A151
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Room Hall B2 Area E

Evaluating Construct Validity of Simulation-based OSCE for Summative Assessment in an Anesthesiology Teaching Program

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Introduction: The goal of this research was to use a well-established format of testing and evaluating with simulation **[1-2]**, to assess the ***construct-related validation***, by using the progression of scores with the level of training**.**

Material and Methods: The examination was administered to 50 residents in the post-graduate-year (PGY) 2-4. Residents were tested with 1 of 2 scenarios in each of the 3 major anesthesia fields: operating room (OR), trauma management, and resuscitation. Each scenario was evaluated by 1-2 evaluators according to a ready checklist comprised of 12-20 items. Examinees *"passed"* the scenario if they successfully performed 70% of the station's checklist items, including all ***critical*** actions/items.

Results: The examination was administered 66 times to 50 examinees. The *grade of difficulty* was similar between scenario #1 and #2 in every field, and between the different PGY levels. The *error rate* was lower for PGY4 compared to PGY2 residents in each field, and also in each scenario - except in scenario OR #1 and Trauma #2, where the error rate was relatively high in all PGYs (see Table). The total (*proportion-correct) score* was significantly higher for PGY3 and PGY4 compared to PGY2 residents in Trauma #1 scenario. The *general (subjective) score* was significantly higher for PGY4 compared to PGY2 residents in OR #1, trauma #1 and resuscitation #1 scenarios, and in the OR field. The *critical-items-error rate* was significantly lower for PGY4 compared to PGY3 residents in the OR field; this rate was also significantly lower for PGY4 compared to PGY2 residents in the resuscitation field. The *final-pass rate* was significantly higher for PGY3 and PGY4 compared to PGY2 residents in the OR, but not in the resuscitation field; this rate was also significantly higher for PGY4 compared to PGY2 residents in all 3 fields.

Discussion: The process of incorporating simulation-based OSCE-driven modalities in the Testing & Certification of Anesthesiologists addressed with this work confirms the *Construct-related Validation.* The examination also provided a rare glance of the performance of residents in American residency - highlighting areas of strength and weakness.

References: 1. Anestesiol Clin 2007; 25:261-9. **2.** Anest Analg 2006;102:853-8.

Scenario		OR1	OR2	OR	Tr1	Tr2	Tr	Res1	Res2	Res
Error Rate	PGY2	38	40	39	38	33	35	16	33	24
	PGY3	34	35	34	17*	27	22	10	19	15
	PGY4	31	22*	27*	7*	29†	14*	4*	16*†	9*
	All	34	35	34	19	30†	25‡	10	22†	16‡§

* vs PGY2; †vs scenario 1; ‡ vs OR; § vs Trauma