Supplement Table 1
Ranking order of the 14 sub-competencies of emergency medicine that need to be trained at the beginning of PGY-1 residency program reported by physicians and nurses in annual survey

Sub-competencies of "patient-care" competency	Physicians (n=25)		Nurses (n=30)	
	rank	Score (mean±SD)	rank	Score (mean±SD)
1.Emergency stabilization	**1**	4.55±1.07	**1**	4.6±1.1
2.Perfomance of focused history and physical exam.	**2**	4.1±1.12	**2**	4.18±0.8
3.Diagnostic studies	6	3.1±0.8	**3**	4.1±0.6
4.Diagnosis	**3**	4.02±1.3	7	3.1±0.5
5.Pharmacotheraphy	**4**	3.6±0.76	**5**	3.4±0.4
6.Observation and reassessment	**5**	3.3±1.02	**4**	3.7±0.7
7.Disposition	13	2.4±0.33	6	4.12±0.8
8.Multi-tasking:Task-switching	7	3±0.25	14	1.9±0.5
9.general approach to procedures	11	2.6±0.5	10	2.7±0.4
10.Airway management	8	2.93±1.1	8	2.9±1.2
11.Anesthesia and acute pain management	9	2.8±1.3	9	2.8±1.3
12. Other diagnostic and therapeutic procedures-ultrasound	14	2.3±1.0	13	2.4±0.5
13.Wounds management	12	2.5±0.7	11	2.6±1.1
14. Vascular access	10	2.7±0.6	12	2.52±0.7

 Ranks 1-5 are marked in bold.

Supplement Table 2
Comparison among three groups in this study

	Intervention-group-A	Regular-group-B	Control-group-C
Station that rotation by each PGY	One long OSCE (three 10-min-1-case-scenarior with 2min. break between scenario, 15-min. feedback)	Three OSCE (one case-scenario in each 10-min-station with 2-min. break for changing station, 15-min feedback)	Observe peers' OSCE performance from the TV screen in the control rooms.
Number of PGY in each station	3 PGY (*each PGY take turn to acted as treating physician in 1-case-scenario*); the other PGY-1 residents observed their peers	1 PGY acted as treating physician in each 1-case-station	
Persons in the station (similar between A and B models)	1 qualified assessor [*evaluation of" therapeutic actions" and "communication" domains by OSAT*], 1 experienced facilitator [*lead the simulation, time control, evaluation of "overall performance" by QSAT, lead the final debrief phase*], 1 standardized senior nurse [*provide "primary assessment" data of scenario to trainee, as assistant, evaluation of "overall performance" by QSAT*],1 standardized patient [*SP, as family*], 1 standardized intern [*provide "diagnostic actions" data to trainee, as assistant*]		
Total number of PGY that can be trained within 50-min.	9 PGY with three repeated tracks of 3-case-long-station	3 PGY in three 1-case-stations with different clinical setting in each station	
Scenario and clinical setting	As shown in methods, Trios-OSCE of intervention group-A and control-group-B of single-OSCE used the same 3 scenario that they are not exercised before. Similar setting of the three OSCE station of single OSCE with Trios-OSCE.		

Supplement Table 3
Schedules of intervention group-A of Trios-OSCE

Time-point	1st set of long-OSCE with 1st-3rd scenario	2nd set of long-OSCE with similar 3 scenario as 1st set	3rd set of long-OSCE with similar 3 scenario as 1st set
	No. 1-3 PGY	No. 4-6 PGY	No. 7-9 PGY
10min	Simulation of 1st scenario by No. 1PGY, other two PGYs observe their peer performance in the station.	Simulation of 1st scenario by No. 4 PGY, other two PGYs observe in the station.	Simulation of 1st scenario by No. 7 PGY, other two PGYs observe in the station.
2-min	Break (changing the clinical setting)		
10min	Simulation of 2nd scenario by No. 2 PGY	Simulation of 2nd scenario by No. 5 PGY	Simulation of 2nd scenario by No. 8 PGY
2-min.	Break (changing the clinical setting)		
10-min	Simulation 3rd scenario by No. 3 PGY	Simulation 3rd scenario by No. 6 PGY	Simulation 3rd scenario by No. 9 PGY
15-min.	Group debriefing for scenario 1-3	Group debriefing for scenario 1-3	Group debriefing for scenario 1-3

As shown in methods, Trios-OSCE of intervention group-A and control-group-B of single-OSCE used the same 3 scenario that they are not exercised before.

Supplement Table 4
Schedules of control-group-B of single-OSCE

Time-point	1st OSCE with 1st scenario	2nd OSCE with 2nd scenario	3rd OSCE with 3th scenario
10min	Simulation of 1st scenario by PGY1	Simulation of 2nd scenario by PGY2	Simulation of 3th scenario by PGY3
2-min	Break (changing station)		
10min	Simulation of 1st scenario by PGY3	Simulation of 2nd scenario by PGY1	Simulation of 3th scenario by PGY2
2-min.	Break (changing station)		
10-min	Simulation 1st scenario by PGY2	Simulation 2nd scenario by PGY3	Simulation 3th scenario by PGY1
15-min.	Group debriefing for scenario 1-3		

As shown in methods, Trios-OSCE of intervention group-A and control-group-B of single-OSCE used the same 3 scenario that they are not exercised before.

Supplement Table 5

Items for trainees' course-value, self-efficacy and clinical transfer survey

Questions for course-value score	Questions for pre-course and post-course self-efficacy score
1. How well did the training met your expectations?	How well you comfort with "emergency-stabilization" in clinical setting?
2.How well you comfort with being assessed in this simulation-based OSCE?	How well you confident with "emergency-stabilization" in clinical setting?
3.How valuable do you feel this simulation-based OSCE was to your "emergency-stabilization" ability?	How well you knowledge with "emergency-stabilization" in clinical setting?

5-point Likerts scale [5=fully agree or very true of me].