IAEA POSITION STATEMENT ON RELEASE OF PATIENTS
AFTER RADIONUCLIDE THERAPY

The attached position statement was developed by a group of consultants who met at the International Atomic Energy Agency’s (IAEA) Headquarters in Vienna, Austria, from 20-22 January 2010. The statements are consistent with the IAEA’s Safety Reports Series (SRS) 63 entitled “Release of Patients After Radionuclide Therapy”. This SRS harmonizes the International Commission on Radiological Protection (ICRP) publication 94 “Release of Patients after Therapy with Unsealed Radionuclides” and European Commission publication Radiation Protection 97 “Radiation Protection following Iodine-131 Therapy (Exposures due to out-patients or discharged in-patients)”, and is also in line with the United States Nuclear Regulatory Commission guidelines of 1997 (“Release of patients administered radioactive materials”, U.S. Nuclear Regulatory Commission, Regulatory Guide 8.39, April 1997). Thus, it tends to achieve global harmonization, and also leaves scope for individual adaptation by Member States. The approach currently in force in most Member States is different to what is specified here, hence the need to issue this policy statement.

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IAEA Position Statement
Release of Patients after radionuclide therapy

The use of internal radionuclides to treat disease is well-established. There is now extensive experience of the management of patients who have received internal administrations of large quantities of radionuclides, especially of iodine-131, using activities up to the order of 10 GBq.

Concern to minimize the radiation dose to other persons has dominated the development of policies for the management of these patients. Regulations in many countries have been cautious and prescriptive. The ICRP and IAEA have abandoned the use of prescriptive metrics and now recommend that radiation protection be based upon the principles of justification and optimization as applied to each individual situation. There should be flexibility in the practical application of limits and constraints so that economic and social factors are properly considered.

Good medical practice includes concern for economic and social aspects of treatment, and also for the psychological impact upon patients of, for example, enforced isolation in a hospital room. Reasonable policies for radiation protection should take these factors into account and may not have previously received adequate attention.

Two key aspects of safe management have been reviewed: the use of delay tanks for excreta and the criteria for release of patients after treatment. In both of these areas the previous cautious policies have been costly to implement, and this restricts the availability of an essentially simple and safe treatment option in many countries.

Delay tanks

Treatment of patients with iodine-131 results in urinary excretion of the radionuclide. Environmental concerns have led to limits being placed on the radioactive concentrations of radionuclides in liquid sewage effluent, which in turn have led to a requirement in some countries for delay tanks in hospitals. Such facilities are expensive and not without complication. ICRP recommendations do not require urine to be stored. (ICRP Publication 94) The use of storage tanks for delay and decay may give the impression of increased safety, but there is no evidence that this practice produces any net health benefit to the population. The IAEA recommends that in most situations it is better to dilute and disperse the waste activity in a continuous sewage system, rather than to concentrate and store activity for decay. This recommendation implies that in some countries the restrictions on concentration of radioactivity in effluent should be reviewed to promote optimization of radiation protection and allow better medical practice.

Criteria for release of patients

The decision to hospitalize or release a patient should be determined on an individual basis. The patient's domestic circumstances, his/her medical condition, and the presence of young children at home, are particularly relevant factors to be taken into account. Advice on the precautions necessary to protect other persons should be based upon realistic models of behaviour, including realistic occupancy factors, and should not be over-cautious. The advice should be aimed at ensuring that the effective dose to persons who come into contact or proximity with the patient will be less than 1 mSv and within dose constraints, where they exist. Guidelines for caregivers who are knowingly and willingly exposed are excluded from this dose limit but are covered under dose constraints as described in IAEA Safety Report Series 63.