

## **GUIDELINES FOR THE INFRASTRUCTURE OF TRAINING INSTITUTES AND TEACHING DEPARTMENTS FOR RADIOTHERAPY IN EUROPE**

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For a long time the Educational Board of UEMS and ESTRO discussed how to define guidelines for the infrastructure of training institutes/teaching departments for radiotherapy.

The major problem in this matter is the great variety in the existing infrastructure in the different countries reflecting the available financial resources for radiotherapy.

If one creates guidelines setting a too high standard some institutes would lose their license. If we set a too low standard the document cannot be used to obtain improvements. Furthermore, there is no direct relation to the quality of a training programme and the infrastructure of a department.

The working party on infrastructure therefore made an inventory of the existing situation and defined a realistic level of infrastructure for which training institutes should aim in the coming years. The committee hopes that departments can use the comparison of their situation with that of other departments and the level to aim for could help them with negotiations in their own country. The following general recommendations are made.

### **Radiotherapy Equipment Provision**

Equipment should be adequate to support both the workload and range of radiotherapy services required for training (2,3). It includes treatment units, radiotherapy simulators, treatment planning systems, access to CT scanning and other imaging facilities, computing facilities, appropriate dosimetry and radiation protection equipment, appropriate patient treatment aids, etc.

Megavoltage machines should be available, at least one with high-energy electrons, a simulator, computerized treatment planning and a mouldroom or machine shop. Equipment for interstitial and intracavitary brachytherapy should be available at least for gynaecological indications and kilovoltage capability is desirable for skin tumours. The department should have beds for inpatients or at least access to them in other departments. Control of quality should be provided in the near future for patient care, treatment decisions, individual set-ups and the final outcome in different diseases.

To ensure adequate numbers and case-mix of patients for training, approx. 500 patients should be irradiated yearly in the parent institution or integrated programme, and the number of patients seen by each trainee should be in the range of 450 during the total clinical radiation oncology rotations.

*Recommendation 1*

National standards should be primarily directed to fulfil increasing requirements for availability and quality of radiotherapy equipment. Full and associated member states with lower standards should seek to adjust their standards within a reasonable time. This might also be achieved by national or international affiliations of radiotherapy departments.

**Staffing**

Adequate staffing levels in a radiotherapy department are essential for training (1,2,3) . Several radiation oncologists should devote a considerable portion of their professional time to the programme for teaching clinical radiation oncology. If possible the number of trainees should not exceed the number of staff oncologists. Full-time medical physics support should be available. A sufficient variety of journals, reference books and resource materials pertinent to radiation oncology and associated fields in oncology and basic sciences must be provided in a radiation oncology library and must be immediately accessible at all times for study including nights and weekends. In addition, there should be access to a general medical library. The sponsoring institution should provide ready access to a computerized search system and rapid access to databases in medicine to permit timely literature reviews.

The ratio of staff to the annual workload in a department should reflect the reported increase of patient numbers in recent years, the increased complexity of radiotherapy technology and the quality standards of short waiting times and good communication with patients to provide a proper environment for training.

The ratio of physicians in training to staff should create sufficient time for supervision and educational activities.

**Medical staff**

Regulations require specific responsibilities for those directing medical procedures involving the use of ionizing radiation. Roles, responsibilities, organizational relationships and channels of communication must be clearly defined, providing increasing levels of responsibility with the experience of the trainee. Full responsibility for initiation and supervision of treatment should be reserved for accredited and experienced radiotherapists who have completed specialist training.

**Medical physics staff**

ESTRO has previously made recommendations on minimal staffing levels for the same provision of a routine radiotherapy physics service (1). Medical trainees should be taught dosimetry and participate in treatment planning under the supervision of accredited medical physicists.

**Radiobiology staff**

In view of the lack of radiobiologists within radiotherapy departments in many member states, training in radiobiology should be provided by formal national and international courses.

*Recommendation 2*

Staff members responsible for training should be appointed for radiotherapy, medical physics and radiobiology.

*Recommendation 3*

The provisions or associations of laboratories for radiobiology should be encouraged.

*Recommendation 4*

Responsibility for licensing doctors to practice in radiation oncology varies from one country to another but should be based on completion of a national training programme with objective assessment.

*Recommendation 5*

If the minimum recommendations for infrastructure cannot be met in a single institute, they should combine training with another institute so that the minimal requirements are met. Licensure for training in a radiotherapy department should depend on fulfilment of national guidelines and site visits. On invitation ESTRO should appoint advisors for evaluation.

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