Preparing for the ABR Initial Certification Board Exam – A Handout

Elizabeth Hipp, NYULMC

AAPM August 2013

DISCLAIMER: This content is based on personal experience, and it is likely that your exam experience may differ

1. **Materials**
   In addition to your graduate program notes, problem sets, exams, etc the following texts may be helpful supplements:
   - The Essential Physics of Medical Imaging, J Bushberg, et al.*
   - Radiology Review: Radiologic Physics, E Nickoloff
   - Medical Imaging Physics, W Hendee*
   - Review of Radiologic Physics, W Huda
   - Physics in Nuclear Medicine, S Cherry and J Sorenson*
   - Radiation Detection and Measurement, G Knoll
   - The Physics of Radiation Therapy, F. Khan
   - Essentials of Anatomy & Physiology, V Scanlon & T Sanders
   - Radiobiology for the Radiologist, E. Hall*
   - The Physics of Radiotherapy X-rays and Electrons, P Metcalfe*
   - Introduction to Radiological Physics and Radiation Dosimetry, F Attix*
   - Raphex exams – be sure to focus on general questions that test big pictures concepts, rather than questions that rely on specific clinical experience
2. **Study Techniques**
   - Read and outline textbook chapters
   - Create problems (i.e. write your own exam)
   - Solve problems (from old tests, at the end of textbook chapters, Raphex)
   - Discuss troubling concepts with other exam preparers, or physicists
   - Make bulleted notecards and read them outloud
   - Solve problems at a whiteboard, explaining as if you were teaching
3. **Exam Preparation Advice**
   - Practice with the TI-30XS calculator (ABR has sample calculations on the website)
   - Register as soon as possible – test centers fill up quickly and you want the exam to be convenient. The center nearest you may already be booked with people taking accounting exams and GREs.
4. **Important Constants and Equations**
   The following are *a few examples* of medical physics constants and equations that you probably already know stone cold but don't want to forget before the certification exam. Be sure to compile your own list, and be aware of the constants provided by the ABR.

   $1\ R = 2.58 \times 10^{-4} C/kg$ $W_{air}=33.97$ eV/ion pair $1\ Ci=3.7\times10^{-10} Bq$

   $HVL = \ln(2)/\mu$ $q_e=1.60\times10^{-19}$ C $N=N_0e^{-\lambda t}$ $K=X(W_e)$