

# **TRAINING AND CULTURE PROBLEMS TO BE SOLVED IN THE MEDICAL AREA FOR IMPROVING THE IMPLEMENTATION OF THE ALARA PRINCIPLE**

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Key words: Radiation Protection Training, Radiation Protection in Medical Areas, Alara Implementation

## **Extended Abstract**

It is impossible to carry out a practical medical activity where radiations produce a null detriment [1]. Instead, the use of radiation is planned in line with a decreasing of the detriment. However, it is always necessary to establish if every decreasing in the detriment level is balanced off by the efforts required to achieve it.

Radiation Protection rests on the sensible application of the concepts of time, distance and shielding. Obviously, the reasonable use of these concepts leads to ALARA and greatly depends on education [2]. The success of this education depends, in great measure, on the scientific and technical characteristics of the educators. It is, also, very important that these educators are considered as members of the health personnel to ensure a close interaction between the involved professionals. Medical Physicists fulfil these requirements.

The need to achieve the ALARA principle is clear, especially if one considers the number of medical actions which are performed in the whole world [3]. During the last few years, there has been a sharp increase in the use of radiations in medicine.

The implementation of the ALARA principle in medical environments lies on the implementation of quality assurance programmes on the medical equipments which emit ionising radiation. The versatility of the personnel to quickly developing technologies is an essential requirement to achieve the ALARA principle. Medical Physicists are the professionals which design and implement control quality programmes for the equipments which use ionising radiations in hospitals.

The use of radiations in the medical field involves a diversity of people: health personnel, general public, visitors that voluntary accept being exposed to radiations for the benefit of the patients, and, of course, patients. The radiological protection of these people lies in the principles of the Radiological Protection System valid in the European countries: Justification, Optimisation (or ALARA) and Limitations to the individual doses [4].

The European Union Directive 96/29/EURATOM, with the Basic Safety Standards published in May 1996 [5], have established the figure of Qualified Expert to take radiation protection measures for workers and general public.

The importance of radiation exposure in medical applications drove the publishing of a Directive 97/43/EURATOM, published in June 1997 [6]. In this directive, the responsibility of the radiation protection of patients was given to the Expert in Medical Physics.

The radiological protection measures of patients have to be taken by the health personnel in the way they consider most appropriate. These measures need not to interfere with the normal development of their diagnostic or therapeutic activity. Only well-qualified personnel will be allowed to do this. Currently, the only, non medical personnel in Hospital environment that have this qualification are the Medical Physicists.

In general, one can assure that medical doctors and nurses have little interest in receiving an education in radiation protection. This consideration is particularly applicable to those doctors whose speciality is different from the radiological ones.

Medical physicists have to receive an education which is ample enough so that they can assume the responsibility of the hospital operational radiation protection programmes. Their activity in radiation protection is, generally, well-accepted by health personnel. Health personnel consider the medical physicist a member of the multidisciplinary group that utilises radiations in medicine.

The diversity of the personnel which uses radiation in hospital environments causes important problems in their specific education for the optimal use of radiation. The solutions have to be specific for each of the involved professional groups. The entity or person responsible for the education of each group has to be well-known. In some cases, it will be the national regulating organisation. In others, it will depend on the person responsible for the radiation protection in the hospital. This later person will have to be considered by others as health personnel, like Medical Physicist, so that he/she can fulfil successfully all the required activities.

Radiation Protection activities toward the general public must be coherent with the precise knowledge of the health activities which uses ionising radiations. This coherence is normally provided by the Medical Physicist.

The position of EFOMP is clearly established in the following proposition, which was adopted by the Board of Officers in York,U.K. April 2005, and after approved by the Council of Delegates, in Nuremberg, September 2005 :

“The Medical Physics Expert must be the professional to supervise and assume the responsibilities of the Radiation Protection activities in Hospitals including patients, working staff, members of the public and visitors to the Hospitals”.

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