



LIVERPOOL HOSPITAL
Established 1813

SYDNEY SOUTH WEST
AREA HEALTH SERVICE
NSW HEALTH

Liverpool Hospital Department of Nuclear Medicine & PET

PET/CT Patient Information



Image courtesy of Philips Medical Systems.
The Philips Gemini-GXL®

The Department of Nuclear Medicine & PET at Liverpool Hospital is proud to introduce its state-of-the-art PET/CT Scanner, the Philips Gemini-GXL®. This imaging technology offers Doctors and patients a new imaging procedure that will greatly aid in the diagnosis and management of many types of diseases.

PET Imaging:

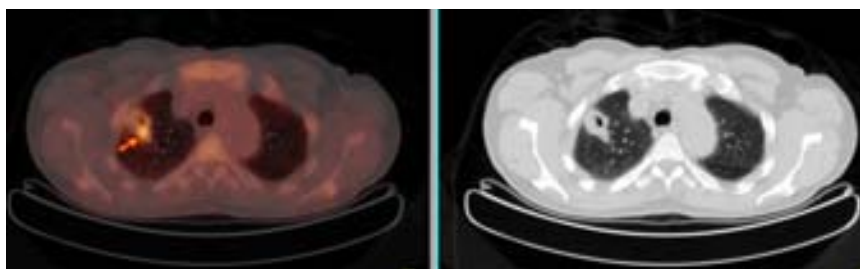
Positron Emission Tomography (PET) detects and measures glucose metabolism within the body. In cancers and certain diseases of the heart and brain, the metabolism of glucose may be abnormal. By injecting a small amount of radioactive glucose (^{18}F -FDG) into a vein and using a special machine called a PET scanner to take pictures, we can diagnose and assess the activity of these diseases within the body.

CT Imaging:

Computer Tomography (CT) provides detailed anatomical information about the size, shape and location of various lesions and organs within the body. CT uses a thin X-ray beam to image the body in fine, cross-sectional slices. It may not differentiate benign from malignant lesions, or assess metabolic activity.

Combined PET/CT Imaging:

When combined together, a PET/CT scan is a very accurate test that can determine the precise location of tissues that have abnormal glucose metabolism, and whether pathological masses have abnormal glucose metabolism. This 3-dimensional information is helpful in determining the extent of cancer spread, whether abnormal tissue represents cancer, whether the cancer is responding to treatment, and differentiate between scarring and recurrent cancer. It can also detect areas of living heart muscle following a heart attack, and locate the cause of seizures in the brain.



An example of a fused PET/CT image (left) and CT image (right) that was used to guide biopsy.

Benefits of PET/CT Imaging:

- PET/CT is a fast and convenient test for the patient as 2 types of scans are performed in 1 imaging session.
- The combination of the PET and CT scans enables both tests to be performed without moving the patient, resulting in shorter scanning times, improved image quality, and accurate fusion of anatomic and functional images.
- PET/CT defines the exact location, extent and activity of disease using image fusion technology which enables Doctors to make more accurate treatment plans.
- The fused PET/CT information can also be used for radiotherapy simulation and planning.

Side Effects & Safety:

There are no side effects associated with the PET/CT scan. It is a safe test - the total radiation dose is less than 1 ½ standard whole body CT scans. The ^{18}F -FDG used in the PET portion does not remain in the body for long (half-life 110 min), and does not affect the normal processes of the body. The patient may interact with members of the public when they leave the Department.



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Length of Test:

The test will take approximately 2 - 3 hours, including pre-test preparation and 30 minutes of scanning.

Preparation:

Dietary:

- Non-diabetic or diet-controlled diabetic patients: fast for 6 hours prior to your appointment, except for plain water. Take all normal medications with water.
- NIDDM patients: fast for 6 hours prior to your appointment, except for plain water. Take all normal medications with water, but exclude diabetic tablets (oral hypoglycaemics).
- IDDM patients: you must have your morning breakfast and normal insulin. You then fast for 4 hours to the time of your appointment, except for plain water. Take all normal medications with water. (If you have any concerns, please contact your Doctor or our Department).

For All Patients:

- You may empty your bladder as often as you require.
- Do not drive yourself to the appointment. Someone else may drive you, or you may use public transport.
- Do not wear metallic objects including jewellery, underwire bras, metal belts, zippers or buttons to your appointment.
- Do not undergo vigorous exercise for 24 hours prior to your appointment.
- If you are claustrophobic, please contact the Department. If you think you might require a sedative you must ensure that you attend the appointment with someone who will drive you home.

How is the PET/CT Scan Done?

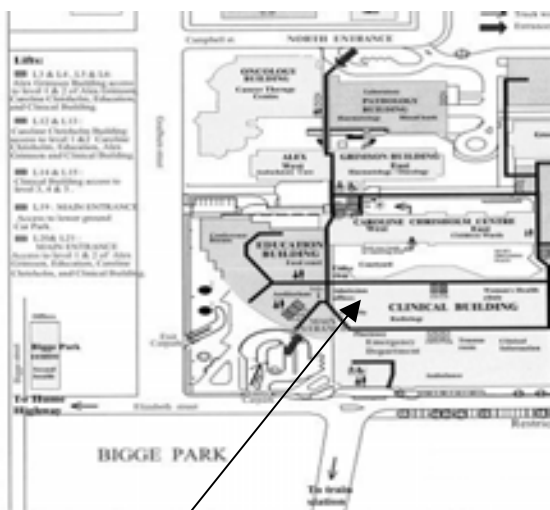
When you arrive, a Doctor will ask you about your medical history. You will be asked to remove all metal objects from your clothing. You will then be asked to lie on a bed, and a small plastic cannula needle will be placed into a vein in your hand or arm. Your blood sugar level and your weight will be measured.

A Technologist will then give you a small injection of radioactive glucose through the cannula, and you will be allowed to rest quietly on the bed for 1 hour while the glucose circulates through your body. For the scan, which will take about 30 minutes to perform, you will be asked to lie on a scanning table. The CT scan is taken first, followed by the PET scan. During both of these scans you must lie very still and breathe normally. You will notice the scanning bed moving slowly through the scanner as the pictures are taken.

Once the scan is complete you will be given something to eat, while the Doctor checks the pictures and a Nurse removes the cannula. You will then be able to leave the Department.

Results:

PET/CT written reports are faxed to referring Specialists within 1 working day of the appointment. The results are also provided on CD-ROM and laser paper, and will be mailed to the referring Specialist within a few working days.



Parking:

- There is a limited amount of 2 and 4 hour on-street parking.
- A pay underground parking station at the Main Entrance of the hospital (no 4WD vehicles), Elizabeth St.
- A pay parking station at Campbell St entrance of the hospital, adjacent to Cancer Therapy Centre.
- Westfield Shopping centre is located 500 metres from the hospital.

Contact Details:

Dept of Nuclear Medicine & PET
Level 1, Clinical Building
Liverpool Hospital
Corner of Elizabeth & Goulburn Streets, Liverpool NSW 2170

Phone: 02)9828 3502 or 02) 9828 3515

Fax: 02) 9828 3529

Website: www.swsahs.nsw.gov.au/healthser/liv/nucmed

Level 1

Location:

The PET/CT unit is located in the Department of Nuclear Medicine & PET, Level 1 of the Clinical Building. Enter the Hospital via the Main Entrance and take escalator or elevator to level 1.