manufacturer and published guidelines. This included the addition of 0.1mm of copper to all truck examinations. After the first month of use, and further adjustments to settings, a follow up dose audit was undertaken. This showed a significant reduction in DAP values while ensuring diagnostic image quality was maintained. Good agreement was also found with DAP measurements from the other paediatric hospital. Further follow up audits are required for the different X-ray procedures in order to provide a more comprehensive cross site comparison. Once clinical and medical physics staff are satisfied that adequate dose optimisation has been achieved, the exposure factors will be applied across all future paediatric sites. This will ensure a high standard of care and dose optimisation for paediatric patients in Ireland.

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Initial experiences in establishing a 68 Ga-based radiopharmaceutical service in PET/CT

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This study will report on our centre's experience during the installation and validation of a 68 Ge/68 Ga generator and the introduction of 68 Ga-DOTA-TOC imaging to our PET/CT service. Key factors considered in the establishment of the service include shielding and equipment requirements, work practices to ensure occupational exposures are as low as reasonably achievable and quality control procedures. 68 Ga is a short-lived radioisotope (t1/2 67.7 min) that is produced from a 68 Ge/68 Ga generator. 68 Ga decays through positron emission with a mean energy of 836 keV followed by photonic annihilation radiation of 511 keV. The 68 Ga eluate is labelled with DOTA-TOC before being administered to the patient. 68 Ga-DOTA-TOC binds to the surface of neuroendocrine tumours, permitting them to be visualised on PET/CT. The 68Ge/68Ga generator is housed in the existing shielded.

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Challenges encountered when shielding a dual-room sliding gantry CT installation

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Best practice guidelines recommend that a CT scanner be located adjacent to the Emergency Department (ED) or in the Emergency Room. Modern CT technology has evolved in recent years such that it now possible to move a CT scanner between two adjacent rooms and operate the system in either room. One of the main benefits for installing a dual-room sliding gantry CT system in an ED is that it reduces the number of bed transfers critically unstable patients are required to undergo when CT imaging is requested. In addition, it substantially reduces delays resulting from transferring these patients from the ED to the Radiology Department. Many publications exist which outline shielding criteria for rooms in which CT equipment is planned to be installed. The practice of identifying shielding solutions is considered a routine task for those professionals who undertake this work on a regular basis. It is only in the event that regulatory and construction requirements are revised or when new technologies are purchased that this task can be challenging. This presentation outlines the significant shielding challenges encountered when designing the shielding for a sliding gantry CT scanner which can be operated in either a dedicated CT Room or in an adjacent Resuscitation Room within an ED. The solutions to address the difficulties whilst ensuring that the clinical needs and mechanical, electrical and aesthetic aspects of the facility were not compromised are presented. The work also highlights that specific shielding guidelines are required for this new type of installation.

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Relative response of eye dosimeters to variations in scattered X-ray energy spectra encountered in interventional radiology

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The most appropriate operational dose metric for monitoring radiation dose to the eye lens has been identified as the personal and directional dose equivalent at 3 mm depth, Hp(3). Other suggested methods include evaluating Hp(3) through Hp(10) or Hp (0.07), and using conversion factors. There are many uncertainties, however, associated with these dosimetry methods. In particular, the energy response for different dosimetry techniques may vary considerably depending on the incident X-ray energy spectrum. For Thermoluminescent Detectors (TLDs), Optical Stimulated Luminescence Detectors (OSLD) and Electronic Personal Dosimeters (EPD), the deviation of the energy response from unity is reported to vary by a factor of 0.9–2.8 across Hp(0.07) and Hp(10) measurements, with overestimations occurring in the 30-60 kV range. This range coincides with scattered energy spectra encountered in both interventional radiology and cardiology. Establishing how dosimeter energy dependence affects dose measurement accuracy in the clinical setting, whether Hp(3), Hp(0.07) or Hp(10), has received little attention in the literature; however, the effect has been identified as the dominant source of uncertainty in current eye dosimetry methods. Accordingly, this study aims firstly to measure scattered X-ray energy spectra to staff in Interventional Radiology procedures under varied conditions and system settings. Consequently, the dosimetry accuracy of a series of currently available eye dosimeters, including TLDs (100s, 100Hs), OSLD and Electronic Personal dosimeters (EPDs), and a variety of real-time trunk dosimeters will be presented, with energy dependent correction factors established for each dosimeter type, leading to more precise dose measurement.

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Experience of implementing patient dose tracking software in neuro and vascular interventional radiology

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Commercial Dose tracking software, initially installed in 2014, has been used to collect radiation dose metrics from both Neuro-Interventional (Siemens AXIOM Artis dBA) and Vascular Interventional (Philips Allura Xper FD20) Radiology X-ray Systems. The experience of using such software with both systems differs greatly