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| **Reported by (Name):** | **Geoffrey S. Ibbott, Ph.D.** |
| **Organization:**  | **International Electrotechnical Commission** |
| **Position Title:** | **Convenor, Working Group 1; Technical Advisor, USNC; Chair, US TAG** |
| **Activity:** | **Meetings of the IEC, all Technical Committees and Subcommittees, and particularly Subcommittee 62C, its WG1, its Project Team for the 4th Edition of the Linac Safety Standard and its Project Team for IEC 62926** |
| **Meeting Dates:** | **See report** |
| **Meeting Location:** | **See report** |
| **Payment $:** | **N/A** |
| **Reasons for Attending or not Attending** | **Attended as Convenor of Working Group 1 and past chair of Subcommittee 62C** |
| **Issues from Previous Meetings or Year:** | **See report** |
| **General Description of Activities of the Organization and/or Meeting:** | **See report** |
| **Issues for AAPM:** | **See report** |
| **Budget Request ($):** | **See budget request** |

This is a report of my participation in the 80th International Electrotechnical Commission (IEC) General Meeting in Frankfurt. The meeting was attended by 3,000 delegates from 90 countries. The IEC writes standards for the safe and effective design of electrical equipment. Many of the IEC standards are adopted into law in Europe and are recognized by the FDA in the US. Manufacturers must comply with the standards when designing and constructing equipment. They must submit equipment for testing by “notified bodies” – independent testing labs such as Underwriters Laboratories – which is dictated by compliance tests and criteria in the standards.

The goal of the IEC is to facilitate trade by establishing standards for interoperability and compatibility, and to assure safety by writing standards for design and performance of equipment.

The development of the standards takes place in Working Groups and Maintenance Teams. These are grouped under, and report up to Subcommittees, which report to one of more than 100 Technical Committees. My purpose for attending was to participate in Technical Committee 62 on Medical Equipment, its Subcommittee 62C, and within the subcommittee, Working Group 1.

Working Group 1 is responsible for the standards that govern the design of external beam treatment equipment, IGRT systems, treatment planning systems, oncology information systems, and HDR afterloaders. For a number of years, I was chair of Subcommittee 62C; my term ended in May 2016. I have served as the Convenor of Working Group 1 for a number of years and continue to do so.

Countries participate formally in the IEC through their national committees; the US National Committee is housed at ANSI. I am the Technical Advisor to the USNC for IEC Subcommittee 62C projects, and chair the USNC’s Technical Advisory Group (TAG) for 62C.

WG 1 was attended by 30 delegates from eleven countries. We met for 3 days (October 8-10, 2016) to address comments submitted by national committees regarding two important standards under development. The first of these is a new edition of the standard that dictates safety and essential performance of radiation therapy linear accelerators. The new edition is being prepared to take into account new capabilities of image guidance and modulated treatment delivery. Other important provisions address redundant dosimetry systems, collimator transmission, and head leakage.

Additional time was spent on a new technical report on adaptive radiotherapy. We also discussed WG proposals to update existing standards dictating coordinate systems and scales, treatment planning systems, and record and verify systems. Revisions to performance standards for linacs and a new standard for the performance characteristics of IGRT systems are being contemplated.

At the subcommittee level, we considered a new proposal to address the security of radioactive sources, and decided to recommend this be managed through a collaboration with the ISO and the IAEA. We also discussed a proposal for a new ISO standard being considered by their TC 85/ SC 22/ WG2, which would define the calibration process for Gammaknife treatment devices. We have communicated to ISO that we consider such as standard to be inappropriate as such work should be conducted by professional societies such as the AAPM, or international scientific organizations such as the IAEA. These recommendations were made to the Technical Committee.

The membership of the IEC committees and working groups is dominated by regulators and industry representatives. Maintaining active participation by clinical people is essential to assure that regulators or manufacturers do not dictate equipment safety and performance features. As an example, a manufacturer has proposed to scale back the requirements for dual independent dosimetry systems for linear accelerators. We feel this would greatly increase the risk of incorrect dose delivery. Another area of conflict between clinical representatives and manufacturers is over the latency time allowed for adaptive radiotherapy equipment to respond to a change in patient anatomy, such as from respiratory motion.

Participation of US clinical physicists on IEC committees and working groups, as well as on the US TAG, has been supported by a collaboration between the AAPM, the ACR and ASTRO. This collaboration began in the late 1990s and was initiated by Drs. Suntharalingam and Karzmark. Since then, each organization has funded domestic travel for three physicists to attend each of two TAG meetings. The organizations also fund travel for one physicist to attend three international meetings of IEC subcommittee 62C, working group 1, and its project teams. Continuing this support is essential to help ensure that IEC standards reflect clinical workflow in addition to providing for safe and effective performance.

Respectfully submitted,

Geoffrey S. Ibbott, Ph.D.

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