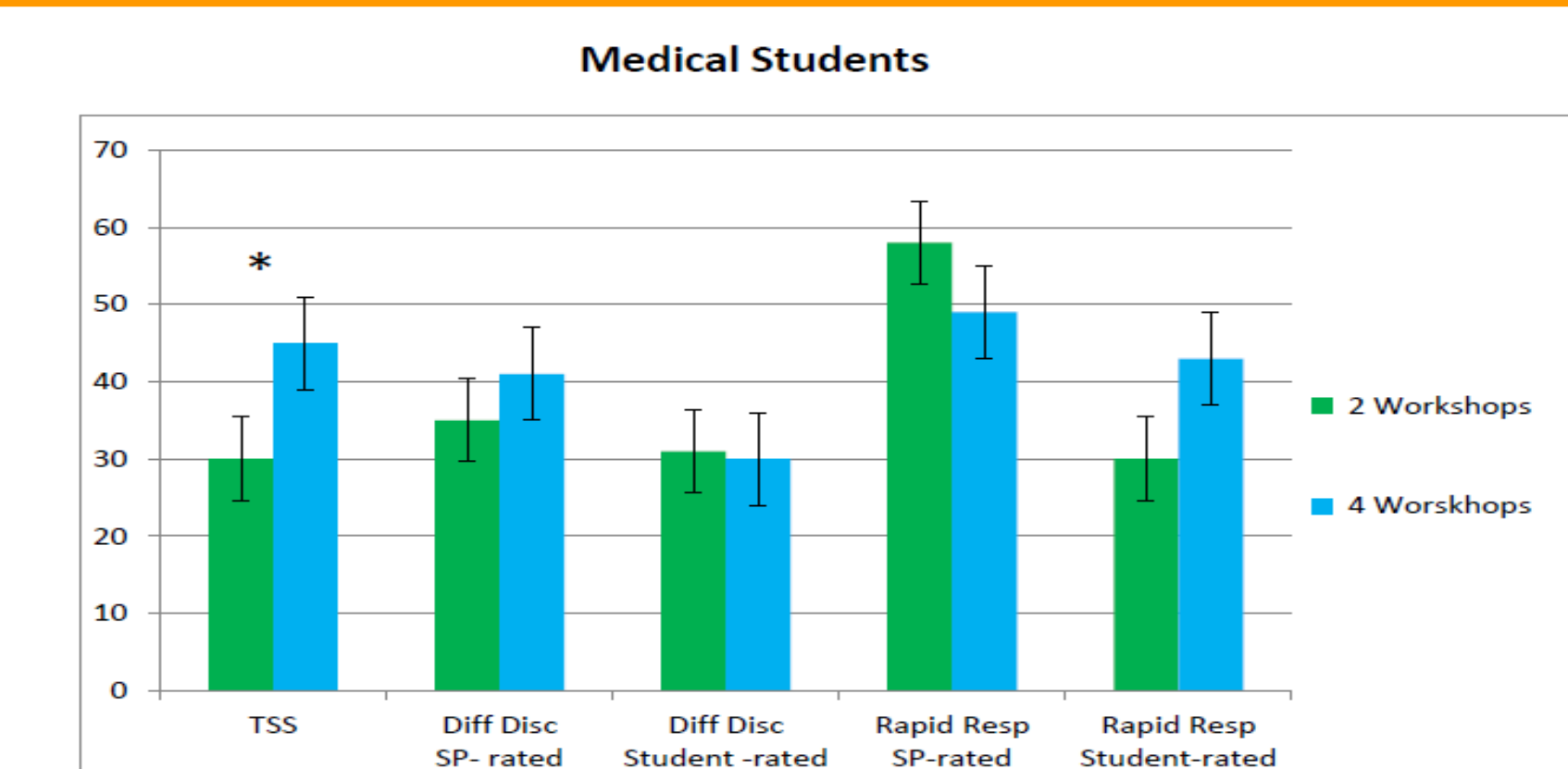
ITOSCE CBOAT scores: The SP-rated and student self-rated ITOSCE CBOAT scores for medical students in both cohorts increased by a significant percentage after the IPE workshops. Nursing students' ITOSCE CBOAT scores across both cohorts also showed significant improvement for the Rapid Response scenario. Scheduling issues resulted in half of the nursing students completing their baseline Difficult Discussions pre-ITOSCE after participating in the IPE workshop. There was significant % improvement in the SP and self-rated ITOSCE CBOAT scores for the nursing students who completed the pre-ITOSCE before the workshop, but improvement only occurred in self-rated scores for those who completed the pre-ITOSCE after the workshop.



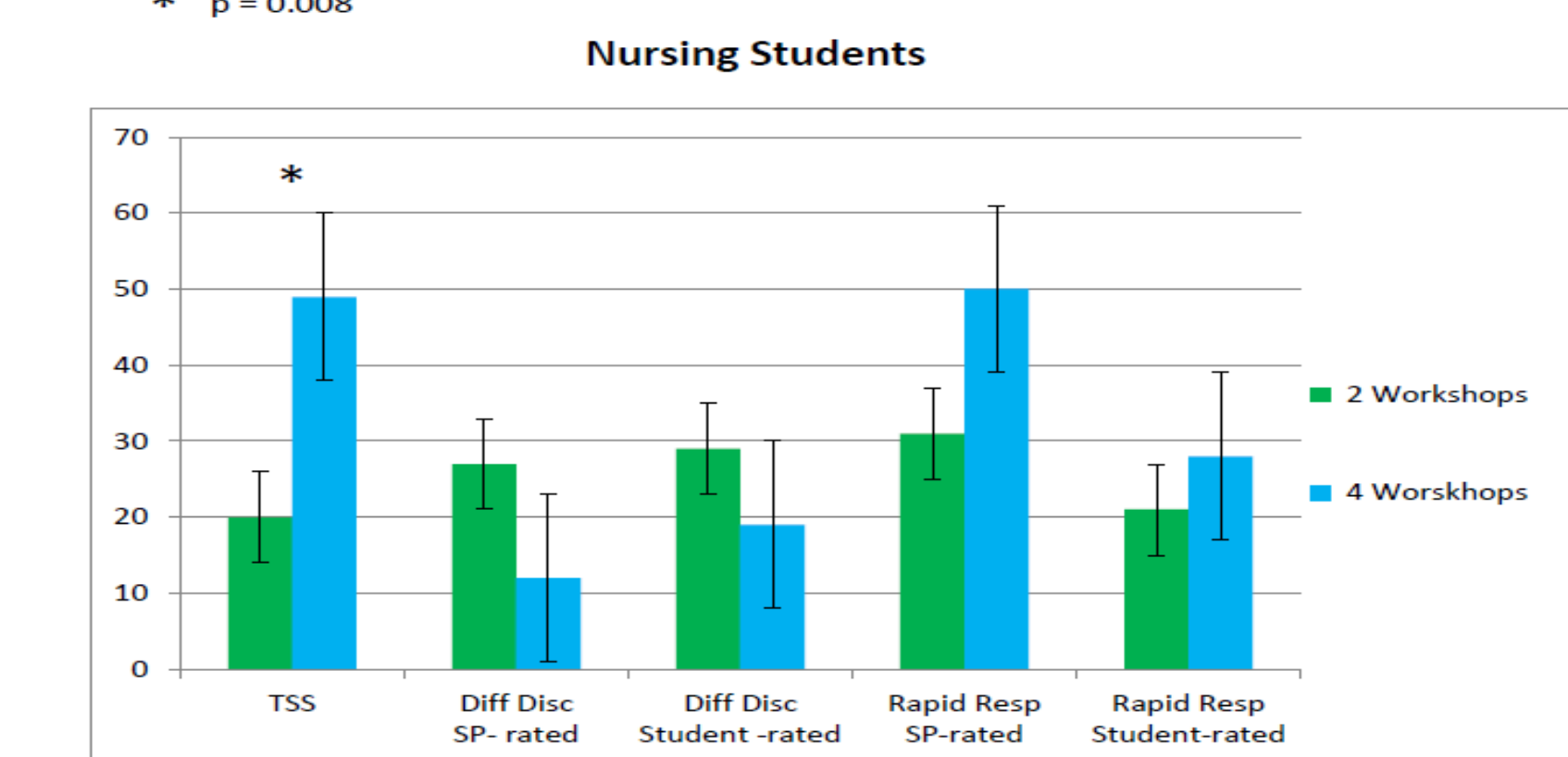
† $P \leq 0.05$; * $p \leq 0.001$

Was there a difference in IP learning outcomes of medical students compared to nursing students?

Differences between medical and nursing students in acquisition of IP skills: There were no significant differences between medical and nursing students for the percentage of improvement in TSS or any student self-rated ITOSCE CBOAT scores. For SP-rated ITOSCE CBOAT scores, medical students in Cohort 1 had a greater improvement than nursing students for both scenarios ($p < 0.05$). For Cohort 2 and for the combined Cohort 1 and Cohort 2 SP-rated scores, medical students had a greater percentage improvement than nursing students in the Difficult Discussions ITOSCE CBOAT score ($p < 0.001$) but not in the Rapid Response ITOSCE CBOAT score. There were no differences in scores based on gender for any of the medical or nursing student cohorts.



* $p \leq 0.008$



* $p \leq 0.001$

Does the number of IPE experiences impact the students' IP competencies?

Improvement in TSS & ITOSCE CBOAT Scores After Two Workshops Compared to Four Workshops: There was a significant improvement in TSS scores for both medical and nursing students who completed four workshops compared to those who completed two workshops; however, there were no significant differences in ITOSCE CBOAT scores.

CONCLUSION

Clinically-relevant IPE activities, created using Collaborative Care Best Practice Models and integrated through the clinical/clerkship year for medical and nursing students, improved the IP competencies of pre-licensure medical and nursing students. An objective measurement strategy using standardized patients and clinical examinations can assess longitudinal IP learning outcomes.