



Information for referrers

What is PET-CT?

Positron Emission Tomography with Computed Tomography (PET-CT) is a nuclear medicine technique combining functional and anatomic information. It is performed after injection of a radiotracer. The most commonly used radiotracer is ^{18}F -Fluorodeoxyglucose (FDG) and FDG PET-CT has been proven to be useful for patient management in a variety of areas including cancer, inflammatory diseases and infection, brain and heart diseases. Other radiotracers include ^{18}F -Fluoride for bone scanning, ^{68}Ga -Dotatate for neuroendocrine tumours and ^{18}F -Choline for prostate cancer. A list of evidence-based indications for PET-CT can be found at:

<http://www.rcr.ac.uk/publications.aspx?PageID=310&PublicationID=363>

FDG

FDG is currently the most widely used radiotracer. It is a non-specific tracer that is taken up by cancer and inflammatory cells by active transport through the GLUT-1 transporter and is phosphorylated and trapped inside the cell as FDG-6-phosphate, resulting in intracellular accumulation. Good patient preparation is essential in FDG PET scanning because of the possibility of false positive and false negative findings.

Diabetic patients should undergo specific preparation in consultation with the NM department. Increased blood sugar levels lead to competition with FDG for GLUT-1 transport and can result in poor quality images, therefore decreasing the sensitivity and the accuracy of the scan.

Chemotherapy, radiotherapy, medication with steroids and surgery may result in false positive and/or false negative findings, it is therefore very important to know if the patient has had:

- **chemotherapy**, the date of the last cycle and of the next scheduled cycle
- **radiotherapy**, which area was irradiated and when radiotherapy treatment ceased
- **surgery**, where and when surgery was performed
- **steroids**, when, for how long and at what dosage

Because of non-specific uptake in infection and inflammatory conditions, **comprehensive and accurate clinical information on the request form** will help the reporting consultant to produce a more accurate and clinically helpful report.



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Private Patients

For Royal Free London Consultants - How to request a PET-CT ?

PET-CT scans are requested on Cerner. The list of Cerner codes for the different types of scans and tracers can be found in the table below.

What is the radiation associated with a PET-CT?

The amount of radiation received by patients from a PET-CT scan is equivalent to approximately 7 years of background radiation.

Patient preparation

Standard patient preparation

Patients must **FAST** for **6 HOURS** prior to the appointment (this includes chewing gum). It is recommended that the patient drinks water during this time (at least 1 litre). Tea and coffee may be consumed but **WITHOUT MILK OR SUGAR**.

No vigorous physical activity for **24 HOURS** prior to the appointment.

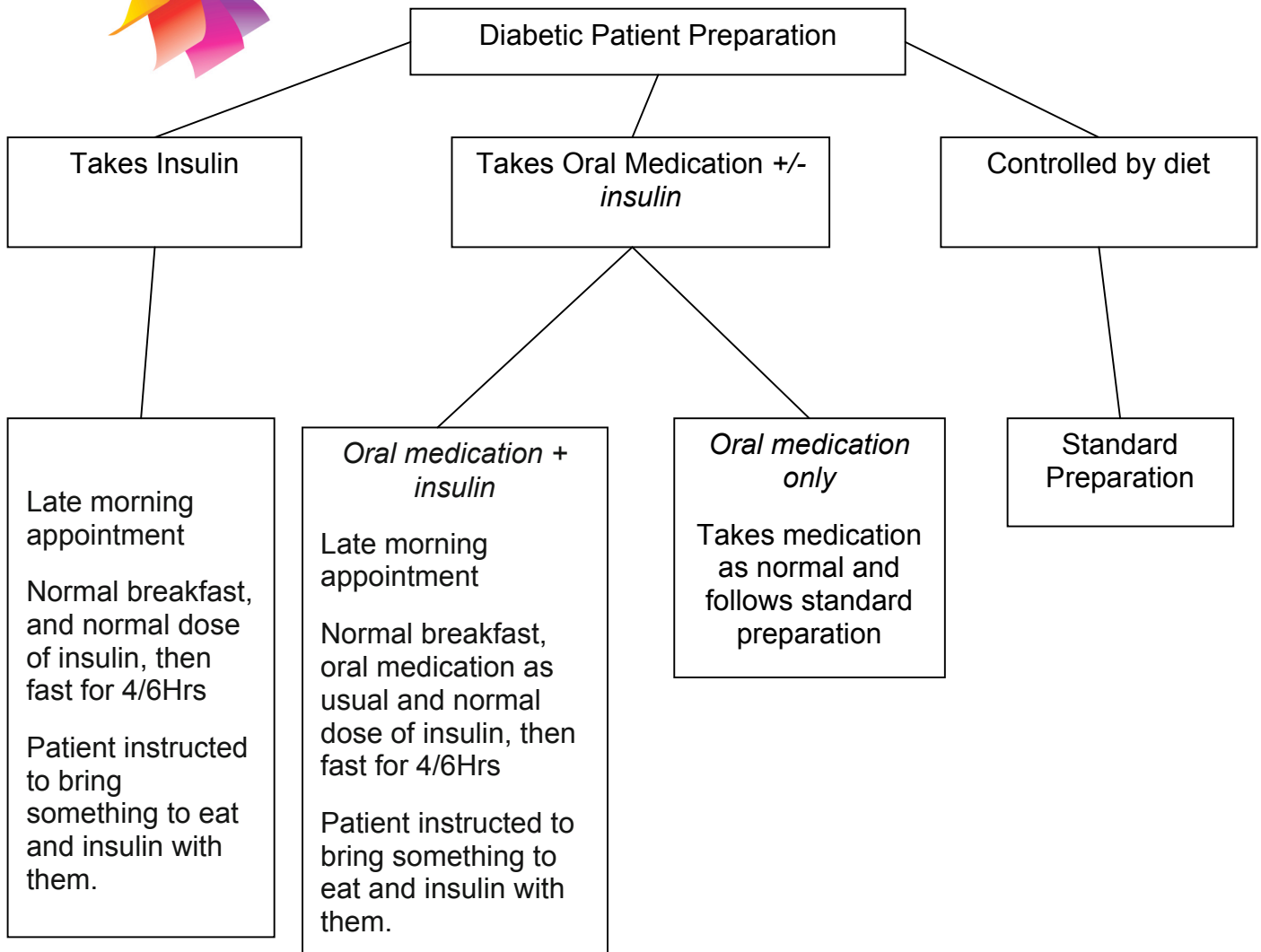
Patients should dress warmly on the day of the scan.

Pregnancy is a contraindication to the injection of a radiotracer. If the patient is pregnant, could be pregnant or is breastfeeding, it is very important to communicate this information to the NM department.

Breastfeeding patients can be scanned provided that breastfeeding is discontinued for 6 hours after the radiotracer injection and any milk expressed during this 6 hour period is discarded. We also recommend that the patients do not spend too much time in close contact with their baby for **6 hours** following the scan.

Diabetic patients need to undergo special preparation to ensure that their blood sugar level is not increased on the day of the scan. If patients have poorly controlled blood sugar levels and the scan is not urgent it is advised to reschedule the scan to change medication in order to obtain blood sugar levels within the normal range. See below for diabetic patient preparation.

If you have any further question please contact NM reception on Ext 33214.



Royal Free patients:

Reports will be available on PACS/RIS by the end of the next working day and images will be transferred to PACS on the same day as the scan.

External referrers:

Reports will be faxed, sent via email or via IEP by the end of the next working day. A disc will be sent by mail to the referring consultant or images will be transferred via IEP to the referring hospital within 48 hours of scanning. The PET request form can be found on (include link).

You can find more information about 18F-FDG PET/CT at the Royal Free PET/CT website at http://www.royalfree.nhs.uk/default.aspx?top_nav_id=1&sel_left_nav=25&tab_id=1438

Please note that FDG is produced off-site on the day of the scan and unforeseen delays in delivery may occur. Although rare, production failures may also occur resulting in the test being rescheduled. If this is the case, we will try to inform the patient and the referring team as soon as possible.