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Titolo	Stereotactic Body Radiotherapy : A Practical Guide / / edited by Andrew Gaya, Anand Mahadevan
Pubbl/distr/stampa	London : , : Springer London : , : Imprint : Springer, , 2015
ISBN	0-85729-597-7
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Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Contents; Contributors; Chapter 1: Introduction to Stereotactic Body Radiotherapy; 1.1 History of SBRT; 1.2 Fractionation and Radiobiology; 1.3 Overview of SBRT Systems; 1.4 Respiratory Motion; 1.5 Summary of Major SBRT Indications; 1.5.1 Primary Non-Small Cell Lung Cancer (NSCLC); 1.5.2 Lung Oligometastases; 1.5.3 Liver Metastases; 1.5.4 Primary Liver Tumours; 1.5.5 Pancreas; 1.5.6 Kidney; 1.5.7 Prostate; 1.5.8 Vertebral Metastases; 1.5.9 Primary Spinal Tumors; 1.6 Conclusion; References; Chapter 2: History and the Technological Evolution of Stereotactic Body Radiotherapy; 2.1 Introduction 2.2 Clinical Evolution of SBRT2.3 Devices, Delivery System and Localization: Early Techniques and Technology; 2.4 Radiobiological Rationale and Its Impact on SBRT Techniques; 2.5 Evolution to Treat Other Sites; 2.6 Conclusion; References; Chapter 3: Stereotactic Body Radiation Therapy Systems; 3.1 Introduction; 3.2 System Components and Requirements; 3.2.1 Patient Immobilization; 3.2.2 Image-Guided Localization and Tracking; 3.2.3 Simulation and Other Imaging Modalities; 3.2.4 Beam Characteristics; 3.2.5 Planning; 3.2.6 Quality Assurance in SBRT; 3.3 Commercially Available Systems; References Chapter 4: Physics of Stereotactic Body Radiotherapy-Commissioning, Quality Assurance, and Treatment Planning4.1 Introduction; 4.2 SBRT System Commissioning; 4.2.1 Beam Data; 4.2.2 Data Acquisition; 4.2.3 TPS Commissioning; 4.3 Quality Assurance; 4.3.1 Imaging System Quality Assurance; 4.3.2 Dosimetric Quality Assurance; 4.3.2.1 Validation Measurement Vs. Treatment Planning Output; 4.3.2.2 Routine Quality Assurance Program; Beam Stability Test; End-to-End Test: Including Motion Tracking/Gating End-to-End Test; 4.3.3 Patient Specific QA; 4.4 Treatment Planning; 4.4.1 Introduction 4.4.2 Simulation, Motion Management and Target Delineation4.4.3 Dose Heterogeneity and Prescription Normalization; 4.4.4 Practical Considerations; References; Further Reading: Quality Assurance; Further Reading List: Treatment Planning; Chapter 5: Radiobiology of High Dose Fractions; 5.1 Introduction; 5.2 The Basic LQ Model; 5.3 Example of Simple LQ Modelling; 5.3.1 Allowance for "Straightening-Out" of the Dose-Response Curve; 5.3.2 Normal Tissue "Hot-Spots"; 5.4 Other Radiobiological Factors; 5.4.1 Tumour Repopulation; 5.4.2 Problems with Incomplete-Repair Following Large Dose Fractions 5.4.3 Effect of Extended Fraction Times5.4.4 Effect of Cell Cycle Re-Assortment and Re-Oxygenation; 5.4.5 Normal Tissue Volume Effects; 5.4.6 Tumour Volume Effects (and Volume Changes with Time); 5.5 Other Relevant Clinical Factors; 5.5.1 Co-Morbidity from Other Sources; 5.5.2 High-Let and RBE Issues for Hypofractionation; 5.6 Conclusions and Future Implications; References; Chapter 6: Planning and Dosimetry for Stereotactic Body Radiotherapy; 6.1 Introduction; 6.2 Basic Principles of SBRT Planning: Homogeneous Vs. Heterogeneous Planning; 6.3 General Concepts for SRS/SBRT Planning 6.4 Treatment Delivery Time
Sommario/riassunto	This practical guide covers the basic aspects of stereotactic radiotherapy systems and treatment. As an emerging field, stereotactic body radiotherapy (SBRT) offers image-guided radiation that is directed at extremely well-defined tumor targets within the body, delivering very high doses of radiation. Indications for SBRT have expanded extensively in recent years from intracranial treatment to extracranial, leading to the development of a thriving subspecialty within radiation oncology. The expertise on these methods is concentrated across a

few centres, mainly in the USA. However, as the technique is increasingly being adopted worldwide, specialists require further training in using it. Stereotactic Body Radiotherapy – A Practical Guide provides a valuable aid for this purpose and is of particular interest to clinical oncologists and their trainees.