Book and Media Reviews

IMRT, IGRT, SBRT
Advances in the Treatment Planning and Delivery of Radiotherapy

By John Meyer, 2nd, revised and extended edition, ISBN 978-3-8055-9680-0, Basal, Karger

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Improvements in computing power and imaging technologies have fueled the development of sophisticated radiation treatment planning and delivery. This book is a comprehensive review of the new technologies, and their applications in clinical practice.

The book is divided into four sections. The first section offers a detailed description of the new technologies such as intensity-modulated arc therapy, 4D imaging and delivery and different linear accelerator platforms that incorporate these new technologies. The second describes how the technologies are applied in the clinic, in a site-specific manner. The third section is dedicated specifically to SBRT, a treatment that is made possible through the marriage of IMRT and IGRT. The last section addresses the unique capabilities and applications of proton therapy.

What sets this book apart is that it is extremely practical. Each clinical chapter guides the reader through how to treat a patient utilizing the new technologies. It includes the key steps such as simulation, target delineation, treatment planning, plan evaluation, and treatment set-up and delivery. Each chapter also includes a summary of reported clinical outcomes. The book includes full-color illustrations and case examples that are easy to follow. Complementing the text are on-line supplementary materials, including videos that help to illustrate 4D technology and tumor motion management.

The text also includes a chapter on the economic impact of these new technologies. In 2009, health care spending in the United States was $2.47 trillion, accounting for 17.3% of GDP, which is significantly higher than any other developed nation. The authors pointed out that IMRT (CPT code 77418) increased from 38th to 18th in total cost to Medicare from 2004 to 2007 and that radiation oncologists represent only 0.3% of Medicare service providers while accounting for 3% of total costs. This discussion serves as an important reminder to us all that the incremental benefit of these new technologies must be carefully weighed against cost. Prospective clinical trials with well-defined and meaningful clinical endpoints are needed to fully establish the value of technical improvements. In addition, economic considerations also call for development of cost-saving technologies, such as intensity modulated arc therapy, that reduces treatment time and improves clinical throughput. Overall, this book is a comprehensive, but not overwhelming resource for radiation oncologists, physicists and technologists. The amount of information is well distributed among the text, figures and tables. It is an excellent guide to understanding application of new technologies in radiation oncology.

No potential conflict of interest.
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