

radiation dosimetry in latin america

Active steps have been taken in co-operation with the countries concerned and with international organizations to ensure safety and efficiency in the use by Latin American States of strong radiation sources for clinical purposes.

An Agency expert has spent a year on a technical assistance mission and some highlights of his work as well as of other action taken are given in this article.

An account appeared in this Bulletin (Vol.10, No5, 1968) of an Agency Panel on Dosimetric Requirements, held in Caracas, when an assessment was made of the state of facilities and recommendations were formulated aimed at remedying shortcomings. As a result Dr Zdenek Hlasivec, of Czechoslovakia, a highly qualified radiotherapist and hospital physicist, was sent to Latin America by the Agency as regional adviser on medical radiation and dosimetry in eleven countries. Between January and December 1969 he visited 58 installations in Argentina, Brazil, Colombia, Costa Rica, Cuba, Ecuador, Mexico, Panama, Peru, Uruguay and Venezuela. This followed a period in 1968 when for six months he was carrying out a technical assistance assignment in Chile and gave advice to five radiotherapy departments. His 1969 mission was financed through the United Nations Development Programme and was facilitated by the collaboration of the field offices operated by the World Health Organization/Pan-American Health Organization (WHO/PAHO).

Dr Hlasivec's mission is regarded as one of the Agency's most successful technical assistance projects in recent years. In addition to arranging training sessions and giving advice on the improvement of physics services in radiotherapy institutes he was able to impress on local authorities the necessity for paying more attention to radiation physics and in making the profession of radiotherapy more attractive to the younger generation. He wrote comprehensive reports on the situation and the future requirements in all of the countries he visited. His comments, even when critical, and his advice were received appreciatively at all levels.

Further action resulting from the recommendations of the 1968 panel are:

A training course on Dosimetry in Radiation to be arranged by the Agency at the Puerto Rico Nuclear Centre from 5 October to 27 November this year, supported by the US Atomic Energy Commission and with the co-operation of the American Association of Physicists in Medicine, for about twenty students from Latin America. A Manual of Dosimetry in Radiotherapy to be published soon in English, French and Spanish as part of the Agency's Technical Reports Series, resulting from co-operative efforts of physicists from UK, WHO/PAHO and the Agency. It will be used as a teaching aid at the Puerto Rico training course.

Dr. Zdenek Hlasivec with specialists of the Radiotherapy Department of the Aristides Maltez Hospital in Salvador, Bahia, Brazil.



Initiation by WHO/PAHO of a secondary reference laboratory for dosimetry in Argentina, soon to be an important addition to facilities for Latin America.

Significance for the Hospital Patient

A recent survey has shown that in twelve Latin American countries more than 500 strong radiation sources of some kind, excluding radium, are in clinical use. About a quarter of them are Cobalt-60 or Cesium-137 units. This is a large number of expensive teletherapy and X-ray units, and it was felt that there should be some assurance that the physical aspects of radiotherapy were being developed adequately.

For radiotherapy to be effective and safe, a number of conditions have to be met to make sure that the radiation beam is appropriate for each individual patient and that the dosage received by the patient is correct. It is the function of the radiotherapist to decide the characteristics of the treatment, but he may not have the technical background to know whether the equipment is operated efficiently; this is the responsibility of the medical radiation physicist. Unfortunately, in many countries there is a shortage of qualified physicists with appropriate experience, so that facilities may not be used to the best advantage.

In the twelve countries mentioned there are approximately 230 radiotherapists, but there are very few medical physicists, and only some of these could be considered as fully qualified. It is estimated that from ten to twenty times more medical physicists and radiotherapists will be needed within the next ten or twenty years.

Again, a certain number of the institutions in Latin America checked by the Agency's postal dose intercomparison service were found to be employing equipment or techniques with variations of ten per cent or more from the reference value. This agreed with Dr Hlasivec's own investigations, which showed shortcomings in checking the output of radiation equipment and insufficient physics facilities. Some institutions did not even possess the basic requirements of dosimeters and isodose charts.

The results of the efforts which have now been made and are in progress will not only benefit Latin America but will provide valuable information for other areas of the world.

At the 17th Electronic, Nuclear and Teleradiocinematographic Film Festival in Rome, held in March, the Agency was awarded this Razzo d'Oro (Golden Arrow) and Diploma for its film "Operation Medfly". Produced in collaboration with FAO and CNEN (Italian National Atomic Energy Commission), the film is for training purposes. Photo: IAEA/Arzensek

