Select Written Study Material
For ABR Therapy Physics Oral Boards

Equipment

- "Electron Linear Accelerators for Radiation Therapy: History, Principles, and Contemporary Developments", *Phys. Med. Biol.* 1973 Vol. 18 pp321-354, Karzmark and Pering
- A Primer on Theory and Operation of Linear Accelerators in Radiation Therapy by C. J. Karzmark & Robert J. Morton

Patient-Related Measurements

- The Physics of Radiation Therapy 2nd Edition by Khan Chapter 15 Brachytherapy p463-467, "Dose to Bladder and Rectum"
- "Tolerance of normal tissue to therapeutic irradiation" *International Journal of Radiation Oncology*Biology*Physics,* 21(1991), pp 109-122 B. Emami et al
- TG 25 – Clinical Electron-Beam Dosimetry
- TG 42 – Stereotactic Radiosurgery
- TG 43 – Dosimetry of Interstitial Brachytherapy Sources
- TG 59 – High Dose-Rate Brachytherapy Treatment Delivery
- TG 64 – Permanent Prostate Seed Implant Brachytherapy
- TG 65 – Tissue Inhomogeneity Corrections for Megavoltage Photon Beams

Radiation Protection and Patient Safety

- The Physics of Radiation Therapy 3rd Edition by Khan Chapter 22 High Dose Rate Brachytherapy pp523-525, "Facility Design"
- NCRP 33 – Medical X-ray and Gamma-ray Protection for Energies up to 10 MeV
- NCRP 116 – Limitation to Exposure to Ionizing Radiation
- ICRP Publication 98, Chapter 2 – Dose to People Approaching Implanted Patients
- TG 27 – Neutron Measurements around High Energy X-ray Radiotherapy Machines
- TG 35 – Medical Accelerator Safety Considerations
- TG 36 – Fetal Dose from Radiotherapy with Photon Beams

Calibration, Quality Control, and Quality Assurance

- "Third Party brachytherapy source calibrations and physicist responsibilities: Report of the AAPM Low Energy Brachytherapy Source Calibration Working Group", *Medical Physics,* 35(2008) pp3860-3865, Butler et al
- TG 20 – Physical Aspects of Quality Assurance in Radiation Therapy
- TG 40 – Comprehensive QA for Radiation Oncology
- TG 45 – AAPM Code of Practice for Radiotherapy Accelerators
- TG 53 – Quality Assurance for Clinical Radiotherapy Treatment Planning
- TG 56 – Code of Practice for Brachytherapy Physics
- TG 66 – Quality assurance for computed-tomography simulators and the computed-tomography-simulation process
- TG 106 – Accelerator beam data commissioning equipment and procedures
- TG 142 – Quality Assurance of Medical Accelerators

Image Acquisition, Processing, and Display

- TG 28 – Radiotherapy Portal Imaging Quality
- TG 58 – Clinical Use of Electronic Portal Imaging

Select Clinical Experiences
For ABR Therapy Physics Oral Boards

- **Machine QA - Daily, Monthly, Annual, Commissioning (if possible)**
  - Linac
  - CT
  - HDR/LDR
  - MLC
  - Treatment Planning Systems
  - OBI systems

- **Radiation Safety**
  - Hot Lab
  - Room surveys
  - Shielding Calcs

- **Procedures**
  - HDR/LDR treatments
  - Treatment Planning (by hand and TPS) for Photons and Electrons
  - Patient Setup/Portal imaging/CBCT
  - End to End tests
  - SBRT
  - Gamma Knife

- **Measurement Devices**
  - Film
  - Electronic IMRT QA
  - Ion Chambers
  - Well Chambers
  - Diodes/TLDs
  - Water Tanks
  - GM/survey meters

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