

Glossary

adjuvant therapy: Medical treatment given in addition to the main treatment. The term usually refers to chemotherapy, endocrine therapy, radiation or immunotherapy administered before or after the main treatment to increase the chances of curing the disease or keeping it in check.

alopecia: Partial or complete hair loss that often occurs as a result of chemotherapy. In most cases, the hair grows back after treatment ends.

aneuploid: Cancer cells that contain either more or less DNA (chromosomes) than normal cells. About two-thirds of breast cancers are aneuploid.

anti-estrogens: Endocrine therapies, or drugs, that block or limit estrogen from reaching breast tissue and some breast cancers. Includes drugs that are selective estrogen-receptor modulators (SERMs), such as tamoxifen (Nolvadex), and selective estrogen-receptor downregulators (SERDs), such as fulvestrant (Faslodex).

aromatase inhibitors: Class of oral endocrine treatments, effective only in postmenopausal women, that work by lowering estrogen levels in the body. For example, anastrozole (Arimidex), letrozole (Femara) and exemestane (Aromasin).

atypia: See *hyperplasia*.

axillary lymph node dissection: Removes all the lymphatic tissue below the large vein in the armpit area (Level I and II nodes) and examines nodes for the presence of cancer. The number of nodes in this area varies from individual to individual.

benign: Not cancerous, nor malignant.

biopsy: The removal of a sample of tissue to see whether cancer cells are present. There are several kinds of biopsies. See *core biopsy*, *excisional biopsy*, *incisional biopsy*, *needle biopsy* and *stereotactic needle biopsy*.

biologic therapy (targeted therapy): Refers to a medication or drug that targets a specific pathway in the growth and development of a tumor. Such treatments often boost the body's immune system to fight against cancer.

bisphosphonates: Class of drugs most commonly used to prevent and treat osteoporosis, since their main action is to prevent bone breakdown. Used in addition to chemotherapy or endocrine therapy, bisphosphonates can reduce pain, fractures and other complications of bone metastases due to breast cancer.

blood count: A laboratory test to measure the number of red blood cells, white blood cells and platelets in a blood sample to determine the balance and number of these elements in the blood.

bone marrow: The soft tissue in the hollow of flat bones of the body that produces new blood cells.

breast reconstruction: Surgery that rebuilds the breast contour after mastectomy. A breast implant or the woman's own tissue is used. If desired, the nipple and areola may also be re-created. Reconstruction can be done at the time of mastectomy or at a later time.

breast self-exam (BSE): A method of checking one's own breasts for lumps or suspicious changes. BSE is an option for women beginning in their 20s. The goal with BSE is to identify any breast changes present and report them to a doctor or nurse right away.

calcification: Tiny calcium deposits within the breast, singly or in clusters, usually found by mammography. These are also called *microcalcifications*. They are a sign of change within the breast that may need to be followed by more mammograms or a biopsy. Calcifications may be caused by benign breast conditions or by breast cancer.

cancer: Not just one disease but rather a group of diseases. All forms of cancer cause cells in the body to change and grow out of control. Most types of cancer cells form a lump or mass called a *tumor*. The tumor can invade and destroy healthy tissue. Cells from the tumor can break away and travel to other parts of the body. This spreading process is called *metastasis*. When cancer spreads, it is still named after the part of the body where it started. For example, if breast cancer spreads to the lungs, it is still breast cancer, not lung cancer.

carcinogen: Any substance that causes cancer or helps cancer grow. For example, tobacco smoke contains many carcinogens that have been proven to dramatically increase the risk of lung cancer.

carcinoma: A malignant tumor that begins in the lining layer (epithelial cells) of organs. Approximately 80 to 90 percent of all cancers are carcinomas, and almost all breast cancers are carcinomas.

carcinoma in situ: An early stage cancer in which the tumor is confined to the organ where it first developed. The disease has not invaded other parts of the organ or spread to distant parts of the body. Most in situ carcinomas are highly curable.

chemoprevention: Therapies that use chemicals or drugs to reduce breast cancer incidence.

chemotherapy: Treatment with drugs to destroy cancer cells. Chemotherapy is often used in addition to surgery or radiation to treat cancer when it has spread, when it has come back (recurred) or when there is a strong chance that it could recur.

clinical trial: A research study that involves people and tries to answer specific questions. Each study is designed to test new methods of screening, prevention, diagnosis or treatment of cancer.

combination chemotherapy: Treatment using two or more anticancer drugs to achieve the most effective result.

control arm: The group of patients in a clinical trial that receives the standard or most commonly accepted treatment.

core biopsy: Similar to a needle biopsy, except the needle used is larger in order to remove more tissue from a suspicious area (such as a breast lump). See *needle biopsy*.

cyst: A fluid-filled mass that is usually benign. The fluid can be removed for analysis.

diagnosis: The process of identifying a disease by its signs or symptoms, and by using imaging procedures and laboratory findings. The earlier a diagnosis of cancer is made, the better the chance for long-term survival.

ductal carcinoma in situ (DCIS): Cancer cells that start in the milk passages (ducts) and have not penetrated the duct walls into the surrounding tissue. This is a highly curable form of early breast cancer. Also called *intraductal carcinoma*.

endocrine therapy (hormone therapy): Treatment with hormones, treatment with drugs that interfere with hormone production/action or the surgical removal of hormone-producing glands to destroy cancer cells or slow their growth.

estrogen: A female sex hormone produced primarily by the ovaries. In breast cancer, estrogen may promote the growth of cancer cells.

estrogen-receptor (ER) assay: A laboratory test done on a sample of the cancer tissue that determines if the breast cancer is stimulated by estrogen. Growth of normal breast cells and some breast cancers is stimulated by estrogen.

excisional biopsy: Surgical removal of an entire lump or suspicious tissue for diagnostic examination.

gene: A hereditary unit. A segment of DNA that contains information on hereditary characteristics, such as hair color, eye color and height, as well as susceptibility to certain diseases. Women who have BRCA1 or BRCA2 gene mutations (defects) have an inherited (genetic) tendency to develop breast cancer.

grade: The grade of a cancer reflects how abnormal it looks under the microscope. There are several grading systems for breast cancer, but all divide cancers into those with the greatest abnormality (Grade 3, or poorly differentiated), the least abnormality (Grade 1, or well differentiated) and those with intermediate features (Grade 2, or moderately differentiated). Grading is done by the pathologist who examines the biopsy specimen. Grading is important because higher grade (Grade 3) cancers tend to grow and spread more quickly and have a worse prognosis. A cancer's *nuclear grade* is based on features of the central part of its cells, the nucleus. The *histologic grade* is based on features of individual cells, as well as how the cells are arranged together.

HER-2: The HER-2/neu gene (human epidermal growth factor receptor-2) is responsible for making HER-2 protein, which is important for normal cell growth and development. About 25 percent of breast cancers have too much of (overexpress) this protein, causing cells to divide, multiply and grow more rapidly than normal.

hormone: A chemical substance released into the body by the endocrine glands, such as the thyroid, adrenals or ovaries. Hormones travel through the bloodstream and set in motion various body functions.

hospice: Palliative care involving families and caregivers for people in the final phase of illness. The care may take place in the patient's home or in a home-like facility.

hyperplasia: An abnormal increase in the number of cells in a specific area. By itself, hyperplasia is not cancerous, but when the cells are atypical (unlike normal cells) the risk of developing cancer is greater.

immune system: The complex system by which the body resists infection by microbes (such as bacteria or viruses). The immune system may also help the body fight some cancers.

immunotherapy: Treatments that promote or support the body's immune system response to a disease such as cancer.

incisional biopsy: Removal of a section of a suspicious lump through an incision. The section is then sent to a laboratory for analysis.

infiltrating cancer: See *invasive cancer*.

informed consent: A legal document that explains a course of treatment, for example, the risks, benefits and possible alternatives; the process by which patients agree to treatment.

in situ: Confined to the local area, preinvasive. See *carcinoma in situ*.

intraductal: Contained within the breast ducts.

intravenous (IV): A method of supplying fluids and medications using a needle inserted in a vein.

invasive cancer (infiltrating cancer): Cancer that has spread beyond the layer of cells where it started to nearby tissues. Some invasive cancers spread to distant areas of the body (metastasize), but others do not.

lat flap (latissimus dorsi flap): A method of breast reconstruction that uses the long flat muscle of the back by rotating it to the chest area to form a new breast mound.

linear accelerator: A machine used in radiation therapy to treat cancer.

lobular: Having to do with the lobules of the breast. See *lobules*.

lobular carcinoma in situ (LCIS): A very early type of breast cancer that develops within the milk-producing glands (lobules) of the breast and does not penetrate through the walls of the lobules.

lobules: The glands in a woman's breast that produce milk.

localized breast cancer: A cancer that started in the breast and is confined to the breast.

lumpectomy: Surgery to remove the breast tumor and a small amount of surrounding normal tissue.

lymphatic system: The tissues and organs (including lymph nodes, spleen, thymus and bone marrow) that produce and store lymphocytes (cells that fight infection) and the channels that carry lymph fluid. The entire lymphatic system is an important part of the body's immune system.

lymphedema: A complication in which excess fluid collects in the arms or legs. This may happen after the lymph nodes and vessels are removed in surgery, are injured by radiation or when a tumor interferes with normal drainage of the fluid.

lymph nodes: Small bean-shaped collections of immune system tissue such as lymphocytes, found along lymphatic vessels. They remove cell waste and fluids from lymph. They help fight infections and also have a role in fighting cancer.

lymphocytes: White blood cells that produce antibodies to destroy foreign organisms.

magnetic resonance imaging (MRI): A machine that creates images of the inside of the body. MRI uses a powerful magnet and radio waves to transmit images on a computer screen.

malignant tumor: A mass of cancer cells that may invade surrounding tissues or spread (metastasize) to distant areas of the body.

mammogram (mammography): An X-ray of the breast; a method of detecting breast cancer. A mammogram can show a developing breast tumor before it is large enough to be felt. Screening mammography is used to help find breast cancer early in women without any symptoms. Diagnostic mammography helps the doctor learn more about breast masses or the cause of other breast symptoms.

margins: The area of tissue that surrounds a tumor and is removed during surgery.

markers (tumor markers): Chemicals in the blood that are produced by certain cancers.

mastectomy: Surgery to remove all or part of the breast and sometimes other tissue. See *modified radical mastectomy* and *radical mastectomy*.

metastasis: The spread of cancer cells to distant areas of the body by way of the lymphatic system or bloodstream.

microcalcification: See *calcification*.

mitosis: The process of cell reproduction or division.

modified radical mastectomy: Surgery to remove the breast, skin, nipple, areola and most of the underarm lymph nodes on the same side, leaving the chest muscles intact. See *radical mastectomy*.

mortality rate: The rate at which people die as a result of a particular cause in a given population.

muco-sitis: Ulcerations or mouth sores caused by chemotherapy. See *stomatitis*.

mutation: The process in which a gene changes.

National Cancer Institute (NCI): A highly regarded federally funded research center in Bethesda, Maryland, and part of the National Institutes of Health (NIH), that conducts basic and clinical research on new cancer treatments and supervises clinical trials of new treatment throughout the United States.

needle biopsy: Removal of fluid, cells or tissue from a suspicious area (such as a breast lump) with a needle for examination under a microscope.

neoadjuvant therapy: Treatment given before breast surgery.

neoplasm: An abnormal growth (tumor). A neoplasm may be either benign or malignant. Cancer is a malignant neoplasm.

neutropenia: Low white blood count, one of the more serious side effects of chemotherapy.

nuclear grade: An estimation of the aggressiveness of the cancer made by judging the appearance of the cell's nucleus under the microscope. See *grade*.

oncogene: Genes that promote cell growth and multiplication. These genes are normally found in all cells. Oncogenes may undergo changes, causing cells to grow too quickly and form tumors.

oncologist: A doctor with special training in the diagnosis and treatment of cancer.

oncology: The study of cancer.

palliative treatment: Therapy that relieves symptoms, such as pain, but is not expected to cure the disease. Its main purpose is to improve the patient's quality of life.

palpation: Using the hands to examine. A palpable mass in the breast is one that can be felt.

pathologist: A doctor who specializes in the diagnosis and classification of diseases using laboratory tests, such as examination of tissue and cells under a microscope. The pathologist determines whether a tumor is benign or cancerous and, if cancerous, the exact cell type and grade.

placebo: An inert, inactive substance that may be used in studies (clinical trials) to compare the effects of a given treatment with no treatment.

platelet: A type of cell in the blood that helps it to clot.

poorly differentiated cells (undifferentiated cells): Abnormal cells that lack specialization in function and structure. Poorly differentiated cancers tend to grow and spread more quickly. See *grade*.

port (portacath): A device surgically implanted under the skin, usually in the chest, that enters a large blood vessel and is used to deliver drugs or fluids directly into the body.

primary site (tumor): The site where a cancer originally began. Primary cancer is usually named after the organ in which it starts.

progesterone: One of the female sex hormones released by the ovaries during every menstrual cycle to prepare the uterus for pregnancy and the breasts for milk production (lactation).

progesterone-receptor (PR) assay: A laboratory test done on a piece of the breast cancer that determines whether the cancer depends on progesterone for growth. Progesterone- and estrogen-receptor tests provide more complete information to help in deciding the best cancer treatment for the patient.

prognosis: A prediction of the course of disease; the outlook for the chances of survival.

prophylactic mastectomy: A mastectomy done before any evidence of cancer can be found, for the purpose of preventing cancer. This procedure is sometimes recommended for women at very high risk of breast cancer.

prosthesis: An artificial form, such as a breast prosthesis, that can be worn under the clothing after a mastectomy.

protocol: A formalized outline or plan, such as a description of what treatments a patient will receive and exactly when each should be given.

radiation oncologist: A doctor who specializes in using radiation to treat cancer.

radiation therapy: The treatment of cancer using high-energy rays (such as X-rays) to destroy cancer cells.

radical mastectomy (Halsted mastectomy): The removal of the entire breast, both pectoral muscles and all axillary lymph nodes on the same side.

radiologist: A doctor with special training in diagnosing diseases by interpreting X-rays and other types of diagnostic imaging studies, for example, computed tomography scans and MRI.

recurrence: Cancer that has come back after treatment.

red blood cells: Cells in the blood that carry oxygen to the tissues.

remission: Partial or complete disappearance of the signs and symptoms of cancer in response to treatment; the period during which a disease is under control. A remission may not be a cure.

second opinion: Recommendation from a doctor other than the initial physician.

sentinel lymph node biopsy: Test of the sentinel lymph node (the first lymph node or nodes in the chain of nodes that drains the area of the cancer). If this sentinel lymph node is free of cancer, the chance of cancer involvement farther up the lymph node chain is very low. In such a case, remaining lymph nodes are left intact, and a full axillary lymph node dissection is avoided.

side effect: A secondary effect from treatment.

silicone: Synthetic material used in breast implants because of its flexibility and durability.

S-phase fraction: The percentage of cancer cells that are replicating their DNA. DNA replication usually indicates that a cell is getting ready to split into two new cells. A low S-phase fraction is a sign that a tumor is slow-growing; a high S-phase fraction shows that the cells are dividing rapidly and the tumor is growing quickly.

staging: The process of finding out whether cancer has spread and, if so, how far. Staging of breast cancer is based on the size of the tumor, whether regional axillary lymph nodes are involved and whether distant spread (metastasis) has occurred. Knowing the stage at diagnosis is essential in selecting the best treatment and predicting a patient's outlook for survival.

stereotactic needle biopsy: A procedure that uses a needle guided into place by computer to obtain a biopsy specimen of a breast change seen on mammography.

stomatitis: Inflammation or ulcers of the mouth area. This condition can be a side effect of some chemotherapies. See *mucositis*.

tamoxifen (Nolvadex): A drug that blocks the effects of estrogen on many organs, such as the breast. See *anti-estrogens*.

T-cell: White blood cells that are a part of the body's immune system.

terminal: Ending in death; fatal.

tissue expander: A breast implant that is placed under the chest muscle. The chamber is slowly expanded with injections of salt water. Expanders are used in breast reconstruction to slowly stretch the chest muscle.

TNM classification: A system to classify cancers by the size of the tumor (T), lymph node involvement (N) and distant metastasis (M; whether it has spread to other sites in the body).

TRAM flap (transverse rectus abdominus myocutaneous flap): A method of breast reconstruction that moves abdominal muscle, skin and fat under the skin to the chest to form a new breast mound.

tumor: An abnormal lump or mass of tissue. Tumors can be benign (not cancerous) or malignant (cancerous).

tumor marker: See *markers*.

undifferentiated cells: See *poorly differentiated cells*.

well-differentiated cells: Cancer cells that look similar to normal cells from the same organ. Usually a less-serious cancer. See *grade*.

NOTE: Glossary words appear in *italics* throughout this guide's text.