chapter 6

Disorders of the Breasts

KeyTERMS

benign breast disorder
breast cancer
breast-conserving surgery
breast self-examination
carcinoma
chemotherapy
fibroadenomas
fibrocystic breast changes
hormonal therapy
intraductal papilloma
mammary duct ectasia
mammography
mastitis
modified radical mastectomy
simple mastectomy

LearningOBJECTIVES

After studying the chapter content, the student should be able to accomplish the following:

1. Define the key terms.
2. Discuss the incidence, risk factors, screening methods, and treatment modalities for benign breast conditions.
3. Outline preventive strategies for breast cancer through lifestyle changes and health screening.
4. Describe the incidence, risk factors, treatment modalities, and nursing considerations related to breast cancer.
5. Develop an educational plan to teach breast self-examination to a group of young women.

WOW

Focus on reducing fear, anxiety, pain, and aloneness in all women diagnosed with a breast disorder.

The female breast is closely linked to womanhood in American culture. Women's breasts act as physical markers for transitions from one stage of life to another, and although the primary function of the breasts is lactation, they are perceived as a symbol of beauty and sexuality.

This chapter will discuss assessments, screening procedures, and management of specific benign and malignant breast disorders. Nurses play a key role in helping women maintain breast health by educating and screening them to improve their health outcomes. A good working knowledge of early detection techniques, diagnosis, and treatment options is essential.

Benign Breast Disorders

A **benign breast disorder** is any noncancerous breast abnormality. Though not life-threatening, benign disorders can cause pain and discomfort and account for a large number of visits to primary care providers.

Depending on the type of benign breast disorder, treatment might or might not be necessary. Although these disorders are benign, the emotional trauma women experience is phenomenal. Fear, anxiety, disbelief, helplessness, and depression are just a few of the reactions that a woman may have when she discovers a lump in her breast. Many women believe that all lumps are cancerous, but actually more than 90% of the lumps discovered are benign and need no treatment (Alexander et al., 2004). Patience, support, and education are essential components of nursing care.

ConsiderTHIS!

It was pouring down rain and I was driving alone along dark wet streets to my 8:00 appointment for a breast ultrasound. I recently had my annual mammogram and the radiologist thought he saw something suspicious on my right breast. I was on my way to confirm or refute his suspicions, and I couldn't keep focused on the road ahead. For the past few days I have been a basketcase, fearing the worst. I was playing in my mind what I would do if. . . . What changes I would make in my life and how I would react when told. I have been through personal turmoil since that doctor announced he wanted "more tests."

Thoughts: This woman is worrying and is emotionally devastated before she even has a conclusive diagnosis. Is this a typical reaction to a breast disorder? Why do women fear the worst? Many women use denial to mask their feelings and hope against hope the doctor made a mistake or misread their mammogram. How would you react if confronted with a breast disorder?

The most commonly encountered benign breast disorders in women include fibrocystic breasts, fibroadenomas, intraductal papilloma, mammary duct ectasia, and mastitis. Although breast disorders are generally benign, fibrocystic breasts and intraductal papillomas carry a cancer risk, with prolific masses and hyperplastic changes within the breasts. Generally speaking, fibroadenomas, mastitis, and mammary duct ectasia carry little cancer risk (DiSaia & Creasman, 2002). Table 6-1 summarizes benign breast conditions.

Fibrocystic Breast Changes

The term **fibrocystic breast changes** does not refer to a disease; rather, it describes a variety of changes in the glandular and structural tissues of the breast. Because this condition affects many women at some point, it is more accurately defined as a "change" rather than a "disease." The cause of fibrocystic changes is related to the way breast tissue responds to monthly levels of estrogen and progesterone. During menstrual cycles, hormonal stimulation of the breast tissue causes the glands and ducts to enlarge and swell. The breasts feel swollen, tender, and lumpy during this time, but after menses the swelling and lumpiness decline. This is why it is best to examine the breasts a week after the menses, when they are not swollen.

Fibrosis, or thickening of the normal breast tissue, occurs in the early stages. Cysts form in the later stages and feel like multiple, smooth, well-delineated tiny pebbles or lumpy oatmeal under the skin (Fig. 6-1). One or both breasts can be involved, and any part of the breast can become tender (Condon, 2004). Fibrocystic changes do not increase the risk of breast cancer for most women. Fibrocystic breast changes are most common in women between the ages of 30 and 50. The condition is rare in postmenopausal women not taking hormone replacement therapy. According to the American Cancer Society (ACS), fibrocystic breast changes affect at least half of all women at some point in their lives (ACS, 2003). It is the most common breast disorder today (Lewis et al., 2004).

Clinical Manifestations

Common manifestations include lumpy, tender breasts, particularly during the week before menses. Changes in breast tissue produce pain by nerve irritation from edema in connective tissue and by fibrosis from nerve pinching. The pain is cyclic and frequently dissipates after the onset of menses. The pain is described as a dull, aching feeling of fullness. Masses or nodularities usually appear in both breasts and are often found in the upper outer quadrants. Some women also experience spontaneous clear to

Table 6-1 Summary of Benign Breast Disorders

Breast Condition	Nipple Discharge	Site	Characteristics/ Age of Client	Tenderness	Dx & Tx
Fibrocystic breast changes	+ or –	Bilateral; upper outer quadrant	Round, smooth Several lesions Cyclic, palpable 30 to 50 years old	+	Aspiration & bx Limit caffeine Ibuprofen Supportive bra
Fibroadenomas	–	Unilateral; nipple area or upper outer quadrant	Round, firm, movable Palpable, rubbery Well delineated Single lesion 15 to 30 years old	–	Mammogram Watch & see Aspiration & bx Surgical excision
Intraductal papilloma	+	Unilateral; near nipple	Small, wartlike Poorly delineated Nonpalpable Can become large 40 to 60 years old	+	Culture discharge Mammogram Ultrasound Surgical excision
Mammary duct ectasia	+	Unilateral; behind nipple	Inflammation Pasty discharge Nonmobile Burning, itching Perimenopausal women	+	Mammogram Ultrasound Culture Surgical excision
Mastitis	–	Unilateral; outer quadrant	Wedge-shaped Warmth, redness Swelling Nipple cracked Breast engorged	+	Antibiotics Warm shower Supportive bra Breastfeeding Increase fluids

Sources: Alexander et al. (2004); Breslin & Lucas (2003); Condon (2004); Lowdermilk & Perry (2004); Mihelic (2003); Olds et al. (2004).

yellow nipple discharge when the breast is squeezed or manipulated.

Diagnosis

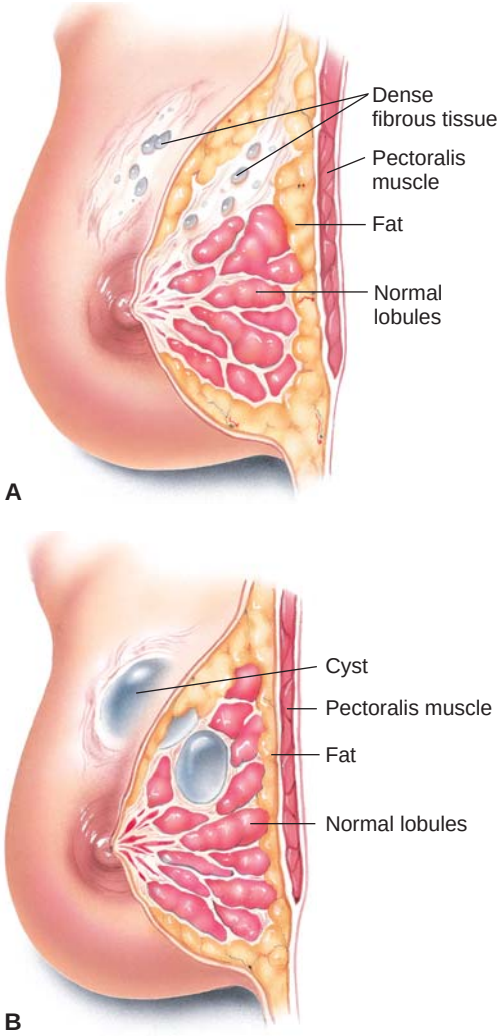
On examination of the breasts, a few characteristics might be helpful in differentiating a cyst from a cancerous lesion. Cancerous lesions typically are fixed and painless and may cause skin retraction (pulling). Cysts tend to be mobile and tender and do not cause skin retraction in the surrounding tissue. Mammography can be helpful in distinguishing fibrocystic changes from breast cancer. Ultrasound is a useful adjunct to mammography for breast evaluation because it helps to differentiate a cystic mass from a solid one (Hindle & Gonzalez, 2001). Ultrasound produces images of the breasts by sending sound waves through a gel applied to the breasts. Fine-needle aspiration biopsy can also be done to differentiate a solid tumor, cyst, or malignancy. A fine-needle aspiration biopsy uses a thin needle guided by ultrasound to the mass. In a method called stereotactic needle biopsy, a computer maps the exact location of the mass using mammograms taken from two angles, and the map is used to guide the needle.

Treatment

Management of the symptoms of fibrocystic breast changes begins with self-care. In severe cases drugs, including bromocriptine, tamoxifen, or danazol, can be used to reduce the influence of estrogen on breast tissue. However, several undesirable side effects, including masculinization, have been documented. Aspiration or surgical removal of breast lumps will reduce pain and swelling by removing the space-occupying mass.

Nursing Management

A nurse caring for a woman with fibrocystic breast changes can teach her about the condition, provide tips for self-care (Teaching Guidelines 6-1), suggest lifestyle changes, and demonstrate how to perform a monthly breast self-examination after her menses to monitor the changes. Nursing Care Plan 6-1 presents a plan of care for a woman with fibrocystic breast changes.



● Figure 6-1 (**A**) Fibrocystic breast changes. (**B**) Cysts. (Source: The Anatomical Chart Company. [2002]. *Atlas of pathophysiology.* Springhouse, PA: Springhouse Corporation.)

Fibroadenomas

Fibroadenomas are common benign solid breast tumors that occur in about 10% of all women and account for up to half of all breast biopsies. They are the second most common solid tumors in the breast after carcinoma (Mihelic, 2003). They are considered hyperplastic lesions associated with an aberration of normal development and involution rather than a neoplasm. Fibroadenomas can be stimulated by external estrogen, progesterone, lactation, and pregnancy (Amshel & Sibley, 2001). They are composed of both fibrous and glandular tissue and usually occur in women between 20 and 30 years of age (Alexander et al., 2004). Fibroadenomas are rarely associated with cancer.

Diagnosis

Breast fibroadenomas are usually detected incidentally during clinical or self-examinations and are most often located in the upper outer quadrants. Several other breast lesions have similar characteristics, so every woman with a breast mass should be evaluated to exclude cancer.

Diagnostic studies include a clinical breast examination by a health care professional; imaging studies (mammography, ultrasound, or both); and some form of biopsy, most often a fine-needle aspiration, core needle biopsy, or stereotactic needle biopsy. The core needle biopsy removes a small cylinder of tissue from the breast mass, more than the fine-needle aspiration biopsy. If additional tissue needs to be evaluated, the advanced breast biopsy instrument (ABBI) is used. This instrument removes a larger cylinder of tissue for examination by using a rotating circular knife. The ABBI procedure removes more tissue than any of the other methods except a surgical biopsy (ACS, 2003).

Clinical Manifestations

Lumps are felt as firm, rubbery, well-circumscribed, freely mobile nodules that might or might not be tender when palpated. Lumps are usually located in the upper outer quadrant of the breast, and more than one may be present (Fig. 6-2). Giant fibroadenomas account for approximately 10% of cases. These masses are frequently larger

TEACHING GUIDELINES 6-1

Relieving Symptoms of Fibrocystic Breast Changes

- Wear an extra-supportive bra to prevent undue strain on the ligaments of the breasts to reduce discomfort.
- Avoid caffeine, which is a stimulant. This reduces discomfort for some women.
- Take oral contraceptives, as recommended by a healthcare practitioner, to stabilize the monthly hormonal levels.
- Maintain a low-fat diet rich in fruits, vegetables, and grains to maintain a healthy nutritional lifestyle and ideal weight.
- Apply heat to the breasts to help reduce pain via vasodilation of vessels.
- Take diuretics, as recommended by a healthcare practitioner, to counteract fluid retention and swelling of the breasts.
- Reduce salt intake to reduce fluid retention and swelling in the breasts.
- Take OTC medications, such as aspirin or ibuprofen (Motrin, Advil, Nuprin), to reduce inflammation and discomfort.
- Use thiamine and vitamin E therapy. This has been found helpful for some women, but research has failed to demonstrate a direct benefit from either therapy.
- Take medications as prescribed (e.g., bromocriptine, tamoxifen, or danazol).
- Discuss the possibility of aspiration or surgical removal of breast lumps with a healthcare practitioner.

Nursing Care Plan 6-1

Overview of the Woman with Fibrocystic Breast Changes

Sheree Rollins is a 37-year-old woman who comes to the clinic for her routine checkup. During the examination, she states, "Sometimes my breasts feel so heavy and they ache a lot. I noticed a couple of lumpy areas in my breast just last week before I got my period. Is this normal? Now they feel like they are almost gone. Should I be worried?" Clinical breast exam reveals two small, pea-sized, mobile, slightly tender nodules in each breast bilaterally. No skin retraction noted. Previous mammogram revealed fibrocystic breast changes.

Nursing Diagnosis: Pain related to changes in breast tissue

Outcome identification and *evaluation*	Interventions with *rationales*
Client will demonstrate a decrease in breast pain *as evidenced by a pain rating of 1–2 on a pain rating scale of 0–10 and statements that pain is lessened.*	Ask client to rate her pain using a numeric pain rating scale *to establish a baseline.* Discuss with client any measures used to help relieve pain *to determine effectiveness of the measures.* Encourage use of a supportive bra *to aid in reducing discomfort.* Instruct client in use of over-the-counter analgesics *to promote pain relief.* Advise the client to apply warm compresses or allow warm water from the shower to flow over her breasts *to promote vasodilation and subsequent pain relief.* Tell client to reduce her intake of salt *to reduce risk of fluid retention and swelling leading to increased pain.*

Nursing Diagnosis: Deficient knowledge related to fibrocystic breast changes and appropriate care measures

Client will verbalize understanding of condition *as evidenced by statements about the cause of breast changes and appropriate choices for lifestyle changes, and demonstration of self-care measures.*	Assess client's knowledge of fibrocystic breast changes *to establish a baseline for teaching.* Explain the role of monthly hormonal level changes and describe the signs and symptoms *to promote understanding of this condition.* Teach the client how to perform a breast self-examination after her menstrual period *to monitor for changes.* Encourage client to report any changes promptly *to ensure early detection of problems.*

(continued)

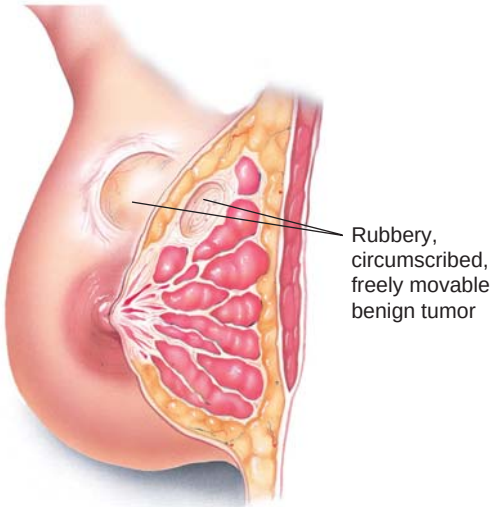
Overview of the Woman with Fibrocystic Breast Changes (continued)

Outcome identification and *evaluation*	Interventions with *rationales*
	Suggest client speak with her primary care provider about the use of oral contraceptives *to help stabilize monthly hormonal levels.* Review lifestyle choices, such as avoiding caffeine, eating a low-fat diet rich in fruits, vegetables and grains, and adhering to screening recommendations *to promote health.* Discuss measures for pain relief *to minimize discomfort associated with breast changes.*

than 5 cm and occur most often in pregnant or lactating women (Condon, 2004).

Treatment and Nursing Management

Treatment may include a period of "watchful waiting" because many fibroadenomas stop growing or shrink on their own without any treatment. Other growths may need to be surgically removed if they do not regress or if they remain unchanged. Cryoablation, an alternative to surgery, can also be used to remove a tumor. In this procedure, extremely cold gas is piped into the tumor using ultrasound guidance. The tumor freezes and dies. The current trend is toward a more conservative approach to treatment after careful evaluation and continued monitoring. The nurse should urge the client to return for reevaluation in 6 months, perform monthly breast self-examinations, and return annually for a clinical breast examination.



● Figure 6-2 Fibroadenoma. (Source: The Anatomical Chart Company. [2002]. *Atlas of pathophysiology.* Springhouse, PA: Springhouse Corporation.)

Intraductal Papilloma

An **intraductal papilloma** is a benign, wartlike growth found in the mammary ducts, usually near the nipple. This benign growth is thought to be caused by a proliferation and overgrowth of ductal epithelial tissue. An intraductal papilloma is generally less than 1 cm in diameter and might not be palpable. It produces a spontaneous serous, serosanguineous, or watery nipple discharge (DiSaia & Creasman, 2002). It mostly affects women between the ages of 40 and 60. A single duct or several ducts may be involved.

Diagnosis

The nipple discharge is evaluated for the presence of occult blood using a Hemoccult card; a blue coloration on the card indicates the presence of blood. In addition, a sample of the discharge may be sent for cytologic evaluation to screen for cancer cells. Mammography, ultrasound, or ductography (radiographic dye is instilled into a duct; it outlines the breast ductal system on radiographs) is used to diagnose or differentiate this lesion from a cancerous one. An intraductal papilloma appears as a smooth, lobulated filling defect or a solitary obstructed duct on ductography (Santen & Mansel, 2005).

Clinical Manifestations

A serous, serosanguineous, or watery discharge can be manually expressed from the nipple. If the papilloma is large enough, it can be palpated in the nipple area as a soft, nontender, mobile, poorly delineated mass. The woman might report a feeling of fullness in the breast.

Treatment and Nursing Management

Treatment consists of surgical removal of the papilloma and a part of the duct it is found in, usually through an incision at the edge of the areola. The excised papilloma and duct are sent to the pathology laboratory to rule out cancer (ACS, 2003). The nurse should advise the woman

to continue monthly breast self-examinations and yearly clinical breast examinations.

Mammary Duct Ectasia

Mammary duct ectasia is a dilation and inflammation of the ducts behind the nipple. It is most common in perimenopausal women. This benign condition frequently occurs in women who have breastfed their children. The cause is unclear; however, chronic periductal inflammation, fibrosis, and ductal dilatation are associated factors (DiSaia & Creasman, 2002). This condition results in noncyclic breast pain and discharge.

Diagnosis

Mammography, ultrasound, cytology and testing for occult blood on nipple discharge sample, and ductography may be used to assist in the diagnosis of this lesion. In addition, physical examination of the breasts might reveal subareolar redness and swelling, with mild to moderate tenderness on palpation.

Clinical Manifestations

If the ducts have been chronically infected, an erythematous lesion will be present at the edge of the nipple area (ACS, 2003). On breast palpation, tortuous tubular swellings are present beneath the areola, along with nipple retraction and dimpling in some postmenopausal women (Olds et al., 2004). The nipple discharge can be green, brown, straw-colored, reddish, gray, or cream-colored, with the consistency of toothpaste. The woman may report a dull nipple pain, subareolar swelling, or a burning sensation accompanied by pruritus around the nipple (Lowdermilk & Perry, 2004).

Treatment and Nursing Management

This condition frequently improves without any specific treatment, or with warm compresses and antibiotics. If symptoms persist, the abnormal duct is removed through a local incision at the border of the areola. The tissue is sent to the pathology laboratory for evaluation. The nurse should reassure the woman that this condition is benign and should reinforce the importance of monthly self-examinations as well as annual clinical breast examinations by the woman's healthcare provider. This benign breast condition is typically self-limiting; the only intervention needed is reassurance.

Mastitis

Mastitis is an infection of the connective tissue in the breast that occurs primarily in lactating women. The usual causative organisms are *Staphylococcus aureus, Haemophilus influenzae,* and *Haemophilus* and *Streptococcus* species (London et al., 2003). Risk factors include poor handwashing, ductal abnormalities, nipple cracks and fissures, lowered maternal defenses due to fatigue, tight clothing, poor support of pendulous breasts, and failure to empty the breasts properly while breastfeeding or missing feedings.

Clinical Manifestations and Diagnosis

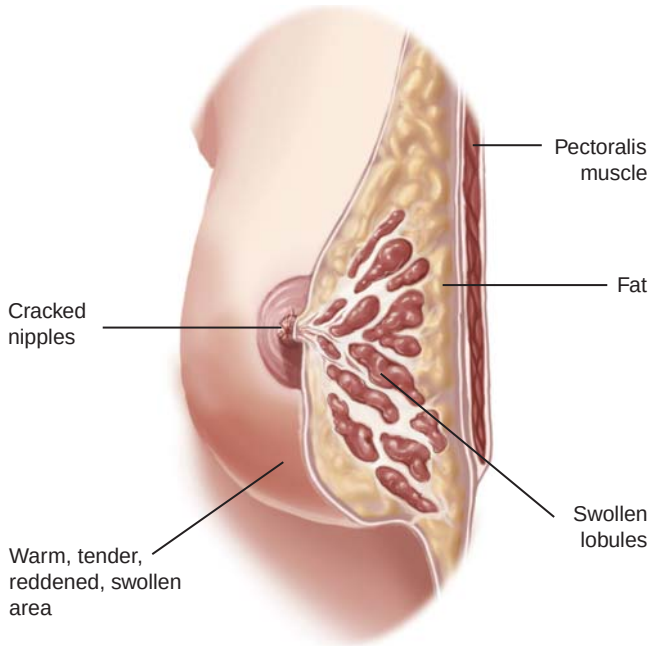
The clinical manifestations may include flulike symptoms, including malaise, fever, and chills. Examination of the breasts reveals increased warmth, redness, tenderness, and swelling. The nipple is usually cracked or abraded and the breast is distended with milk (Fig. 6-3). The diagnosis is made based on history and examination.

Treatment and Nursing Management

Management of mastitis involves the use of oral antibiotics (usually a penicillinase-resistant penicillin or cephalosporin) and acetaminophen (Tylenol) for pain and fever. The nurse should teach the woman about the etiology of mastitis and encourage her to continue to breastfeed, emphasizing that the prescribed medication is safe to take during lactation. Continued emptying of the breast or pumping improves the outcome, decreases the duration of symptoms, and decreases the incidence of breast abscess. Thus, continued breastfeeding is recommended in the presence of mastitis (Youngkin & Davis, 2004). Instructions for the woman with mastitis are detailed in Teaching Guidelines 6-2.

Malignant Breast Disorder

Breast cancer is a neoplastic disease in which normal body cells are transformed into malignant ones (O'Toole, 2003). It is the most common cancer in women and the second leading cause of cancer deaths (lung cancer is



● Figure 6-3 Mastitis.

TEACHING GUIDELINES 6-2

Caring for Mastitis

- Take medications as prescribed.
- Continue breastfeeding, as tolerated.
- Wear a supportive bra 24 hours a day to support the breasts.
- Increase fluid intake.
- Practice good handwashing techniques.
- Apply warm compresses to the affected breast or take a warm shower before breastfeeding.
- Frequently change positions while nursing.
- Get adequate rest and nutrition to support or improve the immune system.

Modified from Mattson, S., & Smith, J. E. (2004). *Core curriculum for maternal-newborn nursing* (3rd ed.). St. Louis, MO: Elsevier Saunders.

first) among American women. Breast cancer accounts for one of every three cancers diagnosed in the United States (Kessler, 2002). A new case is discovered every 2 minutes (NCI, 2004). It is estimated that one out of every seven women will develop the disease at some time during her life.

In 2004 the ACS estimated that approximately 215,990 women would be diagnosed with breast cancer and 40,110 women would die of it (ACS, 2004). Breast cancer can also affect men, but only 1% of all individuals diagnosed with breast cancer annually are men (ACS, 2004).

Risk Factors

The etiology of breast cancer is unknown, but the disease is thought to develop in response to a number of related factors: aging, delayed childbearing or never bearing children, family history of cancer, late menopause, and hormonal factors (ACS, 2004). Other factors might contribute to breast cancer but have not been scientifically proven.

In 1970, the lifetime risk for developing breast cancer was one in ten; since then, the risk has gradually risen (NCI, 2004). This slight increase in incidence might be explained in a variety of ways—we now have better detection and screening tools, which have identified more cases; women are living to an older age, when their risk increases; and lifestyle changes in American women (having their first pregnancy at an older age, having fewer children, and using hormonal therapy to treat the symptoms of menopause) might have been associated with the higher numbers. Age is a significant risk factor. Because rates of breast cancer increase with age, estimates of risk at specific ages are more meaningful than estimates of lifetime risk. The estimated chance of a woman being diagnosed with breast cancer between the ages of 30 and 70 are detailed in Table 6-2.

Table 6-2 Estimated Risk of Breast Cancer at Specific Ages

Age 30 to 40	1 out of 262
Age 40 to 50	1 out of 68
Age 50 to 60	1 out of 35
Age 60 to 70	1 out of 27

Modified from National Cancer Institute (NCI). (2004). *Probability of breast cancer in American women.* (Online) Available at: http://cis.nci.nih.gov/fact/5_6.htm

Risk factors for breast cancer can be divided into those that cannot be changed (nonmodifiable risk factors) and those that can be changed (modifiable risk factors). Nonmodifiable risk factors (ACS, 2004) are:

- Gender (female)
- Aging (>50 years old)
- Genetic mutations (BRCA-1 and BRCA-2 genes)
- Family history of breast cancer (mother, sister, daughter, grandmother, or aunt)
- Personal history of breast cancer (3- to 4-fold increase in risk for recurrence)
- Race (higher in Caucasian women, but African-American women are more likely to die of it)
- Previous abnormal breast biopsy (atypical hyperplasia)
- Exposure to radiation (radiation damages DNA)
- Previous breast radiation (12 times normal risk)
- Early menarche (<12 years old) or late onset of menopause (>55 years old), which represents increased estrogen exposure over the lifetime

Modifiable risk factors related to lifestyle choices (ACS, 2004) include:

- Not having children at all or not having children until after age 30—this increases the risk of breast cancer by not reducing the number of menstrual cycles
- Postmenopausal use of estrogens and progestins—the recent WHI study (2002) reported increased risks with long-term (>5 years) use of hormone replacement therapy
- Failing to breastfeed for up to a year after pregnancy—increases the risk of breast cancer because it does not reduce the total number of lifetime menstrual cycles
- Alcohol consumption—boosts the level of estrogen in the bloodstream
- Smoking—exposure to carcinogenic agents found in cigarettes
- Obesity and consumption of high-fat diet—fat cells produce and store estrogen, so more fat cells create higher estrogen levels
- Sedentary lifestyle and lack of physical exercise—increases body fat, which houses estrogen

The presence of risk factors, especially several of them, calls for careful ongoing monitoring and evaluation to

promote early detection. Even though risk factors are important considerations, 75% of all women with newly diagnosed breast cancer have no known risk factors (DiSaia & Creasman, 2002). While routine mammography and self-examination are prudent for everyone, these precautions may become lifesavers for at-risk individuals.

Clinical Manifestations

Early breast cancer has no symptoms. The earliest sign of breast cancer is often an abnormality seen on a mammogram before the woman or the healthcare professional feels it. As the tumor grows, changes in the breast appearance and contour become apparent (ACS, 2004). These include:

- Continued and persistent changes in the breast
- A lump or thickening in one breast
- Persistent nipple irritation
- Unusual breast swelling or asymmetry
- A lump or swelling in the axilla
- Changes in skin color or texture
- Nipple retraction, tenderness, or discharge

If a lump can be palpated, the cancer has been there for quite some time. Helpful characteristics in evaluating palpable breast masses are described in Box 6-1.

BOX 6-1

CHARACTERISTICS OF BENIGN VS. MALIGNANT BREAST MASSES

- Benign breast masses are described as:
  - Frequently painful
  - Firm, rubbery mass
  - Bilateral masses
  - Induced nipple discharge
  - Regular margins (clearly delineated)
  - No skin dimpling
  - No nipple retraction
  - Mobile, not affixed to the chest wall
  - No bloody discharge
- Malignant breast masses are described as:
  - Hard to palpation
  - Painless
  - Irregularly shaped (poorly delineated)
  - Immobile, fixed to the chest wall
  - Skin dimpling
  - Nipple retraction
  - Unilateral mass
  - Bloody, serosanguineous, or serous nipple discharge
  - Spontaneous nipple discharge

Modified from Makhoul, I., Makhoul, H., Harvey, H., & Souba, W. (2004). Breast Cancer. *EMedicine*. [Online] Available at: http://www.emedicine.com/MED/topic2808.htm; and American Cancer Society (ACS). (2004). Screening guidelines for the early detection of cancer in asymptomatic people. *Cancer prevention & early detection facts & figures 2004,* (p. 31). Atlanta, GA: Author.

Pathophysiology

Cancer is not just one disease, but rather a group of diseases that result from unregulated cell growth. Without regulation, cells divide and grow uncontrollably until they eventually form a tumor. Extensive research has determined that all cancer is the result of changes in DNA or chromosome structure that cause the mutation of specific genes. Most genetic mutations that cause cancer are acquired sporadically, which means they occur by chance and are not necessarily due to inherited mutations (Zawacki & Phillips, 2002). Cancer development is thought to be clonal in nature, which means that each cell is derived from another cell. If one cell develops a mutation, any daughter cell derived from that cell will have that same mutation, and this process continues until a malignant tumor forms.

Breast cancer starts in the epithelial cells that line the mammary ducts within the breast. The growth rate depends on hormonal influences, mainly estrogen and progesterone. The two major categories of breast cancer are noninvasive and invasive. Noninvasive, or in situ, breast cancers are those that have not extended beyond their duct, lobule, or point of origin into the surrounding breast tissue. Conversely, invasive, or infiltrating, breast cancers have extended into the surrounding breast tissue, with the potential to metastasize. Many researchers believe that most invasive cancers probably originate as noninvasive cancers (Weaver, 2002).

By far the most common breast cancer is invasive ductal carcinoma, which represents 70% to 80% of all cases (Makhoul et al., 2004). **Carcinoma** is a malignant tumor that occurs in epithelial tissue; it tends to infiltrate and give rise to metastases. The incidence of this cancer peaks in the sixth decade of life (>60 years old) and spreads rapidly to axillary and other lymph nodes, even while small. Infiltrating ductal carcinoma may take various histologic forms—well differentiated and slow-growing, poorly differentiated and infiltrating, or highly malignant and undifferentiated with numerous metastases. This common type of breast cancer starts in the ducts, breaks through the duct wall, and invades the fatty breast tissue (Penny, 2002).

Invasive lobular carcinomas, which originate in the terminal lobular units of breast ducts, account for 10% to 15% of all cases of breast cancer. The tumor is frequently located in the upper outer quadrant of the breast, and by the time it is discovered the prognosis is usually poor (Youngkin & Davis, 2004). Other invasive types of cancer include tubular carcinoma (29%), which is fairly uncommon and typically occurs in women aged 55 and older. Colloid carcinoma (2% to 4%) occurs in women 60 to 70 years of age and is characterized by the presence of large pools of mucus interspersed with small islands of tumor cells. Medullary carcinoma accounts for 5% to 7% of malignant breast tumors; it occurs frequently in younger women (<50 years of age) and grows into large

tumor masses. Inflammatory breast cancer (<4%) often presents with skin edema, redness, and warmth and is associated with a poor prognosis. Paget's disease (2% to 4%) originates in the nipple and typically occurs with invasive ductal carcinoma (Makhoul et al., 2004; Penny, 2002).

Breast cancer is considered to be a highly variable disease. While the process of metastasis is a complex and poorly understood phenomenon, there is evidence to suggest that new vascularization of the tumor plays an important role in the biological aggressiveness of breast cancer (McCready, 2004). Breast cancer metastasizes widely and to almost all organs of the body, but primarily to the bone, lungs, nodes, liver, and brain. The first sites of metastases are usually local or regional, involving the chest wall or axillary supraclavicular lymph nodes or bone (Holmes, 2004).

Breast cancers are classified into three stages based on:

1. Tumor size
2. Extent of lymph node involvement
3. Evidence of metastasis

The purpose of tumor staging is to determine the probability the tumor has metastasized, to decide an appropriate course of therapy, and to assess the client's prognosis. Table 6-3 gives details and characteristics of each stage. The overall 10-year survival rate for a woman with stage I breast cancer is 80% to 90%; for a woman with stage II, it is about 50%. The outlook is not as good for women with stage III or IV disease (Sloane, 2002).

There is no completely accurate way to know whether the cancer has micrometastasized to distant organs, but certain tests can help determine if the cancer has spread. A bone scan can be performed to assess the bones. Magnetic resonance imaging (MRI) can be used to detect metastases to the liver, abdominal cavity, lungs, or brain.

Diagnostic Studies

There are many diagnostic studies performed to make an accurate diagnosis of a malignant breast lump. Diagnostic tests may include:

Table 6-3 Staging of Breast Cancer

Stage	Characteristics
0	In situ, early type of breast cancer
I	Localized tumor <1 inch in diameter
II	Tumor 1–2″ in diameter; spread to axillary lymph nodes
III	Tumor 2″ or larger and spread to other lymph nodes and tissues
IV	Cancer has metastasized to other body organs

American Cancer Society (ACS). (2004). *Cancer facts and figures 2003.* Atlanta, GA: Author.

- Diagnostic mammography
- Magnetic resonance mammography (MRM)
- Fine-needle aspiration
- Stereotactic needle-guided biopsy
- Sentinel lymph node biopsy
- Hormone receptor status
- DNA ploidy status
- Cell proliferative indices
- HER-2/neu genetic marker (Lewis et al., 2004)

Mammography

Mammography involves taking x-ray pictures of the bare breasts while they are compressed between two plastic plates. This procedure is performed to identify and characterize a breast mass and to detect an early malignancy. A screening mammogram typically consists of four views, two per breast (Fig. 6-4). It can detect lesions as small as 0.5 cm (the average size of a tumor detected by a woman practicing occasional breast self-examination is approximately 2.5 cm) (Willison, 2001). A diagnostic mammogram is performed when the woman has suspicious clinical findings on a breast examination or an abnormality has been found on a screening mammogram. A diagnostic mammogram uses additional views of the affected breast as well as magnification views. Diagnostic mammography provides the radiologist with additional detail to render a more specific diagnosis. A digital mammography, which records images in computer code instead of on x-ray film, can also be used so that images can be transmitted and easily stored.

Most women find the 10-minute mammography procedure uncomfortable but not painful. Teaching Guidelines 6-3 offers tips for a patient to follow before she undergoes this procedure.

Magnetic Resonance Mammography

MRM is a relatively new procedure that might allow for earlier detection because it can detect smaller lesions and provide finer detail. MRM is a highly accurate (>90% sensitivity for invasive carcinoma) but costly tool. Contrast infusion is used to evaluate the rate at which the dye initially enters the breast tissue. The basis of the high sensitivity of MRM is the tumor angiogenesis (vessel growth) that accompanies a majority of breast cancers, even early ones. Malignant lesions tend to exhibit increased enhancement within the first 2 minutes (Wang & Birdwell, 2004). Currently MRM is used only as a complement to mammography and clinical breast examination because it is expensive.

Fine-Needle Aspiration

Fine-needle aspiration (FNA) is done to identify a solid tumor, cyst, or malignancy. It is a simple office procedure that can be performed with or without anesthetic.

A

B

C

● Figure 6-4 Mammography.
(**A**) Mammography equipment.
(**B**) A top-to-bottom view of the breast.
(**C**) A side view of the breast.

A small (20- to 22-gauge) needle connected to a 10-cc or larger syringe is inserted into the breast mass and suction is applied to withdraw the contents. The aspirate is then sent to the cytology laboratory to be evaluated for abnormal cells.

TEACHING GUIDELINES 6-3

Preparing for a Screening Mammogram

- Schedule the procedure just after menses to reduce breast tenderness.
- Don't use deodorant or powder the day of the procedure, because they can appear on the x-ray film as calcium spots.
- Tylenol or aspirin can relieve any discomfort after the procedure.
- Remove all jewelry from around your neck, because the metal can cause distortions on the film image.
- Select a facility that is accredited by the American College of Radiology (ACR) to ensure appropriate credentialed staff.

Stereotactic Needle-Guided Biopsy

This diagnostic tool is used to target and identify mammographically detected nonpalpable lesions in the breast. This procedure is less expensive than an excisional biopsy. The procedure takes place in a specially equipped room and generally takes about an hour. When proper placement of the breast mass is confirmed by digital mammograms, the breast is locally anesthetized and a spring-loaded biopsy gun is used to obtain two or three core biopsy tissue samples. After the procedure is finished, the biopsy area is cleaned and a sterile dressing is applied.

Sentinel Lymph Node Biopsy

The status of the axillary lymph nodes is an important prognostic indicator in early-stage breast cancer. The presence or absence of malignant cells in lymph nodes is highly significant. The more lymph nodes involved and the more aggressive the cancer, the more powerful chemotherapy will have to be, both in terms of the toxicity of drugs and the duration of treatment (Makhoul et al., 2004). With a sentinel lymph node biopsy, the clinician can determine whether breast cancer has spread

to the axillary lymph nodes without having to do a traditional axillary lymph node dissection. Experience has shown that the lymph ducts of the breast typically drain to one lymph node first before draining through the rest of the lymph nodes under the arm. The first lymph node is called the sentinel lymph node.

This procedure can be performed under local anesthesia. A radioactive blue dye is injected 2 hours before the biopsy to identify the afferent sentinel lymph node. The surgeon usually removes one to three nodes and sends them to the pathologist to determine whether cancer cells are present. The sentinel lymph node biopsy is usually performed before a lumpectomy to make sure the cancer has not spread. Removing only the sentinel lymph node can allow women with breast cancer to avoid many of the side effects (lymphedema) associated with a traditional axillary lymph node dissection (McCready, 2004).

Hormone Receptor Status

Normal breast epithelium has hormone receptors and responds specifically to the stimulatory effects of estrogen and progesterone. Most breast cancers retain estrogen receptors, and for those tumors estrogen will retain proliferative control over the malignant cells. It is therefore useful to know the hormone receptor status of the cancer to predict which women will respond to hormone manipulation. Hormone receptor status reveals whether the tumor is stimulated to grow by estrogen and progesterone. Tumors that have estrogen receptors are said to be "ER positive" (ER+) and tumors that do not have estrogen receptors are "ER negative" (ER–). The same terminology applies to progesterone (PR+ or PR–). ER+ and PR+ tumors have a better than 75% response to endocrine therapy in comparison to tumors that are ER+ and PR–, whose response rate is under 35%. Postmenopausal women tend to be ER+; premenopausal women tend to be ER– (Harwood, 2004). Women with these types of tumors generally have a better prognosis. A sample of breast cancer tissue obtained during a biopsy or a tumor removed surgically during a lumpectomy or mastectomy is examined by a cytologist.

DNA Ploidy Status

DNA ploidy status, which correlates with tumor aggressiveness, indicates the amount of DNA in cancer cells. Cancer cells that have the correct amount of DNA (diploid) in contrast with too much or too little DNA (aneuploid) tend not to spread. An aneuploid DNA pattern denotes a greater tendency to metastasize than a diploid one (Penny, 2002). A sample of breast cancer tissue obtained during a biopsy or a tumor removed surgically during a lumpectomy or mastectomy is examined for abnormal amounts of DNA. Using flow cytometry (process of counting and measuring cells), it is possible to measure the DNA content and proliferative activity of a tumor. The number of chromosome sets in the nucleus indicates the speed of cell replication and tumor growth; a high number predicts a poor outcome.

Cell Proliferative Indices

Research indicates that cell proliferation potential may have prognostic significance. Cell proliferative indices indirectly measure the rate of cell division, which is an indication of how fast the cancer is growing. Flow and image cytometry are used to measure the tumor's cell cycle rate. The percent of tumor cells in S phase (synthesis stage of cell division) of the cell cycle is assessed. S-phase percentages below 10% are considered low, and the tumor has less of a chance of spreading than one with a higher percentage. A tumor with high proliferative activity has a more aggressive metastatic potential (Makhoul et al., 2004).

HER-2/neu Genetic Marker

Molecular and biologic factors are increasingly being used as indicators for prognosis and treatment. Human epidermal growth factor receptor 2 (HER2) whose biological function is associated with cell growth resulting in loss of cell regulation and uncontrolled cell proliferation.

HER-2/neu oncoprotein is a protein that is significant, especially in large tumors. Overexpression of this protein results from an acquired genetic mutation and occurs in approximately 30% of women with metastatic breast cancer. Women whose tumors have high levels of HER-2/neu oncoprotein have a poor prognosis: they have rapid tumor progression, an increased rate of recurrence, a poor response to standard therapies, and a lower survival rate (Schnell et al., 2003). The presence or absence of this oncoprotein helps determine which chemotherapy treatment will be most effective. A breast tissue sample is obtained by a fine-needle or open biopsy and treated with a material that binds to HER-2/neu oncoprotein. A dye is added to the tissue sample and the more uptake of the dye, the higher amount present (Schnell et al., 2003).

Therapeutic Management

Women diagnosed with breast cancer have many treatments available to them. Generally, treatments fall into two categories: local and systemic. Local treatments are surgery and radiation therapy. Effective systemic treatments include chemotherapy, hormonal therapy, and immunotherapy.

Treatment plans are based on multiple factors, primarily on whether the cancer is invasive or noninvasive, the tumor's size and grade, the number of cancerous axillary lymph nodes, the hormone receptor status, and the ability to obtain clear surgical margins (Weaver, 2002). A combination of surgical options and adjunct therapy is often recommended.

Another consideration in making decisions about a treatment plan is genetic testing for BRCA-1 and BRCA-2. This genetic testing became available in 1995 and can pinpoint women who have a significantly in-

creased risk for breast and ovarian cancer: BRCA-1 and BRCA-2 mutations predispose individuals to a 75% lifetime risk of breast cancer and a 30% lifetime risk of ovarian cancer. Most cases of breast and ovarian cancer are sporadic in nature, but approximately 7% of breast cancers and 10% of ovarian cancers are thought to result from genetic inheritance (Zawacki & Phillips, 2002).

Testing positive for a BRCA-1 or BRCA-2 mutation can significantly alter healthcare decisions. In some cases, before genetic testing was available, lumpectomy with radiation or mastectomy was the treatment most often recommended. However, if the woman is found to have a BRCA-1 mutation, she is most likely to be offered the option of contralateral prophylactic mastectomy and possible bilateral oophorectomy (Rebbeck et al., 2004).

Severe psychological distress can occur as a result of genetic testing. Also, many women perceive their breasts as intrinsic to their femininity, self-esteem, and sexuality, and the risk of losing a breast can provoke extreme anxiety (Pasacreta et al., 2002). Nurses need to address the physical, emotional, and spiritual needs of the women they care for, as well as their families, since this mutation is inherited in an autosomal dominant fashion. Based on Mendelian genetics, first-degree relatives of affected women have a 50% risk of having inherited the mutation (Augustine & Bogan, 2004).

Surgical Options

Generally, the first treatment option for the woman diagnosed with breast cancer is surgery. A few women with tumors larger than 5 cm or inflammatory breast cancer may undergo neoadjuvant chemotherapy or radiotherapy to shrink the tumor before surgical removal is attempted (Holmes, 2004). The surgical options depend on the type and extent of cancer. The choices are typically either breast-conserving surgery (lumpectomy with radiation) or mastectomy with or without reconstruction. The overall survival rate with lumpectomy and radiation is about the same as that with modified radical mastectomy (ACS, 2003). Research has shown that the survival rates in women who have had mastectomies versus those who have undergone breast-conserving surgery followed by radiation are the same. However, lumpectomy may not be an option for some women, including those:

- Who have two or more cancer sites that cannot be removed through one incision
- Whose surgery will not result in a clean margin of tissue
- Who have active connective tissue conditions (lupus or scleroderma) that make body tissues especially sensitive to the side effects of radiation
- Who have had previous radiation to the affected breast
- Whose tumors are larger than 5 cm (2 inches) (NCCN, 2004)

These decisions are made jointly between the woman and her surgeon.

Breast-Conserving Surgery

Breast-conserving surgery, the least invasive procedure, is the wide local excision (or lumpectomy) of the tumor along with a 1-cm margin of normal tissue. A lumpectomy is often used for early-stage localized tumors. The goal of breast-conserving surgery is to remove the suspicious mass along with tissue free of malignant cells to prevent recurrence. The results are less drastic and emotionally less scarring to the woman. Women undergoing breast-conserving therapy receive radiation after lumpectomy with the goal of eradicating residual microscopic cancer cells to limit locoregional recurrence. In women who do not require adjuvant chemotherapy, radiation therapy typically begins 3 to 4 weeks after surgery to allow healing of the lumpectomy incision site. Radiation is administered to the entire breast at daily doses over a period of 5 to 6 weeks (Gordils-Perez et al., 2003).

A sentinel lymph node biopsy may also be performed since the lymph nodes draining the breast are located primarily in the axilla. Theoretically, if breast cancer is to metastasize to other parts of the body, it will probably do so via the lymphatic system. If malignant cells are found in the nodes, more aggressive systemic treatment may be needed.

Mastectomy

A **simple mastectomy** is the removal of all breast tissue, the nipple, and the areola. The axillary nodes and pectoral muscles are spared. This procedure would be used for a large or multiple tumors that have not metastasized to adjacent structures or the lymph system.

A **modified radical mastectomy** is another surgical option whose survival rates are comparable to those of radical mastectomy, but it more conducive to breast reconstruction and results in greater mobility and less lymphedema (Alexander et al., 2004). This procedure involves removal of breast tissue, the axillary nodes, and some chest muscles, but not the pectoralis major; thus avoiding a concave anterior chest (DiSaia & Creasman, 2002).

In conjunction with the mastectomy, lymph node surgery (removal of underarm nodes) may need to be done to reduce the risk of distant metastasis and improve a woman's chance of long-term survival. For woman with a positive sentinel node biopsy, the removal of 10 to 20 underarm lymph nodes may be needed. Complications associated with axillary lymph node surgery include nerve damage during surgery, causing temporary numbness down the upper aspect of the arm; seroma formation followed by wound infection; restrictions in arm mobility (some women need physiotherapy); and lymphedema. In many women lymphedema can be avoided by:

- Avoiding using the affected arm for drawing blood, inserting intravenous lines, or measuring blood pressure (can cause trauma and possible infection)
- Seeking medical care immediately if the affected arm swells

- Wearing gloves when engaging in activities such as gardening that might cause injury
- Wearing a well-fitted compression sleeve to promote drainage return

Women having mastectomies must decide whether to have further surgery to "reconstruct" the breast. If the woman decides to have reconstructive surgery, it ideally is performed immediately after the mastectomy. The woman must also determine whether she wants the surgeon to use saline implants or natural tissue from her abdomen (TRAM flap method) or back (LAT flap method).

In the transverse rectus abdominis myocutaneous (TRAM) flap method, the rectus abdominis muscle is transferred from the abdomen via a tunnel under the skin and brought out through a new excision in the breast area. The blood supply is maintained. This tissue is used to reconstruct the breast that has been removed. In the latissimus dorsi (LAT) flap method, tissue from the latissimus dorsi muscle in the upper back is tunneled subcutaneously up to the chest area.

If reconstructive surgery is desired, the ultimate decision regarding the method will be determined by the woman's anatomy (e.g., is there sufficient fat and muscle to permit natural reconstruction?) and her overall health status. Both procedures require a prolonged recovery period.

Some women opt for no reconstruction, and many of them choose to wear breast prostheses. Some prostheses are worn in the bra cup and others fit against the skin or into special pockets made into clothing.

Whether to have reconstructive surgery is an individual and very complex decision. Each woman must be presented with all of the options and then allowed to decide. The nurse can play an important role here by presenting the facts to the woman so that she can make an intelligent decision to meet her unique situation.

Adjunct Therapy

Adjunct therapy is supportive or additional therapy that is recommended after surgery. Adjunct therapies include local therapy such as radiation therapy and systemic therapies using chemotherapy, hormonal therapy, and immunotherapy.

Radiation Therapy

Radiation therapy uses high-energy rays to destroy cancer cells that might have been left behind in the breast, chest wall, or underarm area after the tumor has been removed surgically. Usually serial radiation doses are given 5 days a week to the tumor site for 6 to 8 weeks postoperatively. Each treatment only takes a few minutes, but the dose is cumulative. Women undergoing breast-conserving therapy receive radiation to the entire breast after lumpectomy with the goal of eradicating residual microscopic cancer cells to reduce the chance of recurrence (Gordils-Perez et al., 2003).

Side effects of traditional radiation therapy include inflammation, local edema, anorexia, swelling, and heaviness in the breast; sunburn-like skin changes in the treated area; and fatigue. Changes to the breast tissue and skin usually resolve in about a year (Lowdermilk & Perry, 2004). This type of therapy can be given several ways: external beam radiation, which delivers a carefully focused dose of radiation from a machine outside the body, or internal radiation, in which tiny pellets that contain radioactive material are placed into the tumor.

Several advances have taken place in the field of radiation oncology for the treatment of women with early-stage breast cancer that assist in reducing the side effects. The treatment position for external radiation has changed from supine to prone, with the arm on the affected side raised above the head, so that the treated breast hangs dependently through the opening of the treatment board. Treatment in the prone position improves dose distribution within the breast and allows for a decrease in the dose delivered to the heart, lung, chest wall, and other breast (NCCN, 2004).

High-dose brachytherapy is another advance that is an alternative to traditional radiation treatment. A balloon catheter is used to insert radioactive seeds into the breast after the tumor is removed surgically. The seeds deliver a concentrated dose directly to the operative site; this is important because most cancer recurrences in the breast (67% to 100%) occur at or near the lumpectomy site. This allows a high dose of radiation to be delivered to a small target volume with a minimal dose to the surrounding normal tissue. This procedure takes 4 to 5 days as opposed to the 4 to 6 weeks traditional radiation therapy takes; it also eliminates the need to delay radiation therapy to allow for wound healing. Brachytherapy is now used as a primary radiation treatment after breast-conserving surgery in selected women as an alternative to whole breast irradiation (Vicini et al., 2002).

Side effects of brachytherapy include redness or discharge around catheters, fever, and infection. Daily cleansing of the catheter insertion site with a mild soap and application of an antibiotic ointment will minimize the risk of infection.

Intensity-modulated radiation therapy (IMRT) offers still another new approach to the delivery of treatment to reduce the dose within the target area while sparing surrounding normal structures. A computed tomography scan is used to create a three-dimensional model of the breast. Based on this model, a series of intensity-modulated beams are produced to the desired dose distribution to reduce radiation exposure to underlying structures. Acute toxicity is thus minimized (Chui et al., 2002). Research is ongoing to evaluate the impact of all of these advances in radiation therapy.

Chemotherapy

Chemotherapy refers to the use of drugs that are toxic to all cells and interfere with a cell's ability to reproduce. They are particularly effective against malignant cells but affect all rapidly dividing cells, especially those of the skin, the hair follicles, the mouth, the gastrointestinal tract, and the bone marrow. Breast cancer is a systemic disease in which small micrometastases are already present in other organs by the time the breast cancer is diagnosed. Chemotherapeutic agents perform a systemic "sweep" of the body to reduce the chances that distant tumors will start growing.

Chemotherapy may be indicated for women with tumors larger than 1 cm, positive lymph nodes, or cancer of an aggressive type. Chemotherapy is prescribed in cycles, with each period of treatment followed by a rest period. Treatment typically lasts 3 to 6 months, depending on the dose used and the woman's health status.

Different classes of drugs affect different aspects of cell division and are used in combinations or "cocktails." The most active and commonly used chemotherapeutic agents for breast cancer include alkylating agents, anthracyclines, antimetabolites, and vinca alkaloids. Fifty or more chemotherapeutic agents can be used to treat breast cancer; however, a combination drug approach versus a single drug treatment appears to be more effective (ACS, 2003).

Side effects of chemotherapy depend on the agents used, the intensity of dosage, the dosage schedule, the type and extent of cancer, and the client's physical and emotional status (Penny, 2002). However, typical side effects include nausea and vomiting, diarrhea or constipation, hair loss, weight loss, stomatitis, fatigue, and immunosuppression. The most serious is bone marrow suppression (myelosuppression). This causes an increased risk of infection, bleeding, and a reduced red-cell count, which can lead to anemia. Treatment of the side effects can generally be addressed through appropriate support medications such as antinausea drugs like granisetron hydrochloride (Kytril) or ondansetron (Zofran). In addition, growth-stimulating factors, such as epoetin alfa (Procrit) and filgrastim (Neupogen), help keep blood counts from dropping too low. Counts that are too low would stop or delay the use of chemotherapy.

An aggressive systemic option, when other treatments have failed or when there is a strong possibility of relapse or metastatic disease, is high-dose chemotherapy with bone marrow and/or stem cell transplant. This therapy involves the withdrawal of bone marrow before the administration of toxic levels of chemotherapeutic agents. The marrow is frozen and then returned to the client after the high-dose chemotherapy is finished. Clinical trials are still researching this experimental therapy (Lowdermilk & Perry, 2004).

Hormonal Therapy

One of estrogen's normal functions is to stimulate the growth and division of healthy cells in the breasts. However, in some women with breast cancer, this normal function contributes to the growth and division of cancer cells.

The objective of hormonal therapy is to block or counter the effect of estrogen. Estrogen plays a central role in the pathogenesis of cancer, and treatment with estrogen deprivation has proven to be effective (Hindle & Gonzalez, 2001). Currently, it is standard for most women with ER+ breast cancer to take a hormone-like medication—known as a selective estrogen receptor modulator (SERM) antiestrogenic agent—daily for 5 years after initial treatment. Certain areas in the female body (breasts, uterus, ovaries, skin, vagina, and brain) contain specialized cells called hormone receptors that allow estrogen to enter the cell and stimulate it to divide. SERMs enter these same receptors and act like keys, turning off the signal for growth inside the cell (Link, 2003). The best-known SERM is tamoxifen (Nolvadex, 20 mg daily for 5 years). Although it works well in preventing further spread of cancer, it is also associated with an increased incidence of endometrial cancer, pulmonary embolus, deep vein thrombosis, hot flashes, vaginal discharge and bleeding, stroke, and cataract formation (Weaver, 2002).

A relatively new SERM is raloxifene (Evista), which has shown promising results. It was originally marketed solely for the prevention and treatment of osteoporosis but is now used as adjunct breast cancer therapy.

Another class of hormonal agents, known as aromatase inhibitors (AIs), stands out as an effective therapy option. AIs work by inhibiting the conversion of androgens to estrogens. AIs includes letozole (Femara, 2.5 mg daily), exemestane (Aromasin, 25 mg daily), and anastrozole (Arimidex, 1 mg daily for 5 years), all of which are taken orally. These are usually given to women with advanced breast cancer or cancers that recur despite the use of tamoxifen (Penny, 2002).

The side effects associated with these endocrine therapies include hot flashes, bone pain, fatigue, nausea, cough, dyspnea, and headache (Harwood, 2004). Women with hormone-sensitive cancers can live for long periods without any intervention other than hormonal manipulation, but quality-of-life issues need to be addressed in the balance between treatment and side effects.

Nurses play an important role in educating women about the use of endocrine therapies, observing women's experiences with treatment, and communicating those observations to their primary care professionals to make dosage adjustments, in addition to contributing to the knowledge base of endocrine therapy in the treatment of breast cancer.

Immunotherapy

Immunotherapy, used as an adjunct to surgery, represents an attempt to stimulate the body's natural defenses to recognize and attack cancer cells. Trastuzumab (Herceptin, 2- to 4-mg/kg intravenous infusion) is the first

monoclonal antibody approved for breast cancer (NCCN, 2004). Some tumors produce excessive amounts of HER-2/neu protein, which regulates cancer cell growth. Breast cancers that overexpress the protein HER-2/neu are associated with a more aggressive form of disease and a poorer prognosis. Trastuzumab blocks the effect of this protein to inhibit the growth of cancer cells. It can be used alone or in combination with other chemotherapy to treat clients with metastatic breast disease (Lewis et al., 2004). Adverse effects of trastuzumab include cardiac toxicity, vascular thrombosis, hepatic failure, fever, chills, nausea, vomiting, and pain with first infusion (Spratto & Woods, 2004).

Nursing Management for the Patient With Breast Cancer

When a woman is diagnosed with breast cancer, she faces treatment that may alter her body shape, may make her feel unwell, and may not carry a certainty of cure. Nurses can support women from the time of diagnosis, through the treatments, and through follow-up after the surgical and adjunctive treatments have been completed. Allowing patients time to ask questions and to discuss any necessary preparations for treatment is critical.

Assessment

As our understanding of breast disorders keeps improving, treatments continue to change. Although the goal of treatment remains improved survival, increasing emphasis is focused on prevention (Morrow & Gradishar, 2002). Nurses can have an impact on early detection of breast disorders, treatment, and symptom management (Yarbro, 2003). During assessment, the nurse will take a thorough history of the breast disorder and complete a breast examination to validate the findings. The clinical breast examination involves both inspection and palpation (Nursing Procedure 6-1). Nurses must be cognizant of the impact that breast cancer has on a woman's emotional state, coping ability, and quality of life. Women may experience sadness, anger, fear, and guilt as a result of breast cancer. However, despite potential negative outcomes, many women have a positive outlook for their futures and adapt to treatment modalities with a good quality of life (Kessler, 2002). The nurse should closely monitor clients for their psychosocial adjustment to diagnosis and treatment and should be able to identify those who need further psychological intervention. By giving practical advice, the nurse can help the woman adjust to her altered body image and to accept the changes to her life.

Because family members play a significant role in supporting women through breast cancer diagnosis and treatment, nurses should assess the emotional distress of both partners during the course of treatment and, if needed, make a referral for psychological counseling. By identifying interpersonal strains, negative psychosocial side effects of cancer treatment can be minimized.

A nurse who is involved in the woman's treatment plan from the beginning can effectively offer support throughout the whole experience.

Nursing Diagnosis

Appropriate nursing diagnoses for a woman with a diagnosis of breast cancer might include:

- Disturbed body image related to:
  - Loss of body part (breast)
  - Loss of femininity
  - Loss of hair due to chemotherapy
- Fear related to:
  - Diagnosis of cancer
  - Prognosis of disease
- Educational deficit related to:
  - Cancer treatment options
  - Reconstructive surgery decisions
  - Breast self-examination

Nursing Interventions

Nurses can offer information, support, and perioperative care to women diagnosed with breast cancer who are undergoing treatment. Nurses can also implement health-promotion and disease-prevention strategies to minimize the risk for developing breast cancer and to promote optimal outcomes.

Providing Patient Education

The nurse can help the woman and her partner to prioritize the voluminous amount of information given to them so that they can make informed decisions. All treatment options should be explained in detail so the patient and her family understand them. By preparing an individualized packet of information and reviewing it with the woman and her partner, the nurse can help them understand her specific type of cancer, the diagnostic studies and treatment options she may choose, and the goals of treatment. Providing information is a central role of the nurse. This information can be given via telephone counseling, one-to-one contact, and pamphlets. Telephone counseling with women and their partners may be an effective method to improve symptom management and quality of life (Badger et al., 2004).

Providing Emotional Support

The diagnosis of cancer affects all aspects of life for a woman and her family. The threatening nature of the disease and feelings of uncertainty for the future can lead to anxiety and stress. Nurses must address the woman's needs for:

- Information about diagnosis and treatment
- Physical care while undergoing treatments
- Contact with supportive people
- Education about disease, options, and prevention measures
- Discussion and support by a caring, competent nurse

The nurse should reassure the client and her family that the diagnosis of breast cancer does not necessarily mean imminent death, a decrease in attractiveness, or diminished sexuality. The woman should be encouraged to express her fears and worries. The nurse needs to be available to listen and address the woman's concerns in an open manner to help her toward recovery. All aspects of care must include sensitivity to the patient's personal efforts to cope and heal. Some women will become involved in organizations or charities that support cancer

Nursing Procedure 6-1

Clinical Breast Examination

Purpose: To Assess Breasts for Abnormal Findings

1. Inspect the breast for size, symmetry, and skin texture and color. Inspect the nipples and areola. Ask the client to sit at the edge of the examination table, with her arms resting at her sides (Fig. A).
2. Inspect the breast for masses, retraction, dimpling, or ecchymosis.
   - The client places her hands on her hips (Fig. B).
   - She then raises her arms over her head so the axillae can also be inspected (Fig. C).
   - The client then stands, places her hands on her hips, and leans forward (Fig. D).
3. Palpate the breasts. Assist the client into a supine position with her arms above her head (Fig. E). Place a pillow or towel under the client's head to help spread the breasts. Three patterns might be used to palpate the breasts:
   - Spiral (Fig. F)
   - Pie-shaped wedges (Fig. G)
   - Vertical strip (Fig. H)
4. Palpate the nipple using the index finger for masses (Fig. I) and discharge (Fig. J)
5. Palpate the axillary area for any tenderness or lymph node enlargement. Have the client sit up and move to the edge of the examination table. While supporting the client's arm, palpate downward from the armpit, palpating toward the ribs just below the breast.

A

B

C

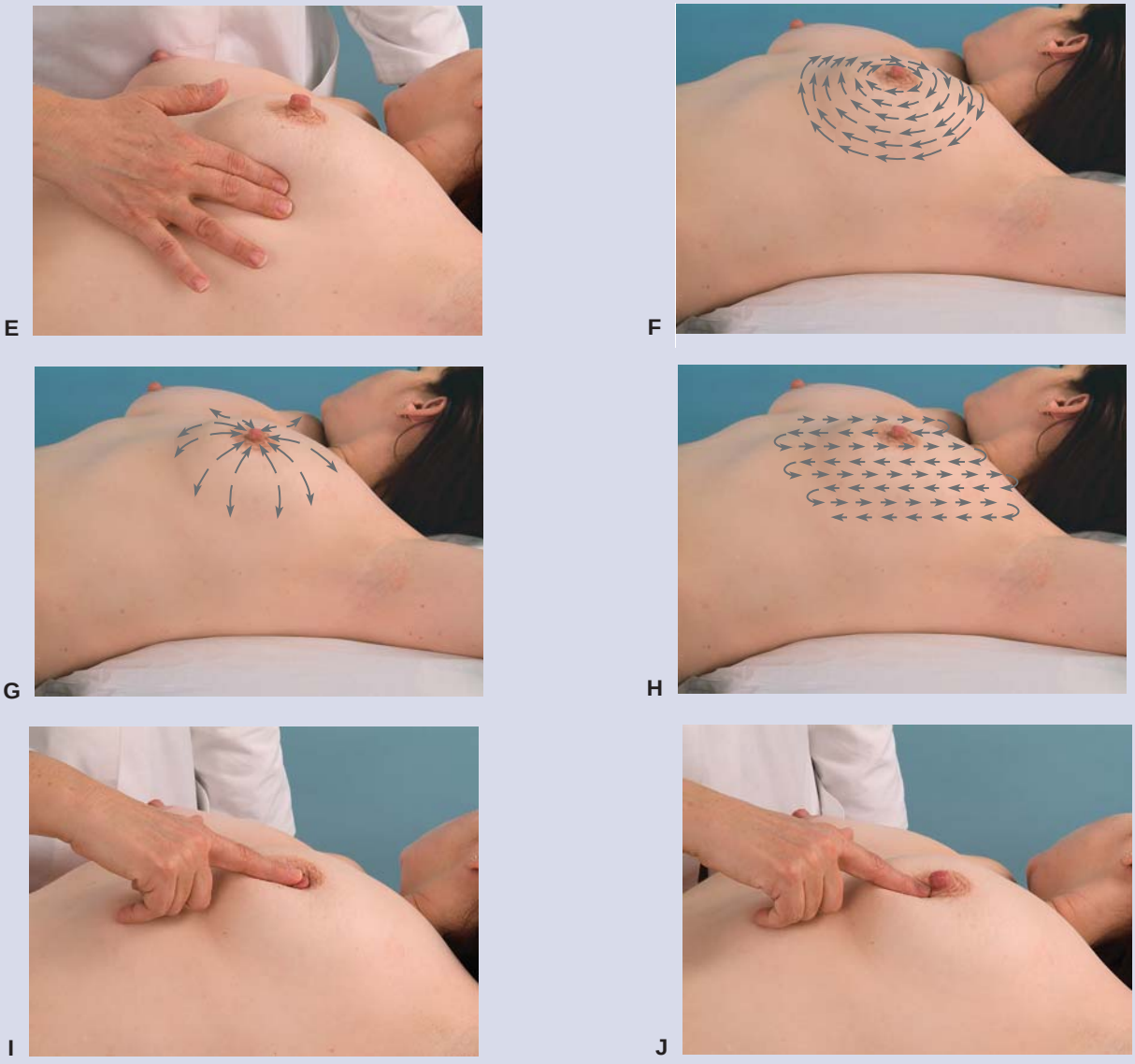
D

(continued)

Nursing Procedure 6-1

Clinical Breast Examination (Continued)

Purpose: To Assess Breasts for Abnormal Findings



Adapted from Rhoads, J. (2006). Advanced health assessment and diagnostic reasoning. Philadelphia: Lippincott Williams & Wilkins.

research; they may participate in breast cancer walks to raise awareness or become a Reach for Recovery volunteer to help others. Each woman copes in her own personal manner, and all of these efforts can be positive motivators for her own healing.

To help women cope with the diagnosis of breast cancer, the American Cancer Society launched Reach to Recovery more than 30 years ago. Specially trained breast cancer survivors give women and their families opportunities to express their feelings, verbalize their fears, and get answers. Most importantly, Reach to Recovery volunteers offer understanding, support, and hope through face-to-face visits or by telephone; they are proof that people can survive breast cancer and live productive lives. National contact information is 1-800-ACS-2345.

Providing Perioperative Care

The following nursing care is needed before surgery and after treatment:

- Pain management (analgesics as needed)
- Affected arm care (the arm should be elevated on a pillow; no treatments to it)

- Wound care (observation and drainage reservoirs emptied as needed)
- Mobility care (active range-of-motion and arm exercises as ordered)
- Respiratory care (turn, cough, and deep breathe every 2 hours)
- Follow-up (information regarding adjunct therapy)
- Emotional care (participate in care and self-empowerment)
- Educational needs (home care and future monitoring strategies)
- Referrals needed (e.g., Reach to Recovery)

Implementing Health-Promotion and Disease-Prevention Strategies

In the past, most women assumed that there was little they could do to reduce their risk of developing breast cancer. However, research has found that the daily choices women make concerning breast cancer screening, diet, exercise, and other health practices have a profound impact on their cancer risk. In the fight against cancer, nurses often assume a variety of roles, such as educator, counselor, advocate, and role model. Nurses need to offer up-to-date information on:

- Prevention
- Early detection
- Resources for screening
- Education for dispelling myths and fears
- Demonstration of self-examination techniques
- Counseling about individual risk status and strategies for risk reduction

Nurses need to be knowledgeable about the most current evidence, familiar with current guidelines based on research, and cognizant of how the media presents this information. Nurses should offer prevention strategies within the context of a woman's life. Factors such as lifestyle choices, economic status, and multiple roles need to be taken into consideration when counseling women. Nurses should advocate for healthy lifestyles and making sound choices to prevent cancer. Nurses, like all health care professionals, should offer guidance from a comprehensive perspective that acknowledges the unique needs of each individual (Morin et al., 2004).

Breast cancer is a frightening experience for women. Like a black cloud hanging over their heads, with little regard for any victim, breast cancer stalks women everywhere they go. Many have a close friend or relative who is battling the disease; many have watched their mothers and sisters die of this dreaded disease. Those with risk factors live with even greater anxiety and fear. No woman wants to hear those chilling words: "The biopsy is positive. You have breast cancer." Nurses can provide women with information about detection and risk factors and should inform them about the new ACS screening guidelines, instruct them on breast self-examination, and outline dietary changes that might reduce their risk of breast cancer.

Awareness is the first step toward a change in habits. Raising the level of awareness about breast cancer is of paramount importance, and nurses are in an ideal position to play an important role in health promotion, disease prevention, and breast education.

Breast Cancer Screening

The three components of early detection are breast self-examination, clinical breast examination, and mammography.

The ACS (2003) has issued breast cancer screening guidelines that, for the first time, offer specific guidance for the women and greater clarification of the role of breast examinations (Table 6-4). ACS screening guidelines are revised about every 5 years to include new scientific findings and developments.

Women are exposed to multiple sources of cancer prevention information, and much of it may not be sound. The benefits, risks, and potential limitations of breast self-examination, clinical breast examination, and mammography should be discussed with each woman and tailored to assessment of her risk factors (Mahon, 2003). Based on the new guidelines, nurses will have to make clinical judgments as to the appropriateness of recommending breast self-examination and should reevaluate the need for teaching the procedure to all women. Perhaps nurses need to focus instead on encouraging regular mammograms, depending of course on the woman's individual risk factors.

Breast self-examination is a technique that enables a woman to detect any changes in her breasts; this could result in early cancer detection. The emphasis is now on awareness of breast changes, not just discovery of cancer.

Table 6-4 American Cancer Society Breast Cancer Screening Guidelines

Woman's Age	Screening Activity
20–39	Breast self-examination (BSE) is optional Clinical breast examination every 3 years
40+	BSE every month is optional Clinical breast examination every year Mammogram every year, continuing for as long as the woman is in good health
Women at increased risk (e.g., family history, genetic tendency, past history of cancer) should discuss with their healthcare professionals the pros and cons of starting mammography screening earlier, undergoing additional diagnostic tests (e.g., ultrasound or MRI), or increasing the frequency of examinations.	

American Cancer Society (ACS). (2004). *Cancer facts and figures 2003.* Atlanta, GA: Author.

Research has shown that breast self-examination plays a small role in detecting breast cancer compared with self-awareness. However, doing breast self-examination is one way for women to know how her breasts normally feel so that she can notice any changes that do occur (ACS, 2003).

There are two steps to conducting a breast self-examination: visual inspection and tactile palpation.

The visual part should be done in three separate positions: with the arms up behind the head, with the arms down at the sides, and bending forward. The woman should be instructed to look for:

- Changes in shape, size, contour, or symmetry
- Skin discoloration or dimpling, bumps/lumps
- Sores or scaly skin
- Discharge or puckering of the nipple

In the second part, the tactile examination, the woman feels her breasts in one of three specific patterns: spiral, pie-shaped wedges, or up and down. When using any of the three patterns, the woman should use a circular rubbing motion (in dime-sized circles) without lifting the fingers. She checks not only the breasts but also between the breast and the axilla, the axilla itself, and the area above the breast up to the clavicle and across the shoulder. The pads of the three middle fingers on the right hand are used to assess the left breast; the pads of the three middle fingers on the left hand are used to assess the right breast. The woman should be instructed to use three different degrees of pressure:

- Light (move the skin without moving the tissue underneath)
- Medium (midway into the tissue)
- Hard (down to the ribs)

Once the tactile examination has been completed while standing in front of a mirror, it should be repeated while lying down.

Box 6-2 details breast self-examination.

Nutrition

Nutrition plays a critical role in health promotion and disease prevention (Glanz et al., 2003). Being overweight or obese and consuming a high-fat diet are risk factors for breast cancer in postmenopausal women (Stephenson & Rose, 2003). Healthy People 2010 identified being overweight or obese as one of the 10 leading health indicators and a major health concern (USDHHS, 2000). Almost 62% of women over the age of 20 years are overweight; of these, 33.4% are obese (Flegal et al., 2002). A diet high in fruits, vegetables, and high-fiber carbohydrates and low in fats seems to offer protection against breast cancer as well as weight control. Women who followed these dietary guidelines decreased their risk of breast cancer by 15% (Blackburn et al., 2003).

The American Institute for Cancer Research (AICR), which conducts extensive research, made the following recommendations to reduce a woman's risk for developing breast cancer:

- Engaging in daily moderate exercise and weekly vigorous physical activity
- Consuming at least five servings of fruits and vegetables daily
- Not smoking or using any tobacco products
- Keeping a maximum body mass index (BMI) of 25 and limiting weight gain to no more than 11 pounds since age 18
- Consuming seven or more daily portions of complex carbohydrates, such as whole grains and cereals
- Limiting intake of processed foods and refined sugar
- Restricting red meat intake to approximately 3 ounces daily
- Limiting intake of fatty foods, particularly those of animal origin
- Restricting intake of salted foods and use of salt in cooking (Cerhan et al., 2004).

The medical community is also starting to study the role of phytochemicals in health. The unique geographic variability of breast cancer around the world and the low rate of breast cancer in Asian compared to Western countries prompted this exploration. This area of research appears hopeful for women seeking to prevent breast cancer as well as those recovering from it. Although the mechanism isn't clear, certain foods demonstrate anticancer properties and boost the immune system. Phytochemical-rich foods include:

- Green tea and herbal teas
- Garlic
- Whole grains and legumes
- Onions and leeks
- Soybeans and soy products
- Fruits (citrus, apricots, pumpkin, berries)
- Green leafy vegetables (spinach, collards, romaine)
- Colorful vegetables (carrots, squash, tomatoes)
- Cruciferous vegetables (broccoli, cabbage, cauliflower)
- Flaxseeds (Hu & Knobf, 2004)

Nurses should adopt a holistic approach when addressing the nutritional needs of women with breast cancer. Nutritional assessment should be incorporated into the general overall assessment of all women. Culturally sensitive nutritional assessment tools need to be developed and used to enhance this process. Providing examples of appropriate foods associated with the woman's current dietary habits, relating current health status to nutritional intake, and placing proposed modifications within a realistic personal framework may increase a woman's willingness to incorporate needed changes in her nutritional behavior. Nurses should be able to interpret research results and should stay up to date on nutritional influences so they can transmit this key information to the public.

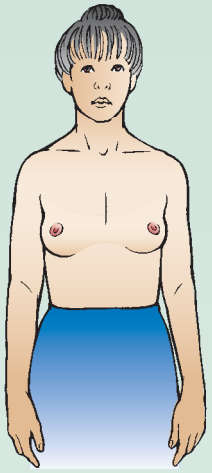
BOX 6-2

HOW TO PERFORM BREAST SELF-EXAMINATION

Step 1

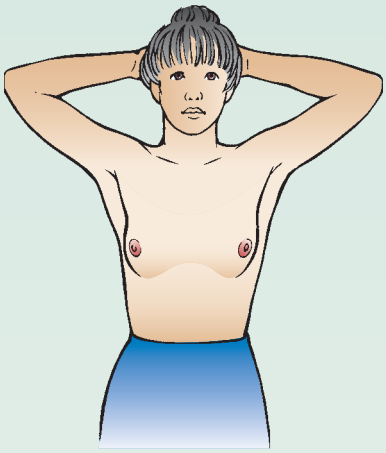
- Stand before a mirror.
- Check both breasts for anything unusual.
- Look for discharge from the nipple and puckering, dimpling, or scaling of the skin.

The next two steps check for any changes in the contour of your breasts. As you do them, you should be able to feel your muscles tighten.



Step 2

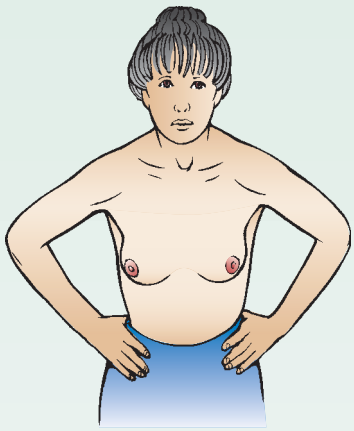
- Watch closely in the mirror as you clasp your hands behind your head and press your hands forward.
- Note any change in the contour of your breasts.



Step 3

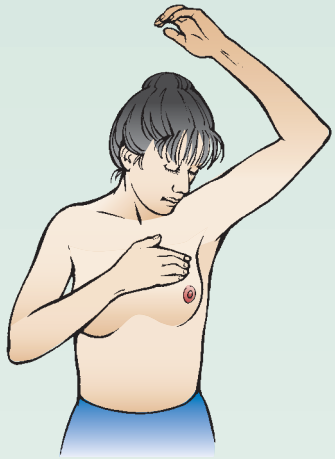
- Next, press your hands firmly on your hips and bow slightly toward the mirror as you pull your shoulders and elbows forward.
- Note any change in the contour of your breasts.

Some women perform the next part of the examination in the shower. Your fingers will glide easily over soapy skin, so you can concentrate on feeling for changes inside the breast.



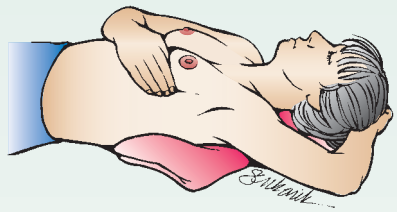
Step 4

- Raise your left arm.
- Use 3 or 4 fingers of your right hand to feel your left breast firmly, carefully, and thoroughly.
- Beginning at the outer edge, press the flat part of your fingers in small circles, moving the circles slowly around the breast.
- Gradually work toward the nipple.
- Be sure to cover the whole breast.
- Pay special attention to the area between the breast and the underarm, including the underarm itself.
- Feel for any unusual lumps or masses under the skin.
- If you have any spontaneous discharge during the month—whether or not it is during your BSE—see your doctor.
- Repeat the examination on your right breast.



Step 5

- Lie flat on your back with your left arm over your head and a pillow or folded towel under your left shoulder. (This position flattens your breast and makes it easier to check.)
- Repeat the actions of Step 4 in this position for each breast.



From: Smeltzer, S. C., & Bare, B. (2004). *Brunner and Suddarth's textbook of medical surgical nursing* (10th ed.). Philadelphia: Lippincott Williams & Wilkins. Adapted from U.S. Department of Health and Human Services, Public Health Service, *What you need to know about breast cancer.* Bethesda, MD: National Institutes of Health.

Summary

Teamwork is important in breast screening and caring for women with breast disorders. Treatment is often fragmented between the hospital and community treatment centers, which can be emotionally traumatic for the woman and her family. The advances being made in the diagnosis and treatment of breast disorders mean that guidelines are constantly changing, requiring all health care professionals to keep up to date. Informed nurses can provide support and information and, most importantly, continuity of care for the woman undergoing treatment for a breast problem.

The nurse plays a particularly important role in providing psychological support and self-care teaching to patients with breast cancer. Nurses can influence both physical and emotional recovery, which are both important aspects of care that help in improving the woman's quality of life and the ability to survive. The nurse's role should extend beyond helping clients; spreading the word in the community about screening and prevention is a big part in the ongoing fight against cancer. The community should see nurses as both educators and valued sources of credible information. This role will help improve clinical outcomes while achieving high levels of client satisfaction.

References

Alexander, L. L., LaRosa, J. H., & Bader, H. (2004). *New dimensions in women's health* (3rd ed.). Boston: Jones and Bartlett Publishers.

American Cancer Society (ACS) (2003). Benign breast conditions. [Online] Available at: http://www.cancer.org/docroot/CRI/content/CRI_2_6X_Benign_Breast_Conditions_59.a

American Cancer Society News Center (2003). *Updated breast cancer screening guidelines released* [Online]. Available at: http://www.cancer.org/docroot/MED/content/MED_2_1x_American_Cancer_Society_Is American Cancer Society (ACS) (2004). *Cancer facts and figures 2004.* Atlanta, GA: Author.

American Cancer Society (ACS) (2004). Screening guidelines for the early detection of cancer in asymptomatic people. *Cancer prevention & early detection facts & figures 2004* (p. 31). Atlanta, GA: Author.

American Cancer Society (ACS) (2004). What are the risk factors for breast cancer? *Cancer Reference Information,* [Online] Available at: http://www.cancer.org/docroot/CRI_2_4_2X_What_are_the_risk_factors_fo

American Cancer Society (ACS). (2004). *Cancer facts and figures 2003.* Atlanta, GA: Author.

Amshel, C. E., & Sibley, E. (2001). Multiple unilateral fibroadenomas. *Breast Journal, 7*(3), 189–191.

Augustine, K. M., & Bogan, T. L. (2004). Operating a comprehensive high-risk breast cancer management program in a community hospital setting. *AWHONN, 8*(5), 434–440.

Badger, T., Segrin, C., Meek, P., Lopez, A. M., & Bonham, E. (2004). A case study of telephone interpersonal counseling for women with breast cancer and their partners. *Oncology Nursing Forum, 31*(5), 997–1003.

Blackburn, G. L., Copeland, T., Khaodhiar, L., & Buckley, R. B. (2003). Diet and breast cancer. *Journal of Women's Health, 12,* 183–192.

Breslin, E. T., & Lucas, V. A. (2003). *Women's health nursing: toward evidence-based practice.* St. Louis, MO: Saunders.

Cerhan, J. R., Potter, J. D., Gilmore, J. M. E., et al. (2004). Adherence to the AICR Cancer Prevention Recommendations and subsequent morbidity and mortality in the Iowa Women's Health Study Cohort. *Cancer Epidemiology, Biomarkers and Prevention, 13,* 1114–1120.

Chui, C. S., Hong, L., Hunt, M., & McCormick, B. (2002). A simplified intensity-modulated radiation therapy technique for the breast. *Medical Physics, 29,* 522–529.

Condon, M. C. (2004) *Women's health: an integrated approach to wellness and illness.* Upper Saddle River, NJ: Prentice Hall.

DiSaia, P. J., & Creasman, W. T. (2002). *Clinical gynecologic oncology* (rev. ed.). St. Louis: Mosby, Inc.

Flegal, K. M., Carroll, M. D., Ogden, C. L., & Johnson, C. L. (2002). Prevalence and trends in obesity among US adults, 1999–2000. *JAMA, 289,* 1723–1727.

Glanz, K., Croyle, R. T., Chollette, V. Y., & Pinn, V. W. (2003). Cancer-related health disparities in women. *American Journal of Public Health, 93,* 292–298.

Gordils-Perez, J., Rawlins-Duell, R., & Kelvin, J. F. (2003). Advances in radiation treatment of patients with breast cancer. *Clinical Journal of Oncology Nursing, 7*(6), 629–636.

Harwood, K. V. (2004). Advances in endocrine therapy for breast cancer: considering efficacy, safety, and quality of life. *Clinical Journal of Oncology Nursing, 8*(6), 629–637.

Hindle, W. H., & Gonzalez, S. (2001). Breast disease: what to do when it's not cancer. *Women's Health in Primary Care, 4*(1), 21–34.

Holmes, S. R. (Aug. 23, 2004). Current protocols for managing breast cancer. *Nursing Spectrum,* 12–13.

Hu, S. A., & Knobf, M. T. (2004). Risks and benefits of soy isoflavones for breast cancer survivors. *Oncology Nursing Forum, 31*(2), 249–263.

Kessler, T. A. (2002). Contextual variables, emotional state, and current and expected quality of life in breast cancer survivors. *Oncology Nursing Forum, 29*(7), 1109–1116.

Lewis, S. M., Heitkemper, M. M., & Dirksen, S. R. (2004). *Medical-surgical nursing: assessment and management of clinical problems* (6th ed.). St. Louis: Mosby, Inc.

Link, J. (2003). *The breast cancer survival manual* (3rd ed.). New York: Henry Holt & Company.

London, M. L., Ladewig, P. W., Ball, J. W., & Bindler, R. C. (2003). *Maternal-newborn & child nursing: family-centered care.* Upper Saddle River, NJ: Prentice Hall.

Lowdermilk, D. L., & Perry, S. E. (2004). *Maternity & women's health care* (8th ed.). St. Louis: Mosby, Inc.

Mahon, S. M. (2003). Evidence-based practice: recommendations for the early detection of breast cancer. *Clinical Journal of Oncology Nursing, 7*(6), 693–696.

Makhoul, I., Makhoul, H., Harvey, H., & Souba, W. (2004). Breast cancer. *EMedicine.* [Online] Available at: http://www.emedicine.com/MED/topic2808.htm

Mattson, S., & Smith, J. E. (2004). *Core curriculum for maternal-newborn nursing* (3rd ed.). St. Louis: Elsevier Saunders.

McCready, T. (2004). Management of patients with breast cancer. *Primary Health Care, 14*(6), 41–49.

McKinney, E. S., James, S. R., Murray, S. S., & Ashwill, J. W. (2005). *Maternal-child nursing* (2nd ed.). Philadelphia: Elsevier Saunders.

Mihelic, E. G. (2003). Diagnosis and management of breast fibroadenomas. *Physician Assistant, 27*(7), 29–32.

Morin, K. H., Stark, M. A., & Searing, K. (2004). Obesity and nutrition in women throughout adulthood. *JOGNN, 33*(6), 823–832.

Morrow, M., & Gradishar, W. (2002). Breast cancer. *British Medical Journal, 324*(7334), 410–415.

National Cancer Institute (NCI) (2004). *Breast cancer: treatment.* [Online] Available at: http://cancer.gov/cancertopics/pdq/treatment/breast/healthprofessional

National Cancer Institute (NCI) (2004). *Probability of breast cancer in American women.* [Online] Available at: http://cis.nci.nih.gov/fact/5_6.htm

National Comprehensive Cancer Network (NCCN) (2004). Breast cancer treatment guidelines. *NCCN patient guidelines.* [Online] Available at: http://www.nccn.org/patients/patient_gls/_english/_breast/5_treatment.asp

Olds, S. B., London, M. L., Ladewig, P. W., & Davidson, M. R. (2004). *Maternal-newborn nursing & women's health care* (7th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.

O'Toole, M. T. (2003) *Miller-Keane encyclopedia and dictionary of medicine, nursing, and allied health* (7th ed.). Philadelphia: Saunders.

Pasacreta, J. V., Jacobs, L., & Cataldo, J. K. (2002). Genetic testing for breast and ovarian cancer risk: the psychosocial issues. *AJN, 102*(12), 40–47.
Penny, J. (2002). Breast cancer overview: the basics. *Nursing Spectrum, 7*(21), 19–24.
Rebbeck, T. R., Friebel, T., Lynch, H. T., et al. (2004). Bilateral prophylactic mastectomy reduces breast cancer risk in BRACA-1 and BRACA-2 mutation carriers: the PROSE Study Group. *Journal of Clinical Oncology, 22*(6), 1055–1062.
Santen, R. J., & Mansel, R. (2005). Benign breast disorders. *New England Journal of Medicine, 353*(3), 275–285.
Schnell, Z. B., Van Leeuwen, A. M., & Kranpitz, T. R. (2003). *Davis's comprehensive handbook of laboratory and diagnostic tests with nursing implications.* Philadelphia: F. A. Davis Company.
Sloane, E. (2002). *Biology of women* (4th ed.). New York: Delmar.
Spratto, G. R., & Woods, A. L. (2004). *2004 edition, PDR nurse's drug handbook.* Clifton Park, NY: Thomson Delmar Learning.
Stephenson, G. D., & Rose, D. P. (2003) Breast cancer and obesity: an update. *Nutrition and Cancer, 45,* 1–16.
U.S. Department of Health and Human Services (USDHHS) (2000). *Healthy people 2010.* Rockville, MD: Author.
Vicini, F., Baglan, K., Kestin, L., et al. (2002). The emerging role of brachytherapy in the management of patients with breast cancer. *Seminars in Radiation Oncology, 12,* 31–39.
Wang, S., & Birdwell, R. (2004). Magnetic resonance mammography. *EMedicine.* [Online] Available at: http://emedicine.com/radio/topic792.htm
Weaver, C. (2002). Breast cancer breakthroughs. *Nursing Management, 33*(11), 28–34.
Willison, K. M. (2001). Mammographic positioning. In V. F. Andolina (Ed.), *Mammographic imaging* (rev. ed.). Baltimore: Lippincott Williams & Wilkins.
Writing Group for Women's Health Initiative Investigators. (2002). Risks and benefits of estrogen plus progestin in healthy menopausal women: principal results for the Women's Health Initiative randomized controlled trial. *JAMA, 288*(3), 321–333.
Yarbro, C. H. (2003). International nursing and breast cancer. *Breast Journal, 9*(3), S98–S100.
Youngkin, E. Q., & Davis, M. S. (2004). *Women's health: a primary care clinical guide* (3rd ed.). Upper Saddle River, NJ: Prentice Hall.
Zawacki, K. L., & Phillips, M. (2002). Cancer genetics and women's health. *JOGNN, 31*(2), 208–216.

Web Resources

American Cancer Society (ACS): 1-800-ACS-2345, **http://www.cancer.org**
Facing Our Risk of Cancer Empowered: **www.facingourrisk.org**
International Society of Nurses in Genetics: **http://nursing.creighton.edu/isong**
Living Beyond Breast Cancer: 1-888-753-5222, **http://www.lbbc.org**
National Alliance of Breast Cancer Organizations: 1-888-80-NABCO, **http://www.nabco.org**
National Cancer Institute (NCI): 1-800-422-6327, **http://www.nci.nih.gov**
Oncology Nursing Society (ONS): 1-866-257-4ONS, **http://www.ons.org**
Susan G. Komen Breast Cancer Foundation: 1-800-462-9273, **http://www.komen.org**
Y-me National Breast Cancer Organization: 1-800-221-2141, **http://www.Y-me.org**

Chapter WORKSHEET

MULTIPLE CHOICE QUESTIONS

1. Breast self-examinations involve both touching of breast tissue and:
   a. Palpation of cervical lymph nodes
   b. Firm squeezing of both breast nipples
   c. Visualizing both breasts for any change
   d. A mammogram to evaluate breast tissue
2. Which of the following is the strongest risk factor for breast cancer?
   a. Advancing age and being female
   b. High number of children
   c. Genetic mutations in BRCA-1 and BRCA-2
   d. Family history of colon cancer
3. A biopsy procedure that traces radioisotopes and blue dye from the tumor site through the lymphatic system into the axillary nodes is:
   a. Stereotactic biopsy
   b. Sentinel node biopsy
   c. Axillary dissection biopsy
   d. Advanced breast biopsy
4. The most serious potential adverse reaction from chemotherapy is:
   a. Thrombocytopenia
   b. Deep vein thrombosis
   c. Alopecia
   d. Myelosuppression
5. What suggestion would be helpful for the client experiencing painful fibrocystic breast changes?
   a. Increase her caffeine intake.
   b. Take a mild analgesic when needed.
   c. Reduce her intake of leafy vegetables.
   d. Wear a bra bigger than she needs.
6. A postoperative mastectomy client should be referred to which of the following organizations for assistance?
   a. National Women's Association (NOW)
   b. Food and Drug Administration (FDA)
   c. March of Dimes Foundation (MDF)
   d. Reach to Recovery volunteers

CRITICAL THINKING EXERCISE

1. Mrs. Gordon, 48, presents to the Women's Health Community clinic where you work as a nurse. She is very upset and crying. She tells you that she found lumps in her breast and she knows that "it's cancer and I will die." When you ask her further about her problem, she says she does not routinely check her breasts monthly and hasn't had a mammogram for years because "they're too expensive." She also describes the intermittent pain she experiences.
   a. What specific questions would you ask this client to get a clearer picture?
   b. What education is needed for this client regarding breast health?
   c. What community referrals are needed to meet this client's future needs?

STUDY ACTIVITIES

1. Discuss with a group of women what their breasts symbolize to them and to society. Do they symbolize something different to each one?
2. When a woman experiences a breast disorder, what feelings might she be experiencing and how can a nurse help her sort them out?
3. Interview a woman who has fibrocystic breast changes and find out how she manages this condition.
4. An infection of the breast connective tissue that frequently occurs in the lactating woman is _____.