

# Training a new generation of surgeons worldwide who are also oncologists

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Submitted Jun 13, 2016. Accepted for publication Jun 20, 2016.

doi: 10.21037/cco.2016.07.02

View this article at: <http://dx.doi.org/10.21037/cco.2016.07.02>

Surgeons form an integral part of the multidisciplinary teams that form the foundation for delivery of optimal care for cancer patients worldwide (1-3). As recently reported by the Lancet Oncology Commission, “surgery is essential for global cancer care in all resource settings. Of the 15.2 million new cases of cancer in 2015, over 80% will need surgery, some several times. By 2030, we estimate that 45 million surgical procedures will be needed worldwide. Yet, less than 25% of patients with cancer worldwide actually get safe, affordable, or timely surgery” (4). Countries in the Asia Pacific region have a significant cancer burden, including China and neighboring countries. For example, every day in China, an estimated 12,000 Chinese are diagnosed with cancer and an additional 7,500 Chinese die of cancer (5).

The ability to address the rising global cancer burden requires the presence of an adequately trained surgical oncology workforce, which in turn, is dependent upon credible training pathways and sustainable certification pipelines (6,7). However, there is enormous variation in training of surgical oncologists globally (7). In many countries, there is no formal training curriculum to equip surgeons to understand contemporary oncology management principles nor is there a certification process that assures the public of their specialized oncology capabilities beyond that of general surgery training. The Lancet Oncology Commission states that there are “profound equity and economic gaps in global cancer surgery. Many patients globally do not have access to cancer surgery, and the failure to train more cancer surgeons and strengthen systems could result in as much as USD\$ 6 trillion in lost cumulative gross domestic product by 2030...The models and paths to training general

surgeons have already been articulated in the *Global Surgery 2030 Commission*, but there is also a great unmet need for expansion of surgical oncology, both general and specialist.” (8).

Recently, the Society of Surgical Oncology (SSO) and the European Society of Surgical Oncology (ESSO) have co-published two important articles about the training of surgical oncologists and the disparities of training at a global level (9-12).

The initial paper analyzed the variations in training paradigms for surgical oncologists across the world and found:

- (I) Significant variations in the training paradigms globally associated with geographic location and economic standing;
- (II) The total surgical training length is long, varying between 8 and more than 17 years, depending on the country;
- (III) Several countries do not have the capability to offer surgical oncology fellowship training programs, and there is wide variability in the location of foreign countries that physicians travel to in order to obtain required training;
- (IV) Although some countries do not offer surgical oncology fellowships, they still mandate specialized training in surgical oncology;
- (V) No structured pathways to integrate the knowledge acquired abroad into the native health and medical systems.

These variations can have a detrimental effect on the global surgical oncology workforce. The majority of cancers at some stage will require the expertise of an

adequately trained surgical oncologist. The availability of a curriculum that proscribes a set of uniform minimum of surgical oncology training standards can initiate the process of addressing these global inconsistencies. The two leading global surgical oncology societies of the world (The SSO and ESSO) have jointly developed such a curriculum consisting of a minimum set of training domains and requirements that can be adapted for different regions of the world (9-12). The authors acknowledge the inherent variations in training across the world due to disease patterns, social, cultural and economic influences. Notwithstanding these differences, the proposed modular curriculum is conducive to global acceptance and adoption.

Since the majority of cancer patients live outside of the United States and Europe, and is imperative that they also can receive contemporary cancer management by well-trained surgeons who are also trained in oncology (13). Worldwide, cancer management has become multidisciplinary, often resulting in improved cancer-specific outcomes as well as patient quality of life. Surgeons need to be full partners in this team. Cancer patient must benefit from surgical input as a key component of multidisciplinary treatment planning for early stage and even in many later stages of cancer, for the surgeon's experience adds to the collective wisdom of cancer treatment planning along with that of medical and radiation oncologists (1,3).

This requires that the surgeon is educated and trained to be an involved partner in a multidisciplinary team (that includes medical and radiation oncologists and diagnosticians), to have contemporary knowledge of disease management in oncology (3). However, globally, surgical oncology training programs have different training requirements, and remain heterogeneous with regard to training in the principles of oncology management (14,15).

We need a more systematic curriculum on oncology management so that the surgical oncologists understand the indications, risks, and benefits of systemic therapy (chemotherapy, targeted therapy, immunotherapy) and radiation therapy in the best combination and sequence of a multidisciplinary care plan for a surgical patient with cancer. This training should also equip the surgeon to be a clinical investigator participating in clinical trials and contributing to evidence-based medical care. This curriculum published by both societies could serve as the platform to not only streamline training but also train the surgeons to be competent in all domains of oncology.

In the United States and Europe, The SSO and ESSO have played major leadership roles in the curriculum

content and certification process of surgical oncology training programs (16-18). The SSO has committed resources and programs dedicated to educational outreach and global collaborations (15,19). In the United States, the training and certification of surgical oncologists has been formalized. The American Board of Complex General Surgical Oncology certifies candidates completing a 2-year approved surgical oncology fellowship training program after passing both a written and an oral exam (18). Several other countries also (including many emerging economies such as India) have formal surgical oncology fellowship with accreditation requirements but the presence of such structured training pathways are not globally uniform.

At present, there is still no pan-European Training Program in Surgical Oncology and no standard form of accreditation for Surgical Oncologists across Europe. Surgical Oncology is not recognized as a specialist discipline in many European countries: most European Member States have their own professional bodies, which are in charge of regulating surgical training and accreditation. In many cases, the accreditation is specialty specific by organ site such as breast, colorectal, etc. The European Union of Medical Specialists was established in 1958 to promote the free movement of medical specialists within Europe and to ensure the highest standards of medical care. It contains 37 specialist sections, representing 35 countries and includes the European Board of Surgery (EBS). The EBS provides a number of Specialist Examinations once or twice per year. These were first established in 1996, and the number of exams has progressively increased such that 11 specialties are now available, including Surgical Oncology. The European Society for Surgical Oncology in collaboration with the EBS runs two of these examinations: the European Board of Surgery Qualification (EBSQ) in Surgical Oncology (commenced 2003) and the EBSQ in Breast Surgery (a joint initiative with the European Society of Breast Cancer Specialists).

These initiatives have been implemented in other oncology specialties as well. In 2004, the American Society of Clinical Oncology and the European Society of Medical Oncology co-published their recommendations for a global core curriculum in medical oncology (20) and, more recently, a global curriculum in radiation oncology was published (21). The SSO and ESSO join these efforts to promulgate core curriculum content so that physicians in all nations will have the requisite training to provide contemporary cancer care to their patients, within the resource limitations of their country.

All oncology organizations across the world, especially those that represent surgical oncologists, should serve as platforms to disseminate up-to-date advances in cancer management and training curriculum to their members (9,10,13). Organizations such as the SSO and ESSO have already taken the lead by expanding their global efforts, dedicated committees and staff for international affairs, and establishing formal collaborative relations with other surgical professional organizations around the world, as described in recent Presidential Addresses (15,19).

The ultimate goal of all these efforts, for all oncology specialties, is to improve access to safe, timely, high value, compassionate, and quality-driven surgical cancer care to all patients across the globe, regardless of their race, gender, and socioeconomic standing (7,14). Today, access to timely and appropriate surgery around the world remains patchy and haphazard, even in high-income countries (22). The ability to address the global cancer burden is dependent on an adequate surgical oncology workforce that has been trained in delivering contemporary cancer surgery and to function as a full partner in an integrated cancer care delivery approach. The starting point of this global effort is to have consistent and uniform training guidelines and a certification process that can be deployed in all nations (13).

Although surgical treatment is the centerpiece of a surgical oncology specialty, what differentiates surgical oncology from other areas of surgery is the oncology training and expertise needed to address all aspects of cancer management in a multidisciplinary fashion... Thus the surgical oncologist is an oncologist who performs surgery, who can incorporate advances in oncology management into the treatment plan of their surgical patient with cancer (1,3). Dr. Ronald Weigel, in his SSO presidential address stated "*Surgical oncology has a brilliant future if we are willing to evolve beyond operative therapy of the cancer patient*" (19).

### Acknowledgements

None.

### Footnote

*Conflicts of Interest:* The authors have no conflicts of interest to declare.

*Comment on:* Are C, Berman RS, Wyld L, *et al.* Global curriculum in surgical oncology. *Ann Surg Oncol* 2016;23:1782-95.

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**Cite this article as:** Balch CM, Poston GJ, Coit D, Audisio R. Training a new generation of surgeons worldwide who are also oncologists. *Chin Clin Oncol* 2016;5(4):58. doi: 10.21037/cco.2016.07.02