



Breast Cancer Kit

Introduction

We created the *Breast Cancer Kit* to highlight the key principles for you, as you manage the cancer decision-making process. In it, you will find tools designed to present you with insightful information you as a patient or caregiver will find helpful in your own search for the best cancer treatment available.

Undoubtedly, many unfamiliar issues surface after a cancer diagnosis – questions and concerns you never imagined you would have to face. It's OK to feel overwhelmed, angry or upset. Your situation requires you to make a multitude of tough decisions, often immediately. But you *do* have the power to make sharp, informed decisions. You have the power to take charge of your situation but to do so, you need to sort through all of the emotions – yours and your loved ones' – assess all of the facts and identify a solution to help you get back on track.

As you flip through the following pages, you will find four sections. “Overview of Treatment Options,” “Questions to Ask Your Doctor,” “Selecting Your Treatment Hospital,” and, most importantly, the final piece entitled the “Decision Guide.”

The Decision Guide is not for everyone. It is a worksheet we want you to use to help you gain additional control and take a more active role in the decision-making process. It requires you to begin asking questions – hard questions – that ask what you are looking for in a hospital and a physician, the goals and expectations you bring to the treatment process and the steps you need to take to make your goals a reality. If this sounds different to you, it's because it is different! We believe you *must* be a key player and a decision-maker, in order to find and secure the treatment that's right for you.

At the very least, the *Breast Cancer Kit* contains useful information about hospitals, treatment options and questions you may use to assess the doctors and hospitals you visit throughout this experience. Good luck!

Overview of Treatment Options

Today, more than ever, women have access to an array of breast cancer treatment options. The sheer number of available options makes understanding the basic treatments an extremely important component of your decision-making process. Exploring this wide range of treatment options requires a *general* understanding of three traditional treatment modalities – surgery, radiation therapy and chemotherapy. New, emerging therapies constitute a fourth group of therapies you may examine prior to selecting a treatment option that's right for you.

An Important Note on Breast Cancer Staging

Deciding upon a course of treatment may be the hardest, yet most important life choice a woman makes. Knowledge plays a critical role in this choice by building the foundation of understanding you need to make the best treatment decisions possible. Making educated treatment decisions begins by learning about the stage, or *progression*, of cancer in the body. A properly staged breast cancer, backed by second or third opinions from different oncologists, presents you with a more clear-cut picture of where the cancer exists in your body – the first important step you can take in determining the best treatment options available to help you beat cancer.

The United States currently uses the *TNM staging method* to stage cancer. TNM stands for “**T**umor,” “**N**ode” and “**M**etastasis.” Properly staging breast cancer requires the know-how of a *Pathologist* – a doctor with special training and expertise in analyzing human cell structure. Using a microscope, the pathologist closely examines your tissue samples, documenting cell structure, tumor size and evidence of lymph node involvement. Before handing this *pathologic information* to the oncologist, the pathologist assigns a tumor *Grade (G)*. The tumor grade reflects the

appearance of the cancer cells under the microscope. A cancer cell that appears very similar to a normal, healthy cell is said to be *well-differentiated (G1)*. In contrast, an *undifferentiated (G4)* cancer cell might have an altogether different size, shape or appearance than a normal cell. More aggressive tumors generally contain a high number of undifferentiated cancer cells.

Combining this pathologic information with data obtained from surgery and other scans, helps the oncologist determine the overall progression, or *stage*, of cancer in your body. Inserting the information reflecting Tumor, Node, Metastasis and Grade into a comparative table helps your oncologist consolidate this information into a Roman numeral that indicates the extent of your disease. The Roman numerals 0, I, II, III and IV represent the various stages of cancer, with Stages 0 and I representing *early stage* cancers and Stages III and IV representing *late stage* cancers. Different stages of cancer call for different treatments.

The following sections present you with a general overview of breast cancer treatment options.

Treatment Differentiation

Here is some basic information about the four treatment categories.

Surgery

Surgery is the oldest and, perhaps, the most widely practiced form of cancer treatment. Nearly sixty percent of *all* cancer patients undergo some form of surgical treatment. Surgery is often used in conjunction with radiation therapy and/or chemotherapy. Before pursuing surgical treatment, you should always obtain a second medical opinion from a *different* medical oncologist. You may seek additional opinions from a radiation oncologist and/or a surgical oncologist to compare, contrast and choose the best possible option from this comprehensive array of opinions. Surgery is permanent – therefore, it is critical for care providers to conduct *thorough laboratory* and *diagnostic work* to ensure the cancer is confined to the surgical area.

A brief listing of breast cancer surgical procedures follows:

- **Stereotactic Breast Biopsy** – Stereotactic breast biopsy is an outpatient procedure developed as an *alternative* to surgical biopsy. Utilizing mammography images from a variety of angles to precisely target the suspicious mass, a fine needle is inserted directly into the mass, allowing the physician to sample a small amount of your tissue for testing.
- **Sentinel Node Mapping** – Sentinel node mapping is an inpatient procedure conducted *after* a woman undergoes a primary cancer surgery such as a lumpectomy or mastectomy. The *sentinel lymph node* represents the first lymph node that receives drainage from the affected breast. Removing the sentinel lymph node serves two main purposes: 1) the pathologist studies the sentinel node for any evidence of cancerous cells. This allows the doctors to properly stage the cancer and recommend additional treatment options; 2) if the sentinel node is *negative*, or cancer-free, *usually* no additional lymph nodes need be removed.

Unfortunately, some women exhibit a negative sentinel node but a *positive* secondary node. For this reason, many surgical oncologists conduct a *node sampling*, allowing the physician to obtain tissue samples from suspect lymph nodes without removing the entire node. This protects your body's lymphatic system from possible damage associated with extensive axillary lymph node dissection.

- **Axillary Node Dissection** – Axillary node dissection is a standard inpatient procedure conducted after a woman undergoes a primary cancer surgery such as a lumpectomy or mastectomy. The *axillary lymph nodes* consist of three bundles of lymph nodes – Level I nodes located beneath the armpit, Level II nodes located inside the armpit itself and Level III nodes located in the shoulder. Depending upon disease progression, the surgeon removes as few as four and as many as thirty total lymph nodes from the body to test for evidence of cancer.
- **Lumpectomy** – Considered a *breast conserving surgery* because the surgeon spares as much *healthy* breast tissue as possible during surgery, a lumpectomy is an inpatient procedure involving the surgical removal of the tumor and some healthy tissue surrounding the tumor site. The surgeon also removes some axillary lymph nodes to test for evidence of cancer.
- **Simple Mastectomy** – A simple mastectomy is an inpatient procedure consisting of the *complete surgical removal* of the affected breast and some axillary lymph nodes.
- **Modified Radical Mastectomy** – A modified radical mastectomy is an inpatient procedure requiring the *complete surgical removal* of the affected breast, as well as the removal of a number of axillary lymph nodes and

the lining of the chest wall muscles.

- **Radical Mastectomy** – A radical mastectomy is an inpatient procedure involving the *complete surgical removal* of the affected breast, the chest wall muscles, the underarm lymph nodes and the fat and skin surrounding the chest muscles. Rarely used, radical mastectomy represents the most extensive mastectomy procedure, required only when cancer invades the chest wall muscle.

Breast Reconstruction Surgery

Breast cancer surgery can significantly alter a woman's physical appearance. But beyond changes in physical shape and figure, losing one or both breasts may raise serious emotional concerns and feelings of self-consciousness or worry about the implications the surgery will have upon your sexuality and womanhood. New developments in breast reconstruction surgery can help you address these very important issues by providing a variety of breast reconstruction options.

A brief listing of breast reconstruction options follows:

- **Autogenous Breast Reconstruction** – Autogenous breast reconstruction surgery utilizes a flap of tissue taken from your back, thigh, buttocks or abdomen to rebuild and shape a new breast. Using your own tissue to restructure the breast awards greater feeling and sensitivity to the reconstructed breast than a saline or silicone breast implant.

Since radiation therapy can sometimes cause skin discoloration and other undesirable long-term cosmetic effects, recent studies suggest you delay autogenous breast reconstruction surgery until completing all radiation therapy.

- **Saline or Silicone Breast Implants** – Saline and silicone breast implants consist of small sacs filled with either a salt water solution, called *saline*, or a silicone gel. Depending upon your personal preference, a saline or silicone implant is inserted behind the chest wall muscle to recreate a breast mound.
- **Nipple and Areola Reconstruction** – Nipple and areola reconstruction occurs after completing the initial breast reconstruction procedure. Utilizing tissue taken from your body to reconstruct the nipple and a skin graft to raise the skin and recreate the areola, the plastic surgeon then tattoos the skin graft to provide color.

Radiation Therapy

There are two types of radiation therapy – internal and external. Both forms irradiate *localized* regions of the body. External radiation works by utilizing high-powered X-rays, gamma rays or electron beam radiation to target and destroy rapidly dividing cancerous cells located in a specific site of the body. Internal radiation employs tiny radioactive seeds, pellets, capsules or needles to deliver an internal dose of radiation for a predetermined period of time.

Recent technological advances in diagnostic imaging machinery allow *Radiation Oncologists* – doctors who specialize in the planning and delivery of radiation therapy – to map a cancerous site and deliver precise beams of radiation right where the patient needs it most. **Differences *do* exist in the quality of radiation equipment; therefore, women should *always* look for a treatment facility with the latest diagnostic equipment and radiation machinery.** Radiation therapy is often used in conjunction with surgery and/or chemotherapy.

A brief listing of radiation therapy options follows:

- **3-D Conformal Radiation Therapy** – 3-D conformal radiation therapy is an external form of radiation therapy utilizing computed tomography (CT) planning to image and reconstruct the tumor and surrounding normal tissues in three dimensions using a computer program. This technology allows the radiation oncologist to *conform* the radiation beam(s) to specific target areas. Because the radiation beams are precisely focused, your nearby normal tissue is spared.
- **Intensity Modulated Radiation Therapy (IMRT)** – IMRT represents an advanced form of *external 3-D conformal radiation therapy*. Employing a powerful computer program to plan the precise dose of radiation in three dimensions, radiation oncologists may vary the *intensity and conformance* of pencil-thin radiation beams onto specific cancerous sites. Our cancer experts tell us they are able to use higher radiation doses than traditional methods would allow in these areas, and yet spare more of the surrounding healthy tissue, compared to standard radiation therapy.
- **Breast High-Dose-Rate (HDR) Brachytherapy** – Used *after* a woman undergoes lumpectomy, breast HDR brachytherapy preserves existing breast tissue by delivering *internal* radiation therapy *directly* into the lumpectomy site over a series of brief treatment sessions.

Chemotherapy

Chemotherapy is a broad term relating to a group of medications designed to damage a cancer cell's ability to grow. *Medical Oncologists* – doctors who specialize in treating cancer with different types of drugs and chemotherapy – oversee this aspect of cancer treatment. You may receive chemotherapy orally or through an intravenous (IV) administration. Chemotherapy may be administered throughout your treatment process. Sometimes, *neoadjuvant chemotherapy* – chemotherapy administered *prior* to a primary treatment like surgery – can increase the effectiveness of the primary treatment. Likewise, chemotherapy administered *after* a primary treatment, called *adjuvant chemotherapy*, can reduce the likelihood of tumor spread or cancer recurrence.

Unlike radiation therapy, conventional chemotherapy is a *systemic* treatment carried throughout the entire body by the bloodstream. New medications help to control side effects and, with the proper comprehensive team of experts, the side effects can usually be managed and minimized. Chemotherapy is often used in conjunction with surgery and/or radiation therapy.

Today, you and your doctors may choose from an array of chemotherapies. Each unique case requires the oncologist to identify the *most effective* form of chemotherapy available to treat your particular form of breast cancer. Determining the appropriate chemotherapy sometimes requires oncologists to test tissue samples for *chemosensitivity*. Chemosensitivity testing reveals *how* your cancer cells react to various chemotherapeutic agents *prior to* administering the actual dose. Information obtained via chemosensitivity testing allows the oncologist to select only those chemotherapeutic agent(s) showing positive results when delivered to your tissue samples.

Some forms of breast cancer chemotherapy *permanently* damage the ovaries, inhibiting your natural ability to produce the female sex hormones *estrogen* and *progesterone*. Since menopause – the stage in a woman's life when the ovaries gradually secrete less and less estrogen and progesterone – does not usually occur until a woman's late 40's or early 50's, *pre-menopausal* women receiving systemic chemotherapy may lose their ability to bear children.

A brief listing of chemotherapy options follows:

- **Fractionated Dose Chemotherapy** – Fractionated dose chemotherapy utilizes a standard dose of chemotherapy and divides this standard dosage over a three-to-five day period. The smaller dosages minimize the side effects of this powerful medicine while maximizing the intensity of the treatment by exposing cancerous cells to the chemotherapy for a longer period of time.
- **Emerging Therapies** – In the hands of a skilled physician, emerging therapies represent promising new treatment options available in select hospitals across the country. Hormone therapy, immunotherapy and bone marrow transplantation illustrate some of the more prominent emerging therapies available to women with breast cancer. Typically, you and your physicians may turn to emerging therapies in three different situations: after exhausting all surgical, radiation and/or chemotherapy options; when your physician determines traditional therapies will no longer improve your condition; or when you may benefit from an emerging therapy used in conjunction with other conventional treatments.

A brief listing of emerging therapies follows:

- **Hormone Therapy** – The female hormones estrogen and progesterone stimulate cancer cell growth in *hormone-receptive* breast cancers. Called estrogen-receptive (ER) or progesterone-receptive (PgR) cancers, ER and PgR cancer cells contain excessive amounts of proteins called hormone receptors. These hormone receptors easily bind with the naturally occurring estrogen or progesterone hormones in your body, stimulating uncontrolled cellular growth.

Hormone therapy targets *hormone-receptive* breast cancers by removing or blocking hormones that promote cancer growth or *adding* hormones that slow cancer growth. Most hormone therapy is delivered *orally* in the form of a pill.

- **Tamoxifen** – Tamoxifen represents a form of hormonal therapy administered in women with *estrogen-receptive* (ER positive) breast cancer. ER positive breast cancers feed off of the estrogen produced naturally by a woman's ovaries. Tamoxifen "blocks" tumor cells from receiving estrogen, effectively starving the cancer cells from further growth.
- **Aromatase Inhibitors** – An option for *post-menopausal* women, aromatase inhibitors reduce the body's

natural levels of the hormone *estradiol*, helping to stop tumor growth.

- **Immunotherapy** – Immunotherapies utilize either laboratory-produced or genetically engineered substances to activate and train the body's immune system to target specific cancerous cells. One form of immunotherapy utilizes *monoclonal antibodies* (MOABs) to recognize and react to certain antigens associated with breast cancer cells. Antigens consist of proteins that work like fingerprints, identifying the cancer cell. The monoclonal antibodies recognize the cancer cell and attach, signaling a throng of white blood cells to swarm and kill the cancer cell.
- **HER2 Gene** – Every normal human cell contains a nucleus. Inside of the nucleus exist two chromosomes. These chromosomes carry detailed genetic information determining traits like eye color and skin tone. Each of the two chromosomes *also* contains a HER2 gene. The HER2 gene produces HER2 protein that lines the surface of the cell, stimulating cell growth.

Sometimes, cells carry more than one copy of the HER2 gene on each chromosome. The excess HER2 genes produce a *surplus* of HER2 protein, triggering uncontrollable cell growth. High levels of HER2 protein signify a more aggressive cancer. If you have high levels of HER2 protein you may benefit from monoclonal antibody therapy with the immunotherapy drug Herceptin®.

- **High-Dose Chemotherapy Followed by Autologous Bone Marrow Transplantation (ABMT)** – High-dose chemotherapy followed by ABMT utilizes higher-than-conventional doses of chemotherapy to destroy rapidly dividing cancer cells in the bloodstream. Since chemotherapy is a *systemic* therapy, this treatment affects other healthy cells in the body, including the bone marrow – the spongy tissue located *inside* of the bones responsible for producing *stem cells*. Stem cells are important because they produce red blood cells (responsible for transporting oxygen), white blood cells and lymphocytes (responsible for defending against infection) and platelets, which prevent bleeding.

Originally developed to treat leukemia and similar cancers of the blood, ABMT allows you to undergo higher doses of chemotherapy than you might otherwise be able to tolerate. Prior to receiving high-dose chemotherapy, the patient undergoes an *autologous stem cell harvest*, meaning stem cells are collected directly from your own blood stream and immediately frozen. After completing chemotherapy, you then receive an infusion of healthy stem cells, enabling your body to begin manufacturing its own blood cells. *Allogeneic* bone marrow transplant refers to the method of receiving stem cells from a donor.

Special Services

Apart from the four main treatment modalities, you should also consider pain management and *palliative care* services.

Palliative Care

Palliative Care is a specialized form of medicine focused upon alleviating pain, nausea or any number of other side effects you may experience during treatment. Few hospitals offer a dedicated Palliative Care Department – but regardless of this trend, effectively managing a cancer patient's pain is necessary for optimal treatment. Unmanaged pain may interfere with your sleep patterns, appetite and treatment schedule. It will be very helpful to you in deciding where to go for treatment, to inquire about the Palliative Care or Pain Management programs available in the hospitals you assess.



Notes

