

What Evidence is There for the Use of Workplace-Based Assessment in Surgical Training?

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BACKGROUND: Recent years have seen broad changes in postgraduate training with a move toward structured formative and summative evaluation of trainees' competencies using workplace-based assessment (WBA) tools. The fitness for purpose of these instruments in surgery has been much debated. The aim of this study is to explore the evidence underlying the introduction and ongoing use of WBAs in surgical training.

METHODS: A critical literature review was conducted to identify studies evaluating the use of WBAs in postgraduate surgical training. The search was conducted using the electronic databases PubMed for full-text articles in English. Additional critical evaluations of the curriculum relating to WBAs were included. The articles were synthesized in a narrative review.

RESULTS: The implementation of WBA requirements in surgical training has occurred despite a relative dearth of direct evidence of their efficacy and benefit. Studies and critical reviews are being regularly undertaken to ensure that supporting evidence is accrued and the drive for improvement and refinement is maintained. It is emerging that WBAs are (contrary to their current nomenclature) formative tools for feedback and hence learning. They can facilitate the progression toward expert practice at the center of the zone of proximal development and the higher levels of Miller's pyramid, but fall short—owing to their focus on competence—of guiding surgical trainees to the higher levels of Maslow's hierarchy.

CONCLUSIONS: Limited evidence has potentially undermined the introduction of WBAs in surgical training to date. There are misunderstandings regarding their use as either summative or formative educational tools. These shortcomings are an opportunity for further work in examining WBAs in

their current or modified form. (J Surg 71:906-915. © 2014 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

KEY WORDS: education, training, surgery, assessment, workplace-based assessment, WBA

COMPETENCIES: Practice-Based Learning and Improvement, Medical Knowledge, Interpersonal and Communication Skills

INTRODUCTION

Recent years have seen significant reform in the delivery of postgraduate training and education across the medical profession. In the United Kingdom, the “Modernising Medical Careers” (MMC) program introduced competency-based progression within medical training.¹ Competency refers to the determination that a trainee has the requisite knowledge, skills, and attitudinal characteristics for independent practice as a specialist in their chosen discipline. The MMC replaced the time-based “Calman” system of traditional apprenticeship,² which in turn had replaced several different medical training systems that spanned the past century. Regarding surgical training, the Intercollegiate Surgical Curriculum Program (ISCP)^{3,4} was developed because of the MMC to make explicit the competencies to be attained as necessary for progression, completion of training, and independent surgical practice.

Workplace-based assessments (WBAs) are an integral component of the ISCP and sit amongst other forms of assessment, including formal postgraduate examinations and analysis of operative and procedural logbooks. There are a number of different types of WBA undertaken as part of the ISCP, which are summarized in [Table](#). Key features common to WBAs include the collection of details of the learning event that forms the focus of the assessment, opportunity for both the trainee and trainer to enter free-text comments relating to the event or the feedback received, and mapping of the WBA to the ISCP surgical curriculum. For the 4 main

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TABLE. Glossary of Terms Presented in Alphabetical Order

Key Workplace-Based Assessments	Description
AES	Assigned Educational Supervisor
AoP	Assessment of Practice. Equivalent to summative assessment, high-stakes assessment, and "driving test"
ARCP	Annual Review of Competency Progression. Meeting between trainee and the regional training board along with an external member. Principally focused on the trainees ISCP entries, operative logbook, audit, and academic output
ASiT	Association of Surgeons in Training
BOTA	British Orthopaedic Trainees Association
CBD	Case-Based Discussion. Formalized discussion related to the care of a patient with a focus on knowledge and attitude
CCT	Certificate of Completion of Training
CT	Core Training
DOPS	Direct Observation of Procedural Skill. Similar to PBA, but more generic and relate to either less complex procedures or parts of a larger procedure. The domains of assessment in DOPS are generic and fixed and considered to be transferable across this spectrum of tasks
GMC	General Medical Council
ISCP	Intercollegiate Surgical Curriculum Programme. Online resource for all UK surgical and dental trainees providing relevant syllabuses and means to document training and assessments
JCST	Joint Committee on Surgical Training
Mini-CEX	Mini-Clinical Evaluation Exercise. An assessment of a trainee's clinical skills (e.g., history, examination, and information giving)
Mini-PAT	Mini-Peer Assessment Tool. An opportunity for members spread across the multidisciplinary health care and administrative team to offer anonymous feedback on the trainee. The results are then discussed at a meeting with the assigned educational supervisor and the ARCP
MMC	Modernising Medical Careers
MSF	Multisource Feedback. Equivalent to mini-Peer Assessment Tool (mini-PAT)
OOT	Observation of Teaching. Workplace-based assessment permitting the documentation of an observed teaching episode carried out by the trainee
PBA	Procedure-Based Assessment. Direct observation of an index procedure or operation with comments given on important steps, tasks or skills at the pre-, intra- and post-operative stages of the procedure, considered to be essential for its safe and successful completion
PROMs	Patient-Related Outcome Measures
SLE	Supervised Learning Event. Equivalent to formative assessment, low-stakes assessment, and "driving lesson." The SLE and AoP terms are relatively new and were introduced in an effort to better distinguish between formative and summative "assessments"
ST	Specialty Training
TAiP	Training and Assessment in Practice
WBA	Workplace-Based Assessment

WBA (Case-Based Discussion, CBD; mini-Clinical Evaluation Exercise, mini-CEX; Procedure-Based Assessment, PBA; and Direct Observation of Procedural Skill, DOPS), domains are marked as "not assessed," "development required," or "satisfactory," and an overall level from 1 (low) to 4 (high). The overall levels, however, are inconsistent, with some scoring trainees on their ability for their current level of training (CBDs, CEX, and DOPS), whereas others offer a rating based on progression toward the Certificate of Completion of Training (PBA), resulting in what has been described as a "mixed economy."⁵

In 2004, before the commencement of the ISCP and its accompanying WBAs, a review of instruments used for the peer assessment of clinicians concluded that *"The instruments developed to date for physicians to evaluate characteristics of colleagues need further assessment of validity before their widespread use is merited."*⁶ This served as an indication that, perhaps, there was some way to go before WBAs would enter

widespread use. Unease amongst some areas of the surgical community regarding the use of WBAs followed, including questions regarding their validity and reliability, particularly when large numbers with an associated time burden were demanded. This has prompted trainees and trainers to question the justification for their widespread adoption,⁷ arguing that in the era of evidence-based medicine, training and assessment should also be evidence based.

This article aims to review and discuss the existing empirical educational evidence that surround the introduction and ongoing use of WBAs in surgical training.

METHODS

Setting and Subjects

The surgical training pathway in the United Kingdom commences following national competitive selection into

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