

RECOMMENDED CORE CURRICULUM FOR THE SPECIALIST TRAINING IN SURGICAL ONCOLOGY WITHIN EUROPE

A proposal by the Education and Training Committee of the
European Society of Surgical Oncology (ESSO)

1. INTRODUCTION

The number of patients diagnosed with cancer increases each year in Europe and the role of surgeons to diagnose and treat these patients is pivotal. The European Society of Surgical Oncology, ESSO, was founded in 1981 to advance the art, science and practice of surgery for the treatment of cancer. ESSO believes that this should be done by multidisciplinary collaboration between many specialities where thorough knowledge about cancer, and surgical expertise is necessary.

Surgical oncology covers the treatment of solid tumours of the oro-esophago-gastrointestinal tract, of parenchymal and endocrine organs and of skin, mesenchymal, neurogenic, bone and soft tissues. Surgical oncology also includes prevention, genetic counselling, specific diagnostic and staging procedures, rehabilitation and follow-up care. Surgical oncology is focused on multimodality therapy.

Surgical oncology is a recognized surgical subspeciality within the surgical section of UEMS. Examination and assessment for qualification have been developed by a European Board of Surgery Qualification (EBSQ). The examination in surgical oncology takes place at the annual ESSO or ECCO conference.

For appropriate education in surgical oncology, a surgeon must work in a multidisciplinary environment with interaction between surgeons, medical oncologists, radiotherapists, radiologists, pathologists and basic scientists are present. Good cancer care also includes the use of modern, advanced and expensive equipment. Taken together there may be difficulties for surgeons to get an appropriate education in surgical oncology without attending other hospitals.

Many cancer centers and surgical departments within Europe provide good cancer care. However no common criteria to become a teaching unit in surgical oncology have been defined. Furthermore, we do not have a system for validation and accreditation of their teaching capability.

Therefore, there is a need for a core curriculum for the specialist training in surgical oncology in Europe. Cancer centers and surgical departments will get a clearer picture of the educational requirements needed to become a recognized center for cancer care.

2. INFRASTRUCTURE AND ORGANIZATIONAL ASPECTS

2.1. Training programme

A total training period of 6 years is a standard requirement. It should start with a common trunk in general surgery for at least 2 years, followed by training in surgical oncology for 2-4 years. During this second period research experience and/or international training for 1 year in a national or international multidisciplinary cancer center is strongly recommended. The programme should correspond to the requirements outlined in this core curriculum and to specific national requirements.

2.2. Training institutions

2.2.1. Clinical/hospital facilities

Training institutions must be accredited according to their national regulations. They should provide opportunities to manage patients with a wide variety of neoplastic diseases on an in-patient and out-patient basis. Training institutions must be equipped with modern in-patient, ambulatory and laboratory services to support educational and training programmes. Specifically there must be adequate modern diagnostic imaging services (radiology, nuclear medicine), pathology and cytopathology services, access to other specific oncological services (radiotherapy, medical oncology, pediatric oncology). The programme must include (weekly) attendance at a multidisciplinary cancer conference.

2.2.2. Other facilities and resources

A medical library must be available to provide ready access to a sufficient variety of books, journals and resource materials pertinent to surgery, surgical oncology and associated fields in oncology, basic sciences and general medicine. On-site electronic literature retrieval capabilities is strongly recommended.

Training institutions should aim to have guaranteed access to basic (cancer biology) and clinical research and to encourage trainees to engage in research projects under supervision of experienced staff.

If these requirements for training institutions can not be met by a single institution, several training institutions should combine and offer an integrated programme that meets these requirements.

2.3. Staffing in training institutions

2.3.1. Programme director

Training institutions should appoint a single programme director responsible for trainee education. The programme director must be a highly qualified surgical oncologist who will have a major commitment to the training programme and related activities. The programme director is responsible for the general administration of the programme, its structure and content. For these reasons the programme director should organize regular documented meetings with the teaching staff and trainee representatives to review programme goals, objectives and effectiveness.

2.3.2. Faculty

Several surgical oncologists for teaching should be appointed. They must devote substantial time to the teaching programme – teaching, administration, evaluation of performance and progress of the trainees.

2.3.3. Practical teaching sessions

At least one teaching session between the teacher and the trainee should be scheduled per week during which cases treated by the trainee should be reviewed to provide continuous feedback of her/his achievements.

2.3.4. Documentation of training experience

Each trainee should keep a logbook to document her/his training experience. ESSO recommends a standardized logbook that covers the core curriculum. The programme director should review the logbook with the trainee at least twice yearly.

2.3.5. Audit

Regular external national, as well as international audit (by other ESSO members) of the training programme is recommended.

2.3.6. Update of the core curriculum

The European core curriculum in surgical oncology should be regularly reviewed and updated.

3. BASIC SCIENTIFIC CURRICULUM

A broad knowledge is needed to plan optimal treatment for an individual cancer patient throughout the disease course. The trainee in surgical oncology must therefore have a knowledge of fundamental biology of cancer including etiology and epidemiology, natural history of malignant diseases, cancer biology as well as tumour immunology.

3.1. Etiology and epidemiology of malignant diseases

- environmental factors in carcinogenesis
- genetic factors in carcinogenesis
- evaluate the risk and risk factors for malignant diseases
- terminology in epidemiology

3.2. Prognosis and natural history of malignant diseases

- mechanisms and patterns in local, regional and distant dissemination of malignant diseases
- differences in natural history between hereditary and sporadic forms of cancer
- diseases predisposing to malignancy e.g. inflammatory bowel disease or primary sclerosing cholangitis
- prognostic and predictive factors
- genetics of hereditary malignant diseases

3.3. Cancer biology

- cell kinetics, proliferation, apoptosis and the balance between cell death and cell proliferation
- angiogenesis and lymphangiogenesis
- genome maintenance mechanisms to prevent cancer
- intercellular and intermolecular adhesion mechanisms and signalling pathways
- potential effects of surgery and surgery-related events on cancer biology (e.g. angiogenesis)

3.4. Tumour immunology

- cellular and humoral components of the immune system
- regulatory mechanisms of the immune system
- tumour antigenicity
- immune-mediated antitumour cytotoxicity
- effect of cytokines on the tumour
- effects of the tumour on anti-tumour immune mechanisms
- potential adverse effects of surgery and surgery-related events (like blood transfusions) on the immunological responses

3.5. Basic principles of cancer treatment

A trainee in surgical oncology has to become familiar with the basic principles of

- surgery
- radiotherapy
- chemotherapy
- endocrine therapy
- immunotherapy
- evaluation of the choices of treatments
- adverse effects with these treatments
- interactions of these treatment modalities with those of surgery

3.6. Clinical studies and evidence based medicine

A trainee in surgical oncology must achieve a broad knowledge regarding cancer research to be able to evaluate the results of published clinical studies, to conduct a clinical study and to facilitate translational research. It is also essential to understand the principles and the pitfalls of evidence based medicine.

3.6.1. Evaluate published clinical studies

- relevance of statistical methods
- inclusion or exclusion criteria of the study objects
- the power of the study
- intention to treat
- number needed to treat
- relative and absolute benefit
- distinguish between statistical and clinical significance

3.6.2. Conduct clinical studies

- design and implement a prospective database
- elementary principles in biostatistics and the most commonly used statistical analyses
- ethics and legal aspects in research

A trainee in surgical oncology should prepare at least one scientific paper during the training period. It could be either an original research article, a structured review or a meta-analysis. A case-report is not sufficient.

4. BASIC CLINICAL REQUIREMENTS

4.1. Objectives

The trainee should achieve such knowledge during the training period that she/he after qualification independently or as the responsible surgical member of an interdisciplinary oncology team is able to:

- recognize symptoms and signs of cancer
- make a diagnostic programme for suspected tumours or metastases and perform staging and classification of manifest tumours
- perform prognostic assessment
- define the role of surgery in a given classified disease reflecting the patient's general condition, including or excluding multimodality approaches in a pre-treatment discussion within a multidisciplinary team
- perform an adequate preoperative work-up
- perform cancer surgery within her/his speciality with high skill and quality
- manage postoperative care
- decide on and perform adequate follow-up
- implement national guidelines into local practice
- perform palliative surgical treatment, supportive and terminal care
- diagnose, score and treat side-effects and complications of surgical treatment
- assess the impact of surgical interventions on quality of life
- communicate accurately and adequately to cancer patients and their relatives
- manage common psychologic reactions to crisis and final stage of life
- practice medicine in accordance with medical ethics and patient's rights

4.2. Cancer surgery

The trainee in surgical oncology must achieve knowledge and skills in performing complex cancer operations in her/his specialty. The final aim with surgical training is to develop skills in performing RO (radical) resections, adequate diagnostic procedures, lymph node dissections and meaningful palliative procedures. The numbers of operations are not fixed but should be guidance to what is needed to accomplish relevant skills.

A number of 120 cancer operations is recommended. To demonstrate the experience, the trainee has to reach a score of at least 180 points. The following scoring system will be used:

- assist in a major cancer operation – 1 point
- do a major cancer operation – 2 points
- assist a younger surgeon to do a major cancer operation – 3 points

At least half of the 120 operations must be done by the trainee. The operations need to be documented in the trainee's logbook.

The trainee's experience should consist of at least one of the following modules:

4.2.1. Melanoma and sarcoma:	<u>Recommended number of operations</u>
• excision of melanoma	20
• regional node dissection	20
• regional perfusion (optional)	10
• surgery of abdominal sarcomas	10
• surgery of trunk and limb sarcomas	20
4.2.2. Gastrointestinal surgery	
• oesophagectomy	10

• gastrectomy with lymph node dissection	20
• Whipple's pancreaticoduodenectomy	10
• liver resection	20
• colonic resection	20
• rectal resection	15
• palliative procedures	10
4.2.3. Endocrine surgery	
• thyroidectomy with regional lymphnode dissection	15
• adrenalectomy	5
4.2.4. Breast surgery	
• mastectomy with axillary dissection	10
• breast conserving surgery	30
• sentinel node biopsy for breast cancer	30
4.2.5 Vascular access	
• venous port system	10
4.2.6 Laparoscopic surgery	
• staging laparoscopy for GI cancer	5
• staging laparoscopy for malignant lymphoma	5
• laparoscopic resection of malignant tumours	10
4.2.7 Thoracic surgery	
• pulmonary lobectomy with lymphadenectomy	20
• pneumonectomy with lymphadenectomy	5
• mediastinoscopy	20
• resection of pulmonary lung metastases	15
• thoracoscopic approaches	10
4.2.8 Urologic surgery	
• radical prostatectomy with lymphadenectomy	30
• radical nephrectomy	15
• partial nephrectomy	10
• radical cystectomy with lymphadenectomy	5
• retroperitoneal lymphadenectomy	10
• iliac lymphadenectomy	10
• inguinal lymphadenectomy	2
4.2.9 Gynecologic surgery	
• surgery of endometrial, ovarian and tubal cancer	30
• radical hysterectomy	15
• other pelvic malignancies	5

4.3. Rotations

A surgical oncology trainee is encouraged to spend 2 months each in a department of medical oncology and radiation oncology. The trainee is also recommended to do a rotation to one or more other “modules” in addition to the main interest for at least 6 months in total to broaden her/his experience.

4.4. Conferences

A trainee in surgical oncology should participate in 2 national and one international conference and at least one national or international interdisciplinary oncology workshop.

4.5. Multidisciplinary board participation

The trainee presents at least 30 patients at the regular multidisciplinary board meeting and leads the discussion in decision making.

4.6. Participation in trials

The trainee should:

- submit a study protocol to an ethical committee
- be involved in the start and management of an ongoing oncology trial
- have experience in reporting patients within a trial.