

## Contact details

If you have any questions about any of the information contained in this leaflet please contact the Breast Screening Service on 01522 573999.

## References

Sources of information used in the preparation of this leaflet:

Radiation risk with digital mammography in breast screening, Public Health England, 2017.

The Trust endeavours to ensure that the information given here is accurate and impartial.

If you require this information in another language, large print, audio (CD or tape) or braille, please email the Patient Information team at [patient.information@ulh.nhs.uk](mailto:patient.information@ulh.nhs.uk)

# Radiation risk from Mammography

Lincolnshire Breast Screening Service

[www.ulh.nhs.uk](http://www.ulh.nhs.uk)

## **Aim of the leaflet**

This leaflet will help you to understand and clarify the risk of radiation exposure from mammography.

The leaflet is aimed at women undergoing mammography for surveillance, breast screening and diagnostic tests.

## **Radiation exposure from mammography?**

For a mammogram, two x-ray pictures (views) of each breast are taken. Occasionally some patients may need to have more pictures, to view as much of the breast as possible or to aid with diagnosis. The mammography machine uses low doses of radiation to produce images that have a high image quality. Strict guidelines regulate the mammography equipment to ensure the lowest dose of radiation possible is given.

## **Concerns about exposure to x-rays and the level of radiation on mammography**

Many people are concerned about the exposure to radiation that comes from a mammogram. Radiation can cause cancer, but the risk from mammography is very low and the benefits far outweigh the radiation risks. Mammograms can detect cancers that are too small to be felt in your breasts.

## **What do we do to minimise the risk?**

The equipment used must comply with strict NHS breast screening standards to ensure that the correct balance is struck between the dose given and the quality of the x-ray image. If the dose is too low the mammogram may not be clear enough to show whether disease is present. The amount of radiation is minimised also by ensuring that as few mammograms as possible are repeated.

## **How is radiation dose described?**

Dose for mammography is measured using a quantity called mean glandular dose and the unit milligray (mGy). While dose depends on the size of the breast, the average dose for a two view examination is about 3 mGy for digital mammography.

## **How is radiation risk described?**

The lifetime risk is the chance of a radiation-induced cancer arising during the remainder of your life. The risks of radiation depend on your age when you are exposed to radiation. For example, the risk at age 70 is less than half the risk at age 50.

## **How big is the risk?**

The radiation risk from a mammogram is considered very small. Experts estimate the lifetime risk of a radiation-induced cancer is about 1 in 50,000 to 1 in 100,000 for a digital mammogram (2 views). It is estimated that about 400 to 800 cancers are detected by the NHSBSP for every radiation-induced cancer.

## **How does the risk from mammography compare with other risks?**

The amount of radiation from a mammogram is about the same as a few months of natural background radiation. It is equivalent to flying to Australia and back. Another activity with roughly the same risk is driving a car for about 3,000 miles.

## **What is the effect of having many mammograms?**

Each mammogram carries its own very small risk. If a woman attends all 7 screening examinations between the ages of 50 to 70, the risk of a radiation-induced cancer is between 1 in 7,000 to 1 in 14,000.