

PET CT Scans Clinical Indications Guide

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Introduction

PET CT scanning has made an impact on the ability to improve cancer diagnosis. In a range of tumour sites. PET CT scanning has influenced clinical decision making in a number of tumour sites such as lung, lymphoma, colorectal and oesophago-gastric cancers.

There are now a number of further emerging indications for the use of PET CT particularly in determining the next course of action in management of the patient. Some of these indications are supported by strong evidence, others are not. This document aims to guide the referring clinicians to make appropriate referrals based on the evidence available.

The Commissioners for PET-CT services in the East of England have agreed to support scans performed for clinical indications identified by the East of England Specialised Commissioning Group's PET CT group.

There are a number of additional discretionary indications that have been agreed but only at the discretion of the ARSAC certificate holder.

Both the recommended and discretionary indications are listed in this document.

Where the request for PET CT lies outside of the remit of the ARSAC holder these referrals will continue to be subject to the EoE SCG Individual Funding Request process.

For all scans the following principles will apply:

Requests for PET-CT can only be made by a consultant clinician involved in the relevant cancer care pathway.

The decision to request PET-CT should be made and documented at a relevant Multi-disciplinary Team Meeting or local experts in the condition.

Referrals for discretionary or exceptional indications must be accompanied by an audit form completed at the time of request, these referrals will be included in the EoE PET-CT audit of scans performed for discretionary/exceptional indications.

Please note while there is pressure on waiting times for cancer related scans, these will normally be given priority on scheduling against non-cancer related scans.

This guide has been prepared by a Working Group comprising Regional PET-CT Clinical leads and the SCG after consultation with the major user specialties.

It has taken account the following documents:

1. UK PET-CT Advisory Board – Clinical Indications for Positron Emission Tomography (PET) Imaging – Evidence Base Grading – March 2008.
2. US Department of Health & Human Services. Agency for Healthcare Research & Quality Technology Assessment, Positron Emission Tomography for Nine Cancers, December 2008.

3. South East Coast SCG, PET-CT Scanning Referral Criteria – Dec 2008.
4. East Midlands PET-CT Clinical Indications – April 2008
5. South Central Cancer Network, PET-CT Clinical Indications – April 2008
6. Dorset Cancer Network, PET-CT Clinical Indications – April 2008

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Oncology

Breast Cancer (Discretionary ARSAC approval only)

PET-CT should only be used to make a new diagnosis of metastases for patients with breast cancer whose imaging is suspicious but not diagnostic of metastatic disease. MRI should be considered first.

It can be used to assess response to treatment if it is the only imaging abnormality present. It should not be used for routine monitoring of advanced breast cancer.

Colorectal Cancer

Staging and restaging colorectal carcinoma when staging using conventional imaging is inconclusive.

Assessment of recurrent disease eg liver metastases and distant metastases in colorectal cancer.

Staging anal carcinoma when there is an enlarged lymph node in the inguinal and/or pelvic regions.

Gynaecological Cancer (Cervical and Ovarian)

Cervical

Staging – in patients with suspected advanced cervical cancer having curative radiotherapy +/- surgery. MR and CT should be considered first.

Assessment- to select patients suitable for salvage surgery who have no symptoms of recurrence 9 months after curative chemoradiation

Re-staging – patients with local recurrence on MRI/CT being considered for curative surgery or RT.

Ovarian

Selected cases on recurrence of disease after review by MDT for localization of recurrent ovarian cancer in women with rising CA-125 levels and/or negative or equivocal CT/MR imaging.

Haematological Cancer

Discriminating between residual lymphoma and fibrotic tissue after chemotherapy.

High Risk HD and Advanced High Risk (poor prog) High Grade NHL: Interim Scan (ie after two courses of chemotherapy)

High Risk HD and Advanced High Risk (poor prog) High Grade NHL: At Presentation

HD Stage I or II at diagnosis

NHL Low Grade – Stage I at diagnosis (**Discretionary ARSAC approval only**)

NHL High Grade – Stage 1 at diagnosis

Head and Neck Cancer

Suspected tumour recurrence when anatomical imaging is difficult or equivocal and management will be affected.

When there is uncertainty whether a lesion is benign or malignant on anatomical imaging, and biopsy is contraindicated.

Identification of a possible primary site in patients presenting with squamous cell cancer in neck nodes thought to have arisen in the upper aerodigestive tract.

In thyroid cancer for the assessment of patients with elevated thyroglobulin and negative iodine scans for recurrent disease.

Non Small Cell Lung Cancer

Non Small Cell

Patients who are staged for surgery on CT should have an FDG-PET scan to look for involved intrathoracic lymph nodes and distant metastases.

Patients who are otherwise surgical candidates and have on CT limited (1-2 stations) N2/3 disease of uncertain pathological significance should have an FDG- PET scan

Patients who are candidates for radical radiotherapy on CT should have an FDG-PET scan.

Preoperative staging of non small cell primary lung tumours

Other

Differentiation of benign versus malignant lesions where anatomical imaging or biopsy is inconclusive or there is a relative contraindication to biopsy.

Patients with a pulmonary nodule

Patients diagnosed with mesothelioma (**Discretionary ARSAC approval only**)

- selected cases where surgery is considered
- selected cases where previous biopsy has failed.

Skin Cancer – Malignant Melanoma Only

Malignant melanoma with known dissemination to assess extent of disease.

Stage III of the disease where metastatic nodes are identified.

In patients with solitary metastasis to assess resectability of lesions in selected young, fit patients

Stage 4 patients to assess equivocal lesions in viscera.

Unknown Primary

Diagnosis – When conventional imaging and histopathology has failed to show a primary site and palliative chemotherapy is indicated

Upper GI Cancer

Staging of selected patients with hepatobiliary tumours that are being considered for radical surgery or chemo-radiation. **(Discretionary ARSAC approval only)**.

Staging of patients with oesophageal cancer prior to surgery, curative radiotherapy or chemoradiation

Gastric carcinoma, PET CT would only be appropriate in cases in whom radical treatment is being proposed with curative intent and conventional imaging has not been conclusive. **(Discretionary ARSAC approval only)**.

Gastrointestinal stromal tumour- Specialist request- GIST/ sarcoma MDT only.

Pancreatic cancer -Before radical surgery for pancreatic cancer. **(Discretionary ARSAC approval only)**.

Cardiology

Cardiac Assessment

Diagnosis of hibernating myocardium in patients with poor left ventricular function prior to revascularisation procedure.

Other Indications

Large Cell Vasculitis (Discretionary ARSAC approval only)

PET/CT is useful in widespread large vessel vasculitis for 3 reasons:

1. in determining the extent of the disease activity and the number of vessels involved.
2. the assessment of disease activity in patients in whom this is not easily determined with conventional blood test and imaging (atypical presentation, or unhelpful)
3. excluding underlying malignancy which may be a paraneoplastic phenomenon, and in particular may result in atypical presentations of vasculitis.

PET/CT does carry a high radiation exposure and would therefore not be indicated in all patients with giant cell arteritis but is of use in those patients in whom conventional investigations are unhelpful. Tailoring drug therapy with either steroids, cyclophosphamide and other immunosuppressive agents is undertaken on the basis of the presence of ongoing inflammatory disease.

Additional Considerations

PET CT may also be useful in the following (such cases need to be discussed with the local ARSAC holder):

- Re-staging – when a patient has an isolated local recurrence on conventional imaging that may be suitable for curative treatment (surgery or RT) in tumour sites where PET was used for initial staging (eg lung, oesophagus, cervix etc)
- Re-staging - When a patient has a solitary metastatic site suitable for resection or high dose radiation on conventional imaging – to rule out further metastases and prevent the patient undergoing unnecessary treatment in tumour sites where PET used for initial staging (eg lung, oesophagus, cervix etc)
- Assessing response – to assess response to therapy in situations where tumour is not assessable by other clinical or imaging methods and where PET-CT was positive at diagnosis.

There are a number of indications that will remain on the exceptions list, until evidence of benefit is proven. This evidence can be collected locally through use of the Audit.

Building up this evidence will need cooperation from all referring clinicians, and will involve the submission of the audit form and key information concerning any change in patient management following the PET CT scan.

In this way we can build the case locally for some indications currently listed as exceptions to be added to the accepted indications list or discretionary list.

Requests for additional indications to be considered for inclusion or reclassification should be made in writing and countersigned by one of the requester's ARSAC holders, and sent to the East of England SCG PET-CT lead one month before a review date.

Approved Indications for ARSAC Holders Discretion

Breast Cancer

Gastric tumours

Hepatobiliary tumours

Pancreatic tumours

Vasculitis

Mesothelioma

Low grade NHL

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Breast Cancer

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Colorectal Cancer

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Gynaecological Cancer (Cervical and Ovarian)

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Cervical - SIGN guideline 99, 2008

Ovarian -:

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<http://www.cancer.gov/cancertopics/druginfo/fda-gemcitabine-hydrochloride#Anchor-Ovarian-28472>

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Upper GI Cancer

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Gastrointestinal stromal tumour

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Cardiac Assessment

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Large Cell Vasculitis

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