Recent Advances in Medical Postgraduate Evaluation

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Recent publications have stressed the importance of evaluation of professionalism in medical postgraduates as opposed to the conventional areas of knowledge and skills. Harden (2011) has emphasized that postgraduate evaluation should shift from assessment of learning to assessment for learning. The postgraduate Medical Education and Training Board of the United Kingdom lays stress on the fact that any postgraduate evaluation method should provide feedback to the trainee to enable self improvement. Globally, the World Federation of Medical Education in 2003 itself had said that postgraduate assessment should focus on formative in-training methods and constructive feedback.

Postgraduate evaluation, therefore, should be multi dimensional and should serve all the following purposes(Duffield and Spencer, 2002).

- Certification
- Ensuring competence
- Ensuring professionalism
- Assessing predetermined quality
- Monitoring progress
- Motivating and guiding learning
- Assessing effectiveness / weakness of curriculum
- Providing feedback
- Predicting performance as a qualified doctor

Two concepts require definition in this context – viz. competence andprofessionalism.These are two major areas to be focused on in professional assessment.

A competent professional is one who possesses required skill, knowledge and attitude to perform a desired function. Competency is defined as the values, attributes or qualities required by a professional to perform effectively, efficiently and satisfactorily in his profession.

The American college of graduate medical education (ACGME) mentions six domains of competence in a medical professional, viz.

- Medical knowledge
- Patient care
- Professionalism
- Communication and interpersonal skills
- Practice based learning and improvement
- Systems based practice

In this context, three terms require a more detailed definition. Professionalism is manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population. Practice-Based learningand Improvementinvolves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence for improvements in patient care and Systems-Based practice refers to actions that demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value (give reference)

If postgraduate evaluation is to serve all these purposes, it is necessary to distinguish between a norm referenced and criterion referenced method of evaluation. The differences between the two are shown in the following table.

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Criterion referenced evaluation	Norm referenced evaluation
Candidate is assessed against fixed acceptable level of performance without reference to other candidates	Candidate is assessed against arbitrarily fixed norms (pass marks) and generally in comparison to his peers
Acceptable level of performance is high for must know and must do areas	Level of acceptability is irrespective of importance of outcome being tested
Consensus between examiners is mandatoryas to what is the acceptable level	Less emphasis on consensusbetween examiners on what is acceptable
Is applicable to areas where skill assessment is very important	Is more applicable for knowledge assessment

It is seen, therefore, that only a criterion referenced system of evaluation can meet needs of postgraduate assessment as per recent requirements.

Several questions need to be asked before a postgraduate evaluation (Swing, 2002). These are

- What are the competencies to be assessed?
- Is there a need to assess some or all of them?
- Is the competency assessable?
- Is (are) there (a) suitable method(s) / tool(s)?
- Should assessment be continuous or terminal?
- What should be the size of sample for reliability?
- What is the purpose of the score obtained?
- To the individual
- To the institution
- To society

It is necessary to ask ourselves whether the current methods of postgraduate assessment meet these requirements. The current methods of postgraduate assessment and the problems with these are shown in the following table.

Conventional methods of postgraduate Assessment	Issues with conventional methods of postgraduate assessment
• Theory • Practical • Clinical • Viva Voce • Ward Rounds • OSCE • Dissertation • Logbook	• Lack concurrent, construct and predictive validity • Are tested in an unreal situation • Are not in conformance with Miller's pyramid and do not test the higher levels • Lack direct observation • Have little or no scope for feedback to trainee

To some extent the deficiencies of the listed methods can be compensated by internal evaluation on an ongoing and continuous basis. Unfortunately internal assessment has no weightage at all in the current scheme of things as far as postgraduate evaluation is concerned in India.

A new term has, therefore, evolved in the context of postgraduate evaluation. This is Workplace based assessment **(WPBA). WPBA** implies

- The assessment of working practices based on what doctors actually do in a clinical setting, predominantly carried out in the workplace itself
- Collecting information on performances from various sources both for assessment and for feedback. (PGME & Training board, UK)

An excellent review of methods of WPBA has recently been published(Singh and Sood, 2013). There are other very perspicacious articles on WPBA and assessment of competencies. This presentation has drawn heavily from some of the landmark publications listed at the end.

In general WPBA,

- Focuses on skills
- Is less subjective since it uses multiple sources of information
- Provides feedback
- Provides a broader and more representative sampling, hence more valid
- Enable longitudinal assessment
- Is in alignment with learning in work place

There are several examples of WPBA each applicable to a different requirement of evaluation, for e.g.

- Documentation of work experience
- Logbooks, clinical encounter cards (CEC),
- Observation of individual clinical encounters
- Mini-cex, DOPS, video-consultation assessment, standardized patients,
- Discussion on individual clinical cases
- Case based discussion (CBD), chart-stimulated recall (CSR), mini PBAs
- Audits
- Multi source feedback (360^0), patient satisfaction surveys,
- Portfolios

The following section gives some details about the various methods of WPBA.

Clinical encounter cards (CECs): In this method, the student fills up computer readable cards, one for eachpatient and enters all data about that patient in thecard including initial and followup details. These cards are read by assessors / tutors at regular intervals largely with the purpose of determining whether the candidate has sufficient clinical exposure. If the tutor finds that there are areas which are inadequately covered either by way of variety or number, then a feedback sis given so that the areas of deficiency may be made up.

Mini clinical evaluation exercise (Mini-Cex): It is similar to a case presentation with few differences. The encounter between the assessed and the assessor lasts for 10-15 minutes while a patient is being examined and focuses on skills such as history taking, physical examination, clinical judgment, communication with patients, time management and overall decision making. As is normal for all WPBA methods there is a session at the end for feedback. Mini-cex has been found to be a reliable method of assessing clinical examination and decision making skills,

Direct Observation of Procedural skills (DOPS): This is similar to mini-cex but instead of focusing on examination skills, targets adequacy of procedural skills. The duration is same as for mini-cex. It has an advantage over OSCE in thatit is not constrained by the artificial time limit imposed on an OSCE station which isusually a maximum of about 5 minutes. OSCE does not permit observation of skills whichrequire a longer duration. Once again since there are multiple such encounters annually involving multiple assessors, validity is increased and subjectivity reduced. Feedback is once again a mandatory part of the process.

Case based Discussion (CbD) and Chart Stimulated Recall (CSR): The purpose of CbD and CSR are different although the process is essentially the same. In CSR the focus is on ability to defend and justify one's line of management

concerning a patient who has been seen and managed in the past and whose details are retrieved from the medical charts whereas in CbD, the focus is on planning and management of a freshly admitted patient. Both procedures involve sessions of about 15 minutes for encounter and are followed by detailed feedback highlighting errors.

Mini-peer assessment tool (m-PAT): This is done by a assessors from peers / supervisors who periodically fillup appropriate forms focusing on technical / interpersonal / team works skills and professionalism. Comments from patients, if considered relevant, may be included verbatim. M-PAT is a limited method of multisource feedback since the assessors are limited to peers and supervisors.

MSF (360^0): This is by far the most significant aspect of postgraduate assessment from the point of view of professionalism. It is similar to **mini-PAT** but involves a larger pool for feedback – peers, other health care professionals, patients, relatives, etc. The aim is to obtain insight into trainee's work habits, team work, interpersonal relations, professionalism etc. It is generated confidentially and may include written feedback, verbatim reports, narratives etc

Portfolio: This is atool for collecting, storing and presenting comprehensive evidence regarding competence at all stages of training. It contains both educational experiences (procedures, case presentations, seminars, journal clubs etc.) and reflections of the student on those learning experiences. This latter aspect makes it different from log books. Portfolios also contain all academic records found in logbooks such as record of publications, critical incidents during training, performance on WPBA and other evaluation tools. Portfolios are assessed periodically and feedback is given to the candidate.

Portfolios are very useful for assessing **professionalism, practice based improvement and clinical performance** over a period of time. They are a true reflection of work place performance. However, portfolios are very labor intensive and requires trained faculty.

Advantages of portfolios:
- Assesses what is not easily assessed
- Assesses range of curricular outcomes
- Facilitates learning
- Is continuous
- Authentic / real life
- Multiple assessment methods
- Identifies poor performers early
- Assesses extent of learning
- Demonstrates self expression / creativity
- Gives feed back

To summarize WPBAmethods have several advantages such as:
- High validity and reliability (correlates well with other measuring instruments)
- Subjectivity is reduced by multi-sourcing encounters and feedbacks
- High degree of feasibility
- Generally requires less time for individual encounters
- Highest degree of feedback

One important requirements of postgraduate evaluation is to match the evaluation tool with the objective. Unmatched evaluation tools would neither have validity nor would they be reliable indicators of performance. The following are suggested tools for evaluation of various competencies (Reference).

Competence: Thinking critically, decision making, problem solving
- Problem oriented objective items
- Mini PBAs
- Simulated Patient Management Problems (SPMP)
- Chart based discussion

- CbD, CSR
- MSF
- Viva voce – higher order
- Field work
- Project work
- Group work

Competence:Procedural skills
- DOPS
- OSCE
- Bedside clinics
- Standardized patients
- Performance on Simulators with check lists
- Portfolios and logbooks

Competence: Accessing and managing information
- Dissertation
- Journal clubs
- Topic reviews
- Projects
- Case logs

Competence: Demonstrating knowledge and understanding
- Written examination
  - Essays
  - SAQs
  - MCQs
- SPMP
- Oral examination
- Writing a report
- Topic presentation and response to questions
- Reviewing a journal article
- MSF

Competence: Listening and communication skills
- 360°
- Peer assessment
- Video recorded patient encounter / or relatives encounter
- OSCE with checklists
- Field work
- Oral presentation / oral examination / case presentation
- Written presentation
- Summarizing
- Discussion / debate / role play
- Ward rounds
- Taking UG classes / giving health education talks

Competence: Attitude, ethics andprofessionalism
- Multi source feedback
- Patient surveys
- Video recorded patient or relative encounter
- Direct observation of performance
- Attendance and regularity

Competence: Managing and developing oneself, self learning, CPD
- Portfolio
- Group work
- Attendance at CMEs, conferences, interdepartmental meetings
- Faculty feedback
- Projects
- Problem solving exercises

Competence: Originality and creativity
- Portfolio
- Ward rounds
- Projects
- Faculty feed back

Competence: Systems based practice
- MSF
- Record reviews
- Patient surveys
- Portfolios

Competence: Practice based learning and improvement
- Portfolios
- CSR
- Record reviews
- MSF
- Case logs
- Patient surveys

To summarize, it is necessary considering the needs of society,amongst whom postgraduates will ultimately serve, the methods chosen to make sure that they fully meet the requirements of the job of expected of them should not only becriterion referenced, a system in which they are judged not in comparison to their fellows but against fixed standards, but also should have other characteristics.

Those who have the role of certifying adequacy of training must be able to match newer methods of assessment to the competency to be evaluated, critically examine these newer methods with reference to their applicability to their own disciplines for formative evaluation initially and subsequently for summative evaluation fully understanding the relationship between purpose of assessment, competency to be evaluated and the tool selected for that purpose.

Suggested further reading

1. Selecting methods of assessment (unpublished material.
http://www.brookes.ac.uk/services/ocsld/resources/methods/html
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11. Shumway JM, Harden RM. The assessment of learning outcomes for the competent and reflective physician. Medical Teacher 2003;25: 569-84.
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