ABR Board Exam Preparation: Part 3

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Objectives

- Understand the ABR Medical Physics Board Certification process and structure
- Understand the style and format of the Part 3 exam

ABR AMERICAN BOARD OF RADIOLOGY

History

- Board Certification is a fundamental credential required for the practice of a profession.
- Historically, certifying bodies in the United States included the American Board of Medical Physics (ABMP) as well as the American Board of Radiology (ABR).
  - Since then, ABR has become the de facto required certification for entry into the field.

ABR Certification – Policy PP 17-B, 1-H

- Fundamental part of the definition of a Qualified Medical Physicist (QMP) by the American Association of Physicist in Medicine (AAPM).
  - 3.6 Qualified Medical Physicist (QMP) is an individual who is compentent to practice independently in one or more of the subfields of medical physics, and meets the criteria set forth in the Definition of a Qualified Medical Physicist.
    - 1. Has earned a master's or doctoral degree in physics, medical physics, biophysics, radiological physics, medical health physics, or equivalent disciples from an accredited college or university; and
    - 2. Has been granted certification in the specific subfield(s) of medical physics with its associated medical health physics aspects by an appropriate national certifying body and abides by the certifying body's requirements for continuing education.
- ABR Medical Physics Certification signifies meeting NRC requirements for training and experience per 10 CFR Section 35.51.

ABR Certification

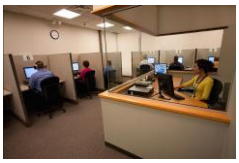
- For the subfield of Therapeutic Medical Physics, certification by:
  - The American Board of Radiology; or
  - The American Board of Medical Physics; or
  - The Canadian College of Physicist in Medicine

ABR Initial Certification Process

- Meet application eligibility standards.
- Pass the Part 1 computer-based exams (general and clinical).
- Pass the Part 2 computer-based exam (specific to the specialty of diagnostic, therapeutic, or nuclear medical physics).
- Pass the Part 3 oral exam.

ABR Part 1

- Must be enrolled or graduated from a CAMPEP-accredited graduate program.
- Generally follows the curriculum covered in a medical physics graduate program.



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ABR Part 2

- The residency exam!
- Requirements:
  - Must have passed part 1
  - Must have completed a CAMPEP-accredited residency (by the time exam is to be taken, August)
- Specialty-specific:
  - Diagnostic
  - Therapy
  - Nuclear medicine

ABR Part 3

- The final, comprehensive, oral examination.
- Offered once per year in person.
- Requirements:
  - Pass part 2.
  - Have invitation sent.
- It is possible to conditionally pass a section, in which case you need to repeat that section next year.

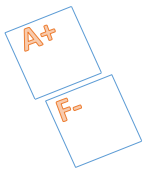
ABR Part 3

- For therapy, categories include:
- 1. Reference and relative dosimetry
- 2. Treatment machines
- 3. External beam treatment planning, uncertainty management, and treatment planning system QA
- 4. Brachytherapy, radiation protection, radiation biology
- 5. Patient safety, data transfer and integrity, professionalism and ethics.

- Each examiner will be assigned a different category to start with.

ABR Part 3 Scoring

- 68-72 (70 and above is passing).
- You can fail one category (conditioning), but one only.



Changes

- Since 2017, case-based questions, which replaces complex questions which have multiple steps.
  - A questions which requires you to make several decisions explicitly breaks this down into individual questions.
- Addition of fill-in-the-blank, where a value could be entered.
- Point-and-click
- Professionalism and ethics

Part 3 experience

- Exam is now in Tucson, Arizona (where ABR is headquartered).
- Next year's exam is April 26-29, 2020.
- Exam will consist of five examiners, each covering five questions (one in each category).
- There are several sessions, so the day and time of day of your exam will vary.
- It is at a hotel!
- You will have a brief orientation where you are given your schedule and then asked to disclose any relationships with examiners.
- When you arrive to one of your examiners, the examiner may still be preparing, or may greet you outside of the room to introduce themselves.
- A xylophone-type sound will indicate the end of your exam and let you know when to proceed to the next room.

https://www.ihg.com/crowneplaza/

Advice

- Stay as close as possible to the exam.
- Do not bring your phone (or much of anything, really).
- Don't study the night before. This time is best spent relaxing. Treat your brain right, don't stress it out!
- Expect the unexpected but don't over-worry.
  - I was sent to an emergency questions room since the questions wouldn't load on our computer in my first exam!

The exam itself

- The examiner's job is to make sure you are a safe and competent physicist. Help them help you show this.
- Answer the question and only the question. This allows you to show them exactly the information they are looking for and won't open you up to unforeseen complications.
- Mentioning anything extra could lead to follow-up questions which are generally left avoided.
- Let the examiner guide the follow-up questions, not you.
- Going on tangents will take away time from addressing the points the examiner is probably looking for in your answer.

The exam itself

- Don't jump to the complex points in a topic right away.
  - Start with a birds-eye-view answer and let the conversation flow to the specifics.
- Take a moment to read the questions on the screen before you instantly start talking.
  - You can master the art of reading all the questions on the screen while you formulate the answers in your head.
- Time is the examiner's concern, not yours (unless you are rambling on and on!)
  - If the examiner abruptly skips to the next question, that is their job.
- Other individuals may be in the back of the room. Don't mind them; they are observing to become examiners themselves.

The exam itself

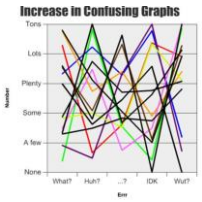
- Be comfortable talking about medical physics concepts.
- Physically speak with your voice while studying for this exam.
- It's best to study with others, so you can practice speaking aloud, but even by yourself you can voice your answers.

The exam itself

- You may know everything about HDR brachytherapy, but you need to be able to describe at a low level what is being done, why, and how medical physics topics fit in to this technique.
- Examiners typically won't give you any feedback. Don't take it personally!
- If you are lost, at least find something to talk about rather than saying so. List a resource you might consult or example.

Look carefully!

- The figures are not necessarily confusing, but definitely take a second look at the picture on the screen and make sure you know what you are looking at before you start talking.

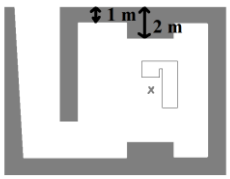


What to study

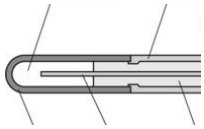
- Know your radiation protection!
  - Lots of numbers here – dose limits, signage, source storage requirements, personnel dosimetry monitoring, transportation, etc.
- The critical Task Group reports – TG-51, TG-142, TG-40, etc.
- Dosimeters
- Shielding
- Brachytherapy

What to study

- Take notes as you read TG-reports
- I used WePassed and had a great experience.
- Memorize your rules of thumb! Know some typical values (shielding, average physicist badge reading, etc.)
- Do a mock exam (local chapter meetings perhaps). Get the full experience and also get feedback.

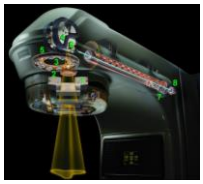


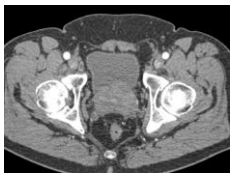
Example Questions



- What detector is this?
- What are labelled parts?
- What are its strengths and weaknesses?
- What would you use it for?

- What is the source of electrons for the linear accelerator?
- Where is it located in this diagram?
- What is the mechanism for accelerating the electrons down the waveguide?
- What types of waveguides are there?





- What are these each images of?
- Why would one want an MRI instead of CT alone for this site?
- What are the typical prescription doses and types of radiation therapy used here?
- What are the dose tolerances to the organs shown?