

> Will my child need more than one SPECT scan?

Only one ictal SPECT scan is usually performed. However, some children require a repeat ictal SPECT scan during another seizure, usually when the child has several types of seizures or the injection was well after the seizure finished. In some children a SPECT scan is done when they are not having a seizure (interictal SPECT). This scan is used as a baseline for comparison and may be arranged as an outpatient. SPECT scans are not repeated under 24 hours.

Not all children having Video EEG monitoring need SPECT scanning and the inability to obtain a SPECT scan will not necessarily compromise your child's assessment.



> Please note: SPECT can only be performed on weekdays between 9.00am and 4.00pm. Also, medical emergencies, staffing problems and equipment breakdowns can arise from time to time and therefore SPECT scanning may not be possible.

For more information about SPECT scanning:

visit our website at
www.childrepilepsy.org.au

If you have any further queries please contact:

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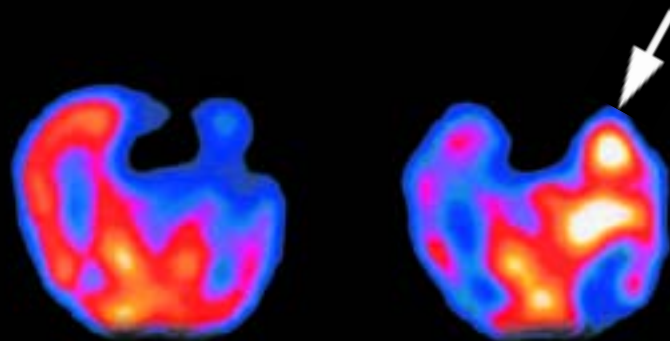
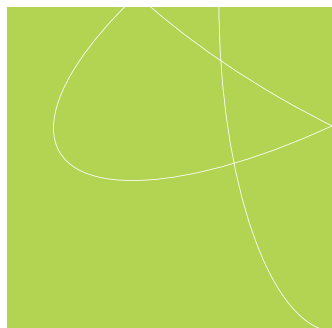
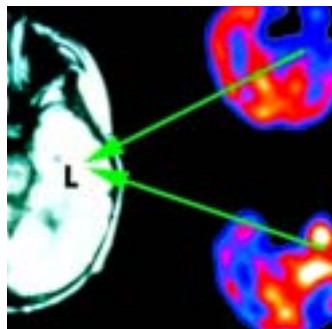
SPECT Scanning

Children's Epilepsy Program
The Royal Children's Hospital, Melbourne

> Why is my child having a SPECT scan?

Your child has a type of epilepsy in which seizures are thought to arise from a particular part of the brain. The part of the brain which causes seizures is often called the epileptic region or focus. During a seizure, brain cells in the epileptic region become overactive and there is a localised increase in electrical activity and blood flow in that part of the brain.

Video-EEG monitoring helps to localise the epileptic region by recording the brain's electrical activity during a seizure. SPECT helps localise the epileptic region by showing the abnormal blood flow associated with a seizure.



> What is SPECT?

SPECT is a nuclear medicine test and stands for Single Photon Emission Computed Tomography. SPECT scans show brain function (what the brain is doing), as opposed to CT and MRI scans which show brain structure (what the brain looks like).

SPECT involves an intravenous injection of two substances, technetium and a blood flow agent. The injection is given during or immediately following a seizure (ictal SPECT). Technetium is a very low energy, radioactive substance that is used in nearly all nuclear medicine scans in infants, children and adults. Ceretec® and Neurolite® are the names of the blood flow agents which bind to technetium and when injected, distribute throughout the brain in proportion to blood flow. Brain scanning in the Nuclear Medicine Department later reveals images of blood flow at the time of injection.

> Is the radiation dangerous?

The total body radiation dose from technetium injection is very small, being less than that which the chest or brain receives with an x-ray or CT scan. However, if you are pregnant we recommend you do not nurse or have prolonged and close contact with your child for 24 hours following the injection. There are no reported side effects from injection of Ceretec® or Neurolite®. Teenage girls who may be pregnant should not have a SPECT scan.

> How and when will SPECT be performed?

SPECT usually takes place in conjunction with video-EEG monitoring in the Neuroscience Unit.

The procedure requires your child to have an intravenous line in the back of the hand or forearm. To minimise discomfort, some local anaesthetic cream can be placed on the skin 45 minutes prior to the intravenous line being inserted. This will numb the skin prior to the small needle and plastic catheter being inserted into a vein. The discomfort of this should be less than a blood test.

When a typical seizure occurs, you will alert the nursing staff by pressing the emergency button and they will make their way quickly to the room, mix the Technetium® and blood flow agent if necessary, and then inject the prescribed dose. A brain scan is then performed in the Nuclear Medicine Department, within a few hours of the injection. Some children require sedation or a general anaesthetic for the brain scan, as it takes approximately 45 minutes to obtain the pictures and children must lie perfectly still. Before fasting some children are given an injection of anticonvulsant medication to prevent further seizures during scanning.

The doctors and nurses will explain the procedure in more detail following admission and you will be given the opportunity to practice your important role.