

Medical Education Systems, Inc.

Breast Cancer



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Breast Cancer: An Overview

Learning Objectives

Upon completion of this course, you will be able to:

Describe the various roles played by nurses in the diagnosis, treatment, and management of Breast Cancer

Outline the meaning of and implications of Breast Cancer

Explain how Breast Cancer is diagnosed, and it's symptoms

List the various current treatments for Breast Cancer

Explain how Breast Cancer is managed

Discuss the nutritional aspects of managing Breast Cancer

The Nurse's Role as Patient Advocate

By Debra Wood, RN, contributor

April 30, 2010 - Whether calling attention to a potential medication error, helping the rest of the health care team hear a patient's voice or shaping policy by speaking from first-hand experience, advocating for patients comes naturally to today's nurses.

“Advocacy is the heart and soul of nursing practice,” said Cindy Zolnierek, RN, MSN, director of practice at the Texas Nurses Association in Austin. “Nurses believe they hold the patients’ safety and care in their hands.”



Janice Phillips, PhD, FAAN, RN, reported that nurses have the opportunity to advocate for their patients.

Many nurses give this advocate role little thought, considering looking out for their patients' well-being part of the job—for instance, reminding a surgeon that he needs to order a different pre-op antibiotic to avoid an allergic reaction or calling attention to the fact a patient lives alone and is not ready for discharge.

“Nurses are at the front lines of care, and they have a good handle on the issues and what the patients need,” says Janice Phillips, PhD, FAAN, RN, manager of nursing research at the University of Chicago Medical Center. “There is a role for advocacy every day.”

Not everyone appreciates the nurse who steps forward on patients' behalf, however. Nurses can lose their jobs or worse. A recent criminal case brought against two Texas nurses posed a threat to the critical role all nurses play as advocates.

“If nurses do not feel that they can bring up what they see as a safety concern so it can be fixed, that places the patient in danger,” Zolnierrek said. “Bad things, deadly things, can happen.”

Two nurses identified practices by a physician that they felt put patients at risk. They brought up their concerns within the organization, Winkler County Memorial Hospital in Kermit, Texas, where they both had worked for more than 20 years. But when their concerns were not addressed and the situation remained unresolved, they reported the physician to the Texas Medical Board.

Both nurses lost their jobs' and they were charged with misuse of official information. The charges were dropped against Vicki Galle, RN, and a jury acquitted Anne Mitchell, RN, after deliberating for less than an hour. The Texas Nurses Association helped raise more than \$50,000 for their defense.

“We want to make sure the nurses' right and responsibility to report is protected,” Zolnierrek said. “They need to report by their ethical and legal obligation, but if they do, they face 10 years in prison. That is not a predicament that is reasonable to put a nurse in.”

Focusing fully on advocacy

Some nurses have parlayed their skills at advocating for patients into part- or full-time careers.

Ewa Buono, RN, works in the Bloodless Medicine and Surgery Program at Long Island College Hospital in Brooklyn, N.Y. Patients' reasons for not receiving blood or blood products vary, but regardless of the origin, she supports their choices, educates them about their options and ensures they fully understand the consequences.

“Advocating is about standing up for the rights of your patients and firmly defending them even if you personally may not agree,” Buono said. “Personal feelings of preferences are put aside, since health care is about the patient and his needs, not caregivers.”



Tionna Wilson, RN, now a case manager, finds that advocating for her patients remains a rewarding part of her job.

Tionna Wilson, RN, BSN, a OnePathSM case manager at Shire Human Genetic Therapies of Lexington, Mass., assists patients with progressive and debilitating illnesses and their families understand insurance coverage, arrange for care at an infusion center, and secure the therapy they need.

“There are so many roles nurses can play,” Wilson said. “Nurses are able to advocate, and that’s something nurses look for [in a job], even if we aren’t the typical bedside nurse. If we don’t advocate [for them] who will?”

Janet Wise, RN, MSN, president of CaringEdge, works as an educator at Brotman Medical Center in Culver City, Calif., a role in which she often solves patients’ problems. But she also has formed a private advocacy business. She helps patients formulate their goals and then assists in achieving them. She may go with the patient to the doctor’s office.



Maggie Radany, RN, established a patient advocacy practice to help patients navigate the health care system.

Former oncology nurse Maggie Radany, RN, recognized that many times patients and families feel overwhelmed, and she saw an opportunity to start Radany & Associates, a health advocacy firm. Patients privately hire her to explain treatment options and how to deal with insurance issues.

“This is an emerging profession,” Radany said. “The system is difficult for patients, and people are lost much of the time.”

Karen Mercereau, RN, executive director of RN Patient Advocates, not only started her own advocacy firm, she also has developed a curriculum to train nurses as advocates, which includes information about integrative as well as allopathic therapies. She also established the National RN Patient Advocate Network, which now has 22 independent practitioners in 15 states.

“This is a movement, nurses actively working together to turn health care around, patient by patient,” Mercereau said.

Policymaking advocacy

From a broader perspective, nurses advocate for patients at state and federal legislative levels.

Margaret (Peg) O’Donnell, ANP-BC, MS, RN, of Bohemia, N.Y., received the 2010 American Academy of Nurse Practitioners: New York State Nurse Practitioner Award for Excellence in recognition of her advocacy for the profession. O’Donnell said she believes it’s important to keep abreast of new situations and build bridges. She also advocates for her patients to ensure they receive the health education and medical services they require.

Phillips encourages nurses to share their patient-care experiences with policymakers. She talked to Illinois state legislators about her care of underserved women. That led to passage of the Reducing Breast Cancer Disparities Act, which aims to remove barriers that prevent low-income women from receiving breast cancer screening and treatment.

“Advocacy is a role nurses are well-suited for,” Phillips said. “We never want to underestimate the value of our direct-care experience. We have something other people cannot speak to. We are on the front lines.”

AACN Launches ACNPC-AG Certification, Course

February 4, 2013 - AACN (American Association of Critical-Care Nurses) Certification Corporation has launched the new ACNPC-AG certification exam, which aligns with the requirements of the o.

ACNPC-AG is an entry-level certification for advanced practice nurses educated at the graduate level as acute care nurse practitioners (ACNPs) to provide advanced nursing care across the continuum of healthcare services and meet the specialized needs of adult-gerontology patients (young adults, older adults and the frail elderly) with complex acute and/or chronic health conditions.

The Consensus Model for APRN Regulation was introduced in 2008 to establish national standards for uniform regulation of advanced practice registered nurses in all states. It was developed by 48 APRN nursing organizations nationwide that have pledged support for these standards.

“AACN Certification Corporation played an active role in the development of the consensus model, so the release of a new ACNPC-AG exam that aligns with the model is exciting,” said Carol Hartigan, certification programs strategist, AACN Certification Corporation.

“As the organization representing the interests of, and setting standards for, acute and critical care nurses, we know the indispensable role that nurse practitioners play in meeting the healthcare needs of America’s most medically fragile patient population and, therefore, believe that protecting the role is imperative.”

Potential candidates for the exam should [apply online](#) on the AACN Certification Corporation website, where they can also find information on the ACNPC-AG certification, test plan, practice exam questions and exam eligibility requirements, the APRN Consensus Model and other APRN resources.

In conjunction with the new exam, the American Association of Critical-Care Nurses (AACN) has introduced its ACNPC-AG Certification Review Course, an interactive e-learning course designed to assist aspiring adult-gerontology ACNPs to prepare for the new ACNPC-AG certification exam.

The comprehensive review course is based on and fully aligns with AACN Certification Corporation’s new ACNPC-AG test plan and features nationally known subject matter experts such as Linda Briggs, Helen Brown, Joseph Haymore, Kiersten Henry and Nancy Munro, each of whom is an ACNP.

“AACN’s ACNPC-AG Certification Review Course offers nurse practitioner candidates a ‘two for one’: It simulates the actual test-taking experience answering realistic practice questions and simultaneously reinforces clinical knowledge,” said Linda Bell, AACN clinical practice specialist. “It incorporates the same modular structure as the new test plan in an easy-to-use question-and-answer format.”

Now available streaming from the [AACN website](#), the course offers 9.5 continuing nursing education (CNE) credits, including 1.4 Pharm CNE. A CD-ROM version is also planned.

As a special value to prospective certificants, the on-demand version of the course is being offered at no cost to individuals who purchase the ACNPC-AG exam. Purchased separately, the course costs \$159 for AACN members and \$199 for nonmembers.

About AACN Certification Corporation: AACN Certification Corporation, a separately incorporated company, develops and administers the CCRN, PCCN, CCRN-E, CCNS, ACNPC and ACNPC-AG specialty exams, and the CMC and CSC subspecialty exams. In collaboration with the American Organization of Nurse Executives (AONE) Credentialing Center, AACN Certification Corporation also offers the CNML exam. AACN Certification Corporation promotes and enhances consumer health and safety by establishing and maintaining high standards of professional practice excellence through certification and certification renewal for nurses who care for acutely and critically ill patients and their families.

Cancer Predisposition Genetic Testing and Risk Assessment Counseling

Individuals who are at significantly increased genetic risk of cancer can be identified through cancer predisposition genetic testing. The ability to identify high-risk individuals who may benefit from cancer prevention and early cancer detection strategies can improve their length and quality of life (Kirk, Lea, & Skirton, 2008). Despite apparent advantages, genetic testing raises ethical, legal, and social concerns and dilemmas associated with revealing an individual's genetic makeup. The purpose of cancer risk assessment and counseling prior to genetic testing is to educate an individual and family about the benefits and risks associated with predisposition genetic testing (Lashely, 2006).

It Is the Position of ONS That

- Cancer risk assessment, counseling, and predisposition genetic testing are components of comprehensive cancer care available to high-risk individuals and families.
- Healthcare providers who offer services in cancer risk assessment and counseling have advanced education in human genetics and oncology.
- The standard of care in cancer predisposition genetic testing includes comprehensive risk assessment and evaluation, thorough discussion of cancer risk management options, informed consent, pre- and post-test counseling, and follow-up by qualified healthcare providers (Tranin, Masny, & Jenkins, 2003).
- Ethical principles of doing good, doing no harm, respect for autonomy, and justice form the ethical foundation of cancer risk testing and counseling services. Standards of care in cancer genetic counseling are based on these principles and are used to identify ethical dilemmas arising from cancer predisposition genetic testing and the counseling process (Lashley, 2006; Williams, Skirton, & Masny, 2006).
- Comprehensive cancer genetic counseling is provided in a manner consistent with an individual's cultural and healthcare beliefs.
- Education about the importance of patients sharing their genetic test results with close family members is emphasized in the pretest genetic counseling session.
- Barriers to cancer predisposition genetic counseling and testing in diverse populations are assessed regularly and action is taken to reduce these barriers.
- Oncology nurses advocate at all government levels for legislation to protect against genetic discrimination in Oncology Nursing Society Position employment, education, and access to health or life insurance.
- Oncology nurses advocate for access to cancer predisposition genetic counseling, testing, and risk-reduction strategies for all high-risk individuals and families.
- Ongoing education of healthcare providers, individuals at increased risk, and the lay public is developed, evaluated, and disseminated.
- A research agenda in clinical cancer genetics includes the efficacy of programs for cancer prevention and early detection, the psychological impact of cancer predisposition genetic testing on patients and their families, and long-term outcomes of testing and risk-management strategies (Williams et al., 2006).
- Efforts to improve the standardization and regulation of laboratories that provide cancer predisposition genetic testing are evaluated and monitored.

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The Role of the Oncology Nurse in Cancer Genetic Counseling

The identification of genes that, when mutated, are associated with cancer development has transformed cancer detection and cancer management. The genetic revolution, spawned by the Human Genome Project (National Institutes of Health, 2009) has resulted in a shift in focus from genetics (hereditary transmission and the variation of inherited characteristics) to genomics, which refers to the study of multiple genes, DNA sequences, and proteins and their interaction with one another. Genetic and genomic information now can be used to describe the biology of disease, characterize malignancies, develop new therapeutic modalities, and identify individuals at increased risk of developing cancer. As genetic and genomic technology evolves and knowledge of cancer genomics expands, healthcare providers must respond by informing people with cancer, their families, and the public about the implications of these developments for cancer prevention and risk reduction, early detection, and treatment (American Nurses Association & International Society of Nurses in Genetics, 2007). Oncology nurses in all settings have a role in educating patients, families, and the public about cancer-related genetics and genomics. Advanced practice nurses with specialized training in clinical cancer genetics and genomics and cancer predisposition testing may be involved in the clinical application of cancer genetics, including genetic counseling and education. Oncology nurses are able to provide comprehensive care in the area of clinical cancer genetics to meet the needs of the increased number of individuals requesting this service.

It Is the Position of ONS That

- Further advances in the science of clinical cancer genetics and genomics will increase the need for professional nurses trained in genetics and genomics and cancer care (Calzone & Masny, 2004).
- Cancer genomic information is integrated into relevant curriculum content and taught at all levels of nursing education (National Human Genome Research Institute, 2009).
- Oncology nurses at the general and advanced practice levels have educational preparation in the principles of human genetics and genomics and in the critical evaluation of ethical, legal, and social implications of the use of genetic and genomic technology in cancer care (Calzone & Tranin, 2003). Oncology nursing practice related to cancer genetics includes three levels:

- The general oncology nurse
- The advanced practice oncology nurse
- The advanced practice oncology nurse with specialty training in cancer genetics and genomics.
- Nurses who provide comprehensive cancer genetic risk counseling are advanced practice oncology nurses with specialized education in cancer genetics and hereditary cancer predisposition syndromes.
- Continuing education and specialized educational programs are developed and provided to practicing oncology nurses.
- Collaborative relationships between healthcare providers and specialty organizations with a focus in genetics are essential to provide comprehensive care to high-risk individuals.
- Comprehensive cancer genetic risk counseling includes cancer risk assessment and education, facilitation of genetic testing, pre- and post-test counseling and follow-up, provision of personally tailored cancer risk management options and recommendations, and psychosocial counseling and support services. Practice is consistent with guidelines defined by an individual's state nurse practice act, the nurse's educational preparation, the scope of the nurse's role, and standards of oncology nursing practice (National Coalition for Health Professional Education in Genetics, 2007).

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Advanced Practice - New roles in breast care

Breast and axillary examination are now within the skill set of the ANP. **Mary Murray** and **Mary Dillon** present the findings of a recent study.

THE ROLE and scope of practice of the nurse has evolved over the last two decades. There have been major reforms in healthcare delivery and technological advances. In addition, there have been cultural, educational and legal changes, coupled with a growth of nursing knowledge and research.

The emphasis on developing nurse-led care has escalated in recent years and is a key opportunity to challenge current models of care. In Ireland, one of the ways in which nurses are currently involved in advanced practice is in the development of nurse-led clinics.

By developing roles that were previously undertaken by doctors, nurses may bring different insights to patient care, which may be more patient focused.¹

Advanced nurse practitioners are seizing opportunities to revolutionize the traditional model of follow-up within cancer services, with a supportive, collaborative approach. However, nurses who take this advanced role should do so with the primary aim of improving outpatient care and patients outcomes overall.

Specialist breast care nurses play a key role in the multidisciplinary approach to managing breast cancer.² Many clinical nurse specialists in breast care are now taking on additional tasks and activities as they expand their role within the team.

The adoption of specialist roles and skills by CNSs and ANPs must be accompanied by appropriate education, training and practice-based experience.

There are, as yet, no core competencies to define the skills expected of nurses undertaking advanced practice in breast care. The National Council for Professional Development of Nursing and Midwifery (NCNM) in 2004³ states that a period of supervised practice is mandatory. It also advises that detailed, locally agreed protocols are in place for all newly developed advanced nursing practice roles.

Breast examination

The taking of a comprehensive health history and examination of the breast and axilla are fundamental skills required by an ANP to assess a patient with suspected breast disease. This is the key component of triple assessment (clinical examination, imaging and/or core biopsy) in all patients presenting with breast symptoms.

At the symptomatic breast clinic at St Vincent's University Hospital, Dublin a study was undertaken in the form of a prospective review of the clinical competence of an ANP in breast and axillary clinical examination. While undertaking the Advanced Practice MSc (Nursing) at UCD, the ANP (candidate) was taught how to take a comprehensive health history and was also shown how to perform breast and axillary examinations.

The aim of the study was to evaluate the clinical competence of an ANP in history taking and breast and axillary examination following advanced practice clinical skills training.

A model, with comparison of clinical findings, previously designed to assess the competence of junior doctors to perform breast and axillary examinations in new patient breast clinics⁴ was adapted and used in the appraisal.

Patients and methods

The symptomatic breast clinic at St Vincent’s assesses approximately 40 new patients each week. This includes patients attending the Triple Assessment Clinic who have access to same-day imaging with biopsy of any discrete abnormality on examination or imaging.

During the training period the ANP carried out supervised clinical breast and axillary examination and received immediate feedback on clinical findings from two consultant breast surgeons. Feedback was also obtained from the radiology findings as well as core biopsy results, which were discussed at the weekly multidisciplinary meeting.

This study was carried out following job description and site accreditation from the NCNM. During the audit phase from November 2004 to February 2005, 50 new patients were seen and examined by the ANP prior to the consultant breast surgeon examining them.

The examination findings of the ANP and consultant were recorded separately and then compared using a five-point scoring system to document level of suspicion (see Figure 1). After each clinical examination the findings were compared and discussed with the ANP in an attempt to improve examination technique.

Five point scoring system
<ul style="list-style-type: none"> • S1 Normal • S2 Benign • S3 Needs further evaluation, probably benign • S4 Probably malignant • S5 Malignant

Results

Within the three-month study period, a total of 100 breast examinations were performed on 50 patients. The concurrence between ANP and breast consultant surgeons of clinical findings are shown in Figure 2. Figure 3 illustrates the results, which show almost complete concordance in terms of clinical suspicion between the ANP and the consultant.

Clinical findings		
	ANP	Consultant
Normal	20	20
Nodularity	4	5
Cyst	5	5

Fibroadenoma	2	2
Cancer	18	17
Skin lesion	1	1

Of the 50 patients, 25 presented with discrete lumps. The consultant and the ANP noted all 18 clinical cancers to be discrete lumps with 17 of 18 scored as S5. (The remaining cancer was scored as S3 by one of the consultants and S5 by the nurse).

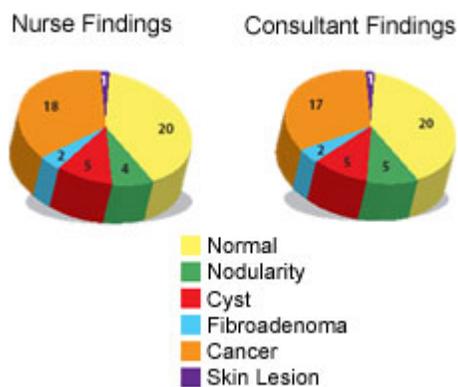


Figure 3: Concurrency between ANP and consultant

This lump, thought to be benign by the consultant, proved to be a cancer as documented by the nurse. There were only four patients with malignant axillary lymphadenopathy and the nurse identified all four.

These results demonstrate very high levels of concordance between the ANP and the consultant breast surgeon.

Discussion

The result of this review demonstrates that the advanced nurse practitioner achieved a high level of competence in breast and axillary examination. This compares favorably with previously published rates for senior house officers and specialist registrars.

Pickersgill⁵ documented the importance of education and effective audits in securing safe yet flexible practice, and commented that demonstration of technical competence in a particular skill is essential before developing a more autonomous role.

The introduction of ANP roles by their nature represents innovation and continuously challenges the boundaries of nursing practice and existing models of healthcare.

As there are no national or international standards for nurses working in breast care, local standards were developed in breast and axillary examination.

Historically, patients attending breast clinics expect to be seen by a consultant or a surgical NCHD. However, Garvican's⁶ study of nurse-led breast clinics staffed by experienced specialist nurses showed that clinical examinations by such a nurse was acceptable to patients and GPs.

Extending existing practice needs to take account of priorities of care in defining the new role boundaries so that extended roles are adopted according to agreed job descriptions and workloads as well as according to competing to complete new tasks.

The adoption of ANP roles must be accompanied by appropriate education, training and practice-based experience. Regular evaluation and audit are necessary to assure patients safety and optimum quality of care.

This small study has demonstrated that an ANP can become competent in breast and axillary examination, following adequate training and supervision.

Quality healthcare is dependent on the presence of knowledgeable and skilled practitioners who can reflect critically and constantly evaluate their own performance.

In our currently changing healthcare environment, perhaps the ANP in breast care will provide a stable anchor and be the person who can transmit the excitement of change to those who fear it.

Mary Murray is Advanced Nurse Practitioner in Breast Care and Dr Mary Dillon is Breast Registrar at the Symptomatic Breast Clinic, St Vincent's University Hospital, Dublin

Acknowledgements

We extend thanks to **Mr. Enda McDermott**, senior lecturer/consultant surgeon; and **Prof Arnold Hill**, consultant general surgeon/senior lecturer in surgery; for their help, support and expertise throughout this study

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Nurse Values Her Role in the Healing Process



Bernadette Hanson, RN, checks the blood pressure of patient Susan McClure, of Chicago.

Nursing runs in the family for Bernadette Hanson, RN. Both her mother and grandmother were nurses. Her two sisters are nurses. When it came time to decide on a career path, fate pulled her in the same direction.

"It was almost inescapable," she said.

To Hanson, nursing is much more than a paycheck. It is about building relationships and making connections with people during a wrenching time in their lives, helping them heal and making their journey through the medical system as smooth as possible.

Hanson has been at the University of Chicago Medical Center for 12 of her 15 years in nursing and has spent time in otolaryngology, surgery and reconstructive surgery, where she now works in the Section of Plastic and Reconstructive Surgery with section chief David H. Song, MD, and Julie Park, MD, assistant professor of surgery. One of Hanson's many duties is helping breast cancer patients find a "new normal" following surgery. The patients she sees often are reeling from their cancer diagnosis and uncertain about how to navigate the web of specialists and medical procedures they may face.

It is the nurse who can bring order to what may seem a chaotic environment. "I am the go-to person," she said. "I think patients see me as someone they can e-mail or call with something they forgot to tell the physician. I see myself as the person who is bridging the gap.

Hanson watches her patients carefully -- their body language, words and omissions -- for cues about how they are coping with their diagnosis and treatment. "I'm trying to get a sense of where they're at, not just physically," she said.



Eloise Orr credits nurses like Hanson with helping her through cancer treatment.

Eloise Orr was one of Hanson's patients. Diagnosed with breast cancer at 20 years old in 2002, she underwent a double mastectomy and several other treatments and surgeries during the next five years in her fight against the disease. Following Orr's breast reconstruction, Hanson was one of two nurses who performed a medical tattoo of Orr's breast – a process to darken the skin and define the area around the nipple. "She took the time to walk me through the procedure carefully, making sure I was comfortable with it," Orr said. Orr credited the nurses not only with the success of the procedure but also with helping her deal with larger life issues, as well.

Hanson said going the extra mile is part of a nurse's job. She will gladly order a taxi, pass along information to a family member, fill out a form for someone who is visually impaired or help a wandering patient navigate an unfamiliar hallway. Going the extra mile also extends to Hanson's interactions with physicians. To prepare for a clinic, she runs down the list of patients and pulls files on each one to give the physicians the details of their latest visits, which might have been two or more years ago. "I understand that the physicians are depending on me to know something about why the patients are coming in," she said.

Without nurses, there would be less empathy in the medical system, Hanson said. And that could easily lead to frustrated patients who might not follow through with suggested treatments or speak up about symptoms. That ultimately could compromise their outcomes. Being an integral part of someone's healing process is one of the most rewarding aspects of the profession, she added.

"If you're a people person, it's probably one of the most wonderful experiences you can have," she said. "Just being able to see someone regain their independence or get a smile back or say, 'You know what, this is temporary and I'm going to get better' -- that is better than a paycheck."

Specialist breast care and research nurses' attitudes to adjuvant chemotherapy in older women with breast cancer.

[Ballinger R](#), [Ford E](#), [Pennery E](#), [Jenkins V](#), [Ring A](#), [Fallowfield L](#).

Source

Cancer Research UK Psychosocial Oncology Group, Brighton and Sussex Medical School, University of Sussex, Falmer, Brighton, UK.

Abstract

PURPOSE:

Breast cancer largely affects older women (≥ 70 y) who have historically been excluded from clinical trials; consequently, treatment is often not evidence-based. Older women may not be offered adjuvant chemotherapy due to assumptions that they would not benefit, cannot tolerate it or do not wish to have it. Specialist breast care nurses (BCN) and research nurses (RN) play an important role influencing decisions. We report the roles, attitudes and involvement of such nurses regarding adjuvant chemotherapy in older women.

METHOD:

A questionnaire examined 259 UK BCN and RN's views about efficacy and desirability of chemotherapy in older women, participation in decision-making in MDTs, and roles when chemotherapy was discussed with patients.

RESULTS:

72% of BCN and 48% of RN agreed that age should not be a factor influencing who is offered chemotherapy. BCNs indicated involvement in decision-making with older breast cancer patients, discussing chemotherapy with patients at different points following diagnosis and during treatment, and proposing chemotherapy in MDT meetings. RNs were involved to a lesser extent. 69% of all nurses had not received specific training in the area and 70% thought training would be beneficial. Nurses disagreed that older patients would not tolerate or did not want chemotherapy but 1/3 agreed or were uncertain that burdens of chemotherapy outweighed benefits. A third felt that older women had less control over treatment decisions than younger women.

CONCLUSIONS:

This study suggests a need to develop the role of specialist nurses to facilitate treatment decision-making relating to chemotherapy in older women.

What Is Breast Cancer?

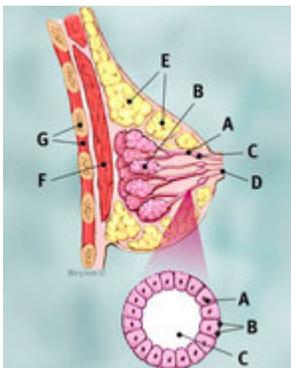
Last modified on September 18, 2012 at 10:19 am

Breast cancer is an uncontrolled growth of breast cells. To better understand breast cancer, it helps to understand how any cancer can develop.

Cancer occurs as a result of mutations, or abnormal changes, in the genes responsible for regulating the growth of cells and keeping them healthy. The genes are in each cell's nucleus, which acts as the "control room" of each cell. Normally, the cells in our bodies replace themselves through an orderly process of cell growth: healthy new cells take over as old ones die out. But over time, mutations can "turn on" certain genes and "turn off" others in a cell. That changed cell gains the ability to keep dividing without control or order, producing more cells just like it and forming a tumor.

A tumor can be benign (not dangerous to health) or malignant (has the potential to be dangerous). Benign tumors are not considered cancerous: their cells are close to normal in appearance, they grow slowly, and they do not invade nearby tissues or spread to other parts of the body. Malignant tumors are cancerous. Left unchecked, malignant cells eventually can spread beyond the original tumor to other parts of the body.

The term "breast cancer" refers to a malignant tumor that has developed from cells in the breast. Usually breast cancer either begins in the cells of the lobules, which are the milk-producing glands, or the ducts, the passages that drain milk from the lobules to the nipple. Less commonly, breast cancer can begin in the stromal tissues, which include the fatty and fibrous connective tissues of the breast.



Breast Anatomy[Larger Version](#)

Over time, cancer cells can invade nearby healthy breast tissue and make their way into the underarm lymph nodes, small organs that filter out foreign substances in the body. If cancer cells get into the lymph nodes, they then have a pathway into other parts of the body. The breast cancer's stage refers to how far the cancer cells have spread beyond the original tumor (see [Stages of Breast Cancer table](#) for more information).

Breast cancer is always caused by a genetic abnormality (a "mistake" in the genetic material). However, only 5-10% of cancers are due to an abnormality inherited from your mother or father.

About 90% of breast cancers are due to genetic abnormalities that happen as a result of the aging process and the “wear and tear” of life in general.

There are steps every person can take to help the body stay as healthy as possible and lower risk of breast cancer or a breast cancer recurrence (such as maintaining a healthy weight, not smoking, limiting alcohol, and exercising regularly). Learn what you can do to manage [breast cancer risk factors](#).

Always remember, breast cancer is never anyone's fault. Feeling guilty, or telling yourself that breast cancer happened because of something you or anyone else did, is not productive.

Stages of Breast Cancer

Stage Definition

Stage 0	Cancer cells remain inside the breast duct, without invasion into normal adjacent breast tissue.
Stage IA	The tumor measures up to 2 cm AND the cancer has not spread outside the breast; no lymph nodes are involved
Stage IB	There is no tumor in the breast; instead, small groups of cancer cells -- larger than 0.2 millimeter but not larger than 2 millimeters – are found in the lymph nodes OR there is a tumor in the breast that is no larger than 2 centimeters, and there are small groups of cancer cells – larger than 0.2 millimeter but not larger than 2 millimeters – in the lymph nodes.
Stage IIA	No tumor can be found in the breast, but cancer cells are found in the axillary lymph nodes (the lymph nodes under the arm) OR the tumor measures 2 centimeters or smaller and has spread to the axillary lymph nodes
Stage IIB	OR the tumor is larger than 2 but no larger than 5 centimeters and has not spread to the axillary lymph nodes. The tumor is larger than 2 but no larger than 5 centimeters and has spread to the axillary lymph nodes
Stage IIIA	OR the tumor is larger than 5 centimeters but has not spread to the axillary lymph nodes. No tumor is found in the breast. Cancer is found in axillary lymph nodes that are sticking together or to other structures, or cancer may be found in lymph nodes near the breastbone
Stage IIIB	OR the tumor is any size. Cancer has spread to the axillary lymph nodes, which are sticking together or to other structures, or cancer may be found in lymph nodes near the breastbone.
Stage IIIB	The tumor may be any size and has spread to the chest wall and/or skin of the breast AND

may have spread to axillary lymph nodes that are clumped together or sticking to other structures, or cancer may have spread to lymph nodes near the breastbone.

Inflammatory breast cancer is considered at least stage IIIB.

There may either be no sign of cancer in the breast or a tumor may be any size and may have spread to the chest wall and/or the skin of the breast

Stage
IIIC

AND

the cancer has spread to lymph nodes either above or below the collarbone

AND

the cancer may have spread to axillary lymph nodes or to lymph nodes near the breastbone.

Stage
IV

The cancer has spread — or metastasized — to other parts of the body.

U.S. Breast Cancer Statistics

Last modified on October 30, 2012 at 5:09 am

-
- About 1 in 8 U.S. women (just under 12%) will develop invasive breast cancer over the course of her lifetime.
 - In 2011, an estimated 230,480 new cases of invasive breast cancer were expected to be diagnosed in women in the U.S., along with 57,650 new cases of non-invasive (in situ) breast cancer.
 - About 2,140 new cases of invasive breast cancer were expected to be diagnosed in men in 2011. A man's lifetime risk of breast cancer is about 1 in 1,000.
 - From 1999 to 2005, breast cancer incidence rates in the U.S. decreased by about 2% per year. The decrease was seen only in women aged 50 and older. One theory is that this decrease was partially due to the reduced use of hormone replacement therapy (HRT) by women after the results of a large study called the Women's Health Initiative were published in 2002. These results suggested a connection between HRT and increased breast cancer risk.
 - About 39,520 women in the U.S. were expected to die in 2011 from breast cancer, though death rates have been decreasing since 1990 — especially in women under 50. These decreases are thought to be the result of treatment advances, earlier detection through screening, and increased awareness.
 - For women in the U.S., breast cancer death rates are higher than those for any other cancer, besides lung cancer.
 - Besides skin cancer, breast cancer is the most commonly diagnosed cancer among American women. Just under 30% of cancers in women are breast cancers.

- White women are slightly more likely to develop breast cancer than African-American women. However, in women under 45, breast cancer is more common in African-American women than white women. Overall, African-American women are more likely to die of breast cancer. Asian, Hispanic, and Native-American women have a lower risk of developing and dying from breast cancer.
- In 2011, there were more than 2.6 million breast cancer survivors in the US.
- A woman's risk of breast cancer approximately doubles if she has a first-degree relative (mother, sister, daughter) who has been diagnosed with breast cancer. About 15% of women who get breast cancer have a family member diagnosed with it.
- About 5-10% of breast cancers can be linked to gene mutations (abnormal changes) inherited from one's mother or father. Mutations of the [BRCA1 and BRCA2 genes](#) are the most common. Women with these mutations have up to an 80% risk of developing breast cancer during their lifetime, and they are more likely to be diagnosed at a younger age (before menopause). An increased ovarian cancer risk is also associated with these genetic mutations.
- In men, about 1 in 10 breast cancers are believed to be due to BRCA2 mutations, and even fewer cases to BRCA1 mutations.
- About 85% of breast cancers occur in women who have no family history of breast cancer. These occur due to genetic mutations that happen as a result of the aging process and life in general, rather than inherited mutations.
- The most significant [risk factors](#) for breast cancer are gender (being a woman) and age (growing older).
- As of Jan. 1, 2009, there were about 2,747,459 women alive in the United States with a history of breast cancer. This includes women being treated and women who are disease-free.

Breast Cancer Risk and Risk Factors

Last modified on September 17, 2012 at 6:55 pm

By now you may be familiar with the statistic that says 1 in 8 women will develop invasive breast cancer. Many people misinterpret this to mean that, on any given day, they and the women they know have a 1-in-8 risk of developing the disease. That's simply not true.

In reality, about 1 in 8 women in the United States — 12%, or about 12 out of every 100 — can expect to develop breast cancer over the course of an entire lifetime. In the U.S., an average lifetime is about 80 years. So, it's more accurate to say that 1 in 8 women in the U.S. ***who reach the age of 80*** can expect to develop breast cancer. In each decade of life, the risk of getting breast cancer is actually lower than 12% for most women.

People tend to have very different ways of viewing risk. For you, a 1-in-8 lifetime risk may seem like a high likelihood of getting breast cancer. Or you may turn this around and reason that there is a 7-in-8, or 87.5%, chance you will never get breast cancer, even if you live to age 80. How you view risk often depends on your individual situation — for example, whether you or many women you know have had breast cancer, or you have reason to believe you are at higher-than-normal risk for the disease — and your usual way of looking at the world.

Even though studies have found that women have a 12% lifetime risk of developing breast cancer, your individual risk may be higher or lower than that. Individual risk is affected by many different factors, such as family history, reproductive history, lifestyle, environment, and others.

For more information on understanding breast cancer risk and risk factors, visit the [Lower Your Risk](#) section of Breastcancer.org.

This section is designed to help you better understand breast cancer risk and some of the factors that can increase risk

Risk of Developing Breast Cancer

Last modified on September 17, 2012 at 6:55 pm

The term “risk” is used to refer to a number or percentage that describes how likely a certain event is to occur. When we talk about factors that can increase or decrease the risk of developing breast cancer, either for the first time or as a recurrence, we often talk about two different types of risk: **absolute risk** and **relative risk**.

Absolute risk

Absolute risk is used to describe an individual’s likelihood of developing breast cancer. It is based on the number of people who will develop breast cancer within a certain time period. Absolute risk also can be stated as a percentage.

When we say that 1 in 8 women in the United States, or 12%, will develop breast cancer over the course of a lifetime, we are talking about absolute risk. On average, an individual woman has a 1-in-8 chance of developing breast cancer over an 80-year lifespan.

The absolute risk of developing breast cancer during a particular decade of life is lower than 1 in 8. The younger you are, the lower the risk. For example:

- From age 30 to 39, absolute risk is 1 in 233, or 0.43%. This means that 1 in 233 women in this age group can expect to develop breast cancer. Put another way, your odds of developing breast cancer if you are in this age range are 1 in 233.
- From age 40 to 49, absolute risk is 1 in 69, or 1.4%.
- From age 50 to 59, absolute risk is 1 in 38, or 2.6%.

- From age 60 to 69, absolute risk is 1 in 27, or 3.7%.

As you can see, the older you are, the higher your absolute risk of breast cancer. Keep in mind that these numbers and percentages are averages for the whole population. Your individual breast cancer risk may be higher or lower, depending on a number of factors, including family history, reproductive history (such as menstrual and childbearing history), race/ethnicity, and other factors.

Take family history, for example. The absolute risk of breast cancer is much higher for women who have inherited mutations in the genes known as BRCA1 or BRCA2. Their absolute risk over the course of a lifetime ranges from 40-85%. This means that out of every 100 women who have these mutations, anywhere from 40 to 85 of them can expect to develop breast cancer should they live to age 80.

If you have breast cancer, absolute risk also can be used to describe the likelihood of a certain treatment outcome or the course of the disease. For example, suppose that, based on the characteristics of the breast cancer (stage, grade, other test results), your age and medical history, and the treatments you have, your doctor tells you that your likelihood of disease-free survival at 5 years — being alive with no evidence of breast cancer — is 90%. This means that your absolute risk of having the breast cancer come back within 5 years is 10%, or 1 in 10. In other words, 1 out of 10 women with similar characteristics and the same treatment plan can expect to have a recurrence within that time frame. Nine out of 10, or 90%, would not.

Relative risk

Relative risk is a number or percentage that compares one group's risk of developing breast cancer to another's. This is the type of risk frequently reported by research studies, which often compare groups of women with different characteristics or behaviors to determine whether one group has a higher or lower risk of breast cancer than the other (either as a first-time diagnosis or recurrence).

Understanding relative risk can help you answer an important question: If I make certain lifestyle choices or have certain treatments, how much will I increase or decrease my risk of developing breast cancer or having a recurrence?

Example of breast cancer risk going up

Many studies have shown that women who have two or more alcoholic drinks each day have a higher risk of developing breast cancer. (A drink is defined as 12 ounces of regular beer, 5 ounces of wine, or 1.5 ounces of 80-proof liquor.) You may hear this relative risk described as a percentage or a number:

- Compared to women who do not drink, women who have two or more drinks per day have a **25% higher risk of breast cancer**. Put another way, they are 25% more likely to develop breast cancer over the course of a lifetime than nondrinkers are. This *doesn't* mean that their lifetime risk of getting breast cancer is 25% — it means that their risk of

getting breast cancer is 25% higher *relative to people who don't drink*. This percentage is how you are likely to see relative risk reported by television, the Internet, and newspapers.

- Compared to women who do not drink, women who have two or more drinks per day have a **relative risk of 1.25**. This number is how researchers and scientific papers would usually talk about relative risk. The number “1” is assigned to the baseline group (women who do not drink), since their risk remains the same. The .25 describes the relative increase in risk for the other group; it is another way of expressing the 25% higher lifetime risk (25% = .25).

Another way of saying this is that women who drink two or more alcoholic drinks per day have 1.25 ($1 + .25 = 1.25$) times the risk of developing breast cancer than women who do not drink.

Relative risk can be a tricky concept, because most people tend to focus on the reported percentage — e.g., 25% higher risk — which sounds alarming. Yes, a 25% higher risk of developing breast cancer (relative to people who don't drink) is significant, but it doesn't tell a woman what her lifetime risk is if she drinks two or more alcoholic drinks per day for the rest of her life. Since women in this group have 1.25 times the risk of developing breast cancer, it's necessary to multiply the absolute risk of breast cancer (12%) for women in the general population (13%, or .13) by relative risk (1.25):

- $.127 \times 1.25 = .159$. This means that a woman's absolute lifetime risk of developing breast cancer if she drinks two or more alcoholic drinks per day is just under 16%, versus 12% for women who do not drink.

Many different factors can increase and/or decrease your risk of developing breast cancer. Online tools such as the [National Cancer Institute's Breast Cancer Risk Assessment Tool](#) allow you to input individual information to calculate your risk.

Example of breast cancer risk going down

Suppose you have had breast cancer and undergone lumpectomy (removal of the tumor itself and a margin of healthy surrounding tissue). The absolute risk of the breast cancer coming back in the same breast is about 25%. But if you have radiation therapy to the remaining breast tissue, you can reduce that risk by about 60%. To describe this relative risk decrease, your doctor might say:

- Compared to women who have lumpectomy alone, you have a **60% lower risk of developing breast cancer again in the same breast** if you have radiation therapy after lumpectomy.

Medical researchers might express it this way:

- Compared to women who do not have radiation therapy, your **relative risk of developing breast cancer is .40** ($1 - .60 = .40$). Again, the number “1” is assigned to the baseline

group, which is not taking the extra action to decrease the risk. The .60 is subtracted from 1 because it represents a decrease in risk. In other words, you have about 40% of the risk of developing breast cancer again in the same breast as they do.

So in this scenario, what difference does radiation therapy really make for you in terms of reducing the absolute risk of cancer recurrence in the same breast? To know that, you have to multiply the risk of recurrence without radiation (25%, or .25) by the relative risk of .40:

- $.25 \times .40 = .10$. In this hypothetical situation, your absolute risk of the cancer returning in the same breast is 10%, or 1 in 10, if you have radiation therapy, versus about 25%, or 1 in 4, if you don't. Put another way, 1 in 10 women who have radiation therapy can expect to experience recurrence in the same breast, versus 1 in 4 women who do not have the treatment.

So, relative risk is the number that tells you how much something you do, such as a certain behavior or treatment, can change your risk for breast cancer compared to those who don't do it. A relative risk of:

- .5 means that your risk decreases by half, or 50%
- 1.88 means that your risk increases by 88%
- 3.0 means that your risk triples, or goes up by 300% (you have three times the risk)

As the examples above show, knowing how much your breast cancer risk goes up or down with certain lifestyle factors and treatment options can help you and your doctor make the best decisions for you. These are hypothetical examples; you can find out more about breast cancer risk in the [Lower Your Risk](#) section.

Breast Cancer Risk and Risk Factors

Last modified on September 17, 2012 at 6:55 pm

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In reality, about 1 in 8 women in the United States — 12%, or about 12 out of every 100 — can expect to develop breast cancer over the course of an entire lifetime. In the U.S., an average lifetime is about 80 years. So, it's more accurate to say that 1 in 8 women in the U.S. **who reach the age of 80** can expect to develop breast cancer. In each decade of life, the risk of getting breast cancer is actually lower than 12% for most women.

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Even though studies have found that women have a 12% lifetime risk of developing breast cancer, your individual risk may be higher or lower than that. Individual risk is affected by many different factors, such as family history, reproductive history, lifestyle, environment, and others.

For more information on understanding breast cancer risk and risk factors, visit the [Lower Your Risk](#) section of Breastcancer.org.

This section is designed to help you better understand breast cancer risk and some of the factors that can increase risk.

Symptoms of Breast Cancer

Last modified on November 26, 2012 at 6:03 am

Initially, breast cancer may not cause any symptoms. A lump may be too small for you to feel or to cause any unusual changes you can notice on your own. Often, an abnormal area turns up on a screening mammogram (x-ray of the breast), which leads to further testing.

In some cases, however, the first sign of breast cancer is a new lump or mass in the breast that you or your doctor can feel. A lump that is painless, hard, and has uneven edges is more likely to be cancer. But sometimes cancers can be tender, soft, and rounded. So it's important to have anything unusual checked by your doctor.

According to the American Cancer Society, any of the following unusual changes in the breast can be a symptom of breast cancer:

- swelling of all or part of the breast
- skin irritation or dimpling
- breast pain
- nipple pain or the nipple turning inward
- redness, scaliness, or thickening of the nipple or breast skin
- a nipple discharge other than breast milk
- a lump in the underarm area

These changes also can be signs of less serious conditions that are not cancerous, such as an infection or a cyst. It's important to get any breast changes checked out promptly by a doctor.

Managing Breast Cancer Fears

Last modified on September 17, 2012 at 6:55 pm



So many women you know may have had breast cancer — friends and neighbors, coworkers, relatives. It seems as if every time you turn around, breast cancer is being talked about in the newspaper or on TV. You may be fearful of developing breast cancer for the first time or of receiving a diagnosis after a mammogram or other testing. If you've had breast cancer, you may be fearful of a possible recurrence or even of the possibility that breast cancer could take your life.

Even though you may have some of these fears, you are not necessarily going to get breast cancer. If you have had breast cancer before, it doesn't mean that the cancer will recur. Still, it's normal to have concerns about a disease that you hear about and see around you relatively often — and that you may have experienced yourself or through a loved one. Don't let the discussion of fear in this section feed into your own fears. Throughout Breastcancer.org, the information [our medical experts](#) provide and [the support offered by our community members](#) can help you manage the fears, instead of letting them manage you.

The fear of breast cancer is unlike any other — psychologists and other experts agree on that. The fear can take many different forms, depending upon where you are in the breast cancer experience. Understand that many of your fears are shared by others. While fears are normal, they are uncomfortable to live with. We'll help you figure out how you can manage fear so you can focus on living a happy and healthy life.

On the following pages, you can read more about:

- [Common Breast-Cancer-Related Fears](#)
- [Stages of Fear After Diagnosis](#)
- [10 Ways to Manage Fear After Diagnosis](#)

Personal Quote

"I live with the fear of this disease coming back. Any little pain, any little cough, I worry. I'm constantly checking myself, my breasts. I'm at the red light, in the car, and I'm checking myself. I'm obsessive-compulsive about doing my breast exam? I say to myself, 'I will conquer and overcome,' but it's a struggle for me."

—Debbie

Personal Quote

"My mother died of breast cancer when I was five. Whenever I saw friends or relatives diagnosed, it was always like, 'Oh, God. That could be me.' It was always in the back of my mind. I worried about it all the time. It was almost to the point where I was afraid of talking about it at all." —Eileen

Common Breast-Cancer-Related Fears

Last modified on September 17, 2012 at 6:55 pm

Is it breast cancer?

Are you worried about a lump or other symptom you think might be breast cancer? Find out [what the symptoms of breast cancer are](#) and what to do if you think you have one.

Fear of first diagnosis

Most people think their risk of getting breast cancer for the first time is higher than it really is. Try to get a [realistic idea of your risk](#) from your doctor. Your risk is affected by many factors. Many people who review their [risk factors](#) find out that their risk is lower than they'd expect.

The fear of being diagnosed with breast cancer makes some people avoid going to the doctor. But the sooner you see a doctor, the sooner you can know what your situation is. Never let fear stop you from making a good choice when it comes to your healthcare.

Fear of recurrence

Are you concerned that a change in your body, or symptoms that don't involve your breast, mean that [cancer has come back or spread](#)?

If you have a personal history of the disease, you have very different worries. You may already have had a good deal of treatment, and now you are being followed carefully to make sure you are okay and free of any signs of recurrence. You obviously want to do everything possible to lower the risk of cancer returning.

Living with advanced disease

If you are dealing with recurrence or [metastatic disease](#), you may be worried about what tests and treatments you need, whether your current treatment is working, and what therapies you might need in the future.

Lowering breast cancer risk

How do you know you're doing everything you can to keep your breast cancer risk as low as possible? Is there anything you could do to lower the risk further? Find out in our [Lower Your Risk](#) section.

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Stages of Fear after Diagnosis

Last modified on September 17, 2012 at 6:55 pm

Most people go through several stages of fear when they are first diagnosed. The stages, and the order in which they happen, are very similar in most people:

- You just can't believe what you've heard and completely deny it.
- You get angry at the doctor who told you and anyone else, such as a lab technician or nurse, who read a result to you.
- You appeal to a higher power and ask over and over, "Why did this happen to me?" or "What did I do to deserve this?"
- You feel resigned, as if there's nothing you can do to help yourself.
- You accept the truth, hard as it may be, and decide to fight with everything you've got in you.

A big part of the fear of breast cancer diagnosis is all the uncertainty and the feeling that you've lost control of your life — being swept away on an uncharted journey that you don't want to take. It's hard to imagine how anything good could happen on this particular trip.

It turns out that this isn't necessarily so. While no one wants to be diagnosed with breast cancer, many people in treatment or finished with treatment say that the experience made them stronger and helped them to become closer to their families and friends and learn more about themselves. Being diagnosed is never easy, but once you start the process of getting the best available doctors, the best information, and the best support you can from those who love you, you are in good hands.

Personal Quote

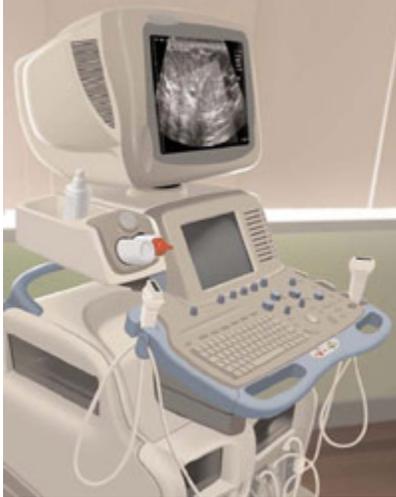
"My mother died of breast cancer when I was five. Whenever I saw friends or relatives diagnosed, it was always like, 'Oh, God. That could be me.' It was always in the back of my mind. I worried about it all the time. It was almost to the point where I was afraid of talking about it at all." —Eileen

10 Ways to Manage Fear after Diagnosis

Last modified on September 17, 2012 at 6:55 pm

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1. **As you begin gathering information to make decisions, get to know the people on your medical team and make every effort to meet them in person.** Turn faceless doctors into known resources. These are the people you've hired onto your team to help you. You'll find out who is the best communicator, who can answer which questions, who is available to help you when you need it most.
 2. **Find a doctor who communicates with you in a way that is comfortable for you,** who invites your questions and takes your concerns seriously, who gives you as much or as little information as you feel comfortable with at any given moment.
 3. **Find out what to expect from tests, procedures, and treatments.** Minimize surprises.
 4. **Make plans with your doctor about how to receive test results in a prompt way.** If possible, try to schedule important tests early in the week, so you don't have to wait over a long weekend when lab work may slow down or doctors aren't communicating with each other.
 5. **Find a mammography center where the radiologist will talk with you about the results before you go home,** so you don't have to wait for a letter or a call from your doctor.
 6. **When you know you're going to have a challenging week (a mammogram coming up or a round of chemotherapy), don't plan to do things that are stressful for you** (for example: balance the checkbook, cook dinner for 20, or run a big meeting at work). Use your support systems — friends, movies, yoga, prayer — to help you get through it.
 7. **If well-meaning people try to tell you stories about others struggling with cancer, stop them right away and say, "I only listen to stories with happy endings!"**
 8. **If you reach a point where difficult emotions are getting in the way of your functioning or taking care of yourself, speak with your doctor about the role of medications that might help ease your anxiety, depression, or sleeping problems.**
 9. **Join a breast-cancer-related group.** This can be a support group or online [discussion board](#) — a place to share your breast cancer experience openly with people who understand. If you are more action-oriented, look for a breast-cancer-related athletic group, an organization that holds breast cancer education programs, or an advocacy group that lobbies for more research funding or free mammograms. Do whatever makes you feel connected to others in a positive way as a person who is moving beyond breast cancer.
 10. **Work on ways to feel more positive about your life.** Seek out productive, life-enhancing experiences; accept yourself for who you are; and spend time with positive people who affirm who you are and how you've chosen to deal with this disease.

Screening and Testing



There's a whole world of testing that goes along with taking care of your breasts. Although medical tests can be nerve-wracking — especially when it comes to waiting for results — they are essential in keeping your breasts healthy and getting you proper care if you develop breast cancer.

In this section, you'll learn about the different types of breast cancer tests, such as mammogram, breast MRI, and biopsy. You can learn about getting your test results and keeping track of your medical records. Also featured are the pros and cons of genetic testing and what those results might mean for you.

- [Breast Cancer Tests: Screening, Diagnosis, and Monitoring](#)
- [Test Results and Medical Records](#)
- [Genetic Testing](#)

The medical experts for **Screening and Testing** are:

- Susan Orel, M.D., professor of radiology, the University of Pennsylvania Medical Center, Philadelphia, Pennsylvania
- Emily Conant, M.D., chief of breast imaging, the University of Pennsylvania Medical Center, Philadelphia, Pennsylvania
- Marisa Weiss, M.D., breast radiation oncologist, Thomas Jefferson University Health System, Philadelphia, Pennsylvania

These experts are members of the [Breastcancer.org Professional Advisory Board](#), including more than 70 medical experts in breast cancer-related fields.

Breast Cancer Tests: Screening, Diagnosis, and Monitoring

Last modified on January 8, 2013 at 8:35 am

Whether you've never had breast cancer and want to increase your odds of early detection, you've recently been diagnosed, or you are in the midst of treatment and follow-up, you know that breast cancer and medical tests go hand in hand.

Most breast-cancer-related tests fall into one or more of the following categories:

- **Screening tests:** Screening tests (such as yearly mammograms) are given routinely to people who appear to be healthy and are not suspected of having breast cancer. Their purpose is to find breast cancer early, before any symptoms can develop and the cancer usually is easier to treat.
- **Diagnostic tests:** Diagnostic tests (such as biopsy) are given to people who are suspected of having breast cancer, either because of symptoms they may be experiencing or a screening test result. These tests are used to determine whether or not breast cancer is present and, if so, whether or not it has traveled outside the breast. Diagnostic tests also are used to gather more information about the cancer to guide decisions about treatment.
- **Monitoring tests:** Once breast cancer is diagnosed, many tests are used during and after treatment to monitor how well therapies are working. Monitoring tests also may be used to check for any signs of recurrence.

On the following pages, you can read more about the many tests you may have at different points in the process of screening, diagnosis, and treatment. The tests are covered in alphabetical order.

- [Biopsy](#)
- [Blood Cell Counts](#)
- [Blood Chemistries](#)
- [Blood Marker Tests](#)
- [Bone Scans](#)
- [Breast MRI \(Magnetic Resonance Imaging\)](#)
- [Breast Physical Exam](#)
- [Breast Self-Exam \(BSE\)](#)
- [CT \(CAT\) Scans](#)
- [Chest X-Rays](#)
- [Digital Tomosynthesis](#)
- [Dual Inform ISH Test](#)
- [Ductal Lavage](#)
- [FISH Test \(Fluorescence In Situ Hybridization\)](#)
- [IHC Tests \(ImmunoHistoChemistry\)](#)
- [MammaPrint Test](#)
- [Mammograms](#)
- [Mammostrat Test](#)
- [MarginProbe](#)
- [Molecular Breast Imaging](#)
- [Oncotype DX](#)
- [PET Scans](#)

- [SPoT-Light HER2 CISH](#)
- [Thermography](#)
- [Ultrasound](#)

Expert Quote

A screening test tries to find a disease before there are any symptoms. With breast cancer, there's a misconception that if you feel fine, don't have a lump, and have no family history of breast cancer, you're okay. The truth is that three-quarters of the women in whom we find breast cancer have no risk factors. So screening is important for everyone.

Susan Greenstein Orel, M.D.

Biopsy

Last modified on September 17, 2012 at 6:55 pm

Imaging studies such as mammogram and MRI, often along with physical exams of the breast, can lead doctors to suspect that a person has breast cancer. However, the only way to know for sure is to take a sample of tissue from the suspicious area and examine it under a microscope.

A biopsy is a small operation done to remove tissue from an area of concern in the body. If your doctor feels anything suspicious in your breast, or sees something suspicious on an imaging study, he or she will order a biopsy. The tissue sample is examined by a pathologist (a doctor who specializes in diagnosing disease) to see whether or not cancer cells are present. If cancer is present, the pathologist can then look at the cancer's characteristics. The biopsy will result in a report that lays out all of the pathologist's findings.

Biopsy is usually a simple procedure. In the United States, only about 20% of women who have biopsies turn out to have cancer. By contrast, in Sweden, where cost accounting is much stricter and only the most suspicious lesions are biopsied, 80% of biopsies turn out to be cancerous (malignant).

Biopsy techniques

Different techniques can be used to perform biopsy, and it's likely that your surgeon will try to use the least invasive procedure possible — the one that involves the smallest incision and the least amount of scarring. However, the choice of procedure really depends on your individual situation. Biopsy can be done by placing a needle through the skin into the breast to remove the

tissue sample. Or, it can involve a minor surgical procedure, in which the surgeon cuts through the skin to remove some or all of the suspicious tissue.

Fine needle aspiration biopsy

Fine needle aspiration (FNA) is the least invasive method of biopsy and it usually leaves no scar. You will be lying down for this procedure. First, an injection of local anesthesia is given to numb the breast. The surgeon or radiologist uses a thin needle with a hollow center to remove a sample of cells from the suspicious area. In most cases, he or she can feel the lump and guide the needle to the right place.

In cases where the lump cannot be felt, the surgeon or radiologist may need to use imaging studies to guide the needle to the right location. This is called ultrasound-guided biopsy when ultrasound is used, or stereotactic needle biopsy when mammogram is used. With ultrasound-guided biopsy, the doctor will watch the needle on the ultrasound monitor to guide it to the area of concern. With stereotactic mammography, mammograms are taken from different angles to pinpoint the location of the breast mass. The doctor then inserts the hollow needle to remove the cell sample.

Core needle biopsy

Core needle biopsy uses a larger hollow needle than fine needle aspiration does. If you have this type of biopsy, you'll be lying down. After numbing the breast with local anesthesia, the surgeon or radiologist uses the hollow needle to remove several cylinder-shaped samples of tissue from the suspicious area. In most cases, the needle is inserted about 3 to 6 times so that the doctor can get enough samples. Usually core needle biopsy does not leave a scar.

If the lesion cannot be felt through the skin, the surgeon or radiologist can use an image-guided technique such as ultrasound-guided biopsy or stereotactic needle biopsy. A small metal clip may be inserted into the breast to mark the site of biopsy in case the tissue proves to be cancerous and additional surgery is required. This clip is left inside the breast and is not harmful to the body. If the biopsy leads to more surgery, the clip will be removed at that time.

In addition to offering quick results without significant discomfort and scarring, both fine needle aspiration and core needle biopsy give you the opportunity to discuss treatment options with your doctor before having any surgery. In some cases, needle biopsy can be performed right in the doctor's office, unless your doctor needs the help of imaging equipment to guide the biopsy. However, needle biopsy has a higher risk of a "false negative" result — a result suggesting that cancer is not present when it really is. This is likely because needle biopsy removes a smaller amount of tissue than surgical biopsy does and may not pick up the cancer cells. Your doctor may recommend a surgical biopsy in follow up to, or instead of, a needle biopsy. Together you can decide what is best for your situation.

Vacuum-assisted breast biopsy

Vacuum-assisted breast biopsy, also known by the brand names Mammotome or MIBB (which stands for Minimally Invasive Breast Biopsy), is a newer way of performing breast biopsy. Unlike core needle biopsy, which involves several insertions of a needle through the skin, vacuum-assisted biopsy uses a special probe that only has to be inserted once. The procedure also is able to remove more tissue than core needle biopsy does.

For vacuum-assisted breast biopsy, you'll lie face down on an exam table with special round openings in it, where you place your breasts. First, an injection of local anesthesia is given to numb the breast. Guided by mammography (stereotactic-guided biopsy) or ultrasound, the surgeon or radiologist places the probe into the suspicious area of the breast. A vacuum then draws the tissue into the probe. A rotating cutting device removes a tissue sample and then carries it through the probe into a collection area. The surgeon or radiologist can then rotate the probe to take another sample from the suspicious lesion. This can be repeated 8 to 10 times so that the entire area of concern is thoroughly sampled.

In some cases, a small metal clip is placed into the biopsy site to mark the location, in case a future biopsy is needed. This clip is left inside the breast and causes no pain or harm. If the biopsy leads to more surgery, the clip will be removed at that time.

Vacuum-assisted biopsy is becoming more common, but it is still a relatively new procedure. If you are having this form of biopsy, make sure that the surgeon or radiologist is experienced at using the equipment.

Incisional biopsy

Incisional biopsy is more like regular surgery. After using local anesthesia to numb the breast and giving you an injection to make you drowsy, the surgeon uses a scalpel to cut through the skin to remove a piece of the tissue for examination.

As with needle biopsy, if the surgeon cannot feel the lump or suspicious area, he or she may need to use mammography or ultrasound to find the right spot. Your surgeon also may use a procedure called needle wire localization. Guided by either mammography or ultrasound, the surgeon inserts a small hollow needle through the breast skin into the abnormal area. A small wire is placed through the needle and into the area of concern. Then the needle is removed. The doctor can use the wire as a guide in finding the right spot for biopsy.

Your doctor may recommend incisional biopsy if a needle biopsy is inconclusive — that is, the results are unclear or not definite — or if the suspicious area is too large to sample easily with a needle. As with needle biopsy, there is some possibility that incisional biopsy can return a false negative result. However, you do get the results fairly quickly. Given that it is a surgical procedure, incisional biopsy is more invasive than needle biopsy, it leaves a scar, and it may require more time to recover.

Excisional biopsy

Excisional biopsy, the most involved form of biopsy, is surgery to remove the entire area of suspicious tissue from the breast. In addition to removing the suspected cancer, the surgeon generally will remove a small rim of normal tissue around it as well, called a margin.

As with incisional biopsy, if the surgeon cannot feel the lump or suspicious area, he or she may need to use mammography or ultrasound to find the right spot. Your surgeon also may use needle wire localization to mark the right area for biopsy.

Excisional biopsy is the surest way to establish a definite diagnosis without getting a false negative result. Also, having the entire lump removed may provide you with some peace of mind. However, excisional biopsy is more like regular surgery, and it will leave a scar and require more time to recover. Like incisional biopsy, excisional biopsy is performed with local anesthesia.

Before your biopsy

Biopsies are not medical emergencies and can be scheduled at your convenience. But for peace of mind, most people want their biopsies done "yesterday."

Medical guidelines say that about 90% of biopsies should be needle biopsies, the least invasive procedure. Still, research has shown that about 70% of breast biopsies are surgical biopsies. This means that many women who don't have cancer are having unnecessary surgery. It also means that women who are diagnosed with breast cancer have to have a second operation to remove the cancer.

Before proceeding with a biopsy, be sure to ask your doctor to:

- review the results of your mammogram and any other imaging studies with you
- show you the area in question
- explain the type of biopsy that's recommended for you and explain why that type of biopsy is recommended; if surgical biopsy is recommended ask if needle biopsy can be done
- discuss how and why the biopsy will be performed
- answer any of your questions
- arrange for you to sign required consent forms
- tell you when and how you can get the biopsy results

A few days to a week after biopsy, your doctor should give you a pathology report that explains what was found in the tissue sample. See [Your Diagnosis](#) for more information.

Blood Cell Counts

Last modified on September 17, 2012 at 6:55 pm

Before and during treatment for breast cancer, your doctor likely will order blood cell counts. These tests check to see whether the blood has normal amounts of various types of blood cells. The cancer itself and treatments such as chemotherapy and radiation therapy can reduce the levels of important blood cells your body needs to function properly.

Blood cell counts typically measure:

- **white blood cells**, which function as the immune system cells that defend your body against foreign substances and “invaders.” If you have a low white blood cell count, you have a higher risk of getting an infection.
- **red blood cells**, which carry oxygen throughout the body. In addition to measuring the number of red blood cells, a test will be done to measure the level of **hemoglobin**, an iron-rich protein found in red blood cells that carries oxygen from your lungs to the rest of your body. (When you have low hemoglobin levels, a condition called anemia can result.) Another test will measure your **hematocrit** level, which is the fraction of whole blood volume that consists of red blood cells.
- **platelets**, which are cells that help your blood form clots to prevent bleeding

Before treatment begins, blood cell counts may be used to determine whether you have another medical condition, such as anemia, that needs to be addressed first. Abnormal counts also could be an indication that the cancer has spread to the bone marrow (the spongy tissue inside bones where blood cells are made).

During treatment with chemotherapy, your blood cell counts will be checked before each cycle of treatment. Chemotherapy medications can significantly reduce the levels of blood cells your body should have. Radiation therapy can affect these levels as well, although to a lesser extent. Blood counts may be checked during a course of radiation, particularly if the radiation is being given to a large area or if you've just had or are still having chemotherapy.

If your counts are too low, your doctor can give you medications called growth factors to stimulate the growth of certain types of blood cells. Examples of growth factors include:

- Procrit (chemical name: epoetin alfa), Epogen (chemical name: epoetin alfa), or Aranesp (chemical name: darbepoetin alfa) to increase red blood cell counts
- Neumega (chemical name: oprelvekin) to increase platelet counts
- Neupogen (chemical name: filgrastim) to boost white blood cell levels

Another option is a transfusion, which is the process of transferring healthy blood or needed blood components into your body.

After treatment, blood tests are used to look for signs of recurrence and to monitor possible side effects from medication. Counts of white blood cells (immune cells) and platelets are taken until they are back to normal. Then, your doctor will probably order blood counts only occasionally, depending on the kind of treatment you've had and how you are feeling.

Blood Chemistries

Last modified on September 17, 2012 at 6:55 pm

Blood chemistry tests measure levels of certain substances in the blood that can tell your doctor whether or not various organs are healthy and functioning properly during treatment. Tests may be done to measure:

- the levels of liver enzymes (special proteins involved in vital chemical reactions) and bilirubin (a substance that helps break down fat), to evaluate liver function
- levels of potassium, chloride, and urea nitrogen levels, which reflect the health of the liver and the kidneys during and after treatment
- calcium levels, to determine bone and kidney health
- blood sugar levels, which are important for people with diabetes and people taking steroids (medications to reduce swelling, pain, and other symptoms of inflammation)

Abnormal blood chemistry results also may suggest that the breast cancer has spread to the bone or liver. In this case, your doctor would order an imaging study, such as a bone scan or CT scan, to gather more information.

Blood Marker Tests

Last modified on September 17, 2012 at 6:55 pm



Your doctor may order blood tests for cancer/tumor markers to detect cancer activity in the body. Proteins and circulating tumor cells are two types of markers that can be measured. A cancer tumor often produces a specific protein in the blood that serves as a marker for the cancer. Circulating tumor cells are cells that break off from the cancer and move into the blood stream. Protein markers and circulating tumor cells can be measured with simple blood tests.

Blood marker tests may be done before treatment, to help diagnose the breast cancer and determine whether it's moved to other parts of the body; during treatment, to assess whether the cancer is responding; and after treatment, to see if the cancer has come back (recurrence).

Examples of markers your doctor may test for include:

- **CA 15.3:** used to find breast and ovarian cancers
- **TRU-QUANT** and **CA 27.29:** may mean that breast cancer is present
- **CA125:** may signal ovarian cancer, ovarian cancer recurrence, and breast cancer recurrence
- **CEA (carcinoembryonic antigen):** a marker for the presence of colon, lung, and liver cancers. This marker may be used to determine if the breast cancer has traveled to other areas of the body.
- **Circulating tumor cells:** cells that break off from the cancer and move into the blood stream. High circulating tumor cell counts may indicate that the cancer is growing. The CellSearch test has been approved by the U.S. Food and Drug Administration to monitor circulating tumor cells in women diagnosed with metastatic breast cancer.

Some doctors use marker test results as early indicators of breast cancer progression (the cancer getting worse) or recurrence. They may use this information to make decisions about when to change therapies — if current treatment does not appear to be working — or to start treatment for recurrence. If you have an elevated marker, your doctor may check that marker periodically to assess your response to chemotherapy or other treatments.

While breast cancer blood marker tests are promising, they're not absolutely conclusive. When a breast cancer blood marker test comes back negative, it doesn't necessarily mean you're free and clear of breast cancer. And a positive result doesn't always mean that the cancer is growing. These tests may help with diagnosis, but using cancer marker tests to find metastatic breast cancer hasn't helped improve survival yet.

When deciding if you should get tested for breast cancer blood markers, there are some things you may want to consider:

- cost — the tests can be expensive
- anxiety — not just from an elevated blood marker, but by all the tests you may need to find out what's causing the marker to go up

Talk to your doctor about the possible benefits and risks of blood marker testing in your unique situation.

Bone Scans

Last modified on September 17, 2012 at 6:55 pm

A bone scan, also called bone scintigraphy, is an imaging test used to determine whether breast cancer has traveled to the bones. Your doctor may order a bone scan:

- at initial diagnosis, to make sure your bones are healthy, as well as to create a set of “baseline images” that could be compared to any future bone scans that are done
- during and after treatment, if you experience persistent bone and joint pain, or if a blood test suggests the possibility that the breast cancer has traveled to the bones

Bone scans begin with an injection of radioactive material into your arm, which will be taken up by the body's bone-making cells over the next few hours. These bone-making cells are found mostly in areas damaged by disease, where they are busily trying to make new bone to patch the holes. After waiting 2 to 4 hours for the radioactive substance to be absorbed, the doctor uses a special camera to scan the body. Areas of extra bone activity (common in both cancer and arthritis) will show up on the scan because the radioactive substance collects in areas of new bone formation. These areas appear as dark patches on the film. Any part of the bone can be affected by cancer.

Except for the needle stick to give the injection, a bone scan is painless, although it may require you to lie still for up to an hour while the scanning is done. The test involves very little radiation exposure and poses no greater risk than a standard x-ray.

Many changes that show up on a bone scan are not cancer. With arthritis, the radioactive material tends to show up on the bone surfaces of joints, not inside the bone. But it can be hard to tell the difference between arthritis and cancer — especially in the spine. That’s because the spine is made up of so many little bones and joints. Changes in the spine may require additional evaluation.

Talk to your doctor about whether he or she recommends bone scans for your particular situation. You will not need bone scans if you’ve been diagnosed with a non-invasive form of breast cancer, such as ductal carcinoma in situ (DCIS). Typically there is no need to have yearly follow-up bone scans if you aren’t experiencing any unusual symptoms, such as persistent pain. The exam is expensive and time-consuming, and studies have shown that it won’t improve your quality of life or length of survival. Yet if you’re experiencing persistent back or leg pain, a repeat bone scan that shows no change from the baseline study is usually reassuring. Back pain is a common problem, but if you’ve had breast cancer it can cause a great deal of anxiety.

Keep in mind that a bone scan is a different test than a bone density study (such as DEXA), which evaluates bone strength and your risk of osteoporosis (thinning of the bones).

Breast MRI (Magnetic Resonance Imaging)

Last modified on September 17, 2012 at 6:55 pm



MRI, or magnetic resonance imaging, is a technology that uses magnets and radio waves to produce detailed cross-sectional images of the inside of the body. MRI does not use x-rays, so it does not involve any radiation exposure. Breast MRI has a number of different uses for breast cancer, including:

- screening high-risk women (women known to be at higher than average risk for breast cancer, either because of a strong family history or a gene abnormality)
- gathering more information about an area of suspicion found on a mammogram or ultrasound
- monitoring for recurrence after treatment

On the following pages, you can learn more about breast MRI and how the test may be used.

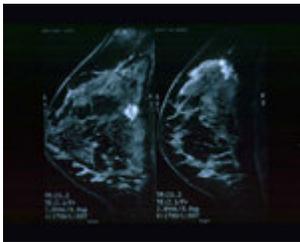
- [How Breast MRI is Performed](#)
- [Breast MRI for Screening](#)
- [Breast MRI for Diagnosis and Monitoring](#)

How Breast MRI is Performed

Last modified on January 24, 2013 at 8:41 am

Unlike a mammogram, which uses x-rays to create images of the breast, breast MRI uses magnets and radio waves to produce detailed 3-dimensional images of the breast tissue. Before the test, you may need to have a contrast solution (dye) injected into your arm through an intravenous line. Because the dye can affect the kidneys, your doctor may perform kidney function tests before giving you the contrast solution. The solution will help any potentially cancerous breast tissue show up more clearly. Some people experience temporary discomfort during the infusion of the contrast solution.

Cancers need to increase their blood supply in order to grow. On a breast MRI, the contrast tends to become more concentrated in areas of cancer growth, showing up as white areas on an otherwise dark background. This helps the radiologist determine which areas could possibly be cancerous. More tests may be needed after breast MRI to confirm whether or not any suspicious areas are actually cancer.



MRI images showing two discrete areas of abnormality [Larger Version](#)

For the breast MRI, you will need to pull down your hospital gown to your waist or open it in front to expose your breasts. Then you lie on your stomach on a padded platform with cushioned openings for your breasts. Each opening is surrounded by a breast coil, which is a signal receiver that works with the MRI unit to create the images. The platform then slides into the center of the

tube-shaped MRI machine. You won't feel the magnetic field and radio waves around you, but you will hear a loud thumping sound. You will need to be very still during the test, which takes around 30 to 45 minutes. If you're claustrophobic, being confined within an MRI machine for a long period of time can be difficult. Some facilities have an open MRI machine to avoid this problem, or you may be given a mild sedative.

Because the technology uses strong magnets, it is essential that you remove anything metal — jewelry, snaps, belts, earrings, zippers, etc. — before the test. The technologist also will ask you if you have any metal implanted in your body, such as a pacemaker or artificial joint.

Where to have breast MRI

It's important to have breast MRI done at a facility with:

- **MRI equipment designed specifically for imaging the breasts.** Not all hospitals and imaging centers have this; instead, many have MRIs used for scanning the head, chest, or abdomen.
- **The ability to perform MRI-guided breast biopsy.** If the breast MRI reveals an abnormality, you'll want to have an MRI-guided breast biopsy (a procedure to remove any suspicious tissue for examination) right away. Otherwise, you'll need to have a breast MRI again at another facility that offers an immediate MRI-guided breast biopsy.

If your doctor recommends that you have breast MRI for screening, diagnosis, or follow-up, ask for help in finding the best place to have the test done. The American College of Radiology is working on a system for accrediting breast MRI centers, which should make it easier to find high-quality breast MRI facilities in the future.

Breast MRI for Screening

Last modified on September 17, 2012 at 6:55 pm

Breast MRI is not recommended as a routine screening tool for all women. However, it is recommended for screening women who are at high risk for breast cancer, usually due to a strong family history and/or a mutation in genes such as BRCA1 or BRCA2. If you are considered high-risk, you would have breast MRI in addition to your annual mammograms (x-rays of the breast).

Breast MRI is not a perfect tool. Although it is generally considered more sensitive for picking up breast cancer than mammography, it also can miss some cancers that would be detected by

mammography. That is why breast MRI is recommended only in combination with other tests, such as mammogram or ultrasound.

Who should have breast MRI for screening?

Yearly mammograms plus breast MRI screening are typically recommended for women who are at higher-than-average risk of developing breast cancer — in other words, at greater than the average 13% risk most women have over the course of an entire lifetime.

The American Cancer Society (ACS) recommends that all high-risk women — those with a greater than 20% lifetime risk of breast cancer — have a breast MRI and a mammogram every year. For most women, these combined screenings should start at age 30 and continue as long as the woman is in good health. According to ACS guidelines, high-risk women include those who:

- have a known BRCA1 or BRCA2 gene mutation
- have a first-degree relative (mother, father, brother, sister, or child) with a BRCA1 or BRCA2 gene mutation and have not had genetic testing themselves
- find out they have a lifetime risk of breast cancer of 20-25% or greater, according to risk assessment tools that are based mainly on family history
- had radiation therapy to the chest for another type of cancer, such as Hodgkin's disease, when they were between the ages of 10 and 30 years
- have a genetic disease such as Li-Fraumeni syndrome, Cowden syndrome, or Bannayan-Riley-Ruvalcaba syndrome, or have one of these syndromes in first-degree relatives

The American Cancer Society also recommends that women at moderately increased risk of breast cancer — those with a 15-20% lifetime risk — talk with their doctors about the possibility of adding breast MRI screening to their yearly mammogram. According to ACS guidelines, this includes women who:

- find out they have a lifetime risk of breast cancer of 15-20%, according to risk assessment tools based mainly on family history
- have a personal history of breast cancer, ductal carcinoma in situ (DCIS), lobular carcinoma in situ (LCIS), or abnormal breast cell changes such as atypical ductal hyperplasia or atypical lobular hyperplasia
- have extremely dense breasts or unevenly dense breasts when viewed by mammograms

If you think you're a candidate for breast MRI screening, talk to your doctor. You and your doctor may need to work with your health insurance plan to get the test covered. You may have to prove to your plan that you are indeed considered high-risk for breast cancer. You also will need to find a facility with dedicated breast MRI screening equipment.

Breast MRI for Diagnosis and Monitoring

Last modified on September 17, 2012 at 6:55 pm

The value of breast MRI for breast cancer detection remains uncertain. Some doctors believe MRI can distinguish a breast cancer from normal breast gland tissue better than other techniques. But breast MRI is expensive and requires highly specialized equipment and highly trained experts. Relatively few breast MRI centers exist, especially outside of major cities. And even at its best, MRI produces many uncertain findings. Some radiologists call these “unidentified bright objects,” or UBOs. MRI also cannot detect calcifications (calcium deposits in breast tissue that could be a sign of cancer). Finally, MRI can dislodge certain metal devices, such as pacemakers, in some people.

In some situations, however, breast MRI can be useful in gathering more information about an area in the breast that is suspicious or already confirmed to be cancerous. Possible uses include:

- evaluating a person who has a palpable mass (a mass that can be felt) that isn’t visible with ultrasound or mammography
- evaluating a lesion in the densely glandular breast of a young woman. Young women tend to have dense breast tissue, which makes it difficult to see abnormal areas on imaging studies.
- evaluating a person who has breast cancer cells in an underarm lymph node, but no breast mass that doctors are able to feel or to see on a mammogram. In these cases, where mastectomy is typically recommended, MRI can help find the precise site of the cancer’s origin within the breast. Finding the cancer’s site of origin can expand a woman’s treatment options from only mastectomy to include lumpectomy plus radiation.
- determining if a cancer is limited to one area of the breast, or if it is “multicentric” and involves more than one area. Knowing this affects treatment choices, since mastectomy is necessary for multicentric disease. MRI can be particularly useful for women with invasive lobular cancer, which has a tendency to be diffuse or multicentric.
- checking a woman’s other breast for signs of cancer after she receives her initial cancer diagnosis. The American Cancer Society recommends that breast MRI be used to check the other breast for any signs of cancer.
- examining breast tissue in women who have had silicone breast implants. MRI scanning can detect leakage from a silicone-filled breast implant, since it easily distinguishes silicone gel from surrounding normal breast and chest wall tissues.

After treatment for breast cancer, MRI can be useful for checking scar tissue in women who have undergone lumpectomy. Any significant changes could suggest a return of the breast cancer.

Finally, MRI scans of other parts of the body — such as the brain, spinal cord, or bones — may be useful in people who are known or suspected to have metastatic breast cancer (cancer that has traveled outside the breast to other areas of the body). For example, a person who has progressive back pain, or who develops new weakness or numbness in the arms or legs (not just hands or feet), can have an MRI scan of her back. The scan can help identify serious conditions such as the possible presence of a spinal tumor or brain metastasis.

Expert Quote

Only with a laborious process of breast imaging and biopsy, followed by careful clinical, radiographic, and pathologic correlation, can we learn which UBOs require further biopsy and which can be left alone.

Nutrition

Last modified on September 30, 2012 at 9:48 am

Nutrition — giving your body the nutrients it needs — is important for everyone. When combined with exercising and maintaining a healthy weight, eating well is an excellent way to help your body stay strong and healthy.

If you're currently undergoing treatment for breast cancer or have been treated for breast cancer in the past, eating well is particularly important for you. In this section, you can read about healthy eating and what and how to eat during and after treatment.

[What Does Healthy Eating Mean?](#)

Healthy eating means eating a variety of foods that give you the nutrients you need to maintain your health. Find out how to balance your diet and manage your portion sizes.

[Healthy Eating During Treatment](#)

If you're recovering from surgery, or receiving chemotherapy, radiation, or other breast cancer treatment, your focus is on getting rid of the cancer. Eating well will help you stay strong for this fight by giving your body the nutrients it needs. Read about how you can eat to manage your weight, reduce fatigue, build your energy, and get enough fluids.

[Healthy Eating After Treatment](#)

Healthy eating and physical activity after treatment are important as you recover from treatment and begin your life beyond breast cancer. Learn about eating to manage your weight and how to create a healthy eating plan that includes exercise.

[Nutrition and Breast Cancer Risk Reduction](#)

In this section you can find out what we know today about the impact of food on breast cancer risk. Read about foods that contain healthy nutritional compounds, understand what "organic" and "genetically modified" really mean, and learn how to choose and prepare foods in ways that lower the risk of food-borne illnesses.

Dietary Supplements

Many women with breast cancer take dietary supplements such as vitamins, minerals, and herbs hoping it helps them to stay strong. Learn about suggestions for using supplements.

Nutrition Resources

In this section, you can browse a comprehensive list of links to nutrition web sites offering information on dietary guidelines, dietary supplements, research, nutrition labels, food safety, and more.

The medical experts for **Nutrition** are:

Cyndi Thomson, Ph.D., R.D., assistant professor in Nutritional Sciences at the University of Arizona, with joint appointments in medicine and public health. She is a registered dietitian with more 15 years of experience in clinical nutrition. Dr. Thomson is also principal investigator at the University of Arizona College of Public Health on several diet-cancer grants.

Diana Grant Dyer, M.S., R.D., a registered dietitian with 20 years of experience, specializing in nutritional care for critically ill patients. She is the author of *A Dietitian's Cancer Story: Information & Inspiration for Recovery & Healing from a 3-time Cancer Survivor* (Swan Press, 2002) and is especially interested in how nutrition can influence cancer risk reduction and recovery.

Both Cyndi Thomson and Diana Grant Dyer are members of the Breastcancer.org [Professional Advisory Board](#), which includes more than 60 medical experts in breast cancer-related fields.

What Does Healthy Eating Mean?

Last modified on September 17, 2012 at 7:01 pm

Healthy eating means eating a variety of foods that give you the nutrients you need to maintain your health, feel good, and have energy. These nutrients include protein, carbohydrates, fat, water, vitamins, and minerals.

Nutrition is important for everyone. When combined with being physically active and maintaining a healthy weight, eating well is an excellent way to help your body stay strong and healthy. If you have a history of breast cancer or are currently undergoing treatment, eating well is especially important for you. What you eat can affect your immune system, your mood, and your energy level.

No food or diet can prevent you from getting breast cancer. While researchers are still studying the effects of [eating unhealthy food](#) on breast cancer and recurrence risk, we *do* know that [being](#)

[overweight](#) is a risk factor for both first-time and recurrent breast cancer. In this section, you can learn how to eat in a way that keeps your body as healthy as it can be.

Read on for information about food groups, nutrients, how to create a healthy eating plan, how to figure out portions, and how enjoy your food without overeating.

Understanding Food Groups

Last modified on September 17, 2012 at 7:01 pm

A healthy diet contains a variety of foods from the following food groups:

- [Fruits and vegetables](#)
- [Whole grains](#)
- [Meat and beans](#)
- [Milk and dairy](#)
- [Fats and oils](#)

Fruits and vegetables

A diet rich in fruits and vegetables is recommended by cancer experts as well as registered dietitians. The American Cancer Society and the American Institute for Cancer Research recommend eating 5 or more servings of a variety of vegetables and fruits each day to ensure that your cancer risk is as low as it can be. The United States Department of Agriculture (USDA) 2005 Dietary Guidelines for Americans recommend 9 servings of fruit and vegetables each day. This sounds like a lot, but it's really only about 2 cups of fruit and 2 1/2 cups of vegetables.

Nutrition experts say that variety is key, because different fruits and vegetables have different nutrients. Plus, if you eat too much of one thing, you might get bored. One way to eat a variety of fruits and vegetables is to eat foods with all the colors of the rainbow. Green is broccoli. Red is peppers. Yellow is a banana. Purple is eggplant. Orange is an orange. Or try to eat dark green vegetables (think spinach, collard greens, or kale) at one meal, and orange (carrots, sweet potatoes, or squash) the next. Cut up an apple into your morning cereal and have a peach with your lunch. Frozen raspberries or blackberries are a yummy dessert. Be creative!

Whole grains

USDA guidelines recommend 3 ounces or more of whole grains per day. Whole grains still have the bran and the germ (the core of the grain kernel) attached and have more fiber, minerals, and vitamins than refined grains. The refining process removes the bran and germ from the grain.

You can't tell if a food is made from whole grain by looking at its color — you have to read the label. The ingredients should say "whole" or "whole grain" before the grain's name, "whole grain wheat," for example. Brown rice, bulgur, oatmeal, and barley are examples of whole grains that are eaten on their own. Both the American Institute for Cancer Research and the American Cancer Society recommend choosing whole grains over refined grains. To be considered high in whole grains, bread must have 2 to 3 grams of fiber per slice, and cereals must have at least 6 or more grams of fiber per serving. Some examples are Multi-Bran Chex cereal by General Mills (7 grams of fiber per serving) and Flax and Fiber Crunch cereal by Back to Nature (9 grams of fiber per serving).

Meat and beans

Meat is a good source of the protein and fatty acids you need for energy and health. Red meat also contains iron, which is especially important for women. But meat also has high levels of saturated fat and cholesterol, and a study done in 2006 found that eating more than 1 1/2 servings of red meat per day may increase breast cancer risk. The USDA guidelines recommend 5 1/2 ounces of meat (defined to include chicken and fish) per day, or meat substitutes (vegetable protein products) or beans if you prefer not to eat meat. If you do eat meat, poultry, or fish, try to choose lean cuts and opt for chicken or fish most of the time. If you don't eat meat, you may need to add nuts, seeds, or beans to your diet to ensure that you're getting enough protein and iron.

Eggs are also included in this category. One egg equals a 1-ounce serving of meat.

Milk and dairy

The USDA recommends that you eat one of these options every day:

- 3 cups of low-fat/fat-free milk or yogurt (that's a little more than 3 6-ounce containers of yogurt)
- 4.5 ounces of low-fat/fat-free natural cheese, such as cheddar (about 4 slices)
- 6 ounces of low-fat or fat-free processed cheese, such as American (about 6 slices)

Alternatively, you can mix portions of the above choices as long as they add up to the equivalent of the recommended amount. For example:

- 1 1/2 cups of low-fat/fat-free milk and 3 ounces of processed cheese
- 1 cup of low-fat/fat-free milk, a 6-ounce container of yogurt, and 1 1/2 ounces of natural cheese

Processed cheese has less calcium than natural cheese. That's why you need to eat more of it per day. Processed cheese is made from natural cheese and other ingredients. It is pasteurized and has more moisture so it can be stored longer and melt easier.

If you don't like or can't drink milk or milk products, make sure you get enough phosphorus, vitamin A, calcium, and vitamin D from other food sources. Examples include carrots, sweet potatoes, winter squashes, broccoli, dark green leafy vegetables, salmon, sardines, and fortified cereals.

If you are lactose intolerant, you might want to try lactase supplements.

Fats and oils

You need some fat in your diet, but not very much. The USDA guidelines recommend that you get no more than 35% of your daily calories from fat.

There are three main types of fats:

- **Saturated** fats are the "bad" fats that raise your cholesterol levels. Saturated fats are found in animal products such as whole milk, cheese, ice cream, fatty meats, and some vegetable oils, such as palm and coconut oils. Saturated fat also includes trans fat, found in shortening, stick (or hard) margarine, cookies, crackers, snack foods, fried foods, doughnuts, pastries, baked goods, and other processed foods made with or fried in partially hydrogenated oils.
- **Monounsaturated** fat and **polyunsaturated** fats are the "good" fats that help lower your LDL cholesterol. These types of fats are found in fish and foods from plants such as vegetables, nuts, and grains, as well as oils made from these nuts and grains (canola, corn, soybean).

These five food groups can supply you with all the nutrients your body needs to stay healthy and strong. You may be wondering where chocolate and some of your other favorite treats fit. Don't worry, they do. You just have to be mindful of when you eat them and how much of them you eat.

How Your Body Gets Nutrients from Foods

Last modified on September 17, 2012 at 7:01 pm

Eating a wide range of foods that include a variety of nutrients is the easiest way to have a healthy diet.

On this page, you'll learn why your body needs each of the following nutrients, and which foods you'll find them in:

- [Proteins](#)
- [Carbohydrates](#)
- [Fats](#)
- [Vitamins and minerals](#)
- [Water](#)

Proteins give your body amino acids — the building blocks that help your body's cells do all of their everyday activities. Proteins help your body build new cells, repair old cells, create hormones and enzymes, and keep your immune system healthy. If you don't have enough protein, your body takes longer to recover from illness and you're more likely to get sick in the first place.

During treatment for breast cancer, some people may need more protein than usual. Good sources of protein are lean meat, fish, poultry, and low-fat dairy products, as well as nuts, dried beans, peas, and lentils.

Carbohydrates give you quick energy — they quickly go into your blood as glucose (blood sugar), which your body uses for fuel first, before turning the leftovers into fat.

Fruits, vegetables, bread, pasta, grains, cereal products, crackers, dried beans, peas, and lentils are all good sources of carbohydrates. Many of them are also good sources of fiber, which your digestive system needs to stay healthy.

Sugar (white and brown), honey, and molasses are also carbohydrates. But these types of carbohydrates are high in calories and don't offer any other benefits (like vitamins and minerals). Whole grains and fruits and vegetables are healthier sources of carbohydrates than refined grains and sugars.

Fats give your body the fatty acids it needs to grow and to produce new cells and hormones. Fat also helps some vitamins move through your body. Vitamins A, D, E, and K are fat-soluble

vitamins, which means they need some fat to be absorbed. They are also stored in the fatty tissues in your body and the liver. Fat also helps protect your organs against trauma. Your body stores excess calories as fat, which is saved up as reserve energy.

Fats give you more concentrated calories than carbohydrates or proteins. In other words, a teaspoon of fat will have more calories than a teaspoon of carbohydrate or a teaspoon of protein.

There are three basic types of fats:

- **Saturated** fats, found mainly in meat and whole-milk products, are only found in foods that come from animals, not those that come from plants. Saturated fat is the type that raises your blood cholesterol level. Trans fats (also called trans-saturated fats or trans fatty acids) are formed when liquid vegetable oils go through a process called hydrogenation, in which hydrogen is added to make the oils more solid. Hydrogenated vegetable fats are used in food processing because they give foods a longer shelf-life and a desirable taste, shape, and texture. The majority of trans fat is found in shortening, stick (or hard) margarine, cookies, crackers, snack foods, fried foods (including fried fast food), doughnuts, pastries, baked goods, and other processed foods made with or fried in partially hydrogenated oils. Trans fat also raises your blood's level of "bad" cholesterol (low-density lipoprotein, or LDL), and lowers your level of "good" cholesterol (high-density lipoprotein, or HDL).
- **Monounsaturated** and **polyunsaturated** fats are found in plant foods such as vegetables, nuts, and grains, as well as oils made from these nuts and grains (canola, corn, soybean). Omega-3 and omega-6 fatty acids are polyunsaturated. Besides vegetables, nuts, and grains, omega-3 and omega-6 fatty acids are found in coldwater fish such as tuna, salmon, and mackerel. Some studies have shown that eating foods that have mono or polyunsaturated fats can help reduce your levels of "bad" (LDL) cholesterol. Mono and polyunsaturated fats also may keep your triglyceride levels low. Triglycerides are a form of fat in your bloodstream. People with high triglyceride levels often have high total cholesterol, high LDL cholesterol, and low HDL ("good") cholesterol. Studies have linked high triglyceride levels to increased risk of stroke and heart disease.

Vitamins and minerals: **Vitamins** keep your bones strong, your vision clear and sharp, and your skin, nails, and hair healthy and glowing. Vitamins also help your body use energy from the food you eat.

Minerals are chemical elements that help regulate your body's processes. Potassium, for example, helps your nerves and muscles function. Calcium helps your teeth and bones stay strong. Iron carries oxygen to your cells.

If you eat a balanced diet with enough calories and protein, you're probably getting enough vitamins and minerals. But if you're receiving treatment for breast cancer, this may be a challenge. And certain treatments may sap your body's supplies of some vitamins or minerals.

It's also important to remember that there is a big difference between getting your nutrients through food and taking supplements (vitamins, minerals, and herbals/botanicals). Vitamins and minerals work together in your body in very complex ways, affecting each other's absorption and processing and influencing how your body functions. When you get your vitamins and minerals through eating foods, it is often easier for your body to maintain a balance of these nutrients. When you take a supplement, such as a vitamin C or E tablet, you're getting a highly concentrated dose that you would probably never get from food. While some supplements may be beneficial, others may reduce the effectiveness of certain breast cancer treatments.

Water is necessary for life, which makes it vital for good health. Water makes up about 50% to 66% of your total body weight. It regulates your temperature, moves nutrients through your body, and gets rid of waste. Breast cancer treatment can sometimes cause diarrhea or vomiting. Losing a lot of fluids plus the chemicals and minerals they contain can lead to dehydration.

In general, it's a good idea to drink 6 to 8 glasses of water a day. If you've lost fluids because of diarrhea or vomiting, you need to replace both the fluids and the essential ingredients in them. Chicken or vegetable broth, tomato juice, fruit juices, and sports drinks such as Gatorade are examples of fluids that can help you replace the vitamins and minerals your body has lost.

Breast Cancer Exam

Select the *best* answer to each of the following items. Mark your responses on the Answer form.

1. Whether calling attention to a potential medication error, helping the rest of the health care team hear a patient's voice or shaping policy by speaking from first-hand experience, advocating for patients comes naturally to today's nurses.

- a. True
- b. False

2. The Consensus Model for APRN Regulation was introduced in _____ to establish national standards for uniform regulation of advanced practice registered nurses in all states. It was developed by 48 APRN nursing organizations nationwide that have pledged support for these standards.

- a. 2003
- b. 2004
- c. 2005
- d. 2008

3. Individuals who are at significantly increased genetic risk of cancer can be identified through cancer predisposition genetic testing. The ability to identify high-risk individuals who may benefit from cancer prevention and early cancer detection strategies can improve their length and quality of life.

- a. True
- b. False

4. Oncology nurses advocate at all government levels for legislation to protect against genetic discrimination in Oncology Nursing Society Position _____.

- a. employment
- b. education
- c. access to health or life insurance
- d. all of the above

5. Efforts to improve the standardization and regulation of laboratories that provide cancer predisposition genetic testing are evaluated and monitored.

- a. True
- b. False

6. Genetic and genomic information now can be used to describe the biology of disease, characterize malignancies, develop new therapeutic modalities, and identify individuals at increased risk of developing cancer.

- a. True
- b. False

7. THE ROLE and scope of practice of the nurse has evolved over the last two decades. There have been major reforms in healthcare delivery and technological advances. In addition, there have been _____ changes, coupled with a growth of nursing knowledge and research.

- a. cultural
- b. legal
- c. educational
- d. All of the above

8. Specialist breast care nurses play a key role in the multidisciplinary approach to managing breast cancer.² Many clinical nurse specialists in breast care are now taking on additional tasks and activities as they expand their role within the team.

- a. True
- b. False

9. As there are no national or international standards for nurses working in breast care, local standards were developed in breast and axillary examination.

- a. True
- b. False

10. Without nurses, there would be less empathy in the medical system, Hanson said. And that could easily lead to frustrated patients who might not follow through with suggested treatments or speak up about symptoms. That ultimately could compromise their outcomes.

- a. True
- b. False

11. Cancer occurs as a result of mutations, or abnormal changes, in the genes responsible for regulating the growth of cells and keeping them healthy. The genes are in each cell's nucleus, which acts as the "control room" of each cell.

- a. True
- b. False

12. Usually breast cancer either begins in the cells of the lobules, which are the milk-producing glands, or the ducts, the passages that drain milk from the lobules to the nipple.

- a. True
- b. False