ABR Certifying Exams
In Diagnostic Radiology

Duane Mezwa MD
GI Trustee, ABR
Disclosures

• I am an ABR Trustee
• I am a member of the Radiology RRC
• Past Program Director of many years
• I have nothing further to disclose
Disclaimer

• All information true on April 15 2015 but could be SUBJECT TO CHANGE based on future Board deliberations and decisions.
Thanks

• Kay Vydareny, Associate Executive Director

• Dennis Balfe, Assistant Executive Director
Exam Goals: Core

Overarching goal: to protect the public by determining that individual candidates have attained competence in basic diagnostic radiology

Specific goal: to create examinations that are relevant to current radiologic practice

Specific goal: to make a reliable pass/fail decision about candidate performance in each category
  
  For this high-stakes exam, reliability requires ~60 questions/category
  
  Emphasis on unique importance of Physics content = 136 questions
Core Exam in Diagnostic Radiology

Now three administrations:
  October, 2013
  June, 2014
  October, 2014

Covers all of diagnostic radiology

Comprehensive, categorical exam

Candidates must pass all categories
What Are These Categories?

<table>
<thead>
<tr>
<th>Organ systems</th>
<th>MSK, Thoracic, GI, Urinary, Neuro, Pediatrics, Cardiac, Reproductive/Endocrine, Mammography, Vascular</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modalities</td>
<td>CT, MRI, RF/Fluoro, Nucs, Interventional, Ultrasound</td>
</tr>
<tr>
<td>Fundamentals</td>
<td>Physics, Safety</td>
</tr>
<tr>
<td></td>
<td>Breast</td>
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<tr>
<td>CT</td>
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<tr>
<td>IR</td>
<td></td>
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<tr>
<td>MR</td>
<td></td>
</tr>
<tr>
<td>NM/Molecular</td>
<td></td>
</tr>
<tr>
<td>Rad/Fluoro</td>
<td></td>
</tr>
<tr>
<td>US</td>
<td></td>
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<td>Physics</td>
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<tr>
<td>Safety</td>
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<tr>
<td>Q#</td>
<td>60</td>
</tr>
</tbody>
</table>
Core Exam Statistics

1\textsuperscript{st} Administration: 1206 Candidates
- 980 (79\%) in Chicago
- 226 (21\%) in Tucson

2\textsuperscript{nd} Administration: 1413 Candidates
- Same distribution between cities
- Two different examination “forms” created from identical blueprints
How Did It Go?

Survey sent to all candidates after 2013 exam
647 (54%) responded

Similar survey after 2014 exam
815 (58%) responded
Getting Started

Renaissance Hotel generally worked
  Relatively inexpensive (for Chicago) per night (new: negotiated room rate includes breakfast and internet)
  Worked well as a staging location
  Ran out of blocked rooms (fixed in 2014)

Registration
  Palm vein scanner worked well in Tucson
  Worked poorly for re-registration in Chicago
  Now using photo ID method
Exam Center

Generally positive (both centers)

Chicago—two frequent comments

  Floor shakes
  Cubicle dividers not high enough

Snacks

  BYO
  Time added to exam to provide for breaks
Exam Delivery

Enough time to finish (657 scoreable units)
Print/image layout good
Some images too small, became pixelated
  Sonography, especially cine loops
  Cardiac
Chest radiographs (especially laterals)
Most Frequent Candidate Concerns

1) Why Chicago/Tucson?
2) Cine vs. scrolling
   Cine loops difficult to control
   Will probably be used only on cardiac and US
3) Drop-down menu malfunction
   Software glitch not discovered in testing
   ABR rescored exams with/without those items
Core Exam: Content

• Combines old written and oral content
  – ~40% require fact retrieval
  – ~60% require higher-order analysis
    Development of differential diagnosis
    Recognition of management methods

• Majority of items linked with an image (effort made to emulate workstation to some degree)
  – What is the most likely diagnosis?
  – Most physics items practical
    What is this artifact, and how would you fix it?
    How would you reduce dose?
    Additional physics content: radionuclide safety
Example: Extended Matching

For each patient whose clinical and imaging information is shown, select the most appropriate diagnosis from the list below. Each option may be used once, more than once, or not at all.

<table>
<thead>
<tr>
<th>A. Focal nodular hyperplasia</th>
<th>B. Liver cell adenoma</th>
</tr>
</thead>
<tbody>
<tr>
<td>C. Cavernous hemangioma</td>
<td>D. Inflammatory pseudotumor</td>
</tr>
<tr>
<td>E. Pyogenic abscess</td>
<td>F. Fungal abscess</td>
</tr>
<tr>
<td>G. Nodular focal fat</td>
<td>H. Biliary cystadenoma</td>
</tr>
<tr>
<td>I. Lymphoma</td>
<td>J. Solitary metastasis</td>
</tr>
<tr>
<td>K. Intrahepatic cholangiocarcinoma</td>
<td>L. Hepatocellular carcinoma</td>
</tr>
<tr>
<td>M. Fibrolamellar carcinoma</td>
<td></td>
</tr>
</tbody>
</table>
1: 35 year old woman who underwent sonographic evaluation for mild abdominal discomfort. She was referred for MR imaging to characterize a solitary liver mass seen on that ultrasound. Images are obtained 30 seconds (A), 70 seconds (B) and 1 hour (C) after administration of gadobenate intravenously.

A. Focal nodular hyperplasia  
B. Liver cell adenoma  
C. Cavernous hemangioma  
D. Inflammatory pseudotumor  
E. Pyogenic abscess  
F. Fungal abscess  
G. Nodular focal fat  
H. Biliary cystadenoma  
I. Lymphoma  
J. Solitary metastasis  
K. Intrahepatic cholangiocarcinoma  
L. Hepatocellular carcinoma  
M. Fibrolamellar carcinoma

Key = A
2. 60 year old man with abdominal pain. Imaging performed elsewhere showed a liver mass, and he is referred for CT imaging to characterize it. Images are obtained before (A), 20 seconds after (B), 50 seconds after (C), and 5 minutes after (D) intravenous administration of iodinated contrast material.

A. Focal nodular hyperplasia
B. Liver cell adenoma
C. Cavernous hemangioma
D. Inflammatory pseudotumor
E. Pyogenic abscess
F. Fungal abscess
G. Nodular focal fat
H. Biliary cystadenoma
I. Lymphoma
J. Solitary metastasis
K. Intrahepatic cholangiocarcinoma
L. Hepatocellular carcinoma
M. Fibrolamellar carcinoma

Key = L 19
A coronal CT image obtained in a patient with ascites is shown. Label the following structures:

a) Left subphrenic space  
b) Lesser sac, inferior recess  
c) Lesser sac, superior recess  
d) Transverse mesocolon  
e) Gastrohepatic ligament  
f) Morison’s pouch  
g) Left paracolic gutter  
h) Root of intestinal mesentery
## Exam Level Information

<table>
<thead>
<tr>
<th>Total Group</th>
<th>Your Program</th>
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<td>Standard Deviation</td>
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### Category Level Information

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<tr>
<th>Organ Systems</th>
<th>National Performance</th>
<th>Program Performance</th>
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<tbody>
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<td>Mean Scaled Score</td>
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<tr>
<td>Breast</td>
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<td>Pediatric</td>
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<td>Repro/Endo</td>
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<td>15</td>
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<tr>
<td>Thoracic</td>
<td>420</td>
<td>10</td>
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<td>Urinary</td>
<td>510</td>
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<td>Vascular</td>
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<td>30</td>
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### Modalities

<table>
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<th>Modalities</th>
<th>National Performance</th>
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<td>Mean Scaled Score</td>
<td>Standard Deviation</td>
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<td>490</td>
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<tr>
<td>Interventional</td>
<td>300</td>
<td>15</td>
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<tr>
<td>MR</td>
<td>370</td>
<td>20</td>
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<tr>
<td>Nuclear Medicine</td>
<td>340</td>
<td>10</td>
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<tr>
<td>Rad &amp; Fluoro</td>
<td>420</td>
<td>35</td>
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<tr>
<td>Ultrasound</td>
<td>450</td>
<td>15</td>
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### Fundamentals

<table>
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<th>Fundamentals</th>
<th>National Performance</th>
<th>Program Performance</th>
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</thead>
<tbody>
<tr>
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<td>Mean Scaled Score</td>
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<td>40</td>
</tr>
<tr>
<td>Physics</td>
<td>360</td>
<td>50</td>
</tr>
</tbody>
</table>
2014 Core Exam
October 2014

Result: Pass

Candidate: 00000
Certificate Name

Score Interpretation
Your scores represent a conversion of the number of correctly answered questions to a scale score. To determine your overall result for the examination, your performance on the entire examination was tallied and compared against a pre-determined minimum acceptable performance level (passing score = 350).

Performance Graph Interpretation
The scoring of this examination is "criterion-referenced," meaning that passing depends on your mastery of content in diagnostic radiology. This is in contrast to "norm-referenced" scoring, in which passing is determined in relation to the performance of other test takers. Therefore, your exam results are not impacted by the performance of other examinees. The graphical data represent your performance relative to the overall passing score and to the conditioning threshold that is applied in the second stage of scoring.

Quartile Rank Interpretation
Although your score is not determined by the performance of other test takers, the quartile ranks allow you to compare your performance to the performance of your peers. The higher the number, the better your performance when compared to others. The highest quartile rank is 4, which represents the 25 percent of candidates with the highest scores. A quartile rank of 1 represents the 25 percent of candidates with the lowest scores.

Organ Systems: Scale

<table>
<thead>
<tr>
<th>Organ System</th>
<th>Scale Score</th>
<th>Quartile Rank</th>
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</thead>
<tbody>
<tr>
<td>Breast Imaging</td>
<td>310</td>
<td>3</td>
</tr>
<tr>
<td>Cardiac</td>
<td>610</td>
<td>3</td>
</tr>
<tr>
<td>GI</td>
<td>420</td>
<td>3</td>
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<tr>
<td>Musculoskeletal</td>
<td>530</td>
<td>4</td>
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<tr>
<td>Neurological</td>
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<td>4</td>
</tr>
<tr>
<td>Pediatric</td>
<td>450</td>
<td>3</td>
</tr>
<tr>
<td>Thoracic</td>
<td>250</td>
<td>3</td>
</tr>
<tr>
<td>Reproductive Endocrinology</td>
<td>580</td>
<td>4</td>
</tr>
<tr>
<td>Urinary</td>
<td>420</td>
<td>3</td>
</tr>
<tr>
<td>Vascular</td>
<td>420</td>
<td>3</td>
</tr>
</tbody>
</table>
Scoring for the Core Examination

The ABR Diagnostic Radiology (DR) Core Examination is scored in a two-stage process. This process is performed for each individual examinee.

Stage One
Your overall score for the entire examination is tallied and compared against a pre-determined minimum acceptable performance level, or passing score. This level is set by a group of content experts and educators who, for each question on the exam, determine whether a resident just above the competency threshold would be expected to select the correct response. This standard psychometric process, known as the Angoff standard setting, has been used by the ABR for many years for all of its "written" and computer-based examinations. Exam scores are calculated on a weighted scale, which ranges from 150 (lowest possible score) to 800 (highest possible score).

- If your overall score is below the passing score, your overall result is "Fail."
- If your overall score is at or above the passing score, stage two of scoring is applied.

Stage Two
Your performance in each of the 10 categories is independently calculated and compared against a conditioning threshold specific for each category, which is set by the Board of Trustees. For the initial Core Examinations, this level is higher for Physics than for the other categories.

- If you pass every category, your overall result is "Pass."
- If you fail 1-5 categories, your overall result is "Condition."
- If you fail more than 5 categories, this exceeds the acceptable number of failed categories, and your overall result is "Fail."
Core Exam Pass & Cond Rates

1. First Time Taker (Ref. Group) Pass Rates:
   - 2013 = 88%
   - 2014 = 92%

2. First Time Taker (Ref. Group) Condition Rates:
   - 2013 = 1% (All conditions were in Physics Category)
   - 2014 = 1% (All conditions were in Physics Category)

3. Repeater Pass Rates:
   - 2014 = 77%

4. Repeater Condition Rates:
   - 2014 = 3%
Core Exam Overall Performance

- 2013 Difficulty = .80
- 2014 Difficulty = .79

- 2013 Discrimination = .20
- 2014 Discrimination = .24

- 2013 Reliability = .93
- 2014 Reliability = .95
Core Exam Overall Performance

- Average difficulty of all categories almost equal
- All categories performed equally well
- All categories’ performance improved from 2013 to 2014
Exit Survey Organ System Feedback:

### 2013 CORE EXAM Organ System Appropriateness

<table>
<thead>
<tr>
<th>Organ System</th>
<th>0%</th>
<th>20%</th>
<th>40%</th>
<th>60%</th>
<th>80%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast</td>
<td>27%</td>
<td>52%</td>
<td>42%</td>
<td>66%</td>
<td>21%</td>
<td>21%</td>
</tr>
<tr>
<td>Cardiac</td>
<td>37%</td>
<td>22%</td>
<td>21%</td>
<td>22%</td>
<td>21%</td>
<td>21%</td>
</tr>
<tr>
<td>GI</td>
<td>13%</td>
<td>48%</td>
<td>47%</td>
<td>60%</td>
<td>52%</td>
<td>23%</td>
</tr>
<tr>
<td>MSK</td>
<td>29%</td>
<td>66%</td>
<td>66%</td>
<td>60%</td>
<td>52%</td>
<td>23%</td>
</tr>
<tr>
<td>Neuro</td>
<td>32%</td>
<td>47%</td>
<td>60%</td>
<td>52%</td>
<td>56%</td>
<td>56%</td>
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<tr>
<td>Peds</td>
<td>18%</td>
<td>60%</td>
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<td>56%</td>
<td>53%</td>
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<tr>
<td>Thoracic</td>
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<td>52%</td>
<td>56%</td>
<td>56%</td>
<td>53%</td>
<td>22%</td>
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<tr>
<td>Repro/Endo</td>
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<td>23%</td>
<td>23%</td>
<td>23%</td>
<td>23%</td>
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<tr>
<td>Urinary</td>
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</tr>
<tr>
<td>Vascular</td>
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<td>53%</td>
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</table>

### 2014 CORE EXAM Organ System Appropriateness

<table>
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<th>40%</th>
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<th>80%</th>
<th>100%</th>
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</thead>
<tbody>
<tr>
<td>Breast</td>
<td>29%</td>
<td>49%</td>
<td>45%</td>
<td>78%</td>
<td>17%</td>
<td>5%</td>
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<tr>
<td>Cardiac</td>
<td>35%</td>
<td>21%</td>
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<td>19%</td>
<td>18%</td>
<td>18%</td>
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<tr>
<td>GI</td>
<td>5%</td>
<td>78%</td>
<td>73%</td>
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<td>51%</td>
<td>51%</td>
<td>51%</td>
<td>51%</td>
<td>51%</td>
</tr>
</tbody>
</table>

Legend:
- Green: Strongly Agree / Agree
- Yellow: Neither Agree nor Disagree
- Red: Strongly Disagree / Disagree
Exit Survey Modality Feedback:

2013 CORE EXAM Modalities Appropriateness

- CT: 65% Strongly Agree / Agree, 22% Neither Agree nor Disagree, 13% Strongly Disagree / Disagree
- Interventional: 50% Strongly Agree / Agree, 24% Neither Agree nor Disagree, 26% Strongly Disagree / Disagree
- MR: 41% Strongly Agree / Agree, 25% Neither Agree nor Disagree, 33% Strongly Disagree / Disagree
- Nuc Med: 46% Strongly Agree / Agree, 22% Neither Agree nor Disagree, 32% Strongly Disagree / Disagree
- Rad & Fluoro: 54% Strongly Agree / Agree, 27% Neither Agree nor Disagree, 19% Strongly Disagree / Disagree
- Ultrasound: 53% Strongly Agree / Agree, 25% Neither Agree nor Disagree, 23% Strongly Disagree / Disagree
- Physics: 42% Strongly Agree / Agree, 22% Neither Agree nor Disagree, 36% Strongly Disagree / Disagree
- Safety: 27% Strongly Agree / Agree, 23% Neither Agree nor Disagree, 50% Strongly Disagree / Disagree

2014 CORE EXAM Modalities Appropriateness

- CT: 80% Strongly Agree / Agree, 24% Neither Agree nor Disagree, 6% Strongly Disagree / Disagree
- Interventional: 54% Strongly Agree / Agree, 20% Neither Agree nor Disagree, 22% Strongly Disagree / Disagree
- MR: 61% Strongly Agree / Agree, 20% Neither Agree nor Disagree, 22% Strongly Disagree / Disagree
- Nuc Med: 54% Strongly Agree / Agree, 24% Neither Agree nor Disagree, 8% Strongly Disagree / Disagree
- Rad & Fluoro: 71% Strongly Agree / Agree, 21% Neither Agree nor Disagree, 8% Strongly Disagree / Disagree
- Ultrasound: 70% Strongly Agree / Agree, 18% Neither Agree nor Disagree, 12% Strongly Disagree / Disagree
- Physics: 55% Strongly Agree / Agree, 23% Neither Agree nor Disagree, 22% Strongly Disagree / Disagree
- Safety: 23% Strongly Agree / Agree, 24% Neither Agree nor Disagree, 53% Strongly Disagree / Disagree
How Did They Do?

Number of “problem items” less than usual
Historically, on written = 10%
On both Core exams = 4%

Pass rate very close to expected (comparing to previous Written/Oral first-time takers)
2013: 12% fail, 1% condition
2014: 8% fail, 1% condition

Condition rate for Physics comparable to rates for Physics written
Candidates must be exposed to all basic diagnostic radiology by end of third year
“Core anxiety” and review sessions will occur midway through third year
Content of review sessions will change(?)
Core Exam: Review Sessions

Physics content
Chief focus on practical applications
Physics resource: rsna.org/education/physics.cfm
Not intended to be sole resource
Whatever you did seems to have worked!

Diagnostic content
40% fact retrieval—even though image-rich, reasonable to prepare as for past written exam
60% resembles oral boards—standard board review
Resource: Core study guide on theABR.org
Annotated study guide (flags topics that have been made into questions)
Blueprints for all categories
Practice Exam
How do I prepare for the Core?

- Website
- Study Guides
- Blueprints
- On Line Core Practice Exam
- Core Exam topic list
- Review sessions in Program
- Physics modules
General Information

ABR Online Tools

Exam Dates and Locations
- For all ABR exams

Exam Center Information
- Pearson VUE Test Centers
- Chicago Exam Center
- Tucson Exam Center

Exam Day Schedule
- ABR Exam Centers (Tucson and Chicago)
  - Initial Certification
  - Diagnostic Radiology Core and Certifying Exams
  - Diagnostic Radiology Subspecialty Exams
  - Maintenance of Certification - Diagnostic Radiology
- Pearson VUE Test Centers
  - Initial Certification
  - Radiation Oncology (Clinical, Biology, and Physics)
  - Radiation Oncology (Physics and Biology Combined)
  - Medical Physics, Part 1 (Clinical) and Part 1 (General)
  - Medical Physics, Part 2 (All Disciplines)
  - Maintenance of Certification
  - Radiation Oncology
  - Medical Physics

Study Guides
- Diagnostic Radiology
- Initial Certification
- Core Exam
- Getting Ready (study guide to come)
- Maintenance of Certification Exam

ABR General Topics

- ABR Sponsoring Societies
- Board of Trustees
- Discontinued Certificates
- Public and Patient Information
- Volunteering
The American Board of Radiology Examination Production: Past, Present and Future
by Lane F. Donnelly, MD, ABR Trustee
2015,8(1):1-2

The ABR produces a vast amount of examination content each year.
Focus on Residents

The Core Exam: Tools for Residents

by Duane G. Mezwa, MD, ABR Trustee

As the Exam of the Future (EOF) now becomes the Exam of Today, the Core Exam becomes a reality, and current PGY-3 residents are anxiously preparing for the inaugural examinations. We have received many questions from residents, as well as program directors, regarding what to expect and, more importantly, how to prepare for this test. The Core Exam is basically divided into two main areas: items that are of a factual nature and make up a knowledge base will compose about 40 percent of the exam. This will be similar to the current "written" (computerized) exam. Sixty percent of the Core Exam will test higher levels of knowledge, centering around image analysis and differential diagnosis as well as patient management. This section is more in keeping with the current Oral Exam.

With all that in mind, many tools are available, as are just as many offers of advice. On its website, the ABR has posted a study guide outlining all material that could be expected to be seen on the Core Exam and covering all of its aspects. In addition to the ABR's study guide, several new study modules for medical physics have been assembled on the RSNA website. The ABR has also prepared a set of blueprints that can be used as a study guide. We have published each category's blueprint for exam composition on our website. Read more.
Focus on Residents

Improving the Core Examination

by Donald J. Flemming, MD, ABR Trustee

2015;8[1]:6-7

According to ABR psychometric statistics, as well as feedback from an exit survey of test takers, the Core Examination has improved between the 2013 and 2014 test cycles. To make this better quality possible, the examination development process embraces the principles of the Plan-Do-Study-Act (PDSA) cycle. The purpose of this report is to give the reader an inside look at examination development and how data and feedback are used to improve the performance of the exam.

The process of developing any given ABR examination is carried out by volunteers and is very thoughtfully planned and executed. The steps to examination development are as follows:

1. **Plan - Item Writing**: Volunteers form committees assigned to perform the task of exam question writing for the various categories on ABR exams. [Read more.](#)

The Committee on Requirements of the Accreditation Council for Graduate Medical Education (ACGME) has approved the program requirements for the Interventional Radiology Residency Program. These requirements can be seen on the [ACGME website](#), and the application for the new residency will be available early in 2015. All applying sites will require an on-site visit. **[Read more.](#)**
Focus on Diagnostic Radiology

Study Resources for the Core and Certifying Exams
by Kay H. Vydareny, MD, Associate Executive Director for Diagnostic Radiology and Acting Associate Executive Director for Interventional Radiology

2015;8[1]:8-9

As the June Core Exam administrations are rapidly approaching, and the first administrations of the Certifying Exam will be next October, ABR candidates are naturally concerned about how to study and what resources are available. The ABR has many online study guides and other resources, and two new helpful resources for the Core Exam are also available on the websites of RadioGraphics and Academic Radiology.

For the Core Exam, see the following resources on the ABR website:

- Core Exam Study Guide
- Core Exam Quality and Safety Syllabus
- Core Exam Sample Content
- Core Exam Blueprints
- Core Practice Exam

The Core Exam Study Guide is a list of topics that COULD be included in each category of the examination. Since each version of the Core Exam is a subset of the entire domain, not all topics are included in each examination when it is given. Read more.
Study Guides

- Comprehensive listing- 172 pages
- In general, the Core Examination is based on material in this study guide.
- However, not all material in the study guide is included on every form of the examination.
- Items that are not included in this study guide may appear on the examination.
- Another WIP and we will be asking writers to revisit value
Breast Imaging

1) Regulatory/Standards of Care
   a) Components and desired goals of the medical audit for breast cancer detection
   b) Appropriate application of the Breast Imaging Reporting and Data System (BI-RADS) terminology and assessment categories
   c) Mammography Quality Standards Act (MQSA) requirements
   d) Quality determinants of mammography, breast ultrasound, and breast MR, including positioning, image processing, artifacts, optimal technique, and equipment

2) Screening
   a) Indications
   b) Normal anatomy (mammography, ultrasound, MR)
   c) Lesion detection and localization
   d) Computer-aided detection
   e) Breast cancer risk factors, including the identification and management of women at high risk for breast cancer

3) Diagnostic Breast Imaging
   a) Appropriate mammographic views for work-up of a breast lesion
   b) Evaluate and manage women and men with breast symptoms
      i) Palpable masses
      ii) Breast thickening
Diagnostic Radiology

Core Quality and Safety Study Guide

Updated 2/20/2015 – updates have been highlighted
E. “Value” in Healthcare

Defining “value” in healthcare is a modern imperative; clearly quality and cost are both major components. Value is closely related to efficiency, which could be defined as the ratio of results achieved to resources expended. While reducing cost can sometimes increase value, the term is not synonymous with cost-cutting; rather, the efficient (low cost) use of resources, which produces the desired level of quality, is a better definition of value in healthcare. To measure value, therefore, one must first be able to measure quality – as well as to compare costs to accepted benchmarks.

F. Quality Measures and Key Performance Indicators

Key performance indicators (KPIs) are financial and nonfinancial measures that are used to define and evaluate the success of an organization. KPIs differ, depending on the nature of the organization and the organizational strategy; they are devised to help evaluate the progress of an organization toward achieving its long-term goals and fulfilling its vision. In healthcare organizations, performance assessment is especially critical for the development of best practices that can lead to improved outcomes in patient care, and KPIs have been incorporated into many healthcare management systems. In the future, radiology-specific KPIs, such as those in use at the authors' institution, may help provide a framework for measuring performance in radiology.
Core Exam Blueprints

- Estimated breakdown of the content from each category that will be included on each administration of the examination
- Blueprints provide the relative percent distribution of content that will be tested across the domain.
1. Pharynx/oesophagus (1-5%)
   a. Techniques of examination
   b. Normal anatomy, variations and function
   c. Benign diseases
   d. Diverticula
   e. Foreign bodies
   f. Trauma
   g. Motility disorders
   h. Esophagitis
   i. Rings, webs, strictures
   j. Varices
   k. Benign tumors and tumor-like conditions
   l. Extrinsic processes affecting the esophagus
   m. Hiatal hernia
   n. Malignant tumors
   o. The postoperative esophagus

2. Stomach (5-10%)
   a. Techniques of examination
   b. Normal anatomy, variations and function
   c. Benign disease
   d. Malignant disease, primary and metastatic
   e. The postoperative stomach, expected appearance and complications

3. Duodenum/small bowel (5-10%)
   a. Techniques of examination
   b. Normal anatomy, variations and function
   c. Benign diseases
   d. Malignant diseases

4. Colon, appendix (10-15%)
   a. Techniques of examination
   b. Normal anatomy, variations and function
   c. Benign disease
   d. Malignant disease

5. Pancreas (5-10%)
   a. Techniques of examination
   b. Normal anatomy, variations and function
   c. Pancreatitis
Core Exam Topic List

- Assembled a sample for each organ-system-based Core Examination category, to foster an understanding of the type of material which, when assembled collectively, forms a single Core Examination
- A sample of the Domain
GI Core Exam Topics

Complications of transcatheter therapy to liver tumors
Options for treatment of ascites in portal hypertension
Indications/contraindications to TIPS
Blood supply to the colon
Causes of gallbladder wall thickening
Sonographic features of luminal masses in the common bile duct
Features of pancreatic neoplasms
Sonographic features of liver masses
Sonographic features of the gallbladder wall
MR features of solitary liver masses
Appropriateness of imaging abdominal pain in pregnancy
Features of right lower quadrant inflammation
Anatomy of the peritoneum
Complications of bariatric procedures
Technical details of draining peritoneal collections
Causes of biliary obstruction
Scintigraphic features of peritoneal inflammation
Practice Exam

• 90 minutes -- to simulate the real exam
  – Subset of exam (110 cases) with answers
  – Available to anyone with “myABR”
  – Illustrates software interface, typical exam questions
A myelogram is performed for a man with chronic L5 radiculopathy and previous surgery. Based on the images, what is the most likely diagnosis?

A. Arachnoiditis
B. Epidural injection
C. Drop metastasis
D. Epidermoid
A 51-year-old woman presents with a pea-sized palpable lump in her left breast. Based on the images, what is the most appropriate management?

- No further evaluation
- Cyst aspiration for diagnosis
- Needle core biopsy
- Antibiotic therapy
In CT imaging, spatial resolution improves when which of the following increases?

A. Field of view  
B. Matrix size  
C. Focal spot  
D. Detector size
Core Exam: Potential Benefit

In some programs (ours is one) 4\textsuperscript{th} year residents can, if they choose, take clinical rotations to prepare themselves for subspecialized practice.

Majority of our residents have taken advantage (three 3-month “selectives”)

51
Core Exam: Future Plans

Distributed Exam (local test center)

Initial aim was 2018

Difficulties with that timeline

(Screen resolution)

Ambient light control

Modular exam design

Image-rich = very large!
Core Exam: Assessment

Early results suggest that the Core is a discriminating, reliable exam

Not so easy to determine whether it tests what we want it to test (i.e., protects the public)

Actively seek feedback from stakeholders re outcome of new examination process
Core Exam: Item Writing

Ideas for future testing

Structured reporting (avoids cuing the answer)
Simulation (especially in interactional/interventional categories)
Computer adaptive testing

Need more volunteers!
Core exam - Timing

- Residents expected to take in 36th month of DR training
  - If off-cycle, must wait until have 36 months of DR
  - Exception – research residents with >9 months research in first 3 years can delay
  - Few other exceptions to delay have been granted
  - Few exceptions to take “early” have been granted (eg military)
Certifying Exam: Goals

- To certify that candidate has mastered the material germane to his/her clinical practice area
  - Level: Basic to moderately advanced
  - Domain: Clinical practice areas (self-chosen)
    Organ system (Abdomen, neuro, etc.)
    Modality (Nuclear, interventional)

- Also contains material to certify candidate has acquired and maintained knowledge of
  - Non-interpretive skills (professionalism, safety)
  - Essentials (things every radiologist should know)
Certifying Exam in Diagnostic Radiology

Will be first administered in October, 2015
Contains five parts (but questions will appear in random order)

<table>
<thead>
<tr>
<th>Non interpretive skills</th>
<th>Things every physician should know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essentials</td>
<td>Things every diagnostic radiologist should know</td>
</tr>
<tr>
<td>Clinical Practice Areas (3 self-selected CPAs)</td>
<td>Things this specific radiologist should know</td>
</tr>
</tbody>
</table>
Clinical Practice Areas (CPA)

Twelve categories

- Organ system: MSK, Cardiac, Thoracic, GI, Urinary, Neuro, Peds, Breast
- Technology: US, VIR, Nuclear Radiology
- General

Candidates can choose any combination of CPAs

Items will vary in both difficulty and scope

- Level 1: fundamental
- Level 2: advanced

Candidates selecting a CPA more than once will receive a higher proportion of level 2 items
Certifying Exam: Content (CPA)

Emulates clinical practice
- Will include normals and variants
- Will include important findings outside chosen area
- Appropriateness, clinical vignettes, management decisions

Item types
- Familiar: MCQs, extended matching
- Similar format to the Core
Certifying Exam: Goals

To confirm candidate has acquired and maintained necessary skills to practice independently

Dual role

First exam of practice-based learning (like MOC)
Final ABR Certification Exam
Certifying Exam: Nuts and Bolts

~310 items (60/module + RISE content)
5-hour exam (one half-day)
Exam center(s): Chicago, Tucson
Exams offered October/March or April
Scoring:
  Criterion-referenced exam (not “on the curve”)
  Experience with MOC suggests high pass rate
  Scored as a Pass/Fail….NO Conditions
Certifying Exam: Resources

Non-interpretive skills and Essentials
Study guides posted on theABR.org
NIS ~100 page document,
Clinical Practice Module Study guides at http://www.theabr.org/ic-dr-certifying-exam
CME, SAMs
Practice-based learning
Society-produced educational modules
RISE Exam Study Guide
RISE (RadioIsotope Safety Exam) for AU-E

- Embedded in Core and Certifying exams
- Rationale: radioisotope safety is important for all DR not just for AU’s
- 50-60 scorable units in Core exam
  - 25-30 already in NM, Safety, Physics
  - 25-30 additional radioisotope safety items
- Additional items in Certifying exam per NRC
- Scored after certifying exam
FAQ’S AND MISCONCEPTIONS ABOUT EXAM
Who writes these questions?

- **Item writer committees in each category**
  - Composed of diverse group of ABR certified volunteers, all of whom must be in MOC
  - APDR plays a big role in offering volunteers
  - Academic, private practice, geographical distribution; core committees generally faculty in residency programs
  - Include physicist
- Questions vetted, edited by entire committee
- Test Assembly meeting – each question vetted by all attendees. Many discarded.
Why do I have to pass all 18 categories?

• Last comprehensive exam taken by candidate
• Trustees think it is important that all have knowledge in each category which meets a minimum standard
Why didn’t anyone condition any section other than physics?

- Passing standard for physics was higher than other categories
- If weak in multiple categories, failed exam
Why doesn’t the ABR just write a new exam each time?

• Validity and reliability of exams is increased when some exam questions (with good performance statistics) are re-used, and when versions of the exam are “equated” to maintain a constant level for the passing standard

• If we did not reuse questions then these benefits are not obtainable
What can I study for Quality and Safety?

- Dedicated syllabus for Core exam is now posted
- Core has its own study guide for Quality and Safety...a subset of the NIS for Certifying
Does it matter to the ABR what we (the candidates) think about the process?

• Complaint: no breaks
  – Time added (30 minutes) to each day to accommodate breaks tho few took entire exam period

• Complaint: there was nothing I liked/could eat in the snacks you provided
  – Candidates can bring own snacks. ABR will provide water
• Complaint: the hotel breakfasts were way too expensive, room service was way too slow, and internet was way too costly
  – Internet and breakfast now included in price of hotel room at Renaissance
  – Reduced parking fees for those at hotel
Why can’t I just go to a PearsonVUE center to take this test?

• Modular content difficult for PV
• PV can’t handle case structure on their software
• PV monitors aren’t calibrated, can’t control lighting
• Aim: to have distributed exam. We are working on system to implement
Life isn’t about waiting for the storm to pass. It’s learning to Dance in the rain.
Questions?

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