SCHEDULE 2 – THE SERVICES

A. Service Specifications

1. Service name	Positron Emission Tomography – Computed Tomography (PET CT) Scanning (All ages)
2. Service specification number	2266
3. Date published	September 2024
4. Accountable Commissioner	NHS England, Cancer Programme of Care england.npoc-cancer@nhs.net

5.	**Population and/or geography to be served**
5.1	**Population Covered** This specification (the 'Specification') covers the provision of the PET-CT Scanning Service ("the Service").
5.2	**Minimum population size** The Service must be configured so that there is sufficient volume to ensure workforce sustainability and maintain professional expertise and should serve a population sufficient to support a critical mass of infrastructure required to deliver the service.
6.	**Service aims and outcomes**
6.1	**Service aims** The Service is an integral part of the diagnosis and management of both malignant and benign conditions. The aim of the service is to: • Deliver high quality imaging services and holistic support in a culturally appropriate way. • Ensure there is equity of access for all elements of the service and comparable experience for all Service Users. • Support and advise all professional groups within the system to offer care closer to home whenever it is clinically appropriate to do so, including Cancer Alliances and Imaging Networks. **And** to offer Service Users: • An efficient and reliable booking service. • Convenient appointment times. • Accessible scanning locations.

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- Clear information about the scanning process and how to prepare for the scan.

And support the clinical decision-making process by:

- Providing referrers with timely, accurate and reliable diagnostic-quality images and reports.
- Supporting the referrer and/or the multi-disciplinary team (MDT) to understand the report.
- Engaging with both referring teams and NHS Imaging Networks covered by the Service to ensure compliance with agreed protocols and procedures, in particular the minimum data set (MDS) required to ensure a referral can be safely accepted by the Service.

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Outcomes

<u>NHS Outcomes Framework Domains & Indicators</u>

<table>
<tr><td>Domain 1</td><td>Preventing people from dying prematurely</td></tr>
<tr><td>Domain 2</td><td>Enhancing quality of life for people with long-term conditions</td></tr>
<tr><td>Domain 3</td><td>Helping people to recover from episodes of ill-health or following injury</td></tr>
<tr><td>Domain 4</td><td>Ensuring people have a positive experience of care</td></tr>
<tr><td>Domain 5</td><td>Treating and caring for people in safe environment and protecting them from avoidable harm</td></tr>
</table>

<u>Service defined outcomes/outputs</u>

The quality of specialised services is monitored through Specialised Services Quality Dashboards (SSQDs), which normally comprise a range of quality outcomes (including clinical outcomes) and quality metrics which are supported by regular data collections. SSQDs are available on NHS England's website at: https://www.england.nhs.uk/specialised-commissioning-document-library/

Included in the range of metrics that support understanding of the quality of this service are:

- To monitor the proportion of booked scans not completed due to isotope failure or equipment failure – as these are potentially avoidable events.
- To monitor the proportion of scans cancelled for non-clinical reasons – as these are potentially avoidable events.

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<tr><td>7.</td><td>Service description</td></tr>
<tr><td>7.1</td><td>

Service model

The Provider will deliver the Service to a network of referring secondary care organisations and must ensure that the Service:

- Operates within a clinically safe environment ensuring safe practice and adequate levels of equipment to deal effectively with medical emergencies.

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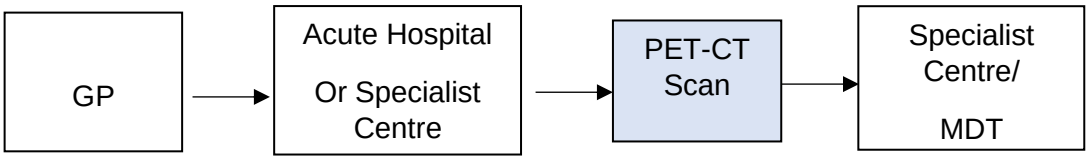
	• Has agreed local protocols and referral pathways for accessing the Service, including the MDS for referrals, processes for receiving prior images and returning diagnostic-quality PET-CT images and reports via secure electronic exchange, to each referring organisations Picture Archiving and Communication System (PACS) and Radiology Information System (RIS), ensuring that the Service Users NHS Number is included on all reports and images. • Operates scanning services that are sufficient to meet the needs of the referral network/catchment population while making best use of resources and complying with all mandated quality assurance and maintenance regimes; this will normally mean that scanning services will be available to service users for a minimum of 5 days per week. • Considers the specific needs of every service user requiring general anaesthetic by providing a hub and spoke referral system which has access to appropriate and suitable scanning environments and facilities. • Complies with the additional requirements when providing PET-CT services to children, as detailed in Annex A to this specification. • Offers the Service User a choice of appointment date and time, as well as location where this is available, within the timeframe indicated by the referrer. • Provides intravenous contrast scans, where requested by the referring clinician. • Takes steps to minimise lost scan appointments and wasted radiopharmaceutical products by ensuring that the service user is fully prepared for their appointment, as set out within 'Recommendations for Cross-sectional Imaging in Cancer Management' (Royal College of Radiologists [RCR]). • Uses anaesthetics and/or sedation in accordance with the 'Sedation, analgesia and anaesthesia in the radiology department' (RCR). • Undertakes an annual service education and awareness session with referring organisations to support achievement of the service aims. • Gives due regard to other national guidance, including relevant rapid cancer diagnostic and assessment pathways, optimal timed pathways (NHS England » Faster diagnosis), personalised care and improving quality of life outcomes (NHS England » Personalised care and improving quality of life outcomes), elective recovery programmes, such as Outpatient Recovery and Transformation and the Transforming Imaging Services programme including the Diagnostic imaging reporting turnaround times. The Provider must also: • Ensure that reporting clinicians are either: registered and have a licence to practice (or equivalent) with appropriate regulatory authority (e.g., the General Medical Council [GMC] for radiologists and teleradiologists) **or** hold a practitioner license, hold an appropriate employer entitlement and are suitably trained and experienced and subject to appropriate clinical governance processes. • Ensure that all relevant ARSAC licenses are in place for employers, practitioners and sites. • Ensure that PET-CT reports are accurate, relevant, concise and succinct, in accordance with professional guidelines[1,2] or recommended by a specialty-based peer group (relevant to the Services).

	• Monitor the quality of reports using a governance approach to ensure that PET-CT reporting is effective by implementing robust and appropriate quality assurance and clinical audit systems.
	• Ensure that the reporter (or nominated deputy) is available to discuss scans or referrals with the appropriate referring clinician or the MDT, where this is required.
	• Ensure that all staff are appropriately trained and accredited including, where appropriate, having a Support certificate which meets the standards set out by the Resuscitation Council (www.resus.org.uk) and at least one member of staff present in working hours that is qualified to Intermediate Life Support (ILS) level.
	• Have access to appropriate transport arrangements to accommodate inpatients who need to be transferred to PET-CT scanner at a different site, where the on-site scanner is unavailable or unsuitable.
	• Comply with the standards for Quality Assurance on PET-CT equipment as shown in 'Report 108 Quality Assurance of PET and PET/CT Systems' (Institute of Physics and Engineering in Medicine [IPEM]).
	• Comply with vendor specific servicing/maintenance recommendations.
	• Ensure that all medicines and radiopharmaceutical products are managed safely and securely, in accordance with local radiological rules, NHS Resolution and relevant consents and law. Legislation and Regulations that must be complied with are, as follows:
	  ○ Environmental Permitting Regulations (EPR) 2016;
	  ○ Medicines Act 1968 (as amended);
	  ○ Notes for guidance on the clinical administration of radiopharmaceuticals and use of sealed radioactive sources (Administration of Radioactive Substances Advisory Committee [ARSAC]);
	  ○ Ionising Radiation (Medical Exposure) Regulations 2017 ("IR(ME)R") (as amended);
	  ○ The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (as amended); and
	  ○ Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR) 2023.
	• Comply with good clinical and industry practice which will include but is not limited to:
	  ○ Standards for better health, Quality Standard for Imaging by the United Kingdom Accreditation Service (UKAS);
	  ○ Latest Medicines and Healthcare products Regulatory Agency (MHRA) guidance/technical notices (please see the MHRA website);
	  ○ Standards for interpretation and reporting of imaging investigations (RCR);
	  ○ Recommendations for cross-sectional imaging in Cancer Management (RCR);
	  ○ Standards for the communication of radiological reports and fail-safe alert notification (RCR);
	  ○ Professional duty of candour – Guidance for Radiologists 2022 (RCR);
	  ○ Learning from events, errors, discrepancies, educational cases and good spots in clinical radiology (RCR); and
	  ○ The Radiologist and Nuclear Medicine (RCR).

- Implement new technologies that are recommended by the National Institute for Health and Care Excellence (NICE) and give due regard to national clinical guidelines and guidance (See Section 7.9).
- Ensure that a reliable and adequate supply of radiopharmaceutical product is available for the performance of scans and that the quality of this is appropriate for the scans, ensuring that:
    - Each supplier has in place a quality control programme sufficient to provide assurance as to the integrity of the product, and methods for validation;
    - Products are transported to the scanning location within such timescales as will facilitate the safe and efficient administration of the product and delivery of the scan; and
    - All products are prepared under Good Manufacturing Practice as defined by the MHRA that all transport of radioactive material is compliant with the ADR.

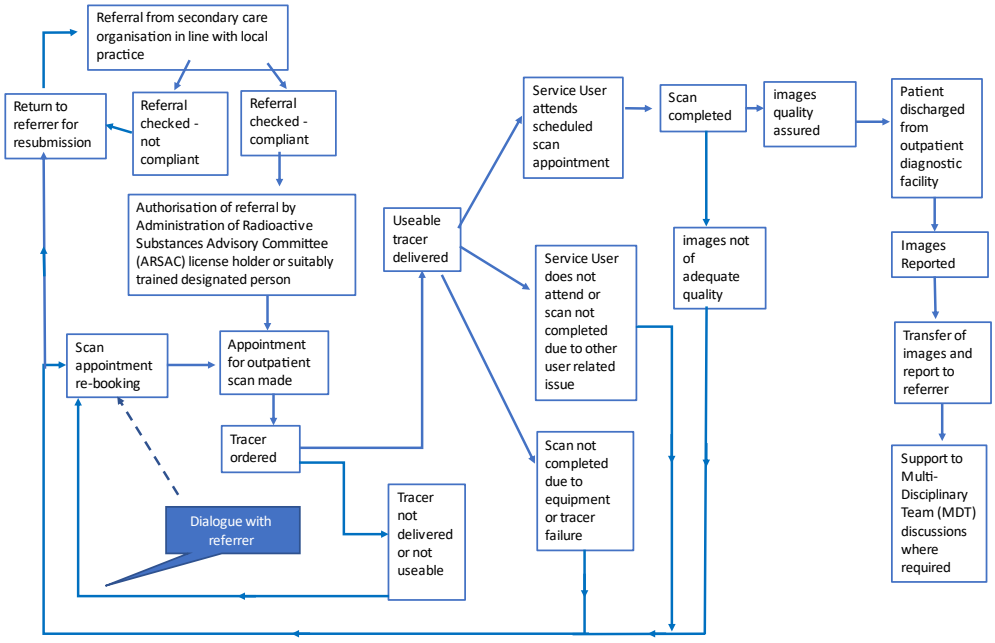
7.2 Pathways

Overall patient pathway



The PET-CT scanning service can only be accessed by referral from an appropriate specialist centre or acute hospital. It cannot be directly accessed from primary care.

Specialised patient pathway



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<tr><td>7.3</td><td>Clinical Networks
The Provider will be required to participate in a networked model of care to enable services to be delivered as part of a co-ordinated, combined whole system approach. There is no requirement for the Provider to be a member of a specialised services Clinical Network, however there is a requirement to work closely with the following Clinical Networks to agree referral pathways that are seamless:

<table>
<tr><th>Clinical Network</th><th>Link to 'published' network specification</th></tr>
<tr><td>Children's Cancer Network</td><td>1746-principal-treatment-centres-service-specification-.pdf (england.nhs.uk)</td></tr>
<tr><td>Teenage and Young Adult's Cancer Network</td><td>NHS England » Teenage and young adult cancer clinical network specification</td></tr>
</table>

In addition, to ensure appropriate integration with local services, the Provider will be required to work closely with both NHS Imaging Networks and Cancer Alliances.</td></tr>
<tr><td>7.4</td><td>Essential Staff Groups
The Provider must ensure that the service has sufficient, appropriately trained, staff to meet activity and deliver safe, effective and timely imaging services. This includes the availability at all times of supervisory and specialist expertise as defined by regulatory requirements, set out in Section 7.1, including:
• Radiation Protection Supervisor.
• Radiation Protection Advisor.
• Dangerous Goods Safety Advisor where required.
• Medical Physics Expert (to the extent required).
• Nuclear medicine physicians/suitably trained radiologists.
• Radioactive Waste Advisor.
• Appropriately trained consultant radiologists.
• Physicists.
• Technologists.
• Diagnostic radiographers, with access to therapy radiographers / physicists if applied to radiotherapy.
• Anaesthetists.
• Resuscitation (crash) team.
• Information governance lead.</td></tr>
<tr><td>7.5</td><td>Essential equipment and/or facilities
• Combined coaxial full body PET with CT system.
• Room mounted reference lasers if required.
• Image reconstruction computer.
• User control terminal.
• Contrast injector interface.
• Image quality control phantoms (PET and CT).
• Ancillary cooling equipment as required.
• Full resuscitation equipment including oxygen and suction.</td></tr>
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Pulse oximeter.
Blood glucose testing equipment.
Radiation monitors.
Spill kit.
Access to radiation protection and dosimetry services.
Uptake rooms, hot toilets and waiting areas in sufficient number to make optimum use of the scanner capability and availability.
Digital infrastructure, i.e., RIS and PACS, to enable the secure transfer of diagnostic quality images and reports to and from referrers and across the relevant Imaging Network.

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<tr><td>7.6</td><td>Interdependent Service Components – Links with other NHS services
<table>
<tr><th>Interdependent Service</th><th>Relevant Service Specification/Standards</th><th>Proximity to service (not applicable/co-located/same town/city)</th></tr>
<tr><td>Anaesthesia</td><td>Guidelines for the Provision of Anaesthetic Services https://rcoa.ac.uk/safety-standards-quality/guidance-resources/guidelines-provision-anaesthetic-services</td><td>Collocated or, where a provider has imaging services at multiple sites, anaesthesia must be available at least one of those sites in the same region.</td></tr>
<tr><td>Anaesthesia (paediatric) – where the Service is delivering a paediatric PET-CT scanning service</td><td>Guidelines for the Provision of Paediatric Anaesthesia Services 2020. GPAS-2020-10-PAEDIATRICS.pdf (rcoa.ac.uk)</td><td>Collocated</td></tr>
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<tr><td>7.7</td><td>Additional requirements
Not applicable.</td></tr>
<tr><td>7.8</td><td>Commissioned providers
The list of commissioned providers for the services covered by this specification can be found here. [ADD LINK TO THE COMMISSIONED PROVIDER LIST ONCE AVAILABLE]</td></tr>
<tr><td>7.9</td><td>Links to other key documents</td></tr>
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	Please refer to the: • Prescribed Specialised Services Manual for information about how the Service is commissioned and contracted; • Identification Rules tool for information about how activity associated with the Service is identified and reimbursed; • Relevant Clinical Reference Group webpages for NHS England Commissioning Policies which define access to the Service. • NHS England Diagnostic imaging reporting turnaround times NHS England » Diagnostic imaging reporting turnaround times The specific clinical policies that relate to the services covered by this service specification include: • Clinical Commissioning Policy Statement: Positron Emission Tomography-Computed Tomography (PET-CT) Guidelines (all ages); and • Clinical Commissioning Policy: 18F fluorodeoxyglucose (FDG) positron emission tomography-computed tomography (PET CT) as part of radical radiotherapy treatment planning for oesophageal cancer (all ages). **Relevant National and international Clinical Guidance** 1. Society of Nuclear Medicine and Molecular Imaging and European Association of Nuclear Medicine guidance (www.snmmi.org and https://www.eanm.org/). 2. Reporting and Interpretation of Imaging Investigations", as published by the Royal College of Radiologists (www.rcr.ac.uk). 3. British Nuclear Medicine Society PET-CT Guidelines. 4. European Association of Nuclear Medicine - Principles and Practice of PET/CT. 5. The Society of Nuclear Medicine and Molecular Imaging (SNMMI) Procedure Standards. 6. Guidelines for the use of PET-CT in children (Guidelines for the use of PET-CT in children, Second edition | The Royal College of Radiologists (rcr.ac.uk)

NHS England

ANNEX 1

Provision of PET-CT Services to Children up to 16th Birthday

PET-CT imaging of children requires a tailored approach to overcome the challenges presented when scanning younger children and infants. It is essential that the Service offers the appropriate facilities and expertise to ensure that stress and discomfort is kept to a minimum and to ensure that good quality images can be captured.

Depending on the age of the child, the level of cooperation will vary. Interventions to optimise the success of the procedure could range from distraction techniques to sedation or anaesthesia. The type of intervention required should be based on an individual assessment but in all cases, the Service must offer an age appropriate environment that is safe and well suited to children and adolescents, including in the out-patient setting.

In addition to meeting the requirements set out in sections 7.1 to 7.9 above, the Service must provide age-appropriate care and support when providing PET-CT scans to children. In particular, the Provider must ensure that the Service:

- Has access to a specialist paediatric anaesthetic service, including on-site paediatric resuscitation, life support teams immediately available.
- Has access to experienced health play specialists that are able to cover the local service needs and undertake an initial assessment as to whether PET-CT without anaesthesia is possible.
- Has access to a designated transport services for critically ill service users if the paediatric PET-CT provider is not co-located with paediatric HDU/PICU provision.
- Provides clear information about the scanning process and how to prepare for the scan to the service user and their family members / caregivers.
- Provides safe and an age-appropriate waiting area for children and adolescents who are waiting, preparing for and receiving PET-CT in the department.
- Has access safe and age-appropriate hot toilet facilities for use by children and adolescents when they are in the department.
- Ensures that a parent/caregiver is able to stay safely with the child for the duration of their stay in the department.
- Has access to the appropriate paediatric staff:
    - Paediatric clinician
    - PET-CT practitioners with experience of imaging in children
    - Play specialists.

Relevant NICE Guidance (exc. Technology Appraisals)

NICE: Guidance on Cancer Services - Improving Outcomes in Children and Young People with Cancer The Manual; August 2005 Child & young people cancer CSG REP (nice.org.uk)

Relevant National Clinical Guidance

RCR Guidelines for the use of Pet-CT in Children: Guidelines for the use of PET-CT in children, Second edition (rcr.ac.uk)

Date published September 2024

SNMMI Procedure Standard/EANM Practice Guideline on Pediatric 18F-FDG PET/CT for Oncology 1.0 Take account of the EANM Practice Guideline on Pediatric 18F-FDG PET/CT for Oncology

SNMMI Procedure Standard/EANM Practice Guideline on Pediatric 18F-FDG PET/CT for Oncology 1.0 - PubMed (nih.gov)

Joint EANM/SIOPE/RAPNO practice guidelines/SNMMI procedure standards for imaging of paediatric gliomas using PET with radiolabelled amino acids and [18F]FDG: version 1.0 - PubMed (nih.gov)

Notes for guidance on the clinical administration of radiopharmaceuticals and use of sealed radioactive sources (publishing.service.gov.uk)

Interdependent Paediatric Service	**Relevant Service Specification/Standards**	**Proximity to service**
Anaesthesia	Guidelines for the Provision of Paediatric Anaesthesia Services 2020. GPAS-2020-10-PAEDIATRICS.pdf (rcoa.ac.uk)	Same town/city