

# Fundamentals of Radiation Oncology, 4th Edition

ABR Core Examination Topic-Mapping Sheet | Edited by Hasan Murshed, MD — Medical Director, Hope Regional Cancer Center

<b>28</b> Chapters · 4 Parts	<b>3</b> ABR Exam Parts Covered	<b>100%</b> ABR Blueprint Coverage	<b>NEW</b> AI · Adaptive RT · Immunotherapy · Theranostics
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ABR DOMAIN / CONTENT AREA	BOOK CHAPTER & AUTHORS	PHYS	BIO	CLIN	ABR CLINICAL % RANGE
<b>PART I — BASIC SCIENCE (Chs. 1–4)</b>					
Radiation Physics, Dosimetry, Treatment Planning, DVH, OAR Constraints, Imaging in RT	<b>Ch. 1 — Radiation Physics, Dosimetry, and Treatment Planning</b> <i>Caggiano, Gifford</i>		–		Core — Physics
Radiation Protection, Safety, QA, Error Prevention, Patient & Personnel Safety	<b>Ch. 2 — Radiation Protection and Safety</b> <i>Caggiano, Gifford</i>		–		Core — Physics
Radiation & Cancer Biology — LET, RBE, O Effect, Fractionation, DNA Repair, Normal Tissue, Late Effects	<b>Ch. 3 — Radiation Biology</b> <i>Rosenstein, Yang, Caudell</i>	–			Core — Biology
Molecular Cancer Biology — Tumor Microenvironment, Oncogenes, Tumor Suppressors	<b>Ch. 4 — Molecular Cancer Biology</b> <i>Rosenstein, Yang, Caudell</i>	–		–	Core — Biology
<b>PART II — TECHNIQUES &amp; MODALITIES (Chs. 5–14)</b>					
Brachytherapy — HDR, LDR, Permanent Interstitial, Radiopharmaceuticals, Theranostics	<b>Ch. 5 — Brachytherapy</b> <i>Mondal, Shen</i>		–		Physics & Clinical
IMRT & IGRT — Field Design, Simulation, Tumor Localization, Respiratory Management	<b>Ch. 6 — Intensity-Modulated and Image-Guided Radiation Therapy</b> <i>Sezen, Dong, Durankus, Bolukbasi, Selekt</i>		–		Physics & Clinical
Stereotactic Radiosurgery (SRS) — Cranial, AVM, Acoustic Neuroma, Brain Mets	<b>Ch. 7 — Stereotactic Radiosurgery: Cranial Lesions</b> <i>Pehlivan, Yildirim, Topkan, Yu, Selekt</i>		–		Physics & Clinical
SBRT — Lung Cancers, Respiratory Gating, Precision & Error	<b>Ch. 8 — Stereotactic Body Radiation Therapy: Lung Cancers</b> <i>Harada, Harris, Salama, Karunkonda</i>		–		Physics & Clinical
Proton Therapy — Physics, Dosimetry, Planning, Clinical Applications	<b>Ch. 9 — Proton Radiation Therapy</b> <i>Parikh, Kumar, Gill</i>		–		Physics & Clinical
Adaptive Radiotherapy (ART) — Online/Offline Adaptation, MR-Linac	<b>Ch. 10 — Adaptive Radiotherapy</b> <i>Cai, Zhen, Cummings, Cao, Dona Lemus</i>		–		Physics & Clinical
Artificial Intelligence in RT — Auto-Segmentation, AI Planning, QA	<b>Ch. 11 — Artificial Intelligence in Radiation Therapy</b> <i>Zheng, Hong, Ger</i>	–			Clinical
Immunotherapy & Radiation — Abscopal Effect, Checkpoint Inhibitors, Sequencing	<b>Ch. 12 — Immunotherapy</b> <i>Ahmed, Kim, Khatri</i>	–			Biology & Clinical
Combined Modality Therapy — Drug-Radiation Interactions, Sequencing, Agents	<b>Ch. 13 — Radiation and Combined Modality Therapy</b> <i>Cittolin Santos</i>	–			Biology & Clinical
Biostatistics — p-value, Risk Ratio, Meta-analysis, Study Design, EBM	<b>Ch. 14 — Statistical Consideration in Radiation Therapy</b> <i>Campbell</i>	–	–		NCS: 1–6%
<b>PART III — CLINICAL RADIATION ONCOLOGY (Chs. 15–26)</b>					
Skin Cancers — BCC, SCC, Melanoma, Merkel Cell	<b>Ch. 15 — Skin Cancers</b> <i>Agarwal, Penniment, Awan</i>	–	–		7–13%
CNS — GBM, Low-Grade Glioma, Meningioma, Medulloblastoma, Pituitary, Craniopharyngioma	<b>Ch. 16 — Primary Brain Cancers</b> <i>Tsang, Jaboin, Katakai</i>	–	–		5–11%
Head & Neck — Oral Cavity, Oropharynx, Nasopharynx, Larynx, Thyroid, Salivary	<b>Ch. 17 — Head and Neck Cancers</b> <i>Le, Paly</i>	–	–		7–13%
Breast — Early-Stage, LABC, Inflammatory, DCIS, Locally Recurrent	<b>Ch. 18 — Breast Cancers</b> <i>Freedman, Prionas</i>	–	–		9–15%
Thoracic / Lung & Mediastinum — NSCLC, SCLC, Superior Sulcus, Thymoma	<b>Ch. 19 — Thoracic Cancers</b> <i>Harada, Harris, Leung</i>	–	–		9–15%
Gastrointestinal — Esophagus, Stomach, Pancreas, Colorectal, Anal, Liver	<b>Ch. 20 — Gastrointestinal Cancers</b> <i>Yavas, Frakes</i>	–	–		9–15%
Genitourinary — Prostate, Bladder, Testis, Kidney, Ureter, Penis	<b>Ch. 21 — Genitourinary Cancers</b> <i>Bagshaw, Buyyounouski, Agarwal, Wu</i>	–	–		9–15%
Gynecological — Cervix, Endometrium, Ovary, Vagina, Vulva	<b>Ch. 22 — Gynecological Cancers</b> <i>Taunk</i>	–	–		7–13%
Lymphoma & Hematological — Hodgkin, NHL, Myeloma, Leukemia, NK/T Cell	<b>Ch. 23 — Lymphoma and Hematological Cancers</b> <i>Sim, Imber</i>	–	–		5–11%
Sarcomas — Soft Tissue, Ewing, Osteosarcoma, Chondrosarcoma, Desmoid	<b>Ch. 24 — Sarcomas</b> <i>Naghavi, G. Yang, Youssef</i>	–	–		2–8%
Pediatric — Medulloblastoma, Wilms, Neuroblastoma, Rhabdomyosarcoma, Retinoblastoma	<b>Ch. 25 — Pediatric Cancers</b> <i>Tsang, Jaboin, Katakai</i>	–	–		4–10%
Benign Diseases — Keloid, Heterotopic Bone, Dupuytren's, Graves', Osteoarthritis	<b>Ch. 26 — Benign Diseases</b> <i>Gujral, Williams</i>	–	–		2–5%
<b>PART IV — ADVANCED &amp; SUPPORTIVE TOPICS (Chs. 27–28)</b>					
Metastatic Cancers — Bone, Brain, Spine, Liver Mets; Palliative RT, Patterns of Failure	<b>Ch. 27 — Metastatic Cancers</b> <i>Keit, Yu</i>	–	–		Palliative Care
RT Toxicity & Management — Acute & Late Effects, CTCAE v5.0, Organ-Specific Toxicities	<b>Ch. 28 — Radiation Therapy Toxicity and Their Management</b> <i>Yu, Dziuk, Khatri</i>	–	–		All Domains