PERSPECTIVE

Workplace-Based Assessment: A Step to Promote Competency Based Postgraduate Training

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There has been an increasing emphasis on defining outcomes of medical education in terms of 'performance' of trainees. This is a step beyond the description of outcomes in terms of 'competence' that encompasses mostly 'potential abilities' rather than the 'actual performance'. The contextual adaptations and behavior judgments of the trainees are best assessed by a program of in-training assessment. Workplace based assessment (WPBA) is one of the modalities, which assesses the trainee in authentic settings. Though Postgraduate (PG) medical training in India is said to be competency-based, most institutions do not have any formative or in-training assessment program for the same. The two cardinal elements of WPBA are 'direct observation' and 'conducted in work place' in addition to provision of 'feedback' to the trainee. The WPBA conforms to the highest (Level 4: 'Does') of Miller's pyramid and also has the potential to assess at all four levels. Some of the tools used for WPBA are: Logbooks, Clinical Encounter Cards (CEC), mini-Clinical Evaluation Exercise (mini-CEX), Case based discussions, Direct Observation of Procedural Skills (DOPS), Multisource feedback (peers, co-workers, seniors, patients) etc. These can be documented in the form of a portfolio that provides a longitudinal view of experiences and progress of the trainee. The WPBA scores high on validity and educational impact by virtue of being based on direct observation in real situation and contextual feedback. The feasibility and acceptability is enhanced by making appropriate choices of tools, advance planning, building of mutual trust, and training of assessors. Given the established benefits of WPBA in shaping clinical learning, there is an imminent need for including this mode of assessment in our clinical training programs especially PG training.

Key words: *Assessment, Feedback, Direct observation, In-training assessment, Medical education.*

The medical profession training initially originated as an apprenticeship model. The learner observed, assisted, performed in the actual clinical setting and improved by feedback from the mentor based on his performance. With time, we moved to a model where initial years of training were confined within the walls of the lecture halls and demonstration rooms and the trainees were only subsequently exposed to the real patients. The training years were compartmentalized as pre-clinical, para clinical and clinical. The assessment methods also conformed to this curricular plan.

The contemporary trends in medical education demonstrate an effort at dissolution of boundaries between the three stages of training with an early exposure to patients and clinical practice areas ('early clinical exposure'), and a 'learning while doing' (the student doctor) approach. Similarly, the postgraduate trainees develop different competencies at various seamless stages of training with an overall goal of being able to deliver specialist health care. Clearly, the emphasis is on the performance of the trainee rather than only on his competence. Simply put, while the competence is the ability to do a certain task, the performance refers to an overall output in a real situation, based on the ability, context and judgment of the trainee. Development of many competencies leads to a certain level of performance in an actual situation.

In India, the Postgraduate Medical Education Regulations 2000 (PGMER) [1] of the Medical Council of India (MCI) state that PG training be competency based and also suggest the use of logbook for monitoring the learning process. However, these regulations do not provide any details of in-training assessments. While there is a provision of internal assessment for periodic assessments during MBBS program, there is no such requirement for PG courses. Postgraduate training is directed not merely at attainment of knowledge, attitude and skills but also at observable responsiveness and appropriate functioning in real life situations. It follows

that even the most ideal of conventional assessments conducted in examination settings will fall short of measuring these outcomes. There is indeed a need to observe and assess the trainees in real situations so that necessary mid-course corrections can be provided to the trainees. Workplace based assessment (WPBA) is being increasingly used to assess the trainees by direct observation and to shape their learning.

The Postgraduate Medical Education and Training Board (PMETB) of UK, defines the term WPBA as the assessment of working practices based on what doctors actually do in the clinical setting and is predominantly carried out in the workplace itself [2]. The two cardinal components of WPBA are 'direct observation' and 'conducted in workplace.' A third, indispensible aspect is provision of feedback.

The current deficiencies in our assessment system are due to lack conceptualization of assessment as a process for continuous improvement and learning leading to non-utilization of many available tools. This article discusses the rationale for using WPBA for in-training assessment, its advantages over the traditional assessment methods, its educational utility, the tools used for WPBA and the Indian scenario with respect to the possible challenges that need to be addressed for optimal inclusion of WPBA in medical training.

RATIONALE AND ADVANTAGES OF WPBA

The practice of medicine may be described as a 'performing art based on science and judgment'. This means that while there is a necessity to assess the scientific knowledge base, the assessment is essentially incomplete without an assessment of performance and judgment. And, there is no better place to do so than in the workplace itself, in real context. Several supporting arguments can be put forth in favour of adopting WPBA [**Box 1**].

Conforms to highest level of Miller's pyramid: Miller's pyramid [3] is a simple and useful model for assessment of clinical competence/performance. The base of the pyramid is rightfully formed by the knowledge base ('Knows') – assessed by simple knowledge tests. The next level 'Knows how' measures understanding and application of knowledge and can be assessed using patient management problems, short essay questions etc. The third level 'Shows how' or competence is amenable to measurement by methods such as OSCE. Till recently this appeared sufficient to make a judgment about the outcome of training. However, the performance of doctors in controlled examination situations correlates poorly with what they do in actual practice [4]. And hence the need to assess at the highest levels i.e. the "Does" level. WPBA assesses the optimal and judicious use of competencies in authentic settings.

Focus on clinical skills including the necessary soft skills: The clinical skills development is at the very centre of medical training. The importance of good history and physical examination in making a correct diagnosis cannot be overemphasized. This is substantiated by studies that have reported that the correct diagnosis can be established in more than 75% of patients based on history and clinical examination alone in different clinical settings [5,6].

The backbone of clinical skills lies in several soft skills such as such as communication skills, professionalism, and ethics - also referred to as non-cognitive component of clinical skills [7]. It is this non-technical component of one's abilities that determines how well a person uses his/ her clinical skills for health care delivery [8]. Therefore, it is not only important to include a formal training for developing these soft skills along with the technical clinical skills in the medical curriculum but also an effective assessment plan for the same. Unfortunately, this is not done despite their perceived importance. To add to it, these non-cognitive skills are not easily amenable to assessment by traditional assessment methods. There is some effort to assess these skills by methods that assess competence such as the OSCE but these remain confined to the examination situation and the results may not be generalized to the actual performance in real life [4].

Many of the tools for WBPA such as the Mini-Clinical Evaluation Exercise (mini-CEX) and Directly Observed Procedural Skills (DOPS) inherently include an assessment of communication skills. The subjective judgment of the patient-trainee interaction by the assessor

Box 1: RATIONALE FOR ADOPTING WPBA

- Conforms to the highest level of Miller's Pyramid
- Focus on clinical skills including the necessary soft skills (communication, behavior, professionalism, ethics, attitude)
- Observation (in real situation) and feedback
- Context and content specificity
- Compensates for some shortcomings in the traditional assessment methods
- Seamless blending of purpose and ideology with that of In-Training Assessment
- Alignment of learning with actual working
- Encourages reflective practice

in a variety of situations (recorded on a global rating scale) allows for a contextual feedback. This also overcomes the problem of a relatively rigid checklist based assessment of communication skills since the professional behavior and communication pattern may vary with context, clinical situation, country and region.

Observation (in real situation) and feedback: Carrying the earlier argument forward, the WPBA not only provides the opportunity to observe and assess in the real life situation but also to provide a feedback for improvement at the most appropriate time. The landmark meta-analysis by Hattie established the importance of feedback as an important contributor to learning [9]. Feedback is most effective when given for specific tasks. Despite clear evidence in support, the power of observation of actual clinical work and feedback remains grossly underutilized in medical education. While no such data is available from India, studies from western countries suggest that less than one third of clinical encounters are actually observed during training [10,11]. At the Postgraduate level, up to 80% of Postgraduate students may have only one observed clinical encounter [12]. The above facts make it amply clear that not only there is a limitation in terms of number of opportunities available for direct observation and feedback but also gross underutilizations of these sparse opportunities.

Context and content specificity: Context is important in any learning situation. It is a major determinant of how a physician will perform in a certain clinical setting [13]. The content areas in a curriculum are also developed based on larger/local needs and context. However, when selecting cases to be included in an examination, the assessors are liable to select cases that are exclusive or catch their fancy rather than the cases that a student doctor must essentially master. One example is keeping a complicated case with neurological problems rather than a 'simple' case of anemia or malnutrition in the practical examination. This weakens the interpretations drawn from such an assessment in terms of loss of generalizability to real life performance. The WPBA inherently maintains a certain level of context and content specificity of assessment as the work place is best suited for sampling the situations that a student will actually encounter in clinical practice after qualifying.

Compensates for some shortcomings of the traditional assessment methods: As has already been discussed, the traditional assessment methods have largely focused on assessing competence. The assessment methods that have been in use are more concerned with measuring the outcome rather than the learning process. It is well accepted that for assessment to be meaningful, it should be a longitudinal plan (rather than one time at the end or mid term), it should include a sample of multiple areas of work (representative of actual work); and, it should focus on the process of learning as much as on its outcome [14]. The assessment is put to its best use when it is also used modulate the learning process by providing a directional feedback to the learner for improvement.

The WPBA encompasses all the above desirable components by: (*i*) Its potential of being included as a longitudinal plan spread during the course of study; (*ii*) The real life situations providing good sample of the situations that the trainee will actually encounter after completion of training; (*iii*) The artificiality of examination situation not being there, the trainee is likely to be more at ease and also the system related influences such as facilities and infrastructure are likely to be minimum; (*iv*) Providing several opportunities for contextual feedback and improvement thereby keeping the trainee on a proper course of learning.

Alignment of learning with actual working: Use of problems as a trigger for learning utilizes the principle of contextual learning. This has been the basis of teaching methods such as case-based learning or on a larger scale in the Problem based learning curricula. Literature suggests that learning in workplace is triggered by specific problems encountered in the course of work [15]. This difference in on-the-spot learning and planned learning is well described by Hoffman and Donaldson [16]. This calls for a definite and deliberate effort at recognizing and exploiting the learning opportunities at workplace.

WPBA is an assessment method and also a learning method that is capable of responding to this call. It encourages deliberate observation and feedback at the workplace and therefore has the potential for promoting on-the-spot and problem/context specific learning.

Encourages reflective practice: The assessment based feedback to function as a tool for learning necessitates reflection by the recipient (student) as well as the provider (teacher). Feedback is more effective when provided around a specific task. It is likely that the contextual feedback provides a powerful trigger for reflection and the recipient is compelled to think back upon how he performed and how he could have done better based on feedback and his own thoughts. The teacher is also likely to reflect upon what kind of feedback he gave and how and what effect it produced in the learner. The WPBA functions on the foundations of feedback. The direct observation at workplace is only made useful by the accompanying feedback and its ability to trigger reflection. Therefore it provides readymade

system for encouraging reflective practice and hence enhances learning.

Tools for WPBA

It may be emphasized here that WPBA is not being recommended as a replacement for conventional assessment system but as a complement to it for best benefit. The tools in use for WPBA are best used in a judicious combination as per local feasibility and context. These may be grouped under some broad categories as under:

- *Documentation* of work by the trainee through logs e.g. Logbook, Clinical Encounter Cards (CEC)
- *Direct observation* of trainees performance during clinical encounters such as the mini-Clinical Evaluation Exercise (mini-CEX), Direct Observation of Procedural Skills (DOPS), Acute Care Assessment Tool (ACAT), Clinical Work Sampling (CWS)
- *Discussion* of individual clinical cases such as Chart Stimulated Recall (CSR; also referred to as Case-based Discussion or CbD in UK)
- *Feedback* on routine performance during clinical work from the peers, coworkers and patients (multisource feedback) using tools such as mini- Peer Assessment Tool (mini-PAT), and Patient Satisfaction Questionnaires (PSQ)
- A *longitudinal compilation* of above assessments and own reflections or learning from other sources into a *Portfolio*.

***Web Table* I** gives a brief overview of some of the common tools in use [17, 18].

PROVIDING FEEDBACK AFTER WPBA

The strength of WPBA lies in direct observation and provision of contextual feedback. The crucial factors that determine the effectiveness of the feedback include the timing of feedback, the method of giving feedback, the focus of feedback being on alterable behaviors, environment of confidentiality and mutual trust. The assessor compares the trainee performance to standard (if possible) or expected norms based on own professional judgment. The onus is then on the assessor to present it to the trainee in an acceptable form with a doable action plan for improvement. The trainee on his part is expected to have an open approach with willingness to reflect upon his own performance and the feedback provided.

Various methods have been described for providing effective feedback [19]. The simplest of these is the 'sandwich method' wherein criticism is delivered between 'layers' of praise. Pendleton's framework [20] is

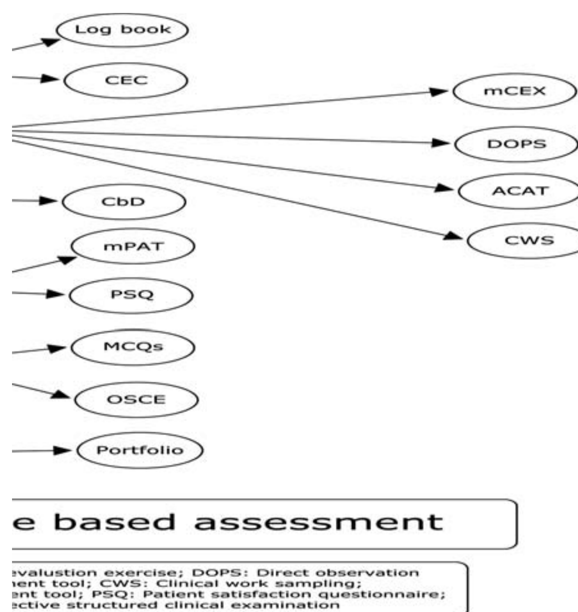

FIG.1 *Workplace based assessment.*

another common model in use. It requires the trainee to first state as to what went well followed by what could have been done better to improve the performance. Then the assessor provides the suggestions. This is sometimes criticized on account of being too rigid and more flexible modifications have been developed by educationists.

UTILITY OF WPBA FOR ASSESSMENT PROGRAM

The utility of any assessment is conceptualized as a product of validity, reliability, feasibility, acceptability and educational impact [21]. It follows that there may be tradeoffs between these key elements in various assessment plans. The corollary also is that that an assessment may be designed to have an overall utility even if it scores suboptimal on any one aspect.

The WPBA inherently scores high in terms of validity by virtue of being set in real clinical situation at the work-place. It provides for observation of a wide sample of clinical work in authentic setting. Studies have shown a consistent correlation with other measures of clinical competence.

The reliability of WPBA is not as much an issue of debate as its generalizability. Since most tools used for WPBA involve many encounters with many assessors spread over a period of time, the reliability builds up to a reasonable extent. Six to 8 encounters in a year are considered optimal to give an acceptable reliability. The acceptability of WPBA depends on sensitization of students and faculty, fostering an environment or mutual trust, the training of assessors in providing feedback.

These are all modifiable factors that can be improved with some deliberate effort in the direction. Some reports have come from India showing acceptability of some of the methods [22, 23]

The feasibility of WPBA may even be better than the traditional assessment methods as it is carried out during the course of routine work. Though it requires initial faculty training, some extra time and student sensitization, there is hardly any requirement for additional infrastructure. In India, where clinical work is abundant and most trainees are actually overburdened with work, this may be the most appropriate developmental learning modality.

The educational impact of the WPBA is high on account of its being based on developmental and contextual feedback. The significant impact of feedback on learning has already been discussed earlier in the article.

Indian experience with WPBA and its potential role

Some of the WPBA tools such as the mini-CEX, DOPS or tools similar to those described are being used at a few institutes in our country. However, they are employed as isolated methods rather than as a part of a planned WPBA program. [22-25]. These initial reports are encouraging in terms of acceptance by faculty and students and feasibility as well. There is also unpublished work by the first author and others on including workplace based methods in UG and PG training.

It is important to point out that using these tools per se may not result in the desired outcomes. What is important is to incorporate them as a part of a larger assessment program that already has traditional methods in place. Not all tools may be used in all situations, and an optimal mix of an optimal number WPBA assessment encounters (6-8 in a year) may retain reliability with feasibility.

Limitations of WPBA

The WPBA is not a replacement of traditional methods of assessment but as an add-on method specially to the in-training assessment or formative assessment. The students who perform well in initial encounters may get overconfident and this may impede the motivation to improve. [26]. The weaker trainees on the other hand may get discouraged by initial few encounters and may avoid seeking feedback. Since the WPBA puts a demand on time, there is a tendency for the trainees to seek less senior assessors. There is evidence to suggest that the more senior staff and expert staff may give lower but more accurate rating of performance [27]. Given the important role of subjective evaluation in WPBA, this becomes an important consideration. It is also important to remember that most of the tools for WPBA are 'un-standardized' by conventional psychometric standards. In a standardized tool like say multiple choice questions, reliability is built within the tool but with WPBA, it depends on how the tool is being used. This may require faculty training for making best use of these tools. The trainees also need to be sensitized and shown the beneficial effects of feedback to make these tools more acceptable.

CHALLENGES TO IMPLEMENTATION

Some of the challenges to introduction and integration of WPBA in the present curricular plan are discussed below, along with possible suggestions for overcoming them.

Sensitization of students and faculty: "*The eyes do not see what the mind does not know*". Even with ample opportunities of direct observation of trainees work every day, we as trainers, let go of these essentially because most of us are not consciously aware of the immense teaching-learning potential of this simple act. We wait for holding a formal examination to evaluate the students (and hopefully providing a feedback). Sensitization programs on WPBA may be an initial step in making everyone aware of the opportunities available at hand every day. The introduction and training in actual methods may then follow.

Faculty training: This is perhaps the biggest challenge to implementation of WPBA. The training of assessors is important in two main areas: (1) Clarity on what to assess and the norms to expect, and, (2) the art of giving effective feedback.

The former will reduce the chances of suboptimal performance or essential skill being missed out by assessors, specially those who are less experienced. It will also contribute to the standardization of the assessment. The latter training is essential for any trainer in view of the fact that feedback is significant contributor to learning. The benefit of the entire exercise may be lost if the feedback is not delivered in an appropriate positive manner with suggestions for improvement. An additional issue could be of a potential conflict in the role of faculty members as a teacher as well as assessor. This may surface as unwillingness to record negative evaluations and therefore a possible likelihood of failing to identify the residents in difficulty. This barrier may, at least in part, be overcome by appropriate sensitization and training of faculty.

Demonstrating feasibility: Introducing a new method in the assessment plan requires much enterprise and planning. This inertia is partially overcome if one sees it

being introduced in other institutions. The key solution here may be that the interested educational leaders at various institutes in India come together and introduce WPBA as a planned program at their respective institutions. This may not only prove to be a motivational step for others but also demonstrate the feasibility in our setting.

Creating an environment of mutual trust: This calls for a change in the thinking and culture and is understandably a big challenge. Assessments innately imply some degree of competition. Competition can make people wary of assessment and view the efforts at feedback/improvement with suspicion. It is therefore important to bring the two key stakeholders (student and teacher) on a common platform and create an environment of nurture, professional educational support and mutual trust rather than competition [26]. Mutual trust is essential for any fruitful feedback session.

Inclusion in the regulations: There is a global agreement on benefit of inclusion of this modality in the assessment plan in medical education. Many countries have well established guidelines for its implementation. The efforts at integrating this into the Indian medical training will certainly get a boost if it is included and recommended as a part of the standard regulations of the MCI along with clear guidelines for implementation. Literature also confirms the important role of external regulations on the feedback process in WPBA [28]. They suggest that the possible ways to enhance implementation might include stipulation of a mandatory frequency of observation and feedback, conduction of a quality review in addition to provision for instructions and training to assessors and trainees.

We have argued that assessment provides us with an opportunity to not only tell what the trainees have learnt but it also tells us the quality of their learning. In-training assessments are intricately related to competency based training and unless the 'formative' function of assessment is invoked, it may be difficult to ensure that the trainees acquire the required competencies. WPBA provides us with tools and techniques and is similar to internal assessments so commonly used for undergradutes in medicine and other educational streams. In essence, WPBA are to clinical skills, what class tests are to knowledge.

In summary, 'Competencies are developmental' and so must be their assessment. The utility is further enhanced by conducting it in authentic settings. The WPBA has both the elements *i.e.* developmental trajectory as well authenticity. Therefore it is strongly recommended for incusion in the in-training assessment program for any competency based PG training.

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