

**Patient  
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# Contrast Enhanced Mammography

## Introduction

This leaflet gives you information about having a contrast enhanced mammography (CEM) scan.

## What is a CEM scan?

CEM is a test that aims to 'highlight' areas of concern within the breast. CEM is different from a normal mammogram (X-ray of the breast) as a special dye (called contrast medium) is injected into a vein in the crease of your elbow or the back of your hand before the X-ray is taken.

## What are the benefits of CEM compared with a normal mammogram?

The contrast medium, injected into your vein, increases the amount of information obtained from the scan images.

CEM is a relatively new test in the UK but has been used in several hospitals in Europe. Studies suggest that the test is better (more sensitive) at showing breast cancers than a standard mammogram. Some women, particularly younger women, have dense breasts, which make it harder to spot cancers on a normal mammogram. CEM may be particularly useful for these patients as it can highlight areas of change.



**Figure 1:**  
Mammography X-ray machine, Thirlestaine Breast Centre

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**Gloucestershire  
Breast  
Screening**

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## What happens during the CEM scan?

You will be asked to undress to the waist for the CEM, a hospital gown will be provided. You will also need to remove any jewellery from around the neck area.

A small plastic tube (a cannula) will be inserted into a vein, usually in the crease of your elbow or the back of your hand. The needle may hurt briefly while it 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 used to compress your arm. Once the cannula has been tested with some saline solution (salty water), the contrast medium will then be administered through the cannula. It usually takes about 30 seconds for the contrast dye to be administered. After a short wait, the radiographer will proceed with the mammogram. Your breasts will be positioned, one at a time, between two plates for a few seconds each.

Once the X-rays have been taken, you will be asked to sit back in the waiting room or cubicle. The cannula will be left in place for 15 minutes after the injection to provide access for treatment if required. The cannula will be removed before you go home.

From start to finish, the CEM examination process should take about 30 to 45 minutes. We encourage you to drink plenty of water for the rest of the day to help flush the contrast out of your body.

## Are there any risks?

The contrast injection you will 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.

It is not uncommon for people to experience a metallic taste in the mouth and feel a little warm as the contrast medium flows around the body. These sensations pass quickly.

There are slight risks with this injection which are an allergic reaction or leaking of the contrast into the tissue around the vein, which can be painful.

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Occasionally, some people develop a rash and a few people can have a mild asthma attack, but this is rare. The doctor and radiographer in the X-ray department are trained to recognise and treat these reactions. Also, should it be necessary, other doctors are close at hand.

The dye we use for the test can affect the kidneys. This is uncommon, affecting less than 1 in every 100 people. To reduce the chances of this happening, we will not offer you the test if you have any of the risk factors listed below:

- You are pregnant
- You are allergic to iodine
- You have renal (kidney) failure
- You have diabetes and/or take metformin

The risks and benefits of having the contrast injection need to be weighed up. Please discuss this with the imaging doctor who referred you, or the radiographer performing your examination.

The doctors and radiographers in the Imaging Department are trained to deal with any complications and again the risk is very small.

If you had a reaction to a previous injection of contrast material given for a kidney X-ray (IVU) or a previous X-ray such as a CT scan, it is important that you tell the radiographer at the time of your examination.

Please let us know on the day of your CEM scan if you are being treated for kidney or breathing problems, myeloma, severe allergies or if you have any special needs.

All X-rays involve radiation. The amount of radiation from a standard mammogram is small – equal to roughly 6 months' worth of natural background radiation exposure in the UK. If you do have a breast lump, or other significant problems, the risk of not having the examination will be much greater than the risk associated with the radiation. The radiation dose from the CEM is slightly higher than that of a standard digital mammogram but still well within the accepted safety guidelines.

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## After the CEM examination

Please contact NHS 111 for advice if you have any of the following symptoms after you leave the hospital following your scan:

- Wheeziness
- Tightness or pains in the chest
- Skin rash
- Itchy spots
- Dizziness
- Fever
- Swelling or pain in your legs
- Pain or swelling near the injection site

## Giving your consent

We want to involve you in the decision about your care and treatment. Therefore, on the day of your appointment, a healthcare professional will talk to you about the scan and give you the opportunity to ask questions so that you understand clearly what the CEM exam involves. The radiographer will be happy to answer any questions you may have or address any concerns. You may withdraw your consent at any time.

If at any time you would prefer not to have students present, please inform the team looking after you. This will not impact on your care in any way.

## Can I bring a relative or a friend?

Yes, but for safety reasons, they cannot join you in the X-ray room.

## When will I get the results?

How you receive your results depends on the reason for having the CEM scan. The radiographer performing the examination will be able to confirm how and when you are likely to receive your results.

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## Data collection

CEM is relatively new to Gloucestershire Breast Imaging. We would like to collect information from your test for education and training purposes. Your information will be kept in a secure database. Any X-rays used for training or publication will have your personal details removed, so that you cannot be identified.

For more information about how we use patient information at Gloucestershire Hospitals NHS Foundation Trust please read our privacy notice at: [www.gloshospitals.nhs.uk/privacy-notice/](http://www.gloshospitals.nhs.uk/privacy-notice/)

## Further information

Hopefully, the information in this leaflet has answered any questions you may have. We want to make sure that you are satisfied with the information you have received about the procedure before your appointment but if you do have any further questions, please contact:

### Breast Imaging Reception

Tel: 0300 422 3786

Monday to Friday, 8:30am to 4:30pm

Email: [ghn-tr.GlosBSS@nhs.net](mailto:ghn-tr.GlosBSS@nhs.net)

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## Making a choice

### Shared Decision Making

If you are asked to make a choice, you may have lots of questions that you want to ask. You may also want to talk over your options with your family or friends. It can help to write a list of the questions you want answered and take it to your appointment.



### Ask 3 Questions

**To begin with, try to make sure you get the answers to three key questions if you are asked to make a choice about your healthcare.**

1. What are my options?
2. What are the pros and cons of each option for me?
3. How do I get support to help me make a decision that is right for me?

These resources have been adapted with kind permission from the MAGIC Programme, supported by the Health Foundation

\* Ask 3 Questions is based on Shepherd HL, et al. Three questions that patients can ask to improve the quality of information physicians give about treatment options: A cross-over trial. Patient Education and Counselling, 2011;84: 379-85



<https://aqua.nhs.uk/resources/shared-decision-making-case-studies/>