GLOBAL HEALTH

International Outreach: What Is the Responsibility of ASTRO and the Major International Radiation Oncology Societies?

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In this era of globalization and rapid advances in radiation oncology worldwide, the American Society for Radiation Oncology (ASTRO) is committed to help decrease profound regional disparities through the work of the International Education Subcommittee (IES). The IES has expanded its base, reach, and activities to foster educational advances through a variety of educational methods with broad scope, in addition to committing to the advancement of radiation oncology care for cancer patients around the world, through close collaboration with our sister radiation oncology societies and other educational, governmental, and organizational groups. © 2014 Elsevier Inc.

Introduction

Delivering and disseminating knowledge, based on the advances and research results within the field, have been the fundamental missions of all medical societies. The American Society for Radiation Oncology (ASTRO) recognized early that this mission cannot be limited to the country of origin but must extend across international borders to lead to global improvements in the quality and safety of radiation oncology care.

Profound disparities exist across the globe in the delivery and practice of radiation oncology, technological and physical
infrastructure, manpower, level and availability of education, and training and certification standards in both radiation oncology and related fields (1-5).

The International Education Subcommittee (IES), a subcommittee within ASTRO’s Educational Council, was established to advance radiation oncology beyond our national borders. Part of IES’s mission is to specifically serve regions in low- and middle-income countries where radiation oncology care is limited or challenged (1-5). Close relationships with local radiation oncology societies within many of these countries have been established. Educational outreach has been provided in the form of collaborations with these societies. ASTRO has also established a database of self-identified needs of radiation oncology centers around the world where ASTRO members can volunteer to address those needs. Lectures in local/regional conferences within those countries by ASTRO members have brought education closer to practicing physicians, physicists, therapists, dosimetrists, and related professionals. The IES has been supporting the International Atomic Energy Agency’s (IAEA) educational efforts and has provided funding for educational exchange through travel grants for US radiation oncology residents to spend radiation oncology rotations in low- and middle-income countries and by supporting early career radiation oncologists from abroad to attend the annual ASTRO meeting and rotate through a US institution.

**New IES approach**

In 2012, the IES took a new and expanded approach to international education. In the current age of globalization in medicine and with the rapid advances in technology, building a true global radiation oncology community is of paramount importance. In some regions the fast economic upswing and increased availability of financial resources has led to rapid and widespread acquisition of advanced technology radiation oncology equipment (6). While in developed nations the process of conversion from traditional radiation techniques to advanced targeted and image-guided delivery has followed a gradual learning curve, keeping pace with equipment development, this process is fulminant in many developing countries. In some countries, such rapid advancement has created profound gaps between technical infrastructure capability and educational level not only of radiation oncologists but also of the entire therapy team. The training of physicians as well as physicists, therapists, dosimetrists, and other staff and development of robust processes/procedures and quality/safety and standardization for advanced intensity modulated radiation therapy (IMRT), stereotactic radiosurgery (SRS), and stereotactic radiation therapy are major challenges.

Furthermore, within many countries, the gaps and disparities are widespread between institutions with advanced capabilities and those, frequently in more remote and peripheral regions, that continue to be technologically deprived. In other regions, such as sub-Saharan Africa, the profound lack of even basic treatment equipment (2) or stable power grids (which are essential to operate linear accelerators), and particularly the lack of brachytherapy, call for alternative approaches to bringing reasonable capabilities to large populations that are currently profoundly underserved and resource-constrained.

In the wider context of oncology, diagnostic capabilities and the availability and understanding of oncologic imaging, as well as the level of general oncology expertise (7) are critical in order to deliver comprehensive cancer care. The overall understanding of radiation oncology by practitioners of other specialties and the resulting referral patterns play critically into the challenge of making radiation therapy available to the growing global cancer population.

To address this increasing educational need and variability across countries in capability and infrastructure and to broaden the scope of ASTRO’s outreach programs, the IES has recently expanded its approach to international education. This has followed the recommendations of an ASTRO International Education Task Force under the leadership of Tim Williams, MD, to identify new and different strategies to increase the impact of international outreach.

A comprehensive matrix structure was established within an expanded IES to synergize representation and networking within 5 major global regions and to link it to the subject expertise of ASTRO members within radiation oncology, physics, information technology, and related fields and to foster broad collaboration (Fig. 1). This effort is augmented by the close integration with other organizations and stakeholders, including major international radiation oncology and educational societies. Within this structure, there is representation in the International Liaison Work Group of many of ASTRO’s sister radiation oncology societies as well as other oncology societies (detailed in Fig. 1), which are engaged in international outreach. This serves to promote collaboration and coordination and to prevent duplication of educational efforts.

In addition, the IES draws on the expertise of educationally focused societies, including the Society of Chairs of Academic Radiation Oncology Programs (SCAROP) and Association for Directors of Radiation Oncology Programs (ADROP). The Radiation Therapy Oncology Group (RTOG), National Cancer Institute (NCI), National Institutes of Health (NIH), and IAEA, with their vast global outreach, also are represented.

Regional IES Work Groups (Fig. 1) have established relationships with local/regional radiation oncology societies of their respective regions, including South African Society for Clinical and Radiation Oncologists (SASCRO); Association of Radiation Oncology of India (AROI); the Chinese Society of Therapeutic Radiology and Oncology (CSTRO); the Sino-American Network for Therapeutic Radiology and Oncology (SANTRO) in China; the Latin American Society of Therapeutic Radiation Oncology (ALATRO); and the South East Asian Radiation Oncology Group (SEAROG). Finally, the engagement of the Global Health Committee of the Association of Residents in Radiation Oncology (ARRO) is represented to engage and empower the next generation of radiation oncologists.

**IES Work Group findings**

To date, the 5 regional Work Groups (Fig. 1), each consisting of 15 to 20 members, have completed their initial assessments of educational needs in their respective regions of Africa, China, India, Latin America, and Southeast Asia.

In Africa, the lack of equipment and physicist training have been identified as major obstacles. The great variability in the status of radiation oncology throughout the region, coupled with the overall inconsistency of Internet technology (IT) and technical resources, calls for the need to establish direct contacts and
relationships among individual centers in African countries and US institutions. In addition, there is a need for advocacy in governmental agencies in countries with limited or no radiation therapy. In both China and India, the ability to safely implement advanced radiation oncology technologies with solid quality assurance (QA) programs, processes, and procedures is at the forefront, as leading-edge technology continues to be rapidly acquired throughout the region but in a disparate manner. Sharing knowledge about simple and complex approaches is necessary in these rapidly economically evolving regions. Similarly, in Latin America, treatment guidelines, QA protocols, and procedure manuals are areas of educational need. In addition, modernization of brachytherapy is required. Inconsistent or nonexistent training of physicists and support staff presents another challenge. In Southeast Asia, solid implementation of treatment planning, image guidance, and treatment delivery processes and procedures are paramount. Cultural and language barriers pose additional challenges.

Educational strategies

Just as educational needs are diverse among different regions, the best method to deliver education varies greatly and must be tailored to the educational needs, technical capabilities, infrastructure, and manpower available within the specific region. This concept is expected to evolve over time, with rapid changes in radiation oncology capability worldwide, propelled by economic advancement in many low- and middle-income countries and resulting technology advancement. Face-to-face educational courses by expert visiting speakers in low- and middle-income countries are important but may not be the optimal stand-alone approach as they are costly and often reach only a limited number of attendees within a region. With the rise of Internet-based educational activities, remote interactions become increasingly feasible and enable strategies to develop educational venues and teaching methods beyond face-to-face meetings.

It is the IES’ strategy and goal to deploy educational content using various approaches that integrate these methods with each other, tailored to the individual region. To achieve this, the IES draws on the broad expertise and record of its large membership within each Work Group, with broad experience in outreach and methods of international educational exchange, as well as the expertise of collaborating societies and organizations. These educational venues range from highly interactive to remote learning methods (Fig. 2). Thus, innovative and cost-effective distance learning approaches, including virtual tumor boards or meetings, can be combined with virtual content, such as archived educational conferences, educational manuals, and curricula available on-line. This can be interfaced where needed with face-to-face interactions as practiced in hands-on workshops, seminars, roundtables, and/or traditional lectures. ASTRO is developing an IT infrastructure for these efforts, including ASTRO’s newly created international website and is fostering interactions through the ROhub, ASTRO’s online community. Meanwhile, through its members the IES’ long-term goal is to develop educational hubs in individual regions as a more community-based approach (7), fostering direct institution-to-institution interactions and educational activities.
Integration of Educational Methods

1. Hands-on Workshops, Seminars
   - E-contouring
   - Brachytherapy Workshops
   - Round tables, Colloquia

2. Traditional Lectures
   - Regional or national meetings
   - Institutional events

3. Webinars
   - E-contouring
   - Remote Tumor Boards, Round Tables

4. Virtual Content
   - Archived Educ/Scientific conferences
   - Institutional didactic courses

5. Educational manuals
   - Curriculum development
   - Training standards

Fig. 2. Various educational concepts and methods are needed to synergize, balance, and tailor educational efforts to individual regions’ needs, capabilities, and infrastructures.

...that can be disseminated broadly from the educational hub into the region.

The IES focuses on educational effort geared to the entire radiation oncology team, including physicists, therapists, and nurses, and by engaging representation from all these team members and their professional societies through IES ancillary work by representation from the American Association of Physicists in Medicine (AAPM), American Association of Medical Dosimetrists (AAMD), American Society of Radiologic Technologists (ASRT), and ASTRO Radiation Oncology Nurses (ARON).

The first ASTRO international symposium was launched at the 2013 ASTRO Annual Meeting in Atlanta, GA. It highlighted the educational and technology status in the 5 global regions and explored strategies going forward. The knowledge and skills gap created by the rapid proliferation of complex radiation therapy planning and delivery technologies in the low- and middle-income and economically emerging countries and the resulting challenges for quality/safety processes and procedures were identified as one of the major obstacles for the advancement of radiation oncology in many regions worldwide.

This theme will be at the forefront of the next ASTRO international symposium at the 2014 ASTRO meeting. This symposium will feature a workshop on safe implementation of advanced technologies in radiation oncology that will address the practice of advanced radiation therapy techniques, commissioning, and clinical implementation of IMRT, image guided radiation therapy and image-guided adaptive radiation therapy, stereotactic body radiation therapy, and SRS programs. The symposium will contain both lecture- and workshop-based education and will include an interactive discussion with faculty for attendees to engage in learning the nuances of implementing advanced radiation therapy techniques in their clinics, safely and efficiently. The content of this symposium will be archived and will be available as virtual content on the ASTRO International website.

Summary and opportunities

As the largest radiation oncology society, ASTRO has a wide reach by drawing on the expertise, time, and volunteerism of numerous ASTRO members who are committed to international outreach and education. ASTRO’s wealth of electronic and archived educational materials further complements these efforts by enabling virtual long-distance and more cost-effective pathways for international education. The close relationships with other radiation oncology societies holds the promise that educational efforts can be complemented and aligned in this evermore economically strained health care environment.

However, while ASTRO can foster such an exchange, it is beyond the scope of a professional society to manage or maintain individual physician-to-physician and institution-to-institution relationships, which are critical to cultivate education that is tailored to the specific needs of the local treatment teams, institutions, and environments. Personalized relationships, which bolster long-term one-on-one exchanges, are just as important and can overcome economic, linguistic, or, in some regions, IT connectivity barriers. Close communication among the diverse organizations and methods of international outreach will be needed to collectively achieve best success in improving radiation oncology care worldwide.

References