Positron emission tomography (PET) in cancer

A positron emission tomography (PET) scan produces images of how organs or tissues inside the body work. It provides information that is not available from using other scans. The scanner looks very similar to a CT scanner and is open at both ends. This information can be used to decide the best treatment for managing your child's cancer, to monitor the effectiveness of treatment and to help plan for surgery and radiotherapy.

What will the procedure involve?

- Before the PET scan, a small amount of radioactive solution (radiotracer) is injected into your child's bloodstream through a needle placed into a vein in their arm or through their central line (PORT or Hickmann).

- After receiving this injection, your child will need to rest quietly on a bed for at least 60 minutes, while the radioactive tracer travels through and is absorbed by the body. It is important that your child lies still during the resting period to prevent muscles from taking up the radioactive sugar. You may wish to bring your child's favourite DVD, or a CD they can play while resting. Please do not bring video or computer games. If your child is five years of age or younger, they may require a general anaesthetic (GA) for the scan procedure. This requires fasting from food and fluid. You will be given instructions about fasting times for your child when the scan is booked.

- After the rest period, your child will lie on the scanning bed, which moves through the PET scanner. The PET scanner will detect the radiation released from the radioactive sugar injection and will use this to create pictures of the inside of your child's body. While the pictures are being taken, your child will need to lie as still as possible, so that good quality pictures can be taken. The scan will take 20 to 30 minutes, depending on the area of the body being scanned.

Your child will need to spend approximately two hours at the health service while having their PET scan.

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Can I stay with my child?

You may stay in the scanning room with your child for the duration of the scan, apart from a few minutes at the beginning when a low-dose CT scan will be performed. The technologist will be able to see and hear your child at all times.

What preparation is required?

- Usually, your child will need to fast for several hours before the PET scan. This means not drinking any liquids containing sugars or eating any food.

- It is OK to drink plain water only during this time. Specific instructions will be sent to you from your health service once your appointment has been made.

- If your child is diabetic, please call and inform your health service as some diabetic medications may affect the PET scan.

- Your child should dress in warm, comfortable clothing, without zips or studs.

- If your child requires AnGel™ or EMLA™ cream to numb the skin before the needle is inserted into the arm, please arrive 30 minutes before your PET scan appointment time so we can apply the cream.

Will there be any side effects?

There are no side effects associated with a PET scan. Your child will be able to eat and resume their normal activities as soon as the scan is complete.

Are there any radiation risks?

The PET scan is a very safe and routine procedure. The amount of radiation that will be administered to your child is very small and will be passed through the body in urine. For the rest of the day, your child will be able to be close to anyone except babies and pregnant women.

If anyone accompanying the child to have a PET scan is pregnant, please notify the staff before the test.

When will the results be available?

PET scan results will be provided to your child's referring doctor within one to two working days.

> **PET scans show how organs or tissues inside the body work.**

Paediatric Integrated Cancer Service
A statewide cancer service for children