

## SCHEDULE 1

Regulation 4(1)

### **Employer's Procedures**

The written procedures for medical exposures shall include—

- (a) procedures to identify correctly the individual to be exposed to ionising radiation;
- (b) procedures to identify individuals entitled to act as referrer or practitioner or operator;
- (c) procedures to be observed in the case of medico-legal exposures;
- (d) procedures for making enquiries of females of childbearing age to establish whether the individual is or may be pregnant or breastfeeding;
- (e) procedures to ensure that quality assurance programmes are followed;
- (f) procedures for the assessment of patient dose and administered activity;
- (g) procedures for the use of diagnostic reference levels established by the employer for radiodiagnostic examinations falling within regulation 3(a), (b), (c) and (e), specifying that these are expected not to be exceeded for standard procedures when good and normal practice regarding diagnostic and technical performance is applied;
- (h) procedures for determining whether the practitioner or operator is required to effect one or more of the matters set out in regulation 7(4) including criteria on how to effect those matters and in particular procedures for the use of dose constraints established by the employer for biomedical and medical research programmes falling within regulation 3(d) where no direct medical benefit for the individual is expected from the exposure;
- (i) procedures for the giving of information and written instructions as referred to in regulation 7(5);
- (j) procedures for the carrying out and recording of an evaluation for each medical exposure including, where appropriate, factors relevant to patient dose;
- (k) procedures to ensure that the probability and magnitude of accidental or unintended doses to patients from radiological practices are reduced so far as reasonably practicable.

## SCHEDULE 2

Regulation 2(1)

### **Adequate Training**

Practitioners and operators shall have successfully completed training, including theoretical knowledge and practical experience, in—

- (i) such of the subjects detailed in section A as are relevant to their functions as practitioner or operator; and
- (ii) such of the subjects detailed in section B as are relevant to their specific area of practice.

#### **A. Radiation production, radiation protection and statutory obligations relating to ionising radiations**

##### **1. Fundamental Physics of Radiation**

###### **1.1 Properties of radiation**

Attenuation of ionising radiation

Scattering and absorption

###### **1.2 Radiation hazards and dosimetry**

Biological effects of radiation

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- Risks/benefits of radiation
- Dose optimisation
- Absorbed dose, dose equivalent, effective dose and their units
- 1.3 **Special attention areas**
  - Pregnancy and potential pregnancy
  - Infants and children
  - Medical and biomedical research
  - Health screening
  - High dose techniques
- 2. **Management and Radiation Protection of the Patient**
  - 2.1 **Patient selection**
    - Justification of the individual exposure
    - Patient identification and consent
    - Use of existing appropriate radiological information
    - Alternative techniques
    - Clinical evaluation of outcome
    - Medico-legal issues
  - 2.2 **Radiation protection**
    - General radiation protection
    - Use of radiation protection devices
      - patient
      - personal
    - Procedures for untoward incidents involving overexposure to ionising radiation
- 3. **Statutory Requirements and Advisory Aspects**
  - 3.1 **Statutory requirements and non-statutory recommendations**
    - Regulations
    - Local rules and procedures
    - Individual responsibilities relating to medical exposures
    - Responsibility for radiation safety
    - Routine inspection and testing of equipment
    - Notification of faults and DH hazard warnings
    - Clinical Audit
- B. **Diagnostic Radiology, Radiotherapy and Nuclear Medicine**
  - 4. **Diagnostic Radiology**
    - 4.1. **General**
      - Fundamentals of radiological anatomy
      - Fundamentals of radiological techniques
      - Production of X-rays
      - Equipment selection and use

- Factors affecting radiation dose
- Dosimetry
- Quality assurance and quality control
- 4.2. **Specialised techniques**
  - Image intensification/fluoroscopy
  - Digital fluoroscopy
  - Computerised Tomography scanning
  - Interventional procedures
  - Vascular imaging
- 4.3. **Fundamentals of Image Acquisition etc**
  - Image quality v. radiation dose
  - Conventional film processing
  - Additional image formats, acquisition, storage and display
- 4.4. **Contrast Media**
  - Non-ionic and ionic
  - Use and preparation
  - Contra-indications to the use of contrast media
  - Use of automatic injection devices
- 5. **Radiotherapy**
  - 5.1. **General**
    - Production of ionising radiation
    - Use of radiotherapy —
      - benign disease
      - malignant disease
      - external beam
      - brachytherapy
  - 5.2. **Radiobiological Aspects for Radiotherapy**
    - Fractionation
    - Dose rate
    - Radiosensitisation
    - Target volumes
  - 5.3. **Practical aspects for radiotherapy**
    - Equipment
    - Treatment planning
  - 5.4. **Radiation Protection Specific to Radiotherapy**
    - Side effects — early and late
    - Toxicity
    - Assessment of efficacy
- 6. **Nuclear Medicine**

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6.1. **General**

Atomic structure and radioactivity

Radioactive decay

The tracer principle

Fundamentals of diagnostic use

Fundamentals of therapeutic use

dose rate

fractionation

radiobiology aspects

6.2. **Principles of Radiation Detection, Instrumentation and Equipment**

Types of systems

Image acquisition, storage and display

Quality assurance and quality control

6.3. **Radiopharmaceuticals**

Calibration

Working practices in the radiopharmacy

Preparation of individual doses

Documentation

6.4. **Radiation Protection Specific to Nuclear Medicine**

Conception, pregnancy and breastfeeding

Arrangements for radioactive patients

Disposal procedures for radioactive waste