Position statement:

Radiation dose monitoring of trainees

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SoR
THE SOCIETY OF RADIOGRAPHERS

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Background

The Society of Radiographers (SoR) is the trade union and professional body for the radiographic workforce and trainees in the UK. This position statement responds to concerns by radiography pre-registration student and apprentice trainees about a lack of clarity in how their radiation safety is managed during clinical site placements.

The 2024 SoR student survey found UK-wide inconsistency in relation to radiation dose monitoring and other methods used of assuring the effective doses received by trainees during their training do not approach or exceed regulated dose limits[1]. Of the 858 students who responded to the survey, 72 (8%) said they had not been provided with a personal dose monitor by their university or placement site. This was primarily reported as an issue on three sites. The student survey also found radiation risk assessments for trainees and apprentices are not consistently made available when requested. How dose monitoring is managed when trainees are on elective placements varies.

The Association of University Radiation Protection Officers (AURPO) represents all those working in radiation safety in higher education, research and teaching. AURPO representatives are available to provide advice to university programme providers.

Requirements

Employers must ensure all exposures of ionising radiation are kept as low as reasonably practicable. Dose limits are intended to reduce the risk to workers and the public from exposure to ionising radiation in the workplace[2].

Schedule 3 of the Ionising Radiations Regulations (IRR) 2017 [1] defines "classes of persons to whom dose limits apply". Employers must take steps to ensure doses received by employees, trainees and the public remain below the limits.

IRR regulation 2(3) states that 'work' includes "any instruction or training which a person undergoes as a trainee" and that a trainee "is to be treated as the employee" of whoever is providing that instruction or training[1].

Regulation 14 requires "every employer engaged in work with ionising radiation" to consult a suitable radiation protection adviser (RPA)[1]. The RPA can advise on training, such as the use of local rules, and on the nature of appropriate radiation risk assessments for trainees.

Regulation 16 requires that "where work with ionising radiation undertaken by one employer is

likely to give rise to the exposure to ionising radiation of the employee of another employer, the employers concerned must co-operate by the exchange of information"[1].

The SoR believes this means employers and higher education institutions (HEIs) have a joint duty and must work together to ensure dose limits to both employees and trainees are not exceeded. Every employer must be aware of doses received by employees working elsewhere[3]. The SoR believes this duty of care applies to students and trainees working across multiple placement sites or workplaces.

Risk assessments

It is a requirement of IRR 2017 regulation 8 for employers to undertake risk assessments to consider the risk to employees and other individuals (including trainees) and identify the measures necessary to restrict ionising radiation exposure to that person. This is in addition to the requirements of regulation 3(1)(a)(b) of The Management of Health and Safety at Work Regulations 1999[4], which states employers must "make a suitable and sufficient assessment of the risks" to the health and safety of their employees and also to people not in their employment but connected to work done by the employer. Where a risk assessment is in place, employers have a duty to consult with workplace safety representatives on all health and safety issues listed in the assessment, and to give these representatives information about health and safety matters relevant to their members. This includes information about risk assessments.

Risk assessments should consider:

1. that where there is a high density of trainees on site at any given time, risks may be higher for both trainees and employees compared with a non-educational environment, due to increased supervision requirements and the potential for distraction

2. how doses are managed, and how employers cooperate to share dose data when trainees visit multiple sites

3. the stage of training, trainees' level of knowledge, skills and practical experience, and the nature of supervision arrangements for trainees

4. the training environments and skills required to meet the Health and Care Professions Council Standards of proficiency[5], including to perform computed tomographic (CT) examinations and assist in procedures involving the use of radionuclides, including positron emission tomography (PET) tracers and particle emitters

5. the nature of systems of work and appropriate safeguards, such as the use of personal protective equipment (PPE) relevant to the area of work

6. trainees with childbearing potential and trainees who are breast/chest feeding

7. the management of dose monitoring for trainees on short-term elective placements

8. increasing workloads with potential for occupational exposures, in particular hand skin doses in nuclear medicine[6].

The SoR believes that high-quality training and education is key to radiation safety and that instilling a personal sense of responsibility for one's own occupational safety begins at pre-registration level. Dynamic personal dose monitoring at the learner stage helps individuals gain awareness of the impact of both their actions and inactions early in their career pathway.

Approved dosimetry services

IRR regulation 22 states that employers who designate an employee a 'classified person' (as defined in regulation 21) must arrange for an approved dosimetry service (ADS) to assess and record all doses of ionising radiation received by that employee[1]. The SoR would not expect any student to be designated a classified worker.

Dose monitoring has historically been managed using wearable passive dosemeters that are analysed periodically. The British Institute of Radiology has published UK guidance on the management of personal dosimetry systems for healthcare staff working at multiple organisations[7].

Advances in technology, including the use of artificial intelligence (AI), should be considered and gold standard methods of occupational dose monitoring should be employed where practicable.

The Health and Safety Executive (HSE) recommends that where employers provide personal dose monitoring to non-classified workers, they should be "able to demonstrate that measurements and assessments have been made to a satisfactory standard"[3].

Recommendations

1. HEIs, through their AURPO representatives, should cooperate with radiation employers on the radiation safety of trainees at all sites where there is a contractual agreement to provide clinical placements.
2. Agreements should be in writing, kept up to date, and be available if requested by the trainee or their representative.
3. No trainees should be at risk of receiving radiation doses that exceed the regulated dose limits. The radiation safety and dose monitoring systems for trainees should reflect the occupational radiation safety and dose monitoring systems for employees who are performing the same tasks and working in the same environment where they are training. Radiation risk assessments should consider the educational nature of the environment, including the impact on the risk of exposure to trainees and employees when trainees are present in the workplace.
4. Where no contractual agreement is in place, such as at elective placement sites, a temporary written agreement between the HEI and the elective placement provider should be available before the trainee arrives on placement. This should clearly state how the trainee's radiation safety will be assured and include arrangements for the provision of dose monitoring devices where appropriate. The Universities Safety and Health Association (USHA) provides guidance on the health and safety of higher education placements[8].

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