COMMENTARY

# *The path to quality prostate seed implants*

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Prostate brachytherapy is an important tool in the management of prostate cancer.[1] As monotherapy or in combination with external beam radiation, its effectiveness, convenience and low cost make brachytherapy an attractive option for initial definitive treatment.[2] Implant quality is crucial to the effectiveness of prostate brachytherapy, as optimal prostate D90 (the minimum implant dose covering 90% of the prostate volume) values are consistently associated with improved rates of biochemical control.[3,4] Furthermore, the importance of implant quality assurance was demonstrated in an extreme example in the national news, when 97 patients at the Philadelphia Veterans Administration Hospital were reported to have received unsatisfactory implants meeting the definition of medical events.[5]

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In the paper accompanied by this commentary, Bockholt et al present their initial experience of the first 100 patients treated with prostate brachytherapy at their institution, using a preplanned approach.[6] The authors found that their first 25 implants achieved lower D90 values, with associated inferior biochemical control, compared to the subsequent 75 patients. Importantly, the authors note that lessons learned from the initial series of cases led to systematic practice changes that resulted in improved quality.[6] These results mirror those of Lee et al[7] and Henry et al,[8] suggesting that a learning curve exists for new practitioners of interstitial prostate brachytherapy.

It should perhaps not come as a surprise that there is a learning curve in obtaining brachytherapy proficiency. Unlike external beam treatment radiation treatment planning and delivery, there is an inherent real-time aspect to brachytherapy and a need for basic manual dexterity and immediate decision-making.

The prospective brachytherapist is now left to wonder how to shorten the learning curve, and what steps should be considered to ensure high-quality implants. Intraoperative, real-time planning may be one such strategy, since the real-time planning technique obviates the need to replicate positioning

from a pre-plan ultrasound study in the operating room.[9] Acher and colleagues reported adequate prostate D90 results immediately, in their first 77 implants using intraoperative, real-time planning with a dynamic dose-feedback system.[10] The real-time feedback of intraoperative planning appears to be a useful strategy for beginning prostate brachytherapists.

Resources exist to improve brachytherapy skills. The American Brachytherapy Society provides guidelines on prostate brachytherapy and offers training courses. Additionally, some high volume prostate brachytherapy centers offer workshops for clinicians planning to start a brachytherapy program, and external proctors and quality assurance programs can be identified to improve community programs.[11] Simulated training systems are another promising approach, and a recent report has highlighted the potential value of advanced-technology platforms for this purpose.[12]

The current article[6] highlights a key aspect of overcoming the learning curve – continuous quality review and adjustments to optimize future performance. Efforts to ensure the adequate quality of brachytherapy implants have led the American Board of Radiology (ABR) to create a Focused Practice Recognition in Brachytherapy program. Key elements of this program include a minimum case volume, submission of cases for peer review, and performance of continuous quality improvement projects—a model framework for initiatives to improve implant quality. □

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