

CALIBRATION OF RADIOTHERAPY DOSIMETRIC INSTRUMENTATION (ARCAL

XXXIV) (RLA/4/014) G2 New

MODEL PROJECT

CORE FINANCING

YEAR	Experts		Group Activity	Equipment	Fellowships		Scientific Visits		Group Training	Sub-Contracts	Misc. Comp.	TOTAL
	m/d	US \$	US \$	US \$	m/d	US \$	m/d	US \$	US \$	US \$	US \$	
1999	1/10	19,600	50,000	30,000	0/0	0	0/0	0	20,000	0	0	119,600
2000	1/10	20,600	30,000	55,000	0/0	0	0/0	0	35,000	0	0	140,600

First Year Approved: 1999

OBJECTIVES: To establish centres for calibration, repair and maintenance of radiotherapy dosimetric instrumentation and to elaborate procedures for electrical calibration of electrometers, enabling component calibration; to train personnel in the maintenance of electrometers and chambers used in radiotherapy and to create a data bank for radiotherapy equipment use and performance.

BACKGROUND: Radiotherapy treatment requires dose measurements of the highest possible accuracy, which is achieved with ionization chamber dosimeters composed of an ionization chamber and an electrometer. As the ionization currents generated by the radiotherapy radiation beams are very weak, the equipment uses very low charges and currents and is therefore highly sensitive to environmental temperature and humidity. Almost all Latin American countries have severe climates with high humidity levels. Moreover, as there are no local manufacturers of these dosimeters, all such equipment is imported from other countries. The foreign companies do not have enough sales volume to justify local customer service, so this must be created by the users themselves. Eleven countries in the region will participate in the project: Argentina, Brazil, Costa Rica, Cuba, El Salvador, Guatemala, Mexico, Nicaragua, Peru, Uruguay, and Venezuela.

PROJECT PLAN: Regional training courses will be held for technicians, on calibration and maintenance of electrometers and chambers; procedures for electrical calibration of electrometers will be designed; portable current sources for testing electrometers will be constructed in a selected country and then circulated among the rest of the participants; expert missions to establish an intercomparison programme among the participants will be fielded; and repair centres for dosimetric radiotherapy equipment will be established, where training activities will be supported by the project.

NATIONAL COMMITMENT: Some manufacturers have communicated their interest in co-operating with the project. The 11 participant countries have made commitments of up to US \$216,600 to support project activities.

AGENCY INPUT: Training activities in the centres for repair, maintenance and calibration of electrometers and chambers; expert missions to support the intercomparison programme; equipment and spare parts; group activities.

PROJECT IMPACT: Internal and external QC in radiotherapy will improve through the availability of instruments and through internal and external intercomparisons using electrical charge and current sources; an infrastructure for maintenance and repair of radiotherapy dosimetric instruments will be available in the participating countries; dosimetric instruments will be used more effectively, with the availability of component and overall calibration factors; the main requirements for equipment to be used in Latin American environmental conditions will be better defined and a data bank will exist for information exchange about the instruments. Manufacturers of dosimetric equipment will be directly involved. This project will expand co-operation on calibration, QC and repair of dosimetric equipment used in radiation protection and radiodiagnosis.