

Nuclear Medicine Overview



Summary of Key Examinations

North Coast Radiology (NCRG) Nuclear Medicine Specialists - DRS WARREN LUN AND JOHN MULHOLLAND - provide a comprehensive range of Nuclear Medicine examinations and investigations from the dedicated facility on Lvl2, St Vincents Hospital.

This reference sheet has been created specifically for Doctors as a summary of the more common Nuclear medicine examinations. NCRG have also created a specific Nuclear Medicine request form which lists key examinations and supports patient care and safety by explaining key preparations on the reverse.

All nuclear medicine requests are

to be sent in to our rooms prior to examination. It is also vital for patient safety that children and diabetics discuss their specifically required preparation with Nuclear Medicine Reception Staff at the time of booking their appointment.

Dr Warren Lun & Dr John Mulholland can be contacted through the referrers' hotline on 02 6625 9372 for any medical technical questions.

Myocardial Perfusion Scan –

Other names: MIBI or Sestamibi heart scan or MPS (previously known as Thallium scan)

Indications: Investigation of possible occult Ischaemic Heart Disease (Diabetics and chronic renal failure) and symptomatic patients with Chest pain or dyspnoea. Also used for Pre-operative cardiac assessment in patients with high risk profile for IHD

Bone Scans

Indications: May be used to assess bone trauma and infection (especially if plain radiographs are negative), joint replacement infection and loosening as well as activity of arthritis, Non- accidental injuries in children, Paget's disease and cancer staging.

Renal Scans

DMSA Renal Scan

Other names: Renal cortical study,

Indications Reflux, Urinary Tract Infection (UTI), Previous scarring detected on U/S.

Renal Perfusion study/ Renal (+- Lasix)

Other names: DTPA scan, MAG3 scan, Renal scan, Renogram.

Purpose: Evaluate differential renal function in Renal tumours and renal failure, Renal Transplant, Hydronephrosis, PUJ obstruction, Congenital renal abnormalities

GFR Renal Scan

Other names: Renal function test.

Indications: Renal failure, Chemotherapy, Potential kidney donation, Pre nephrectomy.

Indirect Cystogram

Other names: Voiding cystogram, MAG3 or Nuclear MCU,

Indications: Performed to detect vesico-ureteric reflux. This test can only be performed in children who are relatively mature and cooperative, usually 5 years or more).

Thyroid Scan

Other names: Thyroid uptake scan, nuclear thyroid scan.

Indications: Investigation of Thyroiditis, Thyrotoxicosis/Graves disease and hypothyroidism (Including neonates).

Gated Heart Pool Scan

Indications: A special type of red cell scan specifically to investigate cardiac function. Valuable for monitoring cardiac function in cardiomyopathy, ischaemic heart disease and potentially cardiotoxic chemotherapy regimes.

Labelled red cell scan

Indications: Non cardiac red cell study. May be used to assess indeterminate liver and spleen lesions as well as occult gastrointestinal bleeding.

Labelled White Cell Scan

Indications: Like infection Gallium scans.... Labelled WBC scans are performed to assess possible infection sources, especially for osteomyelitis and inflammatory bowel disease.

Lymphoscintigraphy

Indications: May be used as a malignancy sentinel node study prior to surgical biopsy or for node monitoring or as lymphatic drainage study to evaluate lymphoedema in the arms or legs.

Hepatobiliary study

Other names: Biliary scan, DIDA scan, Sphincter of Oddi scan (SOD), or gallbladder emptying study. Usually performed after an Ultrasound study if ultrasound inconclusive or negative with convincing clinical symptoms or biochemical abnormal liver function tests.

Indications: Biliary scans are performed to assess function of the gallbladder and is appropriate where certain indications are present such as possible diagnosis Cholecystitis, Biliary obstruction, Biliary atresia, Neonatal hepatitis, Bile duct patency.

Cerebral Perfusion Scan

Other names: Brain SPECT, HMPAO scan, ECD scan,

Indications: used to assess brain perfusion and therefore function specifically in relation to disturbances of cognitive function, memory impairment and different types of Dementia (Alzheimer's disease, Multiinfarct dementia, Frontal lobe dementias etc).

Colonic Transit Study

Indications: used in the investigations of Chronic constipation. Suitable for Children.

CSF Flow Study

Indications: Investigation of Normal pressure or communicating Hydrocephalus usually in the clinical framework of memory impairment with ataxia and urinary incontinence.

Gallium Scans

Indications: May be used for infection (pyrexia or unknown origin or suspected bone sepsis) or in oncology – specifically for lymphomas.

Gastric Emptying Study

Indications: Investigation of early satiety and possible Gastroparesis,

Lacrimal Study

Indications: Assess the drainage of the tear ducts when a patient experiences Blockage of the lacrimal duct or Excessive tearing.

Liver/Spleen Scan

Other names: Sulphur Colloid Study

Indications: Often used to assess indeterminate liver lesion including possible Focal nodular hyperplasia, Adenomas and Metastases.

Meckel Scan

Indications: Diagnose suspected Meckel's diverticulum in investigation of abdominal pain and occult gastrointestinal bleeding. Suitable for Paediatrics.

Parathyroid Scan

Other names: Sestamibi Parathyroid Scan

Indications: Investigation of hypercalcaemia and possible parathyroid adenoma. Ideally Scan is performed in conjunction with ultrasound to improve sensitivity and accuracy.

