The Ottawa Surgical Competency Operating Room Evaluation (O-SCORE): A Tool to Assess Surgical Competence

Reference:

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Tags

Clinical domain: Medical Expert
Educational domain: Assessment, Educational research

Background

Global assessment programs of technical specialties (i.e. surgical specialties) typically have an over emphasis on assessment of cognitive abilities without reliable and formal instruments to assess psychomotor abilities. Logbooks of procedures are in widespread use in technical specialties, but they inappropriately equate “volume” with “competence”. (Remember, “practice doesn’t make perfect, only perfect practice makes perfect.” – Vince Lombardi). In response to this, numerous education researchers have developed and (internally) validated assessment instruments for specific and discrete psychomotor tasks. The challenge with this approach is that a technical specialty then requires multiple different instruments to assessment the numerous different psychomotor tasks that make up a specialty.

Purpose

The purpose of this study was to evaluate a novel generic assessment instrument to assess surgical competence across specialty, type of procedure, and degree of experience (i.e. postgraduate year of training.)
Key Points on the Methods

- Validation of a technical skills direct observation (by experts) assessment instrument
  - Generic tool for any procedure and any level of postgraduate training
- Informed by literature review
- Developed by content and education experts
- Framework for a generic procedure
  - Preprocedure plan
  - Case preparation
  - Knowledge of procedural steps
  - Technical performance
  - Visuospatial skills
  - Postprocedure plan
  - Efficiency
  - Communication
- Behaviorally-anchored rating scale based on criterion of readiness for independent practice
- Piloted and refined

Key Outcomes

- 34 surgeons assessed 37 residents’ performance in 163 procedures, for an average of 4.41 observations per resident in 6 orthopedic procedures and 5 general surgery procedures common across all stages of training.
- Reliability
  - Main components of variance were mainly related to trainee performance with a small amount of variance relating to difference between items in the framework.
  - Using the eight item framework, it would take at least 5 O-SCORE observations per trainee to produce a g-coefficient of 0.80.
- Validity
  - There were significant mean score differences between individuals binary scored (yes/no using separate item from framework) as ready for independent practice
  - There was a significant increase in mean scores by PGY level.
- Feasibility / Acceptability
  - Attending surgeons indicated that the scale was easy to use
  - Residents indicated that they were accepting of low scores indicating they were not ready for independent practice and that such explicit feedback (i.e. non-central tendency scoring) facilitated their personal learning.
The O-SCORE builds on the previous work on OSATS, DOPS, miniCEX etc. While the process of direct observation of performance by experts is not original, the procedural framework and the behavioural anchors used by the O-SCORE improve upon previous direct observation instruments for technical skills.

**Key Conclusions**

The authors report: “This novel evaluation tool successfully discriminated between junior and senior residents and identified surgical competency across various PGY levels regardless of procedure type. Multiple sources of evidence support the O-SCORE as a valid tool for the assessment of trainee operative competency.”

**Spare Keys – other take home points for clinician educators**

This study is a great example of a clinician educator working in collaboration with education researchers. An important clinical question is answered using rigorous methodological design.