

Having a contrast enhanced spectral mammography (CESM)

This leaflet aims to answer your questions about having CESM. It explains the benefits, risks and alternatives, as well as what you can expect during the procedure.

If you have any further questions, please speak to a member of the breast team caring for you.

What is a CESM?

This is a specialist mammography test that aims to 'highlight' areas of concern within the breast in more detail than a standard mammogram.

For this procedure you will need to have an injection of intravenous (IV) iodinated contrast media (dye) before the mammogram images are taken. The contrast media enhances the images, providing more detailed information to the breast radiologists (expert doctors trained to analyse breast imaging). The contrast used is not radioactive.

Is there any preparation?

Please do not eat for two hours before your appointment time.

Don't use spray deodorant and creams/body lotions on the day of the mammogram, as this may affect the quality of the x-ray.

You should wear a top and bottom instead of a dress for easier undressing.

It is important that you tell us if:

- You have breast implants
- You are allergic to contrast media
- There is any possibility you may be pregnant

We will ask you to fill in a questionnaire to assess your suitability for the contrast media, and we will check this with you. Please discuss any concerns with the radiology staff before your scan.

What happens during the CESM?

A small plastic tube (cannula) will be inserted into a vein – usually in the back of your hand, or in the crease of your elbow. This cannula is then used to give you the injection. You may experience a sensation of warmth (this can be felt in the pelvis and gives a sensation of needing to urinate) and a metallic taste during the injection.

After a short interval the radiographer will position your breasts, one at a time, in the mammogram machine and apply compression to the breast and take the x-rays.



The mammogram takes a few minutes, and your breasts are only compressed for a few seconds each.

When the x-rays have been taken, you will be asked to wait while the image quality is checked. The cannula will be removed after the examination.

Why should I have CESM?

Your doctor has requested this examination to either identify an area of concern, or as part of screening/surveillance based on your tissue density.

What are the risks of mammograms?

We will expose you to ionising radiation during this examination. We are all exposed to ionising radiation every day from natural sources such as cosmic rays, soil, rocks, and even food. Ionising radiation can cause cell damage which, after many years, may very rarely turn cancerous. The estimated risk from a mammogram is less than 0.01%, which is very small. The benefits of early detection far outweigh this risk. The radiation dose from CESM is slightly higher than that of a standard digital mammogram, but still well within accepted safety guidelines.

Before your mammogram, we ensure that:

- The benefits of your examination outweigh the risks.
- The radiation dose is kept as low as reasonably achievable.
- The amount of radiation we use is tailored to you.
- Equipment is regularly tested and maintained to ensure safety and optimal performance.

What are the risks of contrast media injections?

Contrast media are given to patients after considering the risks and benefits for the examination, and the lowest possible dose is given.

To assess your suitability for contrast media, we will ask you some questions regarding allergies, medications you might be taking, and certain conditions.

The contrast media may affect your kidney's function, although this is uncommon. To reduce the chances of this occurring, we will check that your kidneys are functioning properly before the scan. Therefore, your blood tests will be reviewed. We may ask you for a blood sample to be tested in the department if we do not have recent results available.

Allergic reactions

The injection you have for this scan is generally very safe. However, with every injection of the contrast media, there is a slight risk of a reaction.

Some people are allergic to the contrast media that is used. We will check whether you have had any allergies in the past before your scan. Some people may experience mild reaction symptoms (such as rash, itching or nausea). Rarely, there may be a more serious allergic reaction, which may require further urgent treatment and medicines. The radiology staff are trained to recognise these reactions, treat them, and contact other staff where needed.

Extravasation

During injection there is a very low risk of contrast leaking outside the vein, into the surrounding tissue. This may cause an aching pain, stinging, swelling, or skin changes where the cannula (small



plastic tube) is placed. It can lead to discomfort and aching stiffness in the limb where the contrast media or medicine extravasated, or rarely tissue damage.

The radiographers are trained to recognise the signs and to treat them. If extravasation occurs, a doctor or advanced nurse practitioner will see you before you leave the department. You will also be provided with further information regarding extravasation.

If you experience any of the following symptoms during or after the scan, please tell the radiographer immediately:

- Wheeziness, difficulty in breathing, tightness or pain in the chest
- Skin rash, lumps, itchy spots blisters on skin and in mouth, red/ itchy eyes, cough, running nose, sneezing or other allergic symptoms (these reactions may appear several hours or days after the injection)
- Dizziness or feeling faint
- Swelling of your face
- An unexpected change in the amount of urine produced and /or its appearance
- Pain at or near the injection site during or immediately following the injection.
- Other, much rarer side effects which may occur during or after the scan include:
 - Temporary change in taste
 - Pain around the injection site
 - Increased / abnormal sweating
 - Cold feeling
 - Headache
 - Flushing
 - Feeling sick (nausea), vomiting
 - Chest pain
 - Severe skin rash with peeling.

If you have experienced any side effects from this injection, it is very important to tell staff before you have further scans or tests at any hospital

Will it hurt?

Some women find compression of the breasts during the mammogram slightly uncomfortable and some feel short-lived pain. Research has shown that many women regard a mammogram as less painful than having a blood test and find that the compression compares to having blood pressure measured.

What happens after CESM?

You will be asked to stay in the area where you were given the injection for 30 minutes. You should not drive or operate machinery for one hour after the injection. During the rest of the day, you should drink 500ml extra fluids to rehydrate your body. This can be tea, coffee, water or any soft drink. You may eat normally.



The mammogram images will be reviewed by a breast radiology consultant, and a report will be issued to the consultant that referred you.

Where can I get further information?

The staff in the Radiology department will be happy to answer any questions you may have. Please ask at the time of your appointment or telephone the department at any time.

Sutton: 0208 661 3589 / 3588

Chelsea: 0207 811 8366

Cavendish: 0207 811 8941

If you feel unwell or have concerns about your health, please contact:

The Royal Marsden Hotline: 020 8915 6899

You can ring the hotline 24 hours a day, 7 days a week. Call us straight away if you are feeling unwell or are worried about the side effects of cancer treatments. This service provides specialist advice and support to all Royal Marsden patients, as well as to their carers, and both hospital and community-based doctors and nurses caring for Royal Marsden patients.

