General Information on **Mammography and Breast Cancer Screening**

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You have made an appointment with your doctor for a mammogram. If this is your first mammogram, you probably have a few questions about the examination procedure. We would like to answer some of your questions to help ease your mind about your appointment.

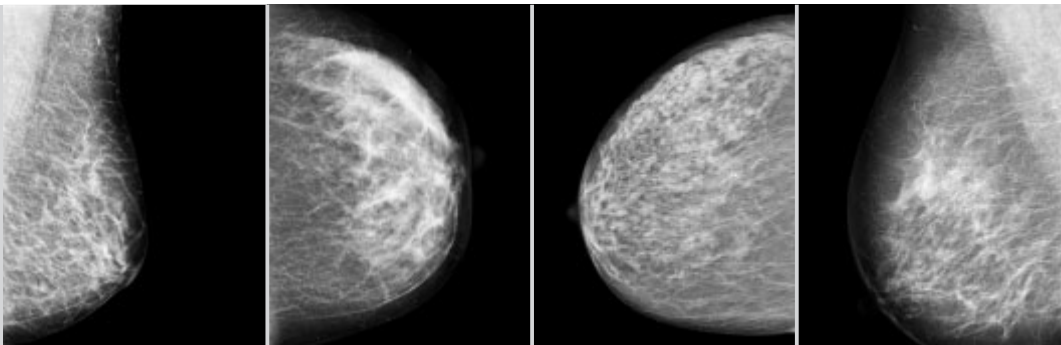
Regular screening examinations enable early detection of breast cancer which leads to a significant increase in the chance of recovery. Mammography is considered the best way to detect breast cancer in its earliest, most treatable stage.

Breast cancer is the most common cancer among women, except for skin cancer. The National Cancer Institute estimates that 269,730 new cases of breast cancer will be diagnosed among women in the United States alone in 2005 – this means one new diagnosis every 2 minutes. The death rates from breast cancer have declined significantly and medical experts attribute the decline to earlier detection and more effective treatments.

What is a Mammogram?

A mammogram is a special X-ray examination of the breast. The examination is performed by compressing the patient's breast between two plates to capture the image of the breast tissue. While there may be some discomfort, it is important that the breast is compressed to increase the image quality and lower the exposure to radiation.

At least two images are taken of each breast. Each breast is X-rayed once from top to bottom and once at a slight angle. The mammography images are then reviewed by the physician and discussed with the patient.



Analog and Digital Mammography

Analog mammography
Analog mammography records images on a special film cassette. The examination is performed by placing the patient's breast between the mammography unit's X-ray tube and an X-ray film and then carefully pressing it against a compression plate. The X-rays passing through the breast tissue blacken the X-ray film.

However, the X-ray film remains white at locations where the X-rays were not able to pass through the tissue. The result is a black-gray and -white image of the breast.

Digital mammography
Another type of mammography is digital mammography. The examination procedure is exactly the same as for analog mammography. However, instead of exposing film, the X-rays hit an advanced detector which senses the image data digitally. The resulting images are evaluated by the physician with a special computer. Several software tools are also at the doctor's disposal to simplify diagnosis.

Radiation exposure during digital and analog mammography
Both analog and digital mammography involve the use of X-rays. However, the radiation dose generated lies in the low dose range.

Who Should Have a Mammogram?

There are two types of mammograms – a screening mammogram and a diagnostic mammogram.

A screening mammogram is an X-ray examination of the breasts of a woman who has no complaints or symptoms of breast cancer. The goal is to detect cancer when it is still too small to be felt by a woman or her physician. Due to the high incidence of breast cancer among older women, screening is now recommended in many countries. Some countries encourage routine annual mammograms of older women as a screening method to diagnose early breast cancer. For example, in the United States, screening mammograms are recommended every one to two years for women once they reach 40 years of age and every year once they reach 50 years of age.

A diagnostic mammogram is advisable for anyone who notices a lump or hardening when palpating the breast or armpits, has a family history of breast cancer, or has had an abnormality found during a screening mammogram. A diagnostic mammogram is usually more time-consuming because additional images need to be taken of the areas of concern and a biopsy may need to be performed.

Health insurance coverage of mammograms vary from country to country. Please ask your physician or health insurance company for specifics.

Other Methods to Detect Breast Cancer

In addition to mammography, several other examination methods are also available for breast cancer screening.

Palpation
Palpation can be performed either by the patient or by a physician. This procedure involves touching the patient's breasts and armpits to check for possible lymph node metastases. However, this type of examination can detect lumps only after they have already reached a given size.

Ultrasound examination
An ultrasound examination, also known as sonography, is typically used to make internal organs such as the kidneys, spleen and lymph nodes visible. If a mammogram does not result in a clear diagnosis for a patient, an ultrasound breast examination may be performed as an additional measure. The main advantage of this procedure is that it can be repeated as often as necessary since the patient is not exposed to radiation during an ultrasound.

Magnetic Resonance Imaging (MRI)
In contrast to X-ray screening, this examination uses powerful magnetic fields and radio waves to capture images of the body. It is not frequently used for general breast cancer diagnosis. Breast MRI can be used effectively to gain information about breast abnormalities detected via mammography or ultrasound. MRI is also useful in helping to stage breast cancer, evaluate treatment options, and follow-up after treatment has been completed.

Biopsy
The purpose of a biopsy is to remove cells from suspicious tissue found on the patient's breast. These cells are then carefully examined under a microscope and are used to determine whether the cells are cancerous or benign (non-cancerous).

To date, the research conducted on cancer and, more specifically, breast cancer has not been sufficient to reveal its exact causes. However, regular screening improves the chances that a growing tumor will be detected early enough to be treated before the disease spreads and becomes a potential threat to the patient's life. Siemens Medical is dedicated to the early detection and treatment of breast cancer through education on the importance of early screening as well as through the development of innovative, new mammography systems.

Siemens and Mammography

As one of the world's largest healthcare solution providers, Siemens Medical Solutions stands for innovative products, services and complete solutions.

Siemens has been manufacturing mammography systems since 1971. Several thousand systems are installed worldwide and decades of dedication and experience have shown Siemens to be a trustworthy partner in the field of gynecology and the early detection of breast cancer. The Siemens mammography product line includes both analog and digital mammography systems.

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