

Contrast-enhanced spectral mammography (CESM)

The aim of this leaflet is to help answer some of the questions you may have about having a contrast-enhanced spectral mammogram (CESM). It explains the benefits and risks as well as what you can expect when you come to hospital. If you have any questions or concerns, please speak to a member of the breast imaging team.

What is a CESM?

A contrast-enhanced spectral mammography test (CESM) is a type of mammogram (X-ray of the breast) that aims to 'highlight' areas of concern within the breast.

The difference between a CESM and a standard mammogram is the use of a special dye (called a 'contrast medium') that is injected into the veins before the mammogram images are taken. The contrast-enhanced images give more detailed information to the breast radiologists (expert doctors trained to analyse breast imaging).

What happens during a CESM?

The procedure should last no longer than 30 minutes.

On arrival you will be asked to fill out a questionnaire called a 'Pre-contrast-enhanced spectral mammography (CESM) examination checklist'. This enables us to check your suitability for the procedure.

The mammographer (technologist who takes your X-ray) will call you into the X-ray room, ask you a few questions about your general health and explain the procedure to you. If you have any questions, they will be more than happy to answer them for you. Once you are happy to proceed with the CESM, the mammographer will ask you to remove all your clothes from your waist up and put a hospital gown on.

A small plastic tube (intravenous cannula) will be inserted into a vein - usually in the back of your hand or in the crease of your elbow. You may feel a brief scratch when the needle goes through the skin, but after that you should not feel any pain. While the needle is being inserted, a tourniquet (tight band) may be placed around the top of your arm to compress it. You will then be given an injection of the contrast medium through the cannula. You may feel a little bit warm as the contrast medium flows around the body – this is normal and nothing to be concerned about.

After a short wait the mammographer will get you to remove the hospital gown and stand in front of the X-ray machine, where she will position you for your mammogram.

Each breast in turn will be placed onto the X-ray machine and firmly compressed by a clear plate. You will feel firm pressure on your breast, which releases automatically as soon as the X-ray is done. The compression is necessary to stop movement blurring the images and to reduce the amount of radiation needed. Two or more images of each breast are taken from different angles. The mammogram takes a few minutes and each breast is only compressed for a few seconds.

Some people find the pressure on the breast uncomfortable, however the process lasts only a short while. Tenderness in the breasts can make the procedure more uncomfortable.

After the X-rays have been taken, you will be asked to sit in the waiting room. The cannula will be left in place until the image quality has been checked, and then removed before you go home.

Why should I have a CESM?

Your recent tests in the Breast Imaging Unit have identified an area of concern that your Breast clinician wishes us to investigate further.

What are the risks?

A mammogram is an X-ray of the breasts. All X-rays involve radiation. The amount of radiation from a standard mammogram is small - equal to that which we receive naturally from the environment over a period of a few months. The radiation dose from a CESM is slightly higher than that of a standard mammogram, but still well within accepted safety guidelines. The dose of radiation from a CESM is low, equivalent to the radiation you would receive over four months from the environment or from a flight to Australia. If you do have a breast lump or other significant problem, then the risk of not having the examination will be much greater than the risk associated with the radiation.

The injection you have for this test is generally very safe. Many people have this injection in X-ray departments every day. However, with every injection of the contrast medium there is a slight risk of a reaction. The contrast medium that is used contains iodine which some people are allergic to. We will check whether you have had any allergies in the past before your test. Some people may develop a rash, and a few people may get a mild asthma attack. Rarely the dye may result in a more serious allergic reaction, which may need to be treated with medicines. The doctor and mammographer in the X-ray department are trained to recognise these reactions and to treat them. Also, should it be necessary, other doctors are close at hand.

Extravasation

This is a term used to describe a leakage of contrast medium into the tissues surrounding the injection site. This complication is rare. Care is taken to position the needle for the injection in the correct place, and following the injection of contrast medium care is taken to look for early signs of extravasation to minimise any discomfort this may cause.

Checking kidney function

The contrast medium can affect the kidneys. This is uncommon (affecting less than 1 in 100 people), but to reduce the chances of this occurring we will not offer you the test if you are at risk of kidney problems.

Before we can proceed with the CESM, we will need to check that your kidneys are functioning properly by doing a blood test. This may not be necessary if you have had a recent blood test and the results are available to check.

The blood test will be arranged by the Breast Clinic and once we have checked that the results are satisfactory an appointment will be made for you to have your test.

Are there any alternatives?

The risks and benefits of having the contrast injection need to be weighed up. If any of the following apply, you should **NOT** have a CESM:

- You have breast implants
- You are allergic to iodine
- You have renal (kidney) failure
- You cannot give informed consent
- You would be unable to tolerate a mammogram because of physical problems.

The 'Pre-contrast-enhanced spectral mammography (CESM) examination checklist' will enable us to check your suitability for the procedure and alternative imaging is considered on an individual patient basis.

How can I prepare for a CESM?

If you are taking any diabetes medicines containing metformin, please call the Breast Imaging Unit, **tel:** 020 7188 5573 for advice as soon as you get your appointment letter.

If you are taking any other medicines, please continue to take these as usual unless you have been told otherwise by your doctor.

No special preparations are required. You can eat and drink normally before and after the procedure. However:

- It is advisable to wear clothes that can be easily removed, as you will be asked to undress from the waist up.
- If you have breast implants, please inform the mammographer when you arrive for your appointment.
- Do not wear deodorant, powder, lotion or perfume on your breasts or underarms on the day of your appointment, as these affect the X-ray image.
- Try to bring a friend or relative to accompany you home. This may also be useful if you do not understand English very well or if you have any special needs. Although your friend or relative may not be allowed into the examination room, they can be a valuable source of support for you on the day. If you need an interpreter at your appointment, please contact the Language and Accessible Support Services (see below).
- Please be aware that we are unable to offer childcare facilities. If you need to bring your children with you, please bring along an adult who can supervise them when your examination is being carried out.

Consent - asking for your consent

We want to involve you in decisions about your care and treatment. If you decide to go ahead, you will be asked for your verbal consent. Your decision will be documented in your records, where it will be noted that you have agreed to have the CESM and that you understand what it involves.

If you would like more information about our consent process, please speak to a member of staff caring for you.

Will I feel any pain?

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 a CESM?

After you have had your CESM, your images will be reviewed. An additional targeted ultrasound scan and subsequent biopsy may be undertaken if required.

All CESM imaging is reported on by two breast radiologists, or a breast radiologist and an advanced practitioner/reporting mammographer, and the results are then sent to your referring doctor.

What do I need to do after I go home?

You can eat and drink as normal and resume your usual activities straight after the scan.

What should I do if I have a problem?

Following a CESM you should not have any adverse after-effects to cause concern. However, we have included contact numbers at the bottom of this sheet if you feel you need any advice.

Will I have a follow-up appointment?

You will receive the results of your CESM at your next clinic appointment. If you have not heard from the Breast Clinic two weeks after your procedure, please contact them (see below).

Data collection

CESM is new to Guy's & St Thomas' NHS Foundation Trust Breast Imaging Unit. We would like to collect information from your test to see how useful it is, and for education and training purposes. Your information will be kept in a secure database. Any pictures used for training or publication will have your details removed, so that you cannot be identified.

Privacy and dignity

We will try to make your visit to our department as comfortable as we can. You will see only female staff in the mammogram room.

We hope that the information in this leaflet will answer any questions you may have, but please feel free to contact us if you have any particular worries, questions or concerns.

Contact us

If you have any questions, please contact us:

For your breast imaging appointment, **tel:** 020 7188 8317

For Outpatient Clinic appointment bookings, **tel:** 020 7188 0881 or 020 7188 7188, extension 53480

For your results, contact the breast secretaries, **tel:** 020 7188 1469

If you are a breast cancer patient and want to speak to a nurse, please contact the breast care nurses, **tel:** 020 7188 0869.

For more information leaflets on conditions, procedures, treatments and services offered at our hospitals, please visit, **web:** www.guysandstthomas.nhs.uk/leaflets

Pharmacy Medicines Helpline

If you have any questions or concerns about your medicines, please speak to the staff caring for you or call our helpline, **tel:** 020 7188 8748, Monday to Friday, 9am-5pm, **email:** mymedicines@gstt.nhs.uk

Your comments and concerns

For advice, support or to raise a concern, contact our Patient Advice and Liaison Service (PALS), **tel:** 020 7188 8801, **email:** pals@gstt.nhs.uk. To make a complaint, contact the complaints department, **tel:** 020 7188 3514, **email:** complaints2@gstt.nhs.uk

Language and accessible support services

If you need an interpreter or information about your care in a different language or format, please get in touch, **tel:** 020 7188 8815, **email:** languagesupport@gstt.nhs.uk

NHS 111

This service offers medical help and advice from fully trained advisers supported by experienced nurses and paramedics. Available over the phone 24 hours a day, **tel:** 111, **web:** www.111.nhs.uk

NHS website

This website gives information and guidance on all aspects of health and healthcare, to help you take control of your health and wellbeing, **web:** www.nhs.uk

Get involved and have your say: become a member of the Trust

Members of Guy's and St Thomas' NHS Foundation Trust contribute to the organisation on a voluntary basis. We count on them for feedback, local knowledge and support. Membership is free and it is up to you how much you get involved. To find out more, please get in touch, **tel:** 0800 731 0319, **email:** members@gstt.nhs.uk, **web:** www.guysandstthomas.nhs.uk/membership

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