The educational value of work-based assessments: a survey of orthopaedic trainees and their consultant trainers

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Abstract

Background: This study explores how educationally valuable work-based assessments (WBAs) are to surgical trainees and trainers and whether there are barriers to learning? Methods: A questionnaire was sent to orthopaedic trainees and consultants within the Severn Deanery. Results: Ninety-five percent (61) of consultants and 75% (46) of trainees responded. Twenty-one (34%) consultants and 18 (39%) trainees had not received training in using WBAs. Only 16 (25%) consultants and 6 (13%) trainees felt the purpose of WBAs was for education. Trainees reported receiving feedback for WBAs 63% of the time but consultants reported giving feedback 87% of the time. Procedure-based assessments (PBAs) were the only assessments perceived to be educationally valuable by the majority of respondents. Suggestions for improving educational value included more feedback, planning and time, fewer numbers, better training and fewer tick boxes. Twenty-six (58%) trainees and 20 (34%) consultants reported difficulties completing WBAs. The most common problem was lack of consultant’s time; 39 (85%) trainees, 38 (66%) consultants. Over 80% of respondents felt that 40 WBAs a year was too many, as a minimum compulsory number. Eighteen was the most popular preferred number. Conclusions: A cultural change is needed for consultants and trainees to feel that WBAs are not just a tick-box exercise, but a useful educational tool for learning.

Keywords: work-based assessments; education; orthopaedics; surgery

Introduction

Work-based assessments (WBAs) were introduced into medical training after the implementation of Modernising Medical Careers in 2005 (http://www.publications.parliament.uk/pa/cm200708/cmselect/cmhealth/25/25i.pdf). In surgery, WBAs are completed online via the Intercollegiate Surgical Curriculum Project (ISCP) website and trainees are required to undertake a minimum of 40 assessments per year. The assessments comprise procedure-based assessments (PBAs), case-based discussions (CBDs), clinical evaluation exercises (CEXs) and direct observation of procedural skills in surgery (DOPS).

WBAs were designed based on Miller’s pyramid of clinical assessment,1 targeting the highest level of this pyramid, collecting information about how doctors perform in their normal work-place.2 However, the value of WBAs as an assessment tool has been questioned, with research showing that they lack validity and reliability as assessment tools as scores are very vulnerable to assessor differences and assessors have generally been indiscriminate in rating most trainees very positively.3–5 When WBAs were used to pick up trainees in difficulty, assessment scores had a very low predictive value.6

Rather than being simply an assessment tool, the potential benefit of WBAs is to provide structured interaction and observation of trainees to identify and address specific deficiencies or learning needs through timely feedback and reflection.7 The primary purpose should be to provide a short loop feedback between trainers and their trainees – a formative assessment to support learning, with trainees receiving feedback that informs and develops their practice.8 Although WBAs can form part of the portfolio of evidence submitted at the annual review, the WBAs themselves are not meant to be viewed as a summative test.9 There is evidence that they are being used by many in a summative way10 and this is re-enforced by the surgical curriculum requiring trainees to
obtain level 4 (able to perform independently and deal with complications) in PBAs and complete CBDs for critical conditions. This is a use for which the WBA was not designed.

Many studies have examined trainee’s attitudes towards WBAs and have found widespread dissatisfaction with concerns regarding effectiveness, creation of a tick-box mentality, an increased administrative burden and validity. A recent pan-specialty study into perceptions of online WBAs found a reluctance of senior colleagues to engage with the process and inadequate training. They did not enhance learning significantly, particularly as the majority of consultants took over 10 days to provide online feedback. Two studies looked at surgeons in particular: one found that 69% of trainees and trainers felt that surgical training would deteriorate after Modernising Medical Careers, and Pereira found the majority of trainees rated the online assessments poorly and only 6% felt ISCP had a positive impact on training. Both these studies were undertaken shortly after the introduction of ISCP and WBAs, and therefore may reflect negative attitudes towards change and a failure to engage with the system. More recently, in nonsurgical specialties, some studies have shown that when consultants engage in the process, trainees find WBAs valuable. However, lack of time and enthusiasm from trainers were common problems encountered.

The purpose of this study was to explore orthopaedic trainees’ and trainers’ current attitudes towards WBAs as opportunities for learning, with the purpose of improving the educational impact of WBAs.

Materials and methods

Questionnaires were sent electronically to all orthopaedic trainees from ST3-8 (Appendix 1) and all consultant trainers (Appendix 2), within the Severn Deanery, gauging their views and experiences with WBAs. All non-responders were sent up to 2 reminder emails several weeks later.

The questions had various themes: 1–4 related to experience with WBAs, 5–8 covered their purpose and how they are conducted, 9–12 related to feedback, 13–15 explored their educational value, 16 and 17 covered difficulties completing WBAs, 18 looked at compulsory minimum numbers. Finally, there was a free-text box for trainee/trainer comments.

All participant’s responses were anonymized and all participants gave their permission to be involved in the study.

Results

The response rate was 61/64 (95%) for consultants and 46/61 (75%) for trainees. Of the respondents, 3 consultants and 1 trainee failed to answer all the multiple choice questions, with 3/16 questions being skipped by these 3 consultants and 2/17 questions being skipped by 1 trainee. There were 2 questions, which required free-text answers, which were incompletely answered. Thirty consultants and 29 trainees responded to the question “How could the learning experience from WBAs be improved?” and 26 consultants and 29 trainees entered a comment when asked for “any further comments regarding WBAs”.

Experience with WBAs

Twenty-one consultants (34%) and 18 trainees (39%) had received no formal training yet 92% of consultants and 94% of trainees felt confident using WBAs. The type of training was split evenly between written, web-based and face to face (Table 1).

Purpose of WBAs

When asked personally what they felt the most important/useful aspect of WBAs was, 26 (57%) trainees and 37 (61%) of consultants felt feedback was most important. The remainder thought assessment scores were most important. The remainder thought assessment scores were most important.

How WBAs are conducted

Seventy-seven percent of the assessments were performed by consultants, the rest by other registrars or associate specialists. Forty-one trainees (89%) felt that the consultants were the best assessors as they gave more feedback. Two (4%) trainees said that WBAs were planned in advance but 12 (20%) consultants thought they were pre-planned. Nearly half of the respondents, 21 (46%) trainees and 23 (38%) consultants, said that WBAs were done retrospectively. The remainder, 26 (50%) trainees and 23 (43%) consultants, reported WBAs were done spontaneously.

Feedback

Trainees said that feedback was given for 63% of WBAs, but 87% of consultants said they regularly gave feedback. The majority of this feedback was given face to face. Being more specific about feedback, suggestions for future improvements were given only 35% of the time according to the trainees but the consultants claimed to give it 72% of the time.

Educational value of WBAs

PBAs were perceived to be the most educationally valuable assessment tool by both trainees and consultants. CEXs and DOPs were the least valuable (Table 2).

When asked how the educational value could be improved, 25 trainees and 30 consultants responded. This was a free-text question so some respondents gave more than one
suggestion (Table 3). Ten (22%) trainees and 14 (23%) consultants felt WBAs very accurately or accurately reflected ability.

**Difficulties in completing WBAs**

Trainees had more difficulty completing the WBAs than the consultants: 26 (58%) versus 20 (34%) (Table 4).

**Minimum compulsory number of WBAs**

Fig. 1 shows the breakdown of preferred compulsory numbers of WBAs. The most popular number was 18 per year, the same number as required in foundation years. Very few respondents favoured 40, which is the current compulsory number in the UK apart from in London, where it is 80.

**Other comments**

Popular themes from the free comments section were that there were too many WBAs (5 respondents), that they were a tick-box exercise or waste of time (14), that more engagement was needed and if done properly they can be useful (9), they were too blunt a tool and the forms too prescriptive (5).

**Discussion**

It is interesting that more consultants responded than trainees. This may be a sea change in that consultant engagement has always been a problem. This at least shows there is an interest in the process from the consultants in the Severn Deanery.
Over a third of respondents to our survey had not received training in the use of WBAs, and although they generally felt confident in their use, a lack of training may lead to a lack of understanding as to the educational potential of WBAs and therefore limit their usefulness.

The controversies surrounding WBAs are well recognized. The UK Academy of Medical Royal Colleges, who were involved in the introduction of WBAS, also admitted that WBAs were unpopular in a report on assessing doctors in training:

The profession is rightly suspicious of the use of reductive “tick-box” approaches to assess the complexities of professional behaviour…This has resulted in widespread cynicism about WBAs within the profession, which is now increasing.

In an attempt to address this, the General Medical Council conducted a review of WBAs and issued guidance on designing and implementing WBAs. They recognized that in order for WBAs to be valid and useful, trainees and assessors need to understand and value their role in the educational process. The assessment tools and findings from WBAs must be used formatively and constructively. Without this understanding, WBA tools will potentially become no more than a series of external requirements and hoops to be jumped through, and the educational validity of the process will be lost.

Indeed, only 25.43% of consultants and 13.05% of trainees recognized that education was the primary purpose of WBAs, with large numbers still persisting with negative attitudes, viewing them as a tick-box exercise. The fact that 41% felt that the main purpose of WBAs was to assess competence suggests that many still view WBAs as a test. This has been shown to reinforce negative attitudes and poor engagement. A suggestion to solve this issue has been to remove all scorings from WBAs, reducing the tick boxes, and making them purely supervised learning events. This has been introduced in the foundation program portfolio but scores remain in the surgical assessments.

One purpose of WBAs is to help identify trainees who are struggling, therefore it is also important to identify key mechanisms for assisting struggling trainees. It has been found that the association between scores on WBAs and trainees in difficulty are not sufficiently strong to have a useful predictive value. A qualitative study of GP educators found all key mechanisms for assisting struggling trainees involve increasing trainee’s awareness of gaps in their knowledge and ways of communicating and developing an evidence-based framework to guide support interventions. WBAs could provide a very useful tool for this but only if qualitative, timely and accurate feedback is delivered in a sensitive manner. Orthopaedic and other surgical specialties should perhaps look at learning from other fields in medicine to make WBAs more meaningful.

On a positive note, the majority of respondents did recognize the importance of feedback when undertaking WBAs and feedback rates were high. Although as is often the case, the consultants feel they are giving more feedback than the trainees feel they receive. This may indicate a lack of insight as to the quantity and quality of feedback being given and received, and may be addressed with better training and a constructive learning environment, where trainees can have an open dialogue with their trainers in an adult–adult relationship, which is most conducive to learning. In common with previous research, it was found that suggestions for improvement were often not given. This is a major component of the feedback process, which allows development of strategies to improve clinical performance so potential problems can be corrected. The quality of feedback was not specifically determined in this study.

Both trainees and consultants remain unconvinced about the educational value of WBAs, with PBAs being the only assessment valued by more than 50% of respondents. This may simply be that this particular WBA is the one most frequently performed, as ISCP recommend that 50% of yearly WBAs, for registrars, are PBAs. PBAs assess practical skills, where there is a more defined right and wrong way of doing things, therefore making assessment more clear cut. This may increase their appeal to surgeons. A recent study of surgical trainers had similar findings with assessors feeling CBDs and PBAs, which assess higher thinking and practice of complex practical skills, respectively, are significantly more useful than assessments involved in observing more straightforward clinical and procedural interactions.

Suggestions for improving the educational value focussed on improving training, engagement and feedback. It has been suggested that a possible reason for failure of engagement is the bureaucratic burden associated with WBAs and certainly this study found that 17% of consultants and 32% of trainees felt that reforming the assessments, with less tick boxes, would improve the educational value of WBAs. The General Medical Council (GMC) has recognized this and recommends that assessors should make judgements against word descriptors and not against numerical scores and that numerical scales are inappropriate for rating and expressing issues concerning clinical competence. In recognition of this, the special advisory committee to the Joint Committee on Surgical Training has now recognized generic operative supervised learning events as an alternative WBA to PBAs. This new type of assessment reflects the
desire to reduce tick boxes and focus more on feedback, however these are not yet available on the ISCP website and PBAs remain compulsory.

Over half of trainees and a third of consultants had difficulty completing WBAs, with time being the most important obstacle. WBAs if undertaken properly are undoubtedly time consuming, with CEXs taking 25 minutes and DOPs taking 6.8 minutes in addition to the time for the procedure plus a further third of that time for feedback. If 40 assessments are performed per year, this equates to over 16 h per trainee, which is a considerable amount of time for consultants, especially as many consultants will be responsible for multiple trainees at varying levels of seniority. If 80 assessments are performed, as required in London, this is 32 h per trainee. Working this time into trainees and consultants job plans would have considerable financial implications.

An alternative would be to reduce the number of WBAs that each trainee is required to undertake. This was a popular solution with the respondents in this study. Respondents in this study suggested 18 WBAs per year was the most popular compulsory number of WBAs per year. This number may have been favoured as it the same as required in the foundation programme. Only 4 trainees and 9 consultants agreed with the current requirement of 40 WBAs.

Respondents had strong feelings regarding compulsory numbers, re-iterating in the free-text section that they would prefer fewer high quality WBAs. It has been suggested that reducing the number of WBAs may not be reliable due to inter-assessor variability, however it may be possible to overcome this by improving assessor training and reliability is less of a concern if the focus of the WBA is education rather than assessment. The GMC review of WBAs has recommended a more flexible approach where WBAs with tailoring of the required number to individual trainees would ease the time burden and allow more time for fewer higher quality WBAs. This may improve the educational value but only if both trainees and consultants engage with the process.

**Conflict of interest**

No conflicts of interest have been declared.

**References**


Appendix 1: Work-based assessment survey for trainees

1. Have you had any training in work-based assessments (WBAs)?
   None, written, web, face to face

2. How confident do you feel using WBAs?
   Very confident, confident, neutral, unconfident, very unconfident

3. On average how many WBAs do you complete each year? please specify number of PBAs, DOPS, CEXs and CBDs
   PBAS
   DOPS
   CEXS
   CBDs

4. A) Who normally does your WBAs? Please tick answers as applicable, total should be 100%
   Consultant (%), registrar(%), other (%)
   B) Who (e.g. registrar/consultant/other) do you find to be the most useful/valuable assessor for WBAs and why?

5. How are your WBAs usually undertaken?
   Planned, spontaneous, retrospective

6. How do you see as being the main purpose of WBAs?

7. Please rank the following in order of their importance/usefulness to you when completing WBAs, with 1 being the most important and 3 the least.
   Assessor ratings for individual aspects
   Overall performance score
   Feedback
8. How long does each WBA usually take to complete in minutes? Please specify for each of the different types of assessment.

PBAS

DOPS

CEXS

CBDs

9. How often do you receive feedback from WPAs?
Always, most of the time, sometimes, rarely, never

10. How soon after the WBA do you usually receive feedback?
Immediately, same day, same week, longer than 1 week

11. How do you usually receive feedback?
Face to face, online, both

12. How often do you discuss suggestions for future improvements as part of a WBA?
Always, most of the time, sometimes, rarely, never

13. How educationally useful are WBAs for your learning and development?
Very useful, useful, neutral, very little use, not at all useful

14. How could the learning experience from WBAs be improved?

15. How well do you feel WBAs reflect your ability?
Very accurately, accurately, neutral, inaccurately, very inaccurately

16. How easy or difficult do you find the process of undertaking and completing WBAs?
Very difficult, difficult, neutral, easy, very easy

17. What difficulties do you have completing WBAs?
Please tick as many as apply
Lack of your time
Lack of assessors time
Difficulty finding suitable assessor
Difficulty finding willing assessor
Problems with ISCP
Other (please specify)

18. What do you feel should be the compulsory minimum number of WBAs to be undertaken each year?
None, 6, 18, 40, 80

19. Please write any further comments regarding WBAs below.

Appendix 2: Work-based assessment survey for consultants

1. Which levels of surgical trainee do you supervise? (tick all that apply)
Core trainees, registrars (ST3 +), other

2. Have you had any training in work-based assessments (WBAs)?
None, written, web, face to face

3. How confident do you feel using WBAs?
Very confident, confident, neutral, unconfident, very unconfident

4. On average how many WBAs do you complete each year? please specify number of PBAs, DOPS, CEXs and CBDs
PBAS
DOPS
CEXS
CBDs

5. How are your WBAs usually undertaken?
Planned, spontaneous, retrospective

6. What do you see as being the main purpose of WBAs?

7. Please rank the following in order of their importance/usefulness to you when completing WBAs, with 1 being the most important and 3 the least.
Assessor ratings for individual aspects
Overall performance score
Feedback

8. How long does each WBA usually take to complete in minutes? Please specify for each of the different types of assessment.

PBAS
DOPS
CEXS
CBDs

9. How often do you give trainees feedback from WPAs?
Always, most of the time, sometimes, rarely, never
10. How soon after the WBA do you usually give feedback?  
   Immediately, same day, same week, longer than 1 week

11. How do you usually give feedback?  
   Face to face, online, both

12. How often do you discuss suggestions for future improvements as part of a WBA?  
   Always, most of the time, sometimes, rarely, never

13. How educationally useful are WBAs for your trainee’s learning and development?  
   Very useful, useful, neutral, very little use, not at all useful

14. How could the learning experience from WBAs be improved?  

15. How well do you feel WBAs reflect your trainee’s ability?  
   Very accurately, accurately, neutral, inaccurately, very inaccurately

16. How easy or difficult do you find the process of undertaking and completing WBAs?  
   Very difficult, difficult, neutral, easy, very easy

17. What difficulties do you have completing WBAs?  
   Please tick as many as apply  
   Lack of your time  
   Difficulty with trainee availability/ compliance  
   Problems with ISCP  
   Other (please specify)

18. What do you feel should be the compulsory minimum number of WBAs to be undertaken each year?  
   None, 6, 18, 40, 80

19. Please write any further comments regarding WBAs below.