### Paediatric PET-CT: a 10-year service review

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### Introduction
The use of FDG PET-CT is widely established in medical imaging. In contrast, the experience of its use in the paediatric population is relatively limited. Historically, the role of PET-CT in children was produced by the RCR. Prior to this, various clinical guidelines existed at the national and European level for adults, but were usually extrapolated in children. This led to uncertainty and a lack of uniformity in the use of PET-CT in the paediatric population.

We provide an insight into the scope of paediatric FDG PET-CT scans performed at a large teaching hospital over a 10-year period. We aim to highlight current FDG PET-CT examination standards and interpretative considerations of scan acquisition, interpretation of PET-CT and radiation dose.

### Methods
A retrospective review of a prospectively maintained institutional PET-CT database was performed to identify all patients who underwent a PET-CT between 2008 and 2017. Data were extracted from the PET-CT report and clinical notes. The indications for PET-CT were defined and categorized into oncological and non-oncological indications. The specific examination details were recorded, including injected activity, effective dose, general anaesthetic usage and imaging time.

### Results
A total of 152 PET-CT scans were performed in children with a median age of 7 years (range 0.5–17 years) with a total of 153 scans performed for oncological or non-oncological indications. Of these, 40 scans were performed for oncological indications including a single institution. Patient demographics, clinical indication, acquisition protocol, scan timings, follow-up and final outcome were recorded.

### Discussion
Use of FDG PET-CT in paediatric patients is relatively limited. Good evidence-based guidance is emerging for the use of PET-CT in paediatric oncology; however, the potential value of PET-CT in other settings is not yet clear. The general guidelines for PET-CT for adults are not always suitable for children. The use of PET-CT in children is reserved for the most severe cases, usually in patients with a high clinical suspicion of malignancy and conventional imaging being unable to identify the underlying pathology.