



***Transforming the ABR's
Diagnostic Radiology
Qualifying and Certifying
Examinations***

APDR Meeting, Seattle, March 26, 2008

Disclosures

- Nothing to disclose

Learning Objectives

- Comprehend rationale behind transformation of ABR's DR examinations
- Gain understanding of details of transformation
- Prepare to plan changes and innovations in DR training to adjust to new examinations
- Debate impact of moving certifying exam to 15 months post-residency training

ABR's Current Qualifying & Certifying Exams in DR

- Qualifying (“written”) examinations
 - Physics: major changes underway
 - Clinical: anatomy, pathophysiology; *knowledge, comprehension*

MUST PASS BOTH TO TAKE ORAL
- Certifying oral examination (Louisville)
 - 11 categories, image rich; tests *observation, knowledge, comprehension, synthesis, management*
 - Strives for face validity (i.e. to “look like” it will assess what it is supposed to assess)
 - Max. conditions: 3 categories; fail 4 = fail entire exam

Transforming ABR's DR Examinations

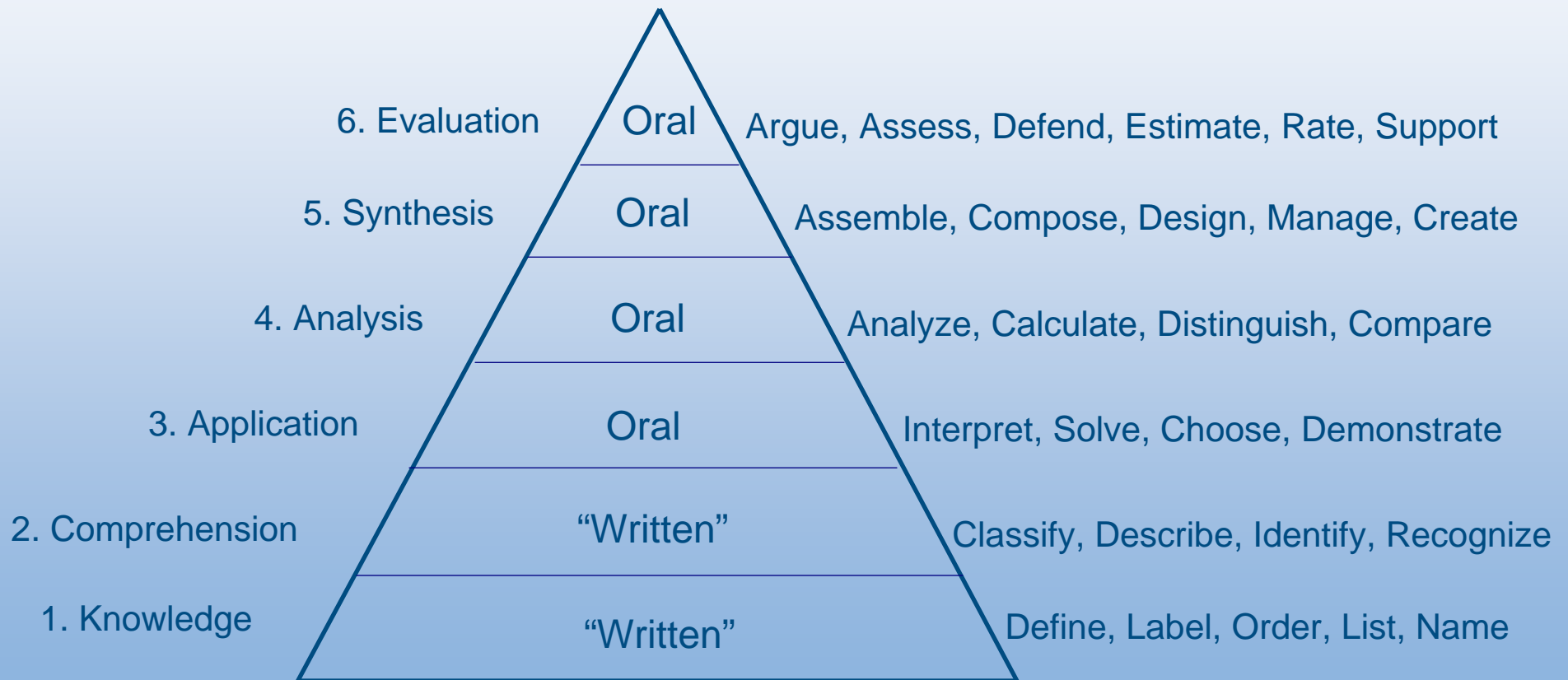
- ABR has debated changes in its DR exams for years:
 - Potential addition/deletion of categories
 - Major focus: timing of the oral exam with respect to end of training
- No progress until the following realizations:
 - More fundamental change is needed than a change in when the exam is administered
 - Format, content overhaul required to align with:
 - new knowledge
 - advanced technology
 - changes in training
 - contemporary practice

Benjamin Bloom's Hierarchical Taxonomy

- 6 levels of intellectual behavior important in learning*
- From simple recall to most abstract
- >95% test questions students encounter require thinking at lowest level (recall of info)
- Highest levels remain difficult to achieve with MCQs

**Educational psychology theory, 1956*

Benjamin Bloom's Hierarchical Taxonomy: 6 Levels of Intellectual Behavior Important in Learning (1956)



Example: Knowledge

- When oral Coumadin causes coagulopathy, what is the method that will most rapidly correct it?
 - A. Transfusion of whole blood
 - B. Transfusion of fresh frozen plasma**
 - C. Intramuscular injection of vitamin K
 - D. Intravenous injection of thrombin
 - E. Intravenous injection of epsilon aminocaproic acid

ABR's Current Oral Certifying Exam in DR

- Time-tested
- Continuously updated in effort to reflect contemporary practice: US, CT, MRI, PET, etc.
- Categories added
- Film → computer display (many more cases)
- Standardized case material, display, examiner prep, scoring
- ABR oral exam can, does test highest levels
- Powerful motivator of candidates

Limitations of ABR's Current Oral Certifying Exam in DR

- Declining face validity (exam “looks” less & less able to assess what it is designed to assess)
- Environment of care more difficult to replicate
- Evaluation of large 3D volume data sets impractical and/or prohibitively expensive
- Artificiality of a room per category unlike randomness of PACs case queue; result: cuing
- Attention drawn to abnormalities on specific images due to manner of presentation
- Normals not included

Limitations of ABR's Current Oral Certifying Exam in DR

- Subjectivity
- Bias
- Measurement of extraneous variables (nervousness)
- Implementation/administration a major undertaking
- Cost (oral exams are expensive!)
- ABR oral exam can, does achieve highest levels, but observation reveals:
 - Case dependency
 - Vast inter-examiner differences in delivery of same cases

Limitations of ABR's Current Oral Certifying Exam in DR

- **IMPORTANTLY:**

- Overwhelming majority of trainees will focus practice in 4 or fewer category areas
- Differentiation begins in training
- 11-category exam no longer mirrors radiology practice in N. America
- It is thus an artificial and dated construct

Why change? What gains do we anticipate?

- Maximize standardization, homogeneity of examinee experience
- Minimize measurement of extraneous factors
- Higher fidelity contemporary exam
- Improved face validity
- Convenience (wide geographic distribution)
- Cost saving
- Streamlined efficient processes for case acquisition, coding, storage, retrieval, exam assembly, scoring, item performance statistics, etc.

Higher Level Questions on Future Core & Certifying DR Examinations

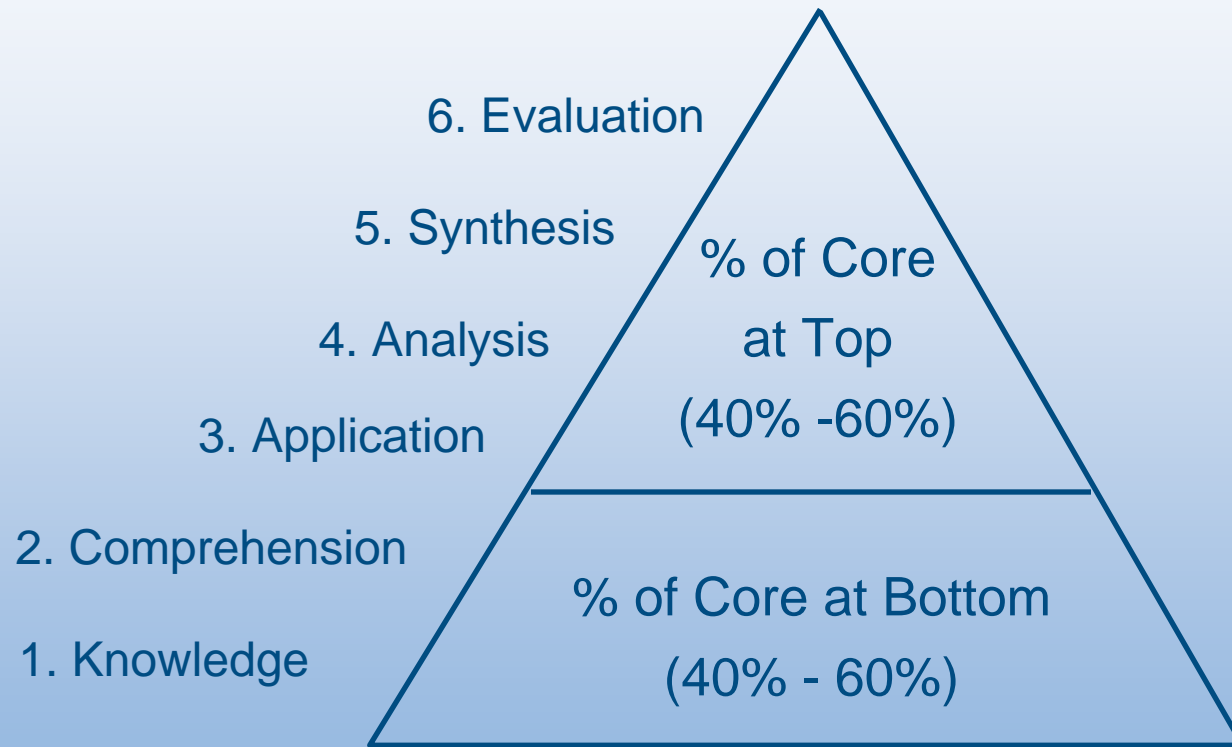
- **Special item types, software to test at higher levels**
- **On long development timeline**
- **Specialized item writer training will be required to teach storyboarding of cases**
- **Experience to date with:**
 - ✓ Subspecialty MOC exams
 - ✓ DR MOC exams currently under construction
 - ✓ Ultrasound Condition Exam

ABR's DR Exams: Entering Class of 2010 & Beyond

- **Core Exam** (after 36 months of radiology residency)
 - Widely distributed in exam centers
 - Image-rich, case-based, anatomy, pathophysiology
 - Clinically applied physics woven into exam (X2)
 - 16-20 categories: organ systems, modalities, clinically relevant physics, safety
 - Every category must be separately passed
 - Maximum permissible conditions not yet determined
 - Randomly ordered items; scoring by category

**Since many will elect preferences for certifying exam, mastery of the core components of DR must be demonstrated at this qualifying step*

Core Exam



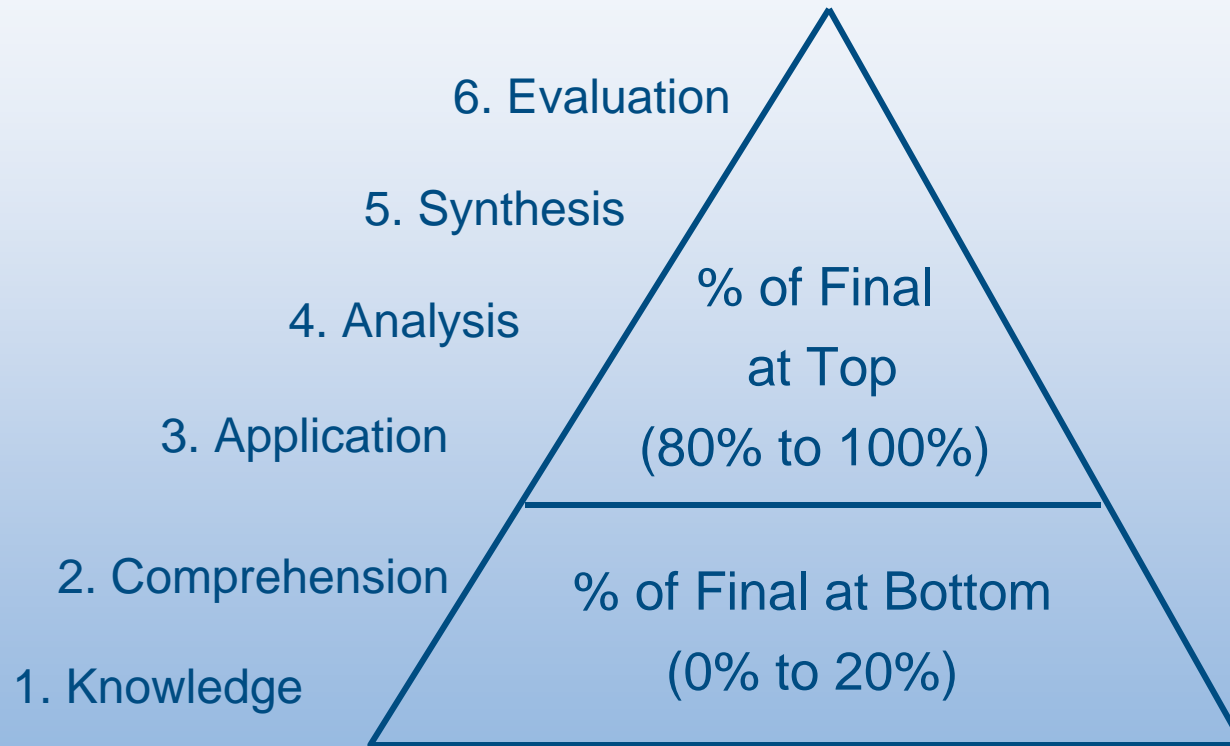
1st Administration: June 2013

ABR's DR Exams: Entering Class of 2010 & Beyond

- **Certifying Exam** (15 mos. post radiology training*)
 - Modular structure similar to practice-profiled MOC exam
 - Based on practice analysis survey of 8,242 diplomates
 - 2,756 respondents (33%)
 - 94% practice in ≤ 4 categories
 - Exam composition:
 - 1 module: Non-interpretive skills
 - 1 module: Essentials of diagnostic radiology (what everyone must know to practice in DR)
 - 3 modules: General DR, subspecialt(y)(ies) or combination
 - 1st administration: 2015

****ABR & ABP stand alone in certifying candidates before the end of training.
Range for all other ABMS Member Boards: 1 to 36 months post-training***

Certifying Exam



1st Administration: September/October 2015

Complementary Changes in ACGME-Accredited Training

- Updated training requirements
- Emphasis on competencies; ACGME Outcome Project
- PD, faculty better positioned to help shape and assess trainee communication skills than are oral examiners
- More changes in training anticipated to accommodate ABR exam transformation

Other Key Considerations

- Candidates in process as we transition to new exams
- Development, implementation of training changes
 - Process
 - Timeline
 - Collaboration (ABR, RRC, APDR)
- Regulatory, other issues
 - NRC
 - MQSA
 - AFIP
- Certificate language (goal is no change)
- Special: DIRECT, Holman, research, other