

Challenges in Mounting Examinations Used for Maintenance of Medical Specialty Certification

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Overview of Presentation

1. Quick overview of certification procedures
2. Challenges in mounting exams used for maintenance of certification (MOC)
3. Design of longitudinal assessments
4. Questions and discussion



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- Allergy and Immunology
- Anesthesiology
- Colon and Rectal Surgery
- Dermatology
- Emergency Medicine
- Family Medicine
- Internal Medicine
- Medical Genetics & Genomics
- Neurological Surgery
- Nuclear Medicine
- Obstetrics and Gynecology
- Ophthalmology
- Orthopaedic Surgery
- Otolaryngology
- Pathology
- Pediatrics
- Physical Medicine & Rehabilitation
- Plastic Surgery
- Preventive Medicine
- Psychiatry & Neurology
- Radiology
- Surgery
- Thoracic Surgery
- Urology



Requirements for Certification by ABMS Boards

- | Initial Specialty Certification | Maintenance of Certification |
|---------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Medical license (active and unrestricted) | 1. Medical license (active and unrestricted) |
| 2. Completion of training in an accredited program <ul style="list-style-type: none">• 3 – 7 years | 2. Satisfy requirements for lifelong learning and self-assessment <ul style="list-style-type: none">• Accredited CME (mostly) |
| 3. Pass assessment(s) of knowledge, judgment, skills <ul style="list-style-type: none">• MCQ exam• Oral exam (some Boards) | 3. Pass assessment of knowledge, judgment, skills <ul style="list-style-type: none">• Summative MCQ exam every 10 years (mostly) |
| | 4. Improvement in Medical Practice project(s) |



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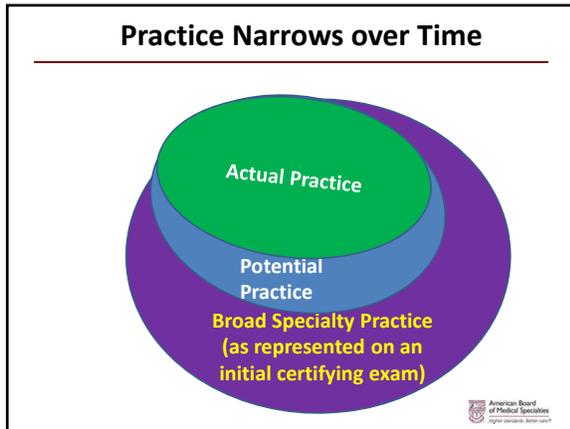
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Challenges in Mounting MOC Exams

- It can be difficult to determine what content areas to assess: practices evolve (mostly narrow) over the course of a career

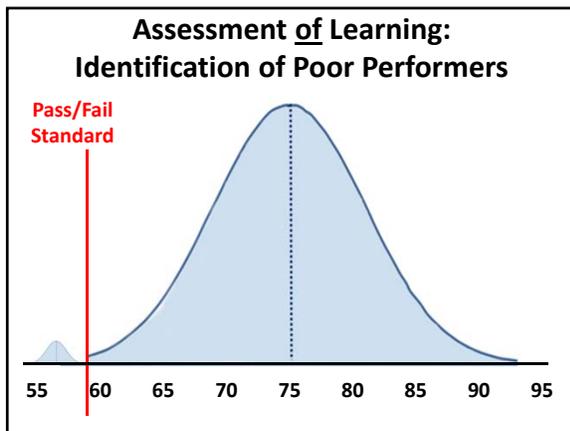




Challenges in Mounting MOC Exams

- It can be difficult to determine what content areas to assess: practices evolve (mostly narrow) over the course of a career
- The primary purpose of the test may be unclear

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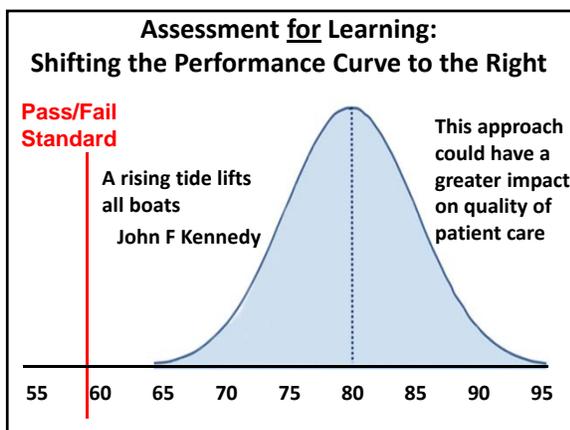


Criteria for Assessment of Learning

- **Validity:** There is a body of evidence that supports the *use of the results of an assessment for a particular purpose.*
 - Appropriate coverage of the desired knowledge and skills; no skills required on the test that are not required in real situations
- **Reproducibility (reliability):** The results of the assessment would be the same *if a similar assessment were repeated under similar circumstances*
 - Depends on broad sampling of content (items, cases) & raters
- **Equivalence:** The assessment *yields equivalent scores* or decisions when given at different places/points in time

These traditional psychometric criteria are critical for summative, high-stakes assessments

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Criteria for Assessment for Learning

- **Feasibility:** The assessment is *practical, realistic, and sensible*, given the circumstances and context
- **Acceptability:** Stakeholders find the assessment process and results to be *credible*.
- **Educational effect:** The assessment *motivates* those who take it to prepare in a fashion that has educational benefit.
- **Catalytic effect:** The assessment provides results and feedback in a fashion that creates, enhances, and supports education; it *drives future learning forward*.

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Challenges in Mounting MOC Exams

- It can be difficult to determine what content areas to assess: practices evolve (mostly narrow) over the course of a career
- The primary purpose of the test may be unclear
- Tests of knowledge may assess recall of isolated facts that are of marginal relevance to patient care
 - Particularly problematic if the facts aren't even relevant to the test taker's practice

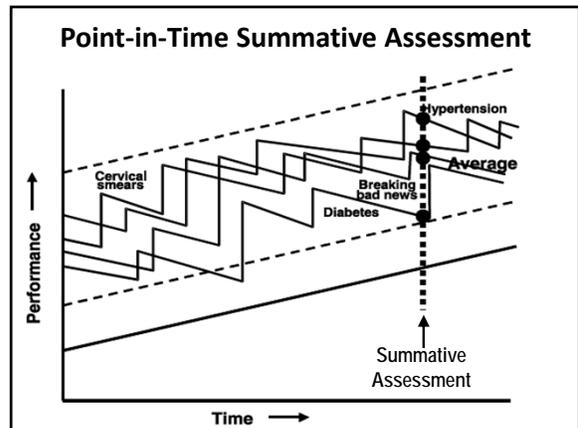
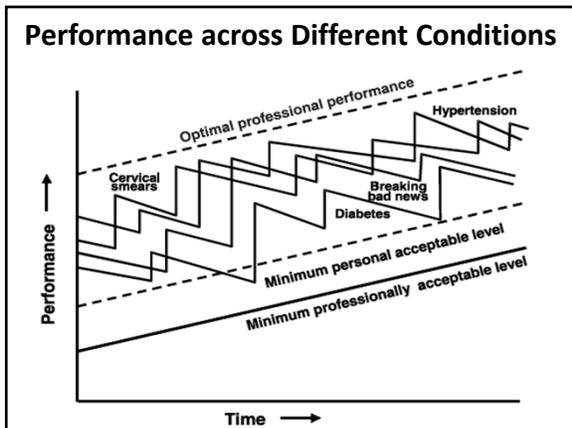
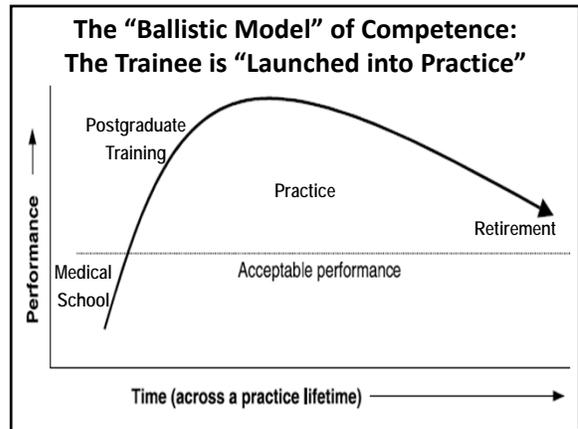


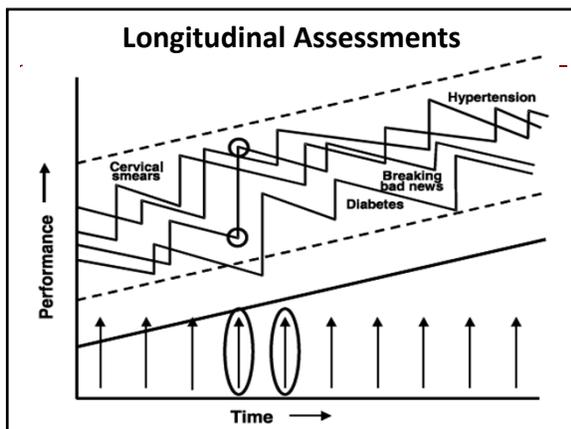
Testing Application of Knowledge, not just Recall

<p>Recall Version</p> <p>Which of the following is the most appropriate initial management of suspected optic neuritis in patients with multiple sclerosis?</p> <p>A. Intravenous methylprednisone B. Oral methylprednisolone C. CT scan of the orbit D. MRI scan of the brain</p>	<p>Application Version</p> <p>A 24-year-old woman experiences sudden loss of vision in her right eye with a visual acuity of 20/400. She has a right afferent pupillary defect, optic disc swelling, and a central scotoma. Her left eye is normal. A complete neurological history and physical examination reveal no abnormalities. Which of the following is the most appropriate next step?</p> <p><i>(same option list)</i></p> 
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- The primary purpose of the test may be unclear
- Tests of knowledge may assess recall of isolated facts that are of marginal relevance to patient care
- In isolation, a high-stakes exam taken every 10 years may lack credibility, particularly toward the end of a career, particularly if they are not practice-focused



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Research on Test-Enhanced Learning

Direct Effects of Testing:

- Material is better remembered when it is tested than when it is not
- In well-controlled studies, being tested boosts retention substantially more than studying for equal amounts of time

Indirect Effects of Testing:

- Study time increases and study strategies improve with frequent, longitudinal assessments
- Frequent, longitudinal assessments encourage keeping up to date

“Spaced Repetition”

- Benefits are increased if testing is spaced in time: Distributed practice superior to massed practice in promoting retention
- Testing effects are greater when “effortful retrieval” of information is required: test application of knowledge, not just recall of facts

Suggests a different approach to MOC assessments

Hallmarks of Many Longitudinal Assessment Programs

- Longitudinal assessment with spaced repetition
 - Adaptive learning to promote learning, retention, keeping up to date
 - Ratings of certainty and relevance to practice collected
- High-quality, practice-relevant content
 - Customization of content to better match to diplomates’ practice
 - Case-based items requiring application of knowledge to patient care
 - Article-based items to assist doctors in keeping up to date
- Flexible administration using web and mobile delivery
 - Diplomates control when, where, and how they take assessments
- Immediate feedback on performance to close knowledge gaps
 - Correctness of response and rationale for answer (“critique”)
 - Diplomate “Dashboard” displaying areas of strength and weakness
- Results accumulated over time to contribute to summative decisions regarding continuing certification
 - Secure exam for those performing poorly or declining to participate



Some Key Design Issues

- Approach to customization of exam content
- Assessment organization and item formats
- Assessment length and frequency
- Security issues in assessment delivery
- Making summative certification decisions based on aggregated cumulative longitudinal performance



Some Related References

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