

CHAPTER

# 3

# Breast Cancer Screening

Breast cancer screening is the periodic examination of asymptomatic women to detect breast cancer in its earliest stages. Screening includes mammography and clinical examination of the breasts. Health care providers recommend breast self-examination monthly to complement this program.

# Screening Guidelines

The American Cancer Society's current recommendations for breast cancer screening in asymptomatic women are:

- |           |   |
|-----------|---|
| Age 20–39 | Monthly breast self-examination (BSE), clinical breast exam (CBE) every three years |
| Age 40+   | Monthly BSE, annual CBE, and annual mammography                                     |

(Smith, 2000)

There is general consensus that routine screening every 1–2 years including mammography and CBE can reduce breast cancer mortality for women age 50 and older. There has been considerable controversy, however, over screening guidelines for women age 40–49. These are reviewed in this section beginning on page 32.

## Women Under Age 50

- Beginning at age 40, providers should talk to their patients about screening mammograms.
- Providers should discuss earlier screening for women with a genetic predisposition and a family history of breast cancer.
- A clinical breast examination is recommended annually.
- A lump should be investigated regardless of age.

# Breast Self-Examination

Breast self-examination (BSE) consists of a woman's systematic monthly inspection and palpation of her breasts to detect a change in one or both breasts. It is important for a woman to become familiar with the appearance and feel of her breasts so that any change is noticeable. No clinical trials have shown the efficacy of breast self-examination (Thomas, 1997) so there is insufficient evidence to recommend for or against the teaching of BSE.

Breast self-examination should be used in conjunction with a regular program of clinical breast examination. The National Cancer Institute, the American College of Radiology, and the American Cancer Society recommend breast self-examination as a low cost, non-invasive screening test and an appropriate adjunct to clinical breast examination and mammography.

Comprehensive education about breast self-examination includes:

- Providing information about normal breasts and the signs of breast disease
- Demonstrating the technique
- Observing the patient performing breast self-examination
- Reinforcing ongoing breast self-examination

## Frequency and Rationale

The American Cancer Society recommends monthly breast self-examination throughout a woman's life beginning at age 20.

Regular breast self-examination enables a woman to know her own breast tissue and to recognize changes more quickly.

### Breast Self-Examination Fast Facts

- Beginning at age 20, women need to do monthly breast self-examinations as part of their breast health program.
- When they find changes in their breasts, women need to notify their health care provider promptly.
- The **five Ps** of breast self-examination include position, palpation with pads, pressure, perimeter, and pattern (page 25).

## Timing

If a woman is menstruating, she should perform BSE on the last day of her period.

If a woman does not or no longer menstruates, she should perform BSE on the same day each month. Counsel non-menstruating patients to integrate BSE into another monthly event or routine.

## If a Woman Recognizes Breast Changes

If a woman recognizes a change in her breast(s) or is uncertain about something she feels in her breast(s), she should promptly contact her health care provider.

It is very important that a woman feel free to communicate her concerns to her health care provider. The patient needs to feel that she is listened to; that her questions are answered. She should realize that a second opinion is one of her options. She should feel comfortable and confident with the plan of action she and her health care provider develop, and her provider should be prepared to provide referrals for further information and support.

*Chapter 5 in this handbook lists organizations that provide information on breast cancer screening, diagnosis, and treatment, as well as various support groups.*

## Reinforcement

Give positive feedback as the patient performs BSE in the examination room. Reinforce any efforts the patient has made toward doing BSE, even if they are minimal. **Never chastise. Always encourage.**

**Important!**

## The “Five Ps” of Breast Self-Examination

- 1 **Position:** While standing in front of a mirror, visually inspect the breast, three positions:
  - With arms relaxed at the side, looking straight ahead.
  - With hands at waist, rolling shoulders forward.
  - With arms straight up, bending forward slightly.
- 2 **Perimeter:** Breast tissue extends beyond what is enclosed by the bra cup. The area to be examined extends from the sternum, across the clavicle, down the mid-axillary line, and along the bottom of the bra line.
- 3 **Palpation with Pads:** The woman should use the pads of her three middle fingers. The pads provide a greater surface area than the fingertips and are more sensitive.
- 4 **Pressure:** A woman will need to use varying levels of pressure in order to feel all the way through the breast tissue. In each spot, she should make three circles varying in pressure from light to medium to deep. This should not be painful but will allow her to feel through the tissue to the chest wall.
- 5 **Pattern:** It is important to choose a pattern with which the health care provider and the patient are comfortable. Three patterns are commonly used though the vertical strip method is recommended (Barton, 1999):

- **Vertical Strip:** Begin in the axilla and move across the breast tissue in strips, moving up and down the breast.
- **Wedge:** Divide the breast into spokes, like those of a wheel. Examine each segment separately, moving from the outside edge to the nipple.
- **Circle:** Begin at the top (12 o'clock) and examine the breast in spiral fashion, from the outside edges toward the nipple. The circles get smaller moving inward.



# Clinical Breast Examination

A clinical breast exam (CBE) performed by a trained health care professional is an important technique in effective breast cancer screening (Barton, 1999). CBE practitioners should be attentive to their patients' modesty and privacy. These issues may be especially important for older (65+) patients and for women from minority ethnic groups.

The examination should be conducted in a setting allowing for minimal distraction and adequate privacy. Examination gowns should be adjusted to minimize the patient's exposure. Do not hurry the examination! A complete CBE should take from 5 to 10 minutes.

## Before the Examination

- Find out what concerns, fears, and/or barriers to consistent care the patient may have. Address concerns, such as fear of finding cancer, by emphasizing the high success rate of treatment **when cancer is detected early**.
- Determine where the patient is in her menstrual cycle and if her breasts are tender. Ask if she has any questions prior to beginning the CBE.
- Prompt the patient to tell you if she experiences pain during the examination.

## Breast Health History

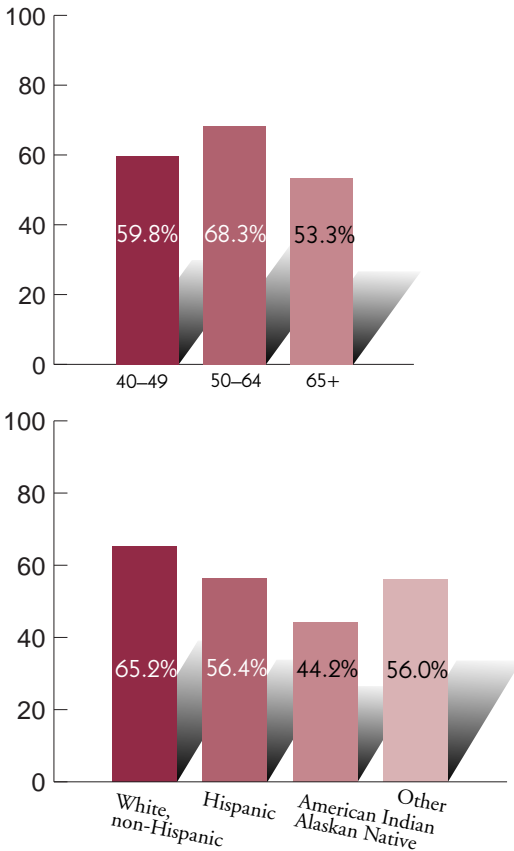
Breast health history should be part of the CBE and should include:

- Description of present breast symptoms — lumps, pain, nipple discharge, changes in shape, difference between breasts, cyclical tenderness, skin changes.
- Clinical history — age at first mammogram, date and result of last mammogram, location of last mammogram, and previous breast surgery (date, health care provider, location, biopsy results.)
- Review of family (mother, daughter, sister) history of breast cancer and age at first diagnosis.

## Frequency of CBE: Recommendations

The CBE should be performed yearly on all patients over age 40. The American Cancer Society recommends CBE every three years for patients age 20–40. The American Cancer Society (ACS), American College of Radiology (ACR), American Medical Association (AMA), American College of Obstetricians and Gynecologists (ACOG), and American Academy of Family Physicians (AAFP) recommend CBE yearly after age 40 (US Preventive Services Task Force, 1996). For patients in a high-risk group for breast cancer, yearly CBE should begin at age 30.

**Percentage of New Mexico Women in Selected Ethnic and Age Groups Who Reported Having a CBE within the Past Year, 1999.**



Source: New Mexico Behavioral Risk Factor Surveillance Survey, 2000.

## Technique

### Palpations

- Use three middle fingers, held together.
- Concentrate on palpating with the flats or pads of those fingers.
- The palpation motion should be of small circles, about the size of a dime. The circular motion should be smooth and well controlled.
- Use a series of three distinct pressures for each area of breast tissue examined. This translates into three circles of varying pressures for each area.
- Use very light pressure for the first circle at each area. Press midway down into the breast for the second circle. For the last circle, press into the breast tissue as firmly as possible without causing discomfort. This may allow more pressure than you realize.
- Always direct palpation pressure straight down, against the plane of the patient's chest wall.

### The Search Strategy

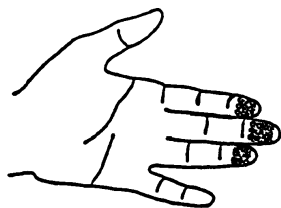
To distribute breast tissue as evenly as possible, position the patient on her side to examine lateral breast tissue and supine to examine medial breast tissue.

Breast tissue to be examined is within a roughly rectangular area. This rectangle begins laterally with the mid-axillary line and is bounded by the clavicle, the sternum, and (approximately) the fifth rib. Examine all tissue within this rectangle thoroughly.

The recommended search pattern involves arranging palpations in vertical strips, transversing the entire breast area. Overlap palpations and strips slightly to ensure thorough examination of all tissue.



## Finger Techniques for CBE



- A** Use the pads of the three middle fingers.



- B** At each spot, make three small circles about the size of a dime.

- C** Use light pressure for the first circle.



- D** Use medium pressure for the second circle.



- E** Use deep pressure for the third circle.



## Components of the CBE

### With the patient sitting:

- ⊙ Inspect for asymmetry, abnormal superficial vascular patterns, dimpling, nipple retraction, and peau d'orange.
- ⊙ Palpate axillary and supraclavicular/infraclavicular nodes. Note size, location, mobility, and consistency of nodes palpated.

### With the patient supine:

- ⊙ Inspect and palpate.

## Patient Education

Provide written materials to the patient. These should include recommendations for BSE, CBE, and mammography. It is important that these materials discuss the following limitations of screening:

- Normal results on a screening examination do not necessarily indicate absence of disease.
- No screening test is 100% accurate. Therefore, some cases of breast cancer may be missed.
- Normal results do not rule out later development of breast cancer, which is why annual screening is strongly recommended.
- Detection of an abnormality does not mean cancer. Approximately **10% of patients with abnormal screening results** will be diagnosed with breast cancer after further evaluation.

Written materials should be available in the language used by the patient. **Also, since some patients do not read**, health care providers should be prepared to communicate each of these limitations verbally and refer patients to an organization such as the Cancer Information Service (p. 53) that can provide information over the phone.

# Mammograms

Mammography is the most effective method for detecting early stage breast cancer. Despite the recent controversies over the efficacy of screening mammography for various age groups, there is scientific consensus that routine screening mammography can reduce breast cancer mortality by one-third for women age 50 and older (US Preventive Services Task Force, 1996).

## Types of Mammograms

### Screening Mammography

This is a radiologic exam to detect unsuspected breast cancer at an early stage in asymptomatic women. A mammogram is usually designated “screening” if the patient is scheduling a routine or annual examination or if she has fibrocystic changes. The intent of screening mammography is to determine whether the patient has a low or high probability of getting breast cancer. *The exam may be performed without a physician in attendance.*

The examination should ordinarily be limited to craniocaudal and mediolateral oblique views of each breast. On occasion, supplementary views may be required to visualize breast tissue optimally, but such views should not be obtained routinely. Where pathology is suspected, a recommendation for additional imaging studies, a diagnostic mammogram, or a biopsy may be warranted.

### Mammography Fast Facts

- A mammogram is a safe, low-dose x-ray.
- Mammograms may detect cancer or a mass 2–3 years before it can be felt.
- Twenty percent of women with breast cancer will have a normal mammogram.
- Patients with breast augmentation should obtain instructions from their health care providers regarding mammography.

### Diagnostic Mammography

This is a radiologic exam to evaluate a patient with a breast mass, other signs or symptoms, an abnormal or questionable screening mammogram, or augmented or reconstructed breasts. The mammogram should be correlated with known physical findings and symptoms. Multiple views may be indicated.

The diagnostic mammogram may indicate a need for additional imaging modalities in some patients. *Diagnostic mammograms should be performed under the direct on-site supervision of a qualified radiologist.*

## Prior to Mammogram

If this is the patient's first visit to the mammography facility, existing patient films available elsewhere should be requested for comparative analysis. In addition, CBE results should be forwarded to the mammography facility.

Refer patients with breast implants to a radiologist with experience in performing mammography on these women.

## Screening Guidelines for Asymptomatic Patients

### Patients Age 40–49

**Assess for personal risk factors.** Patients in a high risk group may benefit from yearly screening. Characteristics which may increase risk include:

- Personal history of breast cancer
- Family history of breast cancer (first degree relative — mother, daughter, or sister — with premenopausal breast cancer)
- Biopsy-proven moderate, severe, or atypical epithelial hyperplasia (especially in combination with a positive family history)
- Ductal carcinoma in situ
- Nulliparity or age 30 or older at first live birth

Since the “one in eight” risk (one woman in eight will be diagnosed with breast cancer) for women is based on data from all women and includes assorted risk factors, additional risk factors cannot be reliably summed when calculating a patient's risk of developing breast cancer.

Health care providers may want to discuss biannual mammographic screening for patients in lower risk categories.

### Patients Age 50 and Older

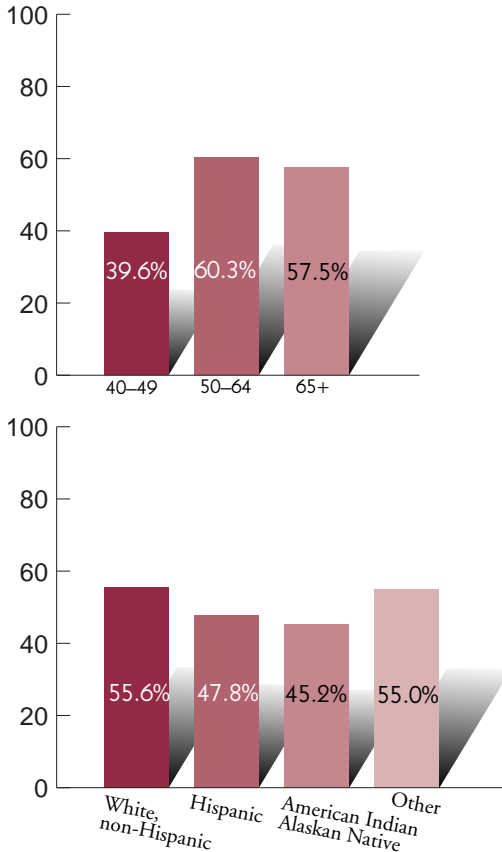
The American Cancer Society (ACS), American College of Radiology (ACR), American Medical Association (AMA), American College of Obstetricians and Gynecologists (ACOG), American Academy of Family Physicians (AAFP), and others recommend an annual bilateral screening mammogram for patients age 50 and older. The American College of Physicians (ACP) recommends screening mammography every two years

for women age 50–74. The National Cancer Institute (NCI) states that there is “a general consensus among experts that routine mammography and CBE every 1–2 years in women age 50 and older can reduce breast cancer mortality.”

## Which Women Need Screening Mammograms?

**Beginning Screening:** There is agreement regarding the benefits of screening women 50 years of age and older, but there has been a lack of consensus about the effectiveness of mammography in decreasing cancer mortality for women age 40–49.

**Percentage of New Mexico Women in Selected Ethnic and Age Groups Who Reported Having a Mammogram within the Past Year, 1999**



Source: New Mexico Behavioral Risk Factor Surveillance Survey, 2000.

The data from population-based randomized trials of screening have been limited by retrospective subgroup analysis, low statistical power, and the use of older mammographic techniques. Recent meta-analyses include the most recent data from all similarly designed trials and include two second generation trials, i.e. Gothenberg and Malmö, which applied newer screening protocols and observed 44% and 36% fewer breast cancer deaths respectively in the invited groups compared to the control groups (Hendrick, 1997 and Taber, 1997).

As a result of this controversy, several respected organizations are at odds with one another over what to recommend for this age group.

A consensus panel convened in 1997 by the National Institutes of Health concluded that evidence at that time did not warrant an official recommendation that women 40–49 years be screened (Lawson, 2000). The NIH based its conclusion, in part, on data showing mammography did not detect one in four breast cancers among women in that age group, and research indicated a higher false-positive rate in younger women. Critics expressed concern that this data came from studies using older technology and questioned some of the methodology.

Conference data also showed that women screened for breast cancer between ages 40–49 and followed for more than seven years had a lower mortality rate from breast cancer than women who were not screened.

Based on the evidence presented, the National Cancer Institute adopted its own recommendation that all women 40 and older have mammograms every 1–2 years. The American College of Radiology and the American College of Obstetricians and Gynecologists concur. The American College of Physicians, the US Preventive Task Force, and the American Academy of Family Physicians, however, feel there is insufficient evidence to recom

mend for or against screening women 40–49.

**Concluding Screening:** Because breast cancer incidence increases with age, the burden of suffering due to breast cancer in older women is substantial. No reliable data are available on the optimal age to conclude mammography screening. There are uncertainties about a mammogram's effectiveness in asymptomatic women over age 70 with consistently normal screening results (Kerlikowske, 1999). In this study, the authors found an increased cost effectiveness in women with higher bone mineral density (a marker for lifelong exposure to estrogens.)

## The US Preventive Services Task Force concludes:

*There is limited and conflicting evidence regarding clinical benefit of mammography or CBE for women age 70–74 and no evidence regarding benefit for women over age 75; however, recommendations for screening women age 70 and older who have a reasonable life expectancy may be made based on other grounds, such as the high burden of suffering in this group and the lack of evidence of differences in mammogram test characteristics in older women versus those age 50–69.*

US Preventive Services Task Force, 1996

Since January 1, 1998, Medicare has covered annual mammograms for women aged 40 or older who have Medicare Part B. Medicare will waive the Part B deductible for screening mammograms, but beneficiaries are still responsible for the 20% co-payment, which amounts to \$15–\$25.

The following are three categories of billing for mammography services:

- Professional component of mammography (a physician's interpretation of the results of the examination).
- Technical component (all other services).
- Global (both professional and technical). Please note: global billing is not permitted for services furnished in provider outpatient departments.

When the technical and professional components of the screening mammogram are billed separately, the payment limit is adjusted to reflect either the professional or technical component only.

For the year 2000, the global billing limitation is \$67.81. The technical and professional component amounts are set forth by regulations. For the calendar year 2000, 32% of the limit is used in determining the professional component (32% of \$67.81 or \$21.69). For the technical component, 68% of the limit is used in determining payment (68% of \$67.81 or \$46.12).

Medicare also helps pay for diagnostic mammograms for Medicare Part B beneficiaries of any age. Diagnostic mammograms are covered under Medicare as prescribed by the physician at a maximum payment of \$85.12. All other diagnostic procedures that are deemed reasonable and necessary are covered services. For all diagnostic procedures, the deductible and co-payments do apply.

For older women who do not have Medicare Part B, there are several options that can help them gain access to screening mammography and other services.

**Specified Low-Income Medicare Beneficiary Program (SLMB).** This program waives the annual premium amount for Medicare Part B which covers outpatient services, such as breast cancer screening for beneficiaries whose income is at or up to 120% of the federal poverty level.

**Qualified Medicare Beneficiary Program (QMB).** This program waives the premium, co-payments and deductible for beneficiaries whose incomes are at or below the federal poverty level.

Both of these programs require the beneficiary to make an application to the state's Medicaid system and have contact with a state Medicaid worker.

## Responsibilities of the Referring Health Care Provider

Federal guidelines provide a step-by-step outline of the responsibilities of physicians and other members of the health care team in providing high quality mammograms. Under these guidelines (Agency for Health Care Policy and Research, 1994), referring health care providers are responsible for:

- Informing patients that mammography is the most sensitive and specific screening test available for breast cancer.
- Informing patients that a negative mammogram does not rule out malignancy in the presence of a palpable mass or other breast abnormality and that a biopsy of an abnormality may be necessary despite a negative mammogram.
- Explaining that a lump or other abnormal finding which develops after a negative screening examination should be evaluated as soon as possible and not delayed until the next regular screening examination.
- Establishing protocols with the mammography facility to ensure that the communication loop is closed and that the roles of the referring health care provider and the facility in communicating results and tracking compliance are understood by each party.

## Choosing a Mammography Facility

### Quality Assurance

With women encouraged to obtain screening, health care providers have a responsibility to ensure that mammography poses a low radiation risk and is of optimal quality. Furthermore, health care providers must ensure that all aspects of mammography—including personnel involved in positioning patients and interpreting films, reports, and clinical outcomes of positive mammograms — are part of an overall chain of quality assurance.

**Federal law** requires that all mammography facilities in the United States (except those of the Department of Veterans Affairs) be FDA certified.

The Mammography Quality Standards Act (MQSA) of 1992 authorized the Food and Drug Administration (FDA) to establish nationwide baseline quality standards. The MQSA standards are very similar to those of the American College of Radiology and of certain states. The MQSA provides on-site inspection and enforcement of mammography facilities. The MQSA standards are intended to provide universal access to quality mammography.

The regulations require that all facilities which provide, process, or interpret mammograms meet standards. These include standards for personnel engaged in mammography, including the interpreting physician, the medical physicist, and the radiologic technologist. The regulations require these health care professionals to have licenses, be board certified or have specified training in mammography, meet minimum practice requirements, and receive continuing education. MQSA also requires facilities to report the results of the examination to patients in easily understood terminology.

In addition, the facility must use only dedicated mammography x-ray machines. These machines must have a compression device and removable grids (except in xero-mammography machines).

Each facility needs to maintain a quality control and quality assurance program on all radiographic equipment (processors, films, and image receptors). A written report of results must be signed by the interpreting physician and sent to the referring health care provider.

Finally, the mammography facility must have a system of reviewing outcome data from all mammograms performed, including the follow-up of positive mammograms and correlation of surgical biopsy results with mammography reports.

The New Mexico Mammography Project (NMMP), funded by the National Cancer Institute, provides feedback to radiologists on the accuracy and quality of their data for those who participate in the project. Mammography data can be linked to the New Mexico Tumor Registry which can help identify false-negative mammograms. This population-based registry includes ascertainment of a majority of screening mammograms performed in New Mexico and information on breast cancer cases and benign breast tumors. For more information on this project, contact Robert Rosenberg, MD, Director of Diagnostic Imaging at the University of New Mexico or Project

C o o r d i n a t o r  
Patricia Stauber at  
(505) 272-6866.

Mammography facilities must prominently display a certificate or provisional certificate issued by the FDA. A provisional certificate will be issued to a facility which has applied to a private or state accrediting body for accreditation but has not yet received it.

### Cost Considerations

In addition to quality, another consideration in selecting a mammography facility is cost. Most mammograms cost between \$50 and \$150. More than 40 states, **including New Mexico**, now have laws requiring health insurance companies to reimburse some of the cost of screening mammograms. Medicare covers most of the cost of screening mammography.

Since 1991, the Centers for Disease Control and Prevention (CDC) has provided federal funding for New Mexico's Breast and Cervical Cancer Detection and Control Program. Free breast cancer screening for low income and age eligible women is provided in all counties and by the Indian Health Service (IHS). **The Breast and Cervical Cancer Detection and Control Program has provided over 71,000 mammograms as of December 1999.** Unfortunately, available funding serves only a portion of the eligible New Mexico women.

The Breast and Cervical Cancer Detection and Control Program has a 24-hour, bilingual, toll-free information line. People can call to get the name and phone number of a Breast and Cervical Cancer Detection and Control Program provider located nearest to them. That toll-free line is 1-877-852-2585.

Some health service agencies and employers provide mammograms free or at low cost. Low cost does not equate with low quality. A large national survey found that some of the facilities charging the lowest fees (often because of the large volume of patients) had the highest quality standards for mammographic screening (Breen and Brown, 1994).

### For Patients with Implants

Choosing a mammography facility and mammographic techniques for patients with breast implants requires special attention. Mammography of patients with breast implants should always be considered diagnostic, even if patients are asymptomatic. Diagnostic mammography of patients with breast implants requires special handling and positioning. Four views of each breast, rather than two, should be taken.

Although unsuspected breast cancer can be detected on mammograms of patients with implants, mammography is more difficult to perform. Mammography has not been proven effective for breast cancer detection when implants have been used for breast reconstruction after total mastectomy. Regular clinical breast examinations should be performed in these cases.

Mammography of asymptomatic patients with breast implants should include both implant-included and implant-displaced views whenever possible. In the implant-displaced views, the radiologic technologist manually displaces the implant toward the chest wall while bringing breast tissue forward so that it can be adequately compressed. This maneuver results in an improved image of anterior breast tissue (Agency for Health Care Policy and Research, 1994).

## Future Considerations

### MRI

Magnetic Resonance Imaging (MRI) uses magnetic fields to produce sharp contrasted images of glandular tissues and tumors. Before the examination, an intravenous contrast dye is injected that highlights breast blood supply and new blood vessel formation in cancerous lesions. With this technology, both breasts can be imaged at the same time. MRI can detect lesions that were missed by mammography and it is not affected by dense tissues and

implants. However, it can be difficult to distinguish benign and malignant lesions. A new technology called *three-dimensional rotating delivery excitation off-resonance imaging (3D Rodeo MRI)* provides 20 times higher resolution and better contrast than conventional MRI. Drawbacks include cost, special equipment, and expertise only available in selected areas. MRI shows most promise for patients with dense breasts, with implants, and patients at high risk for breast cancer.

## PET Scans

Position Emission Tomography (PET) scans identify changes in the cell's glucose metabolism instead of in the breast tissue structure itself. PET scans cannot accurately detect masses smaller than 1 cm and cannot exactly locate the tumor within the breasts. A major drawback is cost, as well as false-positive results. Most promising is this technique's capacity to see through very dense breasts and to locate tumors missed by mammography. PET scans can also identify metastases in the lymph nodes and the entire body.

## Digital Mammography

Computer assisted digital mammography is a new variation of conventional mammography. X-rays are still used, but they are captured digitally and transmitted to a computer screen, rather than onto x-ray film. Digital images can be stored and transferred electronically. The digital images can also be manipulated so that the radiologists can more clearly distinguish between the dense breast tissue and a mass. The ability to manipulate the image lessens the chance a woman will need additional x-rays. This technique is not likely to be used for routine screening until the results of studies which compare it with conventional mammography are available. Digital mammography should improve image quality with less radiation exposure. An additional advantage with digital mammography is that there is no need to process films, and images can be sent by computer to specialists who can provide immediate consultation.

## Ultrasound

Breast ultrasound is widely used as an adjunct to mammography to differentiate between cystic and solid masses. The technique is a good alternative to mammograms for pregnant women. Ultrasound is also useful during biopsy to help guide the biopsy needle. High definition imaging digital ultrasound (ALT™) is an adjunct to mammography. This new procedure may assist in distinguishing benign from malignant lesions and may be more sensitive than current ultrasonography.