



Objective structured clinical evaluations (OSCE) to determine the competency level of ICU trainees

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INTRODUCTION

CoBaTrICE was created in 2003 to assure a **high-quality education and training** for intensive care residents in Europe. It offers resources to consolidate the basic knowledge considered essential to **define an intensivist** and it is based in **practical evaluations, simulation and feedback**. Even though, in Spain and many other countries, the classical time-based model of training based on exposure to clinical practice is still used.

OBJECTIVES

The main objective was to evaluate the **level of competency** acquired by Spanish residents after the third of five years of training in intensive care medicine. Secondary objectives were to identify gaps in their current education and to investigate the reliability of conducting simulation-based assessment in multiple sites at the same time.

Competency levels	
Level I	Full supervision required
Level II	Supervision in most of situations
Level III	Supervision in complex situations
Level IV	Indirect supervision
Level V	Independent practitioner

METHODS

This is a **national multicentric observational study**. Ten independent experts designed an OSCE with **5 high fidelity simulation scenarios**. They also defined critical essential performance elements (**CEPE**) and critical non-essential performance elements (**CNEPE**) for each scenario and assessed the performance of the residents rating 15-minutes video records of each scenario.

Thirty-six ICU residents in their **third year** of training from 13 Spanish teaching hospitals participated in the OSCE. Intraclass correlation coefficients were used to measure the inter-rater reliability, and several differential analyses were carried out to measure the discriminant validity of each scenario.

TRIAL PRESENTATION



Trial registration: COBALIDATION). NCT04278976. (<https://register.clinicaltrials.gov>)

Scenarios	Total score		CEPE		CNEPE		Number of residents per level acquired				
	Median	IQR	Median	IQR	Median	IQR	I	II	III	IV	V
1. Septic shock with ARDS	70	63-77	64	63-77	76	63-77	14	15	6	0	0
2. Neurocritical care and intra-hospital transport	67	53-71	72	53-71	57.5	53-71	10	11	12	1	0
3. STEMI management and cardiopulmonary resuscitation	77	70-81	85	70-81	62	70-81	1	5	25	2	0
4. Postoperative management, hemorrhagic shock	72.5	65-84	80	65-84	61	65-84	2	15	16	2	1
5. Initial assessment and management of polytrauma .	67.5	59-78	78	59-78	59	59-78	5	15	16	0	0

RESULTS

A total of **176 performances** were analysed as the video records of 4 performances were lost. The mean score achieved for all residents was 69.6 out of 100 points. The **overall percentage** of accomplished **CEPE** and **CNEPE** was **74.7%** and **61.6% respectively**. The distribution of the residents among the different competency levels was: 18.8% achieved level I; 35% level II; **43% level III**; 3.4% level IV or V. Inter-rater reliability was satisfactory.

REFERENCES

- [1] Castellanos-Ortega A, Broch MJ, Barrios M, Fuentes-Dura MC, Sancerni-Beitia MD, Vicent C, et al. Acceptance and validity of the methods used to implement a competency based medical education programme in an Intensive Care Department of a teaching referral center.
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CONCLUSIONS

Most of the residents reached level III or less. There was a great **heterogeneity** in the performance of the residents in their third year of ICM training program regarding scenarios, hospitals and level of competency acquired. Reliance on the **traditional experience-based training model alone is insufficient** for ensuring quality and safety in patient care. Multiple center simulation-based assessment showed feasibility, validity and reliability as an evaluation method of competency.