Information for patients having an isotope kidney (renal) scan (also known as a DMSA scan)

The leaflet tells you about having an isotope kidney (renal) scan. It is also known as a DMSA scan. It explains what is involved and what the possible risks are. It is not meant to replace informed discussion between you and your doctor, but can act as a starting point for such discussions. If you have any questions about the procedure please ask the doctor who has referred you for the test or the department which is going to perform it.

The radiology department

The radiology department may also be called the X-ray or imaging department. It is the facility in the hospital where radiological examinations of patients are carried out, using a range of equipment, such as a CT (computed tomography) scanner, an ultrasound machine and an MRI (magnetic resonance imaging) scanner.

Radiologists are doctors specially trained to interpret the images and carry out more complex examinations. They are supported by radiographers who are highly trained professionals and carry out X-rays and other imaging procedures.

As this is a scan involving nuclear medicine, the nuclear medicine section may be situated in the radiology department or may be elsewhere in the hospital. If it is situated separately, then a specially trained doctor, rather than a radiologist, may be supervising your scan.

What is nuclear medicine?

Firstly, what is nuclear medicine? Nuclear medicine is the name given to the use of radioactive isotopes linked to certain chemicals to produce an image of different parts of the body. These isotopes emit gamma rays, which are similar to X-rays. The radiation does not stay in your body for very long, as the isotope decays within a few hours.

The isotope preparation is generally injected into a vein, but may be swallowed or inhaled, and is taken up by a specific organ. Radiation from the isotope is then detected by a special camera called a gamma camera, and an image is produced on a screen. Unlike ordinary X-
rays, nuclear medicine can also be used to show how well an organ is working, as well as what it looks like.

**What is an isotope kidney (renal) scan?**

The isotope kidney (renal) scan involves an injection into a vein in the arm of a small quantity of liquid radiotracer preparation. This goes round in the bloodstream, and is carried out by the kidneys. When the gamma camera is placed over the abdomen, it detects the radiation coming from the radioisotope in the kidneys. An image is produced of the kidneys, showing what they look like, and how well they are working. It is necessary to wait for two or three hours after the injection before obtaining the images.

**What does DMSA actually stand for?**

It is dimercaptosuccinic acid. This is the substance that the tracer, technetium 99m, is attached to, and which is taken up in the kidneys.

**Are there any risks?**

As the gamma rays are similar to X-rays, there are small risks associated with being exposed to radiation. However, the radiation decays away over a period of a few hours and the total amount of radiation involved is kept to a minimum. This is comparable to the natural radiation we all receive from the environment over about six months. This probably increases the risk of developing cancer by about 1 in 10,000. However, as one in three of us will develop a cancer at some stage during our lives, the added risk is very small. Indeed, the risks from missing a serious disorder by not having a kidney scan may be considerably greater.

**Are you required to make any special preparations?**

No, you may eat and drink normally and you should take any medicines you need as usual. If you leave the radiology department, you do not need to take any special precautions, but if you stay in the department then you should use the special toilet for nuclear medicine patients. Within the department the toilets are clearly signposted.
If you are pregnant or breastfeeding

If you are pregnant, or think you may be pregnant, you must inform the department before attending, and certainly before the isotope is administered.

Also, as some radioactive substances are excreted in breast milk, if you are breastfeeding, do inform the department on arrival and you will be advised as to whether you will need to take any precautions. You may be advised to avoid breastfeeding for a few hours afterwards.

Can you bring a relative/friend?

Yes, but for reasons of safety, they may not be able to accompany you into the examination room, except in very special circumstances.

When you arrive

You should go to the reception desk in the department, after which you will be shown where to wait until collected by a radiographer or other member of staff.

The radiographer will explain the procedure, and you have the opportunity to ask any questions. You may be asked some questions about your health, or whether you have had this examination before.

The radiographer, or a radiologist, will then give you the injection of radiotracer preparation into a vein, generally the one near your elbow. This is really just like having blood taken.

There is then a two- to three-hour delay to allow the tracer to be absorbed by the kidneys, during which time you may leave the hospital if you are an outpatient.

Who will you see?

You will be cared for by a small team comprised mainly of radiographers. A radiologist will subsequently examine the record of the images before writing a report on the findings.

What happens during the scan?

You do not need to undress but you should remove any jewellery and metallic objects such as keys, coins or buckles. You will be taken to the examination room and made comfortable lying
on the special couch. The radiographer will position the gamma camera over your abdomen and ask you to lie still. The radiographer will remain in the room with you and will watch the images as they are displayed on a monitor. It will be necessary to take up to four or six different views. Some images may be taken with you sitting upright.

**Will it be uncomfortable?**

No. Apart from the injection, you will not feel anything.

**How long will it take?**

Apart from the 2–3 hours while the isotope is absorbed into the kidneys, the scanning process usually takes about 30 minutes, and your total time in the department will usually be less than one hour.

**Are there any after-effects?**

No, the injection causes no side-effects, nor will you feel sleepy. You can drive home afterwards and go about your normal activities.

In addition to mothers who are breastfeeding, parents with young children should notify the radiographer, who will explain that it is advisable not to have prolonged close contact with them for the rest of the day. This is to avoid their being exposed to unnecessary radiation.

**When will you get the results?**

The scan will be examined after your visit and a written report on the findings sent to your referring doctor which is normally available in 14 days.

**Finally**

Please remember that the isotope preparation required for this examination is ordered especially for you. If you are not able to attend, please let the department know in good time, so that it can be used for someone else.

Some of your questions should have been answered by this leaflet, but remember that this is only a starting point for discussion about your treatment with the doctors looking after you. Make sure you are satisfied that you have received enough information about the procedure.

Patient information reproduced with kind permission of The Royal College of Radiologists (www.rcr.ac.uk)
Other sources of information

Websites
For general information about radiology departments, visit The Royal College of Radiologists’ website: www.goingfora.com

NHS Direct
For health advice or information you can call NHS Direct on 0845 45647 or visit the website: www.nhsdirect.nhs.uk

© The Royal College of Radiologists, October 2010.
Permission is granted to modify and/or reproduce this leaflet for purposes relating to the improvement of healthcare, provided that the source is acknowledged and that none of the material is used for commercial gain. The material may not be used for any other purpose without prior consent from The Royal College of Radiologists.

Legal notice
Please remember that this leaflet is intended as general information only. It is not definitive, and The Royal College of Radiologists cannot accept any legal liability arising from its use. We aim to make the information as up to date and accurate as possible, but please be warned that it is always subject to change. Please therefore always check specific advice on the procedure or any concerns you may have with your doctor.

This leaflet has been prepared by the Clinical Radiology Patients’ Liaison Group (CRPLG) of The Royal College of Radiologists.
Approved by the Board of the Faculty of Clinical Radiology: 22 October 2010