SA1 – The service implements and monitors systems to manage risks associated with ionising radiation.

a) Managing the risks associated with the use of ionising radiation is a statutory duty. Measures should be in place to restrict exposure to ionising radiation for staff, patients and others. Patients and others may only be exposed to ionising radiation as part of their own diagnosis or treatment, or for non-medical imaging purposes, where medical radiological equipment is used which may not confer a health benefit to the individual exposed. These include:

- exposures as part of a health screening programme;
- voluntary participation in a research programme;
- health assessment for employment purposes;
- health assessment for immigration purposes;
- health assessment for insurance purposes;
- radiological age assessment; and
- identification of concealed objects within the body

b) Effective management of exposure to radiation requires the definition and assessment of risks. This may be facilitated by a radiation protection committee including senior management representatives, clinical directors responsible for the use of radiation, health and safety manager(s), radiation protection advisor (RPA), radiation protection supervisor(s) (RPS(s)), staff, trade union and safety representatives. The committee should meet regularly to review the implementation of advice and the effectiveness of safety measures including: review of staff doses and medical exposures; changes in work patterns; and incidents involving excessive patient or staff doses. The committee should also review the effectiveness of the Local Rules and the annual reports of the RPS(s).

c) Roles, responsibilities and accountabilities for the management of ionising radiation risks and protection should be clearly defined and published. The holders of roles specified in regulations must be clearly identified, and each individual must understand the role and their responsibilities.

d) Legislation and good practice guidance suggest that policies and protocols should be developed, agreed, maintained and applied to all examinations and procedures using ionising radiation. Processes and protocols for managing the risks of exposure to ionising radiation should be grounded in current best practice and reflect professional guidance and statutory requirements. There should be specific protocols covering all medical practice and the use of ionising radiation in the workplace. Relevant staff should be aware of the protocols and how to access them, and informed of any changes.

e) All referrals should be vetted, prioritised, justified and authorised (see standard statement CL1), with different protocols for justification in relation to adults and children, reflecting the differing range of pathologies. Ionising radiation doses received by patients should be As Low As Reasonably

Practicable (ALARP) consistent with the acquisition of diagnostic images (see also standard statement CL2). Imaging and interventional procedures must be optimised. As a minimum, national diagnostic reference levels (DRLs) must be adopted although local DRLs (LDRLs) should be established for procedures where sufficient data are available. Radiation doses should fall within the diagnostic reference levels adopted for adults and children. Up-to-date information on exposure factors and local DRLs should be readily available in all areas and should be reviewed regularly. Special attention should be paid to dose levels for children and to procedures involving high radiation dosage. Dose data for each procedure carried out must be recorded and submitted in accordance with national requirements. A clinical evaluation of the outcome of each medical exposure must be undertaken and clearly recorded; factors relevant to each patient dose should also be recorded. Local DRLs should be routinely and regularly audited against national standards and guidelines.

f) Staff should be aware of, and act upon, current guidance on exposure to ionising radiation during pregnancy. A risk–benefit assessment should be undertaken in cases of known pregnancy in patients and, wherever possible, alternative imaging techniques not involving ionising radiation should be substituted in accordance with agreed protocols. Pregnant staff working with ionising radiation should be subject to continuing risk assessment. The service should develop procedures to avoid inadvertent exposure to radiation during early pregnancy.

g) Staff who work with ionising radiation must be given appropriate training in radiation safety (see also standard statement FR4) and provided with appropriate protective equipment. Staff should be provided with dose monitoring devices which should be regularly checked. A member of staff who receives, or is likely to receive, an effective dose in excess of specified limits (currently 6 mSv per year) must be designated as a classified person, with an assessment of doses received made and recorded. Every effort should be made to ensure that staff exposure remains below this level. Particular attention should be paid to assessing and managing occupational eye dose.

h) Safety training and the provision of protection equipment should be extended to other persons directly involved in work with ionising radiation such as professional visitors, carers accompanying patients and employees who are or may be pregnant or breast feeding.

i) All areas where ionising radiation is used should be designated and monitored in accordance with regulations. Access to all areas should be controlled (see also standard statement FR1).

j) Policies and processes should be in place to assess, manage and minimise risks associated with performing examinations or procedures involving ionising radiation in locations external to the service.

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