Should You or Shouldn't You: Final Advice for Community Cancer Centers

by John R. Russell, M.D., M.S.

The great strides that were made in the field of diagnostic tumor imaging in the last 20 years (which produced progressively more accurate delineation of the tumor target), plus the development of sophisticated three-dimensional planning computers, have resulted in the development of 3D conformal radiation therapy (3D-CRT) and IMRT. In turn, IMRT has produced a number of new descriptors (some borrowed from 3D-CRT terminology and others newly created), and has prompted a variety of activities and organizations aimed at defining and regulating this new field.

Attempts are underway to standardize the IMRT process and to precisely specify the quality assurance activities necessary to ensure patient safety for this modality. These efforts are hampered by a lack of evidence-based information on IMRT, since at present no prospective randomized trial data exist on the effects of IMRT treatment for any disease site. Single institution data on the effects of dose escalations for specific tumors are available, and these single institution reports will continue to support the escalating use of IMRT until study data are ready.

Over the next decade, prospective, randomized national clinical trials will clarify the role of IMRT in radiation oncology. The issues explored will include which tumor sites are appropriate for IMRT treatment, the amount of machine downtime needed to plan and safety check IMRT treatment, and the total maximum body dose to the patient for specific beam plans.

A number of groups have been created to help foster successful IMRT clinical trials. In 1999 the National Cancer Institute funded the Advanced Technology Radiation Therapy Quality Assurance Review Consortium. This organization is composed of the Image-Guided Therapy Center, the Quality Assurance Review Center, the Radiological Physics Center, and the Resource Center for Emerging Technologies. The entire group will develop guidelines for using IMRT techniques in national clinical trials. Protocol requirements for IMRT treatment delivery were agreed upon by the committee chairs of the NCI-funded clinical trial groups at a meeting held in Bethesda, Md., on June 20, 2002, and the required nomenclature has been published in the NCI IMRT Working Group Report.[1]

In the meantime, community oncology centers planning to add IMRT to their repertoire must address a number of issues, including patient volume, disease-site distribution, payer mix, physician training, obtaining qualified physics and dosimetry personnel, and equipment acquisition costs.

Cancer centers that want to use IMRT should have adequate numbers of prostate, head and neck, brain, spinal cord, and certain types of breast cancer patients; appropriate levels of on-site physics and dosimetry support; a commitment to obtain adequate training for all personnel involved; and strong administrative support for the increase in physician, physicist, dosimetrist, and radiation therapy time per patient and the time needed to fabricate the immobilization devices some IMRT patients require.

Cancer centers with low patient volumes, inadequate specialized support personnel (especially physicists), and unenthusiastic physicians should avoid this technology. However, since proponents argue that, within the next decade, most cancer centers will employ IMRT as indications for its use expand, the marketing of an oncology center may revolve around IMRT capability. Centers that should not incorporate IMRT might adopt the strategy of pursuing 3D-CRT treatment capability with existing equipment to keep their centers competitive.

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REFERENCE

[1]Intensity Modulated Radiation Therapy Collaborative Working Group. Intensity Modulated Radiotherapy: Current Status and Issues of Interest. *Int J Radiat Onc, Biology, and Physics*. 2001;51(4):880-914.