

## Letter to the Editor

### Third party brachytherapy seed calibrations and physicist responsibilities

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To the Editor,

In the last decade, the number of low-energy photon-emitting brachytherapy source manufacturers has dramatically grown, and there are now about 15 manufacturers for  $^{125}\text{I}$  and  $^{103}\text{Pd}$  encapsulated sources for permanent and temporary brachytherapy. More recently, several third party calibration services, some based in commercial radiopharmacies, have begun marketing "independent assays" of brachytherapy source strength. For a fee, these services perform seed strength assay for an order prior to shipping it to the end user. While such services help reduce the physics workload required in source preparation for brachytherapy implants, they also raise certain medical physics, patient safety, and legal issues regarding American Association of Physicists in Medicine (AAPM) recommendations that have been published in *Medical Physics*. In 1997, AAPM TG-56 guidance states,<sup>1</sup> "Every institution practicing brachytherapy shall have a system for measuring source strength with secondary traceability for all source types used in its practice." The report further states, "The institution should compare the manufacturer's stated value with the institution's standard." In 1999, the issue of whether source strength can be verified by entities other than the final user's institution was addressed again in *Medical Physics* when AAPM TG-64 restated and condensed TG-56 recommendations as, "In whatever form the seeds are procured, the manufacturer's assay must be independently confirmed."<sup>2</sup>

In this letter, we intend to update the *Medical Physics* readership regarding the current deliberations and actions that are underway in addressing these urgent issues raised by the use of third party brachytherapy seed calibrations. This letter has been prepared by members of the AAPM Brachytherapy Subcommittee of the Therapy Physics Committee and was approved for publication by the AAPM Therapy Physics Committee. In our opinion, use of third party calibration services that provide independent source strength verification would appear to provide nominal adherence to TG-64, but not necessarily to TG-56. Additionally, use of such calibrations to replace TG-56 compliant end-user measurements raises questions and concerns. It is the AAPM's position that a qualified medical physicist is responsible for the dosimetric accuracy of brachytherapy treatment plans, including source strengths. This position is also supported by state regulatory bodies and professional organizations such as the American College of Radiology (ACR), American Brachytherapy Society (ABS), American College of Medical

Physics (ACMP), and American College of Radiation Oncology (ACRO).<sup>3,4</sup>

Considering the importance of this issue, the AAPM has appointed a working group to address these issues. Pending a report from this group that clarifies QA recommendations, administrative oversight, and third party calibration service traceability and the responsibilities of the brachytherapy physicist, each physicist should continue to follow the recommendations of TG-56 and TG-64. For those already using a third party calibration service, a prudent approach would be to develop and implement an in-house system for checking the validity of third party calibrations on a routine basis.

<sup>1</sup>R. Nath, L. L. Anderson, J. A. Meli, A. J. Olch, J. A. Stitt, and J. F. Williamson, "Code of practice for brachytherapy physics: report of the AAPM Radiation Therapy Committee Task Group No. 56. American Association of Physicists in Medicine," *Med. Phys.* **24**, 1557–1598 (1997).

<sup>2</sup>Y. Yu, L. L. Anderson, Z. Li, D. E. Mollenberg, R. Nath, M. S. Schell, F. M. Waterman, A. Wu, and J. C. Blasko, "Permanent prostate seed implant brachytherapy: report of the American Association of Physicists in Medicine Task Group No. 64," *Med. Phys.* **26**, 2054–2076 (1999).

<sup>3</sup>American College of Radiology, "ACR technical standard for the performance of brachytherapy physics: manually loaded temporary implants," [http://www.acr.org/s\\_acr/bin.asp?CID=0&DID=12188&DOC=FILE.PDF](http://www.acr.org/s_acr/bin.asp?CID=0&DID=12188&DOC=FILE.PDF)

<sup>4</sup>S. Nag, R. Dobelbower, G. Glasgow, G. Gustafson, N. Syed, B. Thomadsen, and J. F. Williamson, "Inter-society standards for the performance of brachytherapy: a joint report from ABS, ACMP and ACRO," *Crit. Rev. Oncol. Hematol.* **48**, 1–17 (2003).

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