

LESSONS LEARNED FROM ACCIDENTS IN RADIOTHERAPY

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There are situations that are unique to radiotherapy: persons (patients) are intentionally delivered very high radiation doses by exposing them to direct radiation beams and radiation sources are incorporated to their bodies as part their treatment. A departure of the prescribed doses may have severe or even fatal consequences. Not only overexposure but also doses below the intended ones are accidental exposures in radiotherapy. According to the Basic Safety Standards for Radiation Protection and for the Safety of Radiation sources, accidental exposures include any treatment delivered to the wrong patient, the wrong tissue, using the wrong source or wrong radiation beam, with a dose or dose fractionation differing significantly from the values prescribed or which may lead to undue secondary effects.

Lessons learned from previous accidents can avoid reoccurrence, at not only at the same facility but at any other facility in the world. For this reason, information on accidents has been collected and a review of more than 50 events has been made. The result is being published in an IAEA document.

The lessons learned, summarized in the document, can be used as checklist for testing the vulnerability of any given facility to the initiating events which triggered the accidents reviewed and factors which made it possible that an initiating event culminated in an accident are present. Initiating events and contributing factors are then classified and measures are derived from them to reduce the vulnerability of any facility. The lessons can also be used as a checklist for self control as well as for external audits to radiotherapy facilities.