

# UNIT ICTP-IAEA SCHOOL ON QUALITY ASSURANCE IN RADIOTHERAPY

SPECIALIZATION COURSE ON 3-D TREATMENT PLANNING AND CONFORMAL RADIOTHERAPY

**November - 5 December 2008**

*Miramare, Trieste, Italy*

The School is to spread knowledge on the safe and effective implementation of 3-D treatment planning and delivery of conformal radiotherapy.

Substantial variation in capabilities, today's treatment planning computers have become available to virtually all radiation treatment centres. Many of these treatment planning systems (TPS) have both complex 3-D image manipulation and dose calculation capabilities which provide the opportunity to achieve higher precision in radiotherapy treatments through the application of 3-D conformal radiotherapy (3-D CRT). 3-D CRT is already becoming a standard treatment in many advanced radiotherapy centres. To make use of this technology and computing possibilities, several oncology centres intend to transition from computerized 2-D to 3-D treatment planning. Such planning has made 3-D CRT practical and achievable in many countries. It has to be combined with accurate patient data image handling, beam shaping using customized divergent blocks and collimators and dose delivery verification. Quality Assurance (QA) in the radiation treatment planning process is essential to minimize the possibility of accidental exposure; an extensive QA programme for 3-D CRT should likewise be in place.

Centres must have sufficient experience and equipment for 2-D computerized treatment planning before any transition to 3-D treatment planning is carried out. The IAEA has published a report on the transition from 2-D to 3-D conformal radiotherapy (in press). The report's recommendations will be used as a guide for this School.

The growing cancer epidemic in developing countries and the fact that radiotherapy cannot answer the increasing need for treating growing numbers of cancer patients will furthermore sensitize participants as to the role they are playing within the cancer cure and care delivery and as to the need to optimize limited country resources through careful planning at the national level in line with objectives pursued by IAEA's Programme for Cancer Therapy (PACT). To achieve maximum impact, the transfer of technology and the corresponding training and education programmes must be a part of a national control strategy that includes prevention, early detection, earlier diagnosis of cancer and access to treatment and palliation (<http://cancer.iaea.org/index.asp>).

Physicians, medical physicists working in radiotherapy departments, actively involved in teaching advanced clinical medical physics will be considered. Priority will be given to medical physicist candidates working on the implementation of 3D conformal radiotherapy. Candidates should be university graduates in physics or engineering with at least 3 years of experience in clinical applications.

Participants should be from all countries which are members of the United Nations, UNESCO and the IAEA. The School will be conducted in English, participants should have an adequate knowledge of this language. Although the main purpose of the Centre is to provide training to participants from developing countries through a programme of training activities

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## TOPICS

**Imaging in 3-D CRT**

**Equipment for dose delivery and QA measurements**

**Dosimetry calibration of radiotherapy beams**

**QA of treatment planning**

**Dosimetry calculation**