Treatment Handbook
Breast Surgery

Surgery and Recovery

COMPREHENSIVE CANCER CENTER
MICHIGAN MEDICINE

Patient & Family Support Services

Breast Cancer Surgery Patient Handbook

COMPREHENSIVE CANCER CENTER
MICHIGAN MEDICINE

Faculty, staff, patients and family members provided information for this handbook:
Comprehensive Cancer Center Breast Care Center, Hematology, Medical Oncology, Occupational Therapy, Patient Education, Patient and Family Advisory Board, Physical Medicine and Rehabilitation, Physical Therapy, Plastic and Reconstructive Surgery, Radiation Oncology, and Surgical Oncology

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Introduction

If you live with breast cancer or love someone with breast cancer you are part of a global community of women and men whose lives have been touched by this diagnosis. With that diagnosis, your life has changed and the days ahead will bring more changes and challenges.

The doctors, nurses and other experienced health professionals at the University of Michigan Breast Care Center created this handbook to help explain the different surgical treatment options available to you as well as explain how to prepare for surgery and what to expect after surgery. Your medical team is available to help answer questions about this material and to help you decide which treatment options are right for you and give you the best chances of controlling your cancer.

Remember that medical knowledge concerning breast cancer treatment options is always advancing, so we will update you on the newest treatment options available.

Because of advances in breast cancer detection and management, most patients will be treated successfully!

As you have just received a cancer diagnosis and are reading through this handbook, you're likely feeling overwhelmed. If so, you're not alone – most patients and family members feel that way as they are introduced to the new concepts, tools, techniques and resources involved in cancer treatment. Contact us as you make your treatment decisions. Important numbers follow.

How to Call Your Health Care Provider

Monday through Friday; 8:00 a.m. to 5:00 p.m., call the Breast Care Center at 734-936-6000.

Weekdays after 5:00 p.m., all weekends and holidays: contact the UM paging operator at: 734-936-6267 and ask to have the on-call Surgical Oncology Resident paged.

Before Surgery Phone Numbers

Breast Care Center	734-936-6000
Breast Imaging (Mammography)	734-936-6274
Breast Surgery Clinic	734-936-6000
Cancer Center Nutrition Clinic	877-907-0859
East Ann Arbor Surgical Center	734-232-3053
East Ann Arbor Surgery Family Waiting Room	734-232-3000
Lymphedema Class Registration	877-907-0859
Nuclear Medicine Department	734-936-5090
Patient Education Resource Center	734-647-8626
Patient & Family Support Services	877-907-0859
Personal Touch Boutique (Orthotics and Prosthetics Center)	734-973-2400
Plastic Surgery	734-998-6022
Preoperative Center at Domino Farms	734-936-3604
Social Work	800-888-9825
Surgery Cancellation Number	734-936-8800
University Hospital Surgery Family Waiting Room	734-936-4388

Who to Call after Surgery

8:00 a.m. to 5:00 p.m., weekdays, refer to the Surgery Phone Number Sheet you received at surgery discharge for contact numbers during business hours.

After 5:00 p.m. weekdays, weekends and holidays call: UM paging operator at 734-936-6267 and ask to have the on-call Surgical Oncology Resident paged.

When to Call Your Health Care Provider

Contact your health care provider for any of the following reasons:

- Oral temperature of 101 degrees Fahrenheit or greater
- Persistent, severe or increasing pain
- Bleeding from the incision that is difficult to control with light pressure
- Persistent nausea or vomiting
- Fluid or drainage from the incision area
- 1 inch or more of redness around the incision area
- Incision that becomes warm or hot to the touch
- Foul odor from the incision area
- Swelling of the entire breast
- Leakage around your drainage tube and wet gauze dressing
- Any significant change that causes you concern

What to do before your visit to the Breast Care Center

Here are some things to think about and to organize before your visit to the Breast Care Center:

- Write down any questions to ask your doctor.
- Make a notebook (or folder) to file all of your notes and reports. For example, pathology reports, mammogram reports, etc.
- Bring a family member or caregiver or support person with you to your appointments. Ask them to take notes on what is said.

The information in this handbook will be reviewed and discussed throughout your treatment. **Please bring this handbook with you to all appointments.**

You will find blank pages at the back of the handbook to use for questions, appointments or other notes.

Consider joining the patient portal: **MyUofMHealth.org**. Through the portal you may securely access health information anywhere, at any time. With the portal you can message your care team, request appointments and prescription refills, pay your bill and more.

Do Not use the Patient Portal for medical emergencies!
Call the Clinic if you have any symptoms that concern you.

University of Michigan Comprehensive Cancer Center Breast Care Center Multidisciplinary Clinic and Tumor Board Conference

At the University of Michigan (UM), we strive to provide the best treatment and planning approach for our patients by reviewing and discussing their medical condition and treatment options. This team approach (called multidisciplinary care) is the foundation of our Breast Care Center (BCC). Breast cancer patients undergoing evaluation at the UM BCC usually have all aspects of their case (breast imaging, clinical assessment, pathology/biopsy material) reviewed when our multidisciplinary group of breast cancer specialists (surgical breast oncologist, radiation oncologist, medical oncologist, radiologist and pathologist) meet.

This BCC Multidisciplinary Tumor Board Clinic meets every Monday. Each patient receives the benefit of input from several experts in breast cancer care. Most patients with invasive breast cancer who are candidates for surgery will be scheduled for an initial full-day Monday clinic visit. We encourage you to bring one support person, be it a spouse, significant other, relative or close friend. Our BCC nurse clinic coordinators are also breast oncology experts who will work with you in advance of Monday's visit to gather as much information as possible to prepare for the tumor board review.

In the morning, you will undergo a complete clinical evaluation (history and physical examination) as well as breast imaging consultation (which often involves repeat/updated mammography and/or breast ultrasound). In the early afternoon you'll participate in a patient education class where our BCC staff will present information on breast cancer treatment options and techniques for managing stress and anxiety. You'll also learn about resources that are available to you and your family at the UMHS Comprehensive Cancer Center and within your community. While you are participating in this class, the BCC group of

doctor-specialists will be meeting to discuss your case.

In the afternoon, you'll return to the clinic rooms where you will meet with one or more breast specialists to finalize your management plan. You may meet with a plastic/reconstruction surgeon in the afternoon as well. You, and whoever accompanies you, should plan to spend most of your day at the Monday BCC Multidisciplinary Clinic. We know this is a busy day, but it does cut down on multiple visits to consult with different specialists who are involved with your treatment plan. In addition, it ensures that all members of the treatment team are working in a coordinated way.

If you require evaluation for cancer genetic profiling, you will need to schedule a separate consultation appointment with the breast oncology medical genetics specialists. The best known examples of inherited gene mutations which increase breast cancer risk are the breast cancer susceptibility genes BRCA 1 and BRCA 2 (BReast CAncer genes 1 and 2). The profiling itself may take two to three weeks to complete. Your treatment team will discuss whether this genetic profiling information is recommended for your care.

Many breast cancer patients receive multimodality care (surgery, medical treatment/chemotherapy, radiation) and often the results of one component of care will influence the plan for the subsequent type of care. In these situations you may require repeat evaluations at later Monday BCC Multidisciplinary Clinic and Tumor Board. If you are receiving breast cancer care through the University of Michigan BCC, your treatment team will guide you regarding when and how often you need to be evaluated at the Monday BCC Multidisciplinary Clinic and Tumor Board. Follow-up evaluations usually involve shorter visits, depending upon the complexity of your individual case.

General Information Regarding Breast Cancer Surgery at the University of Michigan

You will likely require at least one surgical procedure in the course of your care. While discussing many aspects of multidisciplinary breast cancer treatment, this guide focuses on the surgical component of your care. Your breast surgery may be performed at University Hospital, East Ann Arbor Ambulatory Surgical Unit or at some other surgical facility within the University of Michigan Health System. Where your surgery is performed will depend upon the resources that are necessary for your particular operation and surgical suite availability.

Some procedures require the combined services of a surgical breast oncologist, breast radiologist and/or the plastic/reconstruction surgeon. Some operations involve the use of pathology assessments during the surgery itself. This may affect your surgical plan. Your options will be discussed with you by your treatment team and reviewed when a final plan is decided.

You may have a preoperative (before surgery) visit at a University of Michigan's Preoperative Clinic. At this visit you will have a physical examination, review your surgical plan and sign an informed consent document. If necessary, you may also meet with an anesthesiologist. On the day of your surgery, you will have a final brief preoperative conversation with your surgical and anesthesia team.

Your surgery incision and postoperative (after surgery) care may vary depending on your surgeon's preferences, and she/he will discuss this with you on the day of your surgery. The final results/pathology report from your surgical procedure will be available in two to five business days. You will receive a telephone call from a member of your treatment team to explain these results, and at that time you will also make plans for your next BCC clinic visit.

Your results may be reviewed at the BCC Multidisciplinary Tumor Board. If you are a lumpectomy patient, it may also involve postoperative mammography. If you have undergone plastic/reconstruction surgery, you will have separate postoperative visits with your plastic surgery team.

We understand your desire to have as much information as quickly as possible regarding the status of your breast cancer and recommended treatment plan. Please understand that our goal is to obtain a comprehensive assessment that enables us to develop the best possible treatment options for your individual situation.

Understanding the relationships between breast anatomy, breast biopsy and a breast cancer diagnosis

Understanding the normal anatomy of the breast is an important first step to understanding breast cancer and how it is treated.

The purpose of the female breast is to produce milk. The breast is made up of lobules, which are milk glands that produce the milk, and ducts, which carry the milk from the lobule to the nipple during lactation (when milk is being produced). Breast cancer can form either in the lobules or in the ducts. A cancer that forms in the lobules is known as *lobular carcinoma*. A cancer that forms in the ducts is known as *ductal carcinoma.*

The ducts and lobules are connected like branches on a tree trunk, forming a closed system of thousands of microscopic channels and tubules that extend throughout the breast.

A *malignancy* (cancer) involving cancerous cells that are confined to the microscopic ductal and/or lobular structures is called *in situ* or *non-invasive* breast cancer. When the cancer cells have disrupted the microscopic boundaries of the ductal and lobular channels, it is called *invasive* or *infiltrating* breast cancer. A breast biopsy involves taking a sample of breast tissue and having it analyzed under a microscope by a specially trained doctor called a pathologist. The pathologist then provides a report about whether the sampled breast tissue is *benign* (non-cancerous) or *malignant* (cancerous). If the biopsy reveals cancer, then the pathologist also describes the pattern of the cancer and whether it is *in-situ/non-invasive*, *invasive/infiltrating* or a combination of both.

The pathologist will also describe the microscopic pattern of a benign/non-cancerous biopsy sample, as some patterns of benign breast tissue help us to

identify women that have an increased likelihood of developing breast cancer in the future.

In addition to many thousands of microscopic ductal and lobular units, the breast is also comprised of fatty tissue, blood vessels and other drainage channels called *lymphatic vessels* (See Figure 1). Invasive breast cancers are capable of extending into these vascular and lymphatic drainage channels, with the potential for spreading to other organs of the body. Extension of a cancer into other organs beyond the breast is called *metastatic spread*.

The nipple is centered in the *areola*, a dark area of skin in the middle of the breast. A thick muscle (the *pectoralis* muscle, or "pec") lies underneath the breast, covering the ribs.

Lymph is the fluid carried through the lymph node chains. It drains, or filters, the tissue of the breast, then passes through the lymph nodes, where it is filtered again, then travels back into the blood stream. There are several areas or chains of lymph nodes that drain the breast. They are located on both sides of your chest bone *(internal mammary chain*), under your arms (*axillary chain*) and above your collarbone (*supraclavicular chain*). Most of the breast is drained into the axillary lymph node chain under the arm, but occasionally they drain to the other chains of lymph nodes.

Lymph drains the breast tissue and is carried through the lymph nodes. Here it is filtered for bacteria, cellular waste, and viruses before it can reach the bloodstream. Lymph nodes are an important part of your body's defense against infection.

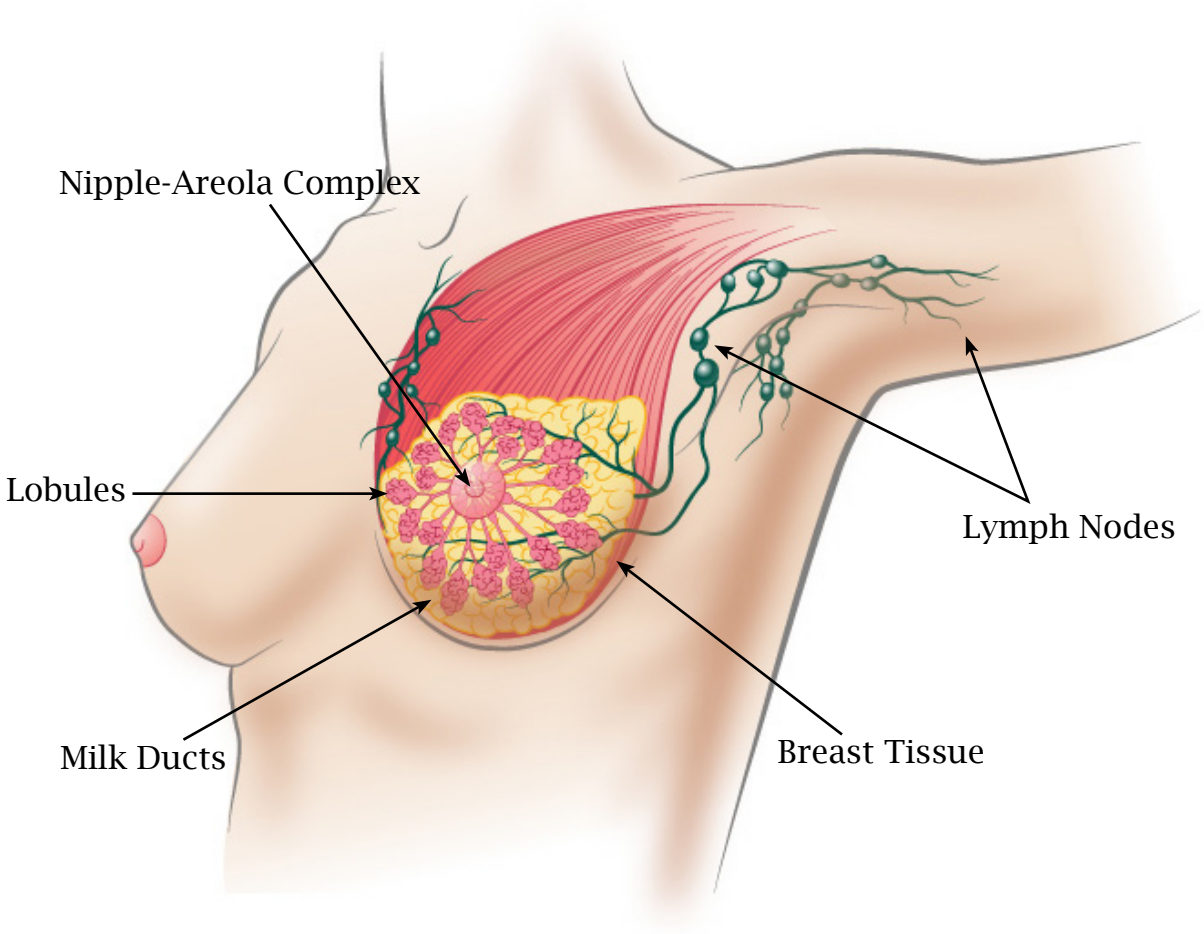


Figure 1: Image of breast tissue, chest wall muscles, lymph nodes, lobules, milk ducts and nipple-areola complex

Breast cancer cells can break off from the initial tumor and travel to other parts of the body through the lymph fluid (or the blood stream). Once in the lymph fluid, they pass through the lymph nodes and can get trapped. The presence of cancer cells in lymph nodes is an indication that the cancer has the ability to spread and is a more aggressive type of breast cancer. **For this reason, examining the lymph nodes draining the breast in the armpit for breast cancer is an important step in the evaluation of breast cancer.**

In addition to evaluating the lymph nodes, we also look for clues regarding the aggressiveness of the cancer by studying the size and microscopic pattern of the tumor. Some patients will be candidates for an analysis of the genetic content of their cancer. This analysis is called an *Oncotype Dx Recurrence Score*. All of these clues help us develop a treatment plan designed to minimize the life-threatening risk of breast cancer for each individual patient.

We have made many advances in understanding the diverse biology of breast cancer. This has allowed us to tailor treatment and expand treatment options. As a result of these improvements, the majority of patients will be cancer-free, long-term survivors.

Male Breast Cancer

Breast cancer may occur in men. Men at any age may develop breast cancer, but it is usually found in men between 60 and 70 years of age. Male breast cancer makes up less than one percent of all cases of breast cancer in the United States.

The following types of breast cancer are found in men:

- *Invasive/Infiltrating ductal carcinoma:* Cancer that has spread beyond the cells lining ducts in the breast. Most men with breast cancer have this type of cancer.
- *Ductal carcinoma in situ:* Abnormal cells that are found in the lining of a duct; also called *intraductal carcinoma*.
- *Inflammatory breast cancer*: A type of cancer in which the breast looks red and swollen and feels warm.
- *Paget disease of the nipple*: A tumor that has grown from ducts beneath the nipple onto the surface of the nipple.

Survival for men with breast cancer is similar to that for women with breast cancer when their stage at diagnosis is the same. Male breast cancer can be a sign of hereditary predisposition for cancer and indicates a need for genetic counseling.

Treatment and survival from breast cancer in men depends on the following:

- The stage of the cancer (whether it is in the breast only or has spread to other places in the body).
- The type of breast cancer.
- Estrogen-receptor and progesterone-receptor levels in the tumor tissue.
- Your age and overall health.

Treatment of breast cancer in men

Because there have been few clinical trials on the treatment of male breast cancer, most doctors base their treatment recommendations on their experience with the disease and on the results of studies of breast cancer in women. With some minor variations, breast cancer in men is treated the same way as breast cancer in women.

If you are of reproductive age and systemic therapy is being considered to treat your breast cancer, talk to your doctors about fertility preservations options. Reproductive age usually begins in the teenage years. Some cancer treatments may render patients infertile (unable to have children) and knowing about your options to preserve fertility, at an early time point in your treatment plan, may allow the best chance to make an informed decision about this important issue.

Local and Systemic Therapy

Both local therapy and systemic therapy are used to treat breast cancer. Local therapy treats the tumor in the breast only. Surgery and radiation therapy are examples of local therapies. Systemic therapy is given by mouth or directly into the bloodstream to reach cancer cells that may have spread beyond the breast. Chemotherapy and hormonal therapy, also called endocrine therapy, are examples of systemic therapy.

If you are pregnant or think you may be pregnant, tell your doctor right away.

Women who are pregnant will have their surgical options carefully considered in conjunction with other breast oncology specialists to develop an individual treatment plan. Women who are pregnant cannot be given radiation while they are pregnant.

If you are of reproductive age and systemic therapy is being considered to treat your breast cancer, talk to your doctors about fertility preservations options. For women, reproductive age begins with the onset of menses or “periods” (often in teenage years) and continues until about the early forties. Some cancer treatments may render patients infertile (unable to have children). Knowing about your options to preserve fertility early in your treatment plan, may allow the best chance to make an informed decision about this important issue.

Reproductive specialists are readily available at the University of Michigan to discuss and provide fertility preservation options as part of your multidisciplinary treatment plan.

Usually, the first decision in the treatment of breast cancer is which type of surgery to pursue. This decision is made after careful examination of a number of factors, including the following:

Tumor type:

- Invasive or non-invasive?
- What is the microscopic pattern or cell type?

Size of the tumor: Size is measured in centimeters and millimeters. One inch equals approximately 2.5 centimeters; 10 millimeters equals one centimeter. Some tumor sizes are estimated on the basis of a lump that can be felt on breast physical examination. These are called *palpable* breast tumors. Some breast cancers cannot be felt on breast physical examination. These are called *non-palpable* but are found by mammography and/or breast ultrasound. In this case, the size of the tumor is determined by measurements provided by a radiologist. Often we combine the information found on clinical examination and breast imaging to provide the most accurate information on the extent of the cancer in the breast.

Location of the tumor: Where the cancer is located may impact the type of surgical options available to remove it, such as proximity to the nipple, to the chest wall muscles or to the axillary lymph nodes.

Patient priorities:

- Which surgery offers the best chance for cure?
- Will reconstruction be considered?
- How do you feel about each surgical option?

Prior cancer treatments: These treatments may influence surgical options for a new breast cancer diagnosis. For example, previous radiation treatments to the

chest wall/breast(s) can affect the breast surgery and reconstruction planning when a new breast cancer is diagnosed.

Your health: Smoking affects recovery after surgery and, in some instances, the ability to receive further treatment after surgery. If you smoke, talk to your doctor about a plan to help you stop. Support groups, medications and other methods may help you quit. If you would like help to quit smoking or the use of other tobacco products, please call the MHealthy Tobacco Consultation Service at 734-998-6222 or visit, www.mhealthy.umich.edu/tobacco for more information.

Cosmetic results: Your breast cancer treatment team can tell you how your breast(s)/chest wall may look after you've had lumpectomy surgery and radiation, or mastectomy and/or breast reconstruction. Please keep in mind that every person and procedure is unique and appearances will differ from person to person.

These and other factors are important considerations for making surgical decisions. Surgical decisions have an impact on the type of therapy you will receive later. Some surgeries are followed by radiation therapy, some by chemotherapy or hormonal therapy. Therefore, the surgical decision is made in combination with other specialists who will decide how best to treat your cancer after surgery.

Your medical team will review each of these factors in their discussions with you. As a team, you will decide the best surgical method to treat your breast cancer.

In the course of your breast cancer treatment planning, you will receive more

information regarding systemic/medical therapy. This therapy is an essential component of the multidisciplinary management of patients diagnosed with invasive breast cancer. As described earlier, invasive breast cancers are associated with the possibility of metastatic spread to other organs in the body (such as the liver, lungs, bones or brain). If your cancer appears to be associated with risk for having microscopic disease in other organs beyond the breast (called *micrometastases*), then we will give you medical treatments that circulate throughout the body, such as chemotherapy or endocrine therapy. The recommended treatment plan should destroy the spread and protect other organs in your body.

Your treatment team will evaluate the many aspects of your breast cancer (size of the tumor, its microscopic pattern, genetic content or profile of the tumor and the involvement of axillary/underarm lymph nodes). This is done to determine whether systemic medical treatment(s) are necessary, and if so, which type of treatment is appropriate. Patients with non-invasive breast cancer may not need systemic therapy.

Some systemic medications target molecular markers that are associated with a certain type of breast cancer. For example, breast cancer that is hormone-receptor-positive (estrogen or progesterone receptor) will be treated with tamoxifen or aromatase inhibitor drugs. Other treatments target a marker called HER2/neu. Chemotherapy treatments aim to kill any rapidly-dividing cells (such as cancer cells), and may be necessary either instead of, or in addition to targeted therapy. The use of targeted therapy is an especially powerful strategy in breast cancer treatment and this is one of the many reasons why your case will be carefully evaluated. This includes evaluating your breast cancer biopsy material (and its molecular markers) by a team of experts.

For most breast cancer patients, final decisions regarding systemic therapy will

be made after reviewing the results of surgery performed on the breast and the axillary/underarm lymph nodes. Systemic therapy that is given to the patient **after** breast cancer surgery has been completed is called *adjuvant therapy*.

In some patients, it is very clear at the time of diagnosis and before the surgery that chemotherapy will be necessary. In these cases, you may have the option of receiving the chemotherapy **before** undergoing definitive/final breast cancer surgery. This treatment is called preoperative chemotherapy, *neo-adjuvant chemotherapy* or induction chemotherapy.

For patients that need chemotherapy as well as surgery for their breast cancer, it is important to complete all components of your care. Some patients have cancers that are very bulky, called Locally Advanced Breast Cancer (LABC). Preoperative chemotherapy is often the first choice in the treatment sequence for LABC to improve the success and technical safety of the ultimate breast surgery. In other cases, preoperative chemotherapy will be a treatment option to shrink the primary tumor in the breast so that the patient will have a better cosmetic outcome with lumpectomy (breast-conserving) surgery.

Clinical Trials

For more information on clinical trials visit: www.mcancer.org or the Patient Education Resource Center on Level B2/ground floor of the Cancer Center

Your doctor may suggest that you think about joining a clinical trial (a research study or *protocol*) for the treatment of breast cancer. Clinical trials are one very important reason that the University of Michigan Comprehensive Cancer Center is able to offer you access to the most advanced cancer treatments.

Clinical trials are used to test new treatments. The goal of trials is to find ways to improve therapy or decrease side effects. While a trial or study is active, we will not know whether any improvement has been made. The trial must be closed and the research analyzed before the results can be made available to patients.

There may be some risks associated with clinical trials. Your doctor will discuss the potential risks and benefits with you and get your written consent before starting you on a research protocol.

The University of Michigan Health System has an oversight committee that conducts an extensive review of all clinical trials. These committees include an Institutional Review Board (IRB) made up of cancer doctors, doctors in other specialties and lay people. The IRB reviews all protocols before they are available to patients and again at different times during the research to be sure the protocol remains appropriate and safe for patients.

If you are part of a clinical trial, you will receive the best care possible, and your reactions to the treatment are watched closely. If the treatment doesn't seem to be helping you, a doctor can take you out of a study. You may also choose to

leave the study at any time. If you leave the study, you will continue to receive the best available treatment and care.

Clinical trials are voluntary. Your breast cancer will be treated regardless of whether you participate in a clinical trial.

Types of Breast Cancer Surgery

There are three key principles in breast cancer surgery.

- Surgically remove the cancer in the breast.
- Treat the entire breast to eliminate microscopic disease elsewhere in the breast.
- Evaluate whether the breast cancer has spread to the underarm lymph nodes draining the breast to assess for micrometastic disease.

Surgery for breast cancer has improved greatly. The radical mastectomy surgery used in the first half of the 20th century caused severe deformity and had many side effects. It is rarely used today. The most common breast cancer surgeries performed today are:

- **Lumpectomy/Breast Conservation**: is the removal of the cancer (lump/mass) and a rim of surrounding normal tissue leaving the majority of the breast intact.

- **Total/Simple Mastectomy**: is the removal of the entire breast tissue only. No lymph nodes or muscles are removed.

- **Modified Radical Mastectomy**: is the removal of the entire breast tissue and removal of most of the lymph nodes located in the underarm/axilla. The underlying chest wall muscles remain intact.

- **Sentinel Lymph Node Biopsy:** is the removal of the first/initial lymph nodes to which the breast cancer drains, usually one to five nodes.

- **Axillary Lymph Node Dissection:** is the removal of the lymph nodes in the fat pad in the underarm/axilla.

Lumpectomy/Breast Conserving Surgery

Many patients choose breast conservation surgery. This involves preservation of the breast and treating the cancer.

A lumpectomy is the removal of the cancer in the breast along with a rim of normal breast tissue. The rim of normal breast tissue means there is no cancer at the edge of the surgery and is called a “clear margin.” All cancer surgeries aim to have complete removal of the cancer with a clear (negative) margin. To achieve this, some normal tissue must be removed all around the tumor.

Your surgeon will remove the cancer by making a one-to-three inch incision on the breast and surgically removing the tumor and a rim of surrounding normal breast tissue to achieve a clear margin (See Figure 2).

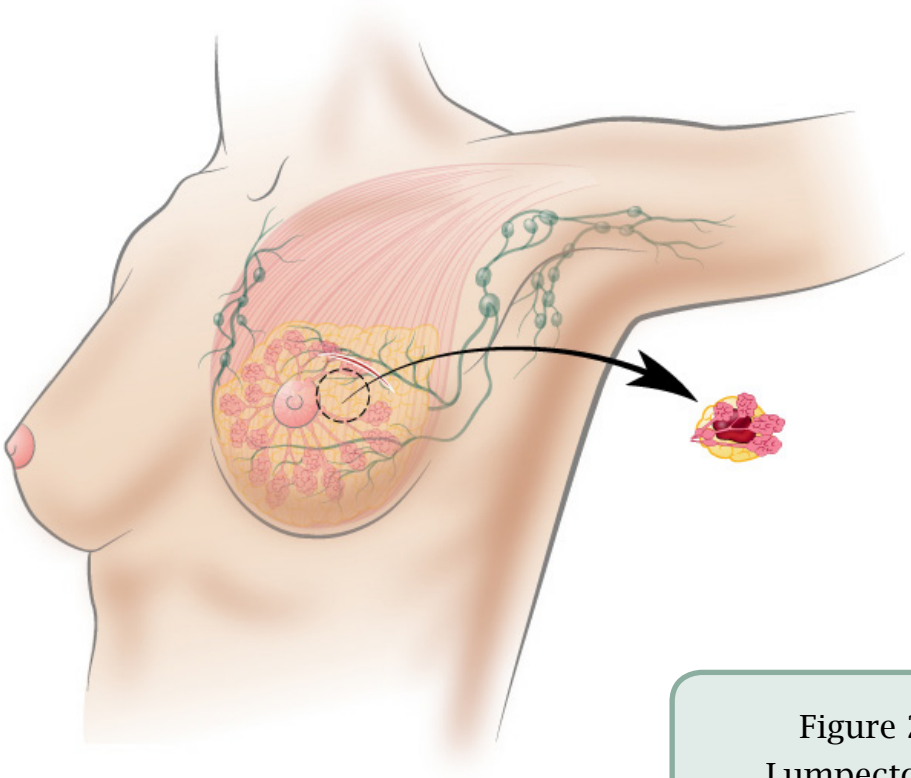


Figure 2:
Lumpectomy

After you have the lumpectomy, you will need radiation therapy to the breast. The goal of radiation therapy is to kill microscopic cancer cells that might be hiding in the remaining breast. The radiation therapy greatly reduces the risk of cancer growing back in the breast. The same breast cancer growing back in the breast which has been treated is called “local recurrence.”

Patients who have been treated for breast cancer require lifelong monitoring to assess for return of the same breast cancer or for development of a new breast cancer. For the majority of breast cancer patients, the chance of cure and survival is determined by the risk of the original cancer spreading to other organs of the body. This is called “metastasis.” Many clinical trials conducted worldwide have proven that cure rates after breast cancer treatment are the same regardless whether the woman chooses lumpectomy with radiation or mastectomy surgery.

For women who choose lumpectomy surgery and radiation, their breasts are monitored lifelong. The original cancer may come back (most likely to occur at the lumpectomy site within the first five years after treatment). They may develop a completely new breast cancer (which can occur in either breast and at any time in life). Most women do not develop either a local recurrence or a completely new breast cancer. The risk of an “in-breast” event refers to a cancerous problem in the breast itself and is separate from the risk of metastatic spread to other organs of the body. Studies have shown that the risk of developing another in-breast, cancer-related event is about 0.25 percent to 1 percent each year with the risk adding together over time. Women who have a genetic tendency for developing breast cancer have a higher risk of developing a new breast cancer as high as 4 percent to 5 percent per year.

What happens if the rim of tissue or margin around the cancerous lump is not negative/clear of cancer?

Having the margin of tissue around the cancerous lump free of cancer is called a "clear margin." It is important to obtain clear margins as the chance of a cancer recurring in the same lumpectomy site is much higher if there is cancer at the outside edge of the margin of tissue.

Because cancer can spread microscopically through tissue, your surgeon cannot tell in the operating room whether the margin is clear or not. The tissue must be examined under a microscope by a pathologist (a doctor who looks at tissues and interprets laboratory tests) to decide whether the margin is clear or not. For most lumpectomy patients treated at the University of Michigan Health System, the pathologist will check the margins under the microscope while you are still in the operating room (called "frozen section analysis") and report this information immediately to the surgeon. If necessary, the surgeon can then remove additional tissue, which increases the chance you will only need one breast surgical procedure. There is another evaluation of the margins on the final pathology report which is available in two to five business days. Some patients may also require a follow-up, postoperative mammogram (called a "post-lumpectomy mammogram") to make sure all abnormalities seen on the original mammogram have been removed.

The final lumpectomy/margin report is reviewed by the surgeon. At the University of Michigan Health System this is usually in conjunction with a full review and discussion with other breast cancer specialists at the BCC Multidisciplinary Tumor Board. Then recommendations will be made whether additional surgery is necessary or not needed.

If additional surgery is needed, it may be a repeat lumpectomy (called a "re-excision lumpectomy") but sometimes a mastectomy is recommended. These recommendations depend upon the characteristics of the cancer of the individual patient.

Can all women have a lumpectomy?

Unfortunately, not all women can have a lumpectomy. Women who are not appropriate for a lumpectomy and for whom a mastectomy would be recommended include:

- Women who have already had radiation therapy to their breast.
- Women with two or more cancers in the breast that are far apart.
- Women who have previously had unsuccessful lumpectomy surgery either because of inadequate margins or post-lumpectomy mammogram that showed extensive disease remaining.
- Women with certain connective tissue diseases such as scleroderma because these diseases make them very sensitive to the side effects of radiation.
- Women with certain findings on their mammogram such as diffuse, suspicious-appearing micro-calcifications.
- Women with a cancer that is large compared with the size of their breast.

What are the possible side effects of a lumpectomy?

- Infection of the surgical area.
- Accumulation of blood in the surgical area (hematoma).
- Accumulation of clear fluid in the surgical area (seroma).
- Numbness of the skin around the surgical incision.
- Alterations in sensation.
- Scarring, including permanent retractions of breast over the biopsy site or nipple deviation.

- Pain/discomfort.
- Positive margins requiring reoperation.
- Deep vein thrombosis or pulmonary embolism (blood clot in the leg and/or lung), need for additional tests/procedures or risks of anesthetic.

If a lumpectomy is performed in combination with a sentinel lymph node study or with an axillary lymph node dissection, the primary side effect may be lymphedema or swelling of the arm due to removal of lymph nodes draining the arm and breast, although the incidence of lymphedema is low.

Some of the other possible side effects associated with lymph node removal may include:

- Limitations in arm and shoulder movement after surgery.
- Numbness of the skin of the upper arm.

For women with invasive breast cancer there are three key concerns:

- Removal of the cancerous breast tissue with clear or negative margins.
- Control of microscopic disease elsewhere in the breast.
- Determination of whether the lymph nodes draining the breast cancer are free of cancer or whether the cancer has spread to the lymph nodes.

For patients with invasive breast cancer who do not have obvious cancer in the lymph nodes in the underarm/axilla area by physical examination a sentinel lymph node biopsy is usually recommended.

What will happen the day of the surgery?

Your lumpectomy surgery will be performed at the East Ann Arbor Surgery Center or in an operating room on the first floor of University Hospital or another UM breast cancer surgery site.

Some women have cancers that require locating the tumor by inserting a wire through the breast into the tumor before the surgery. This is done either in the Breast Imaging Department at East Ann Arbor Radiology or in Breast Imaging on Level B2 of the Cancer Center **before** the surgery. This is called a "Wire Localization Lumpectomy" (See Figure 3).

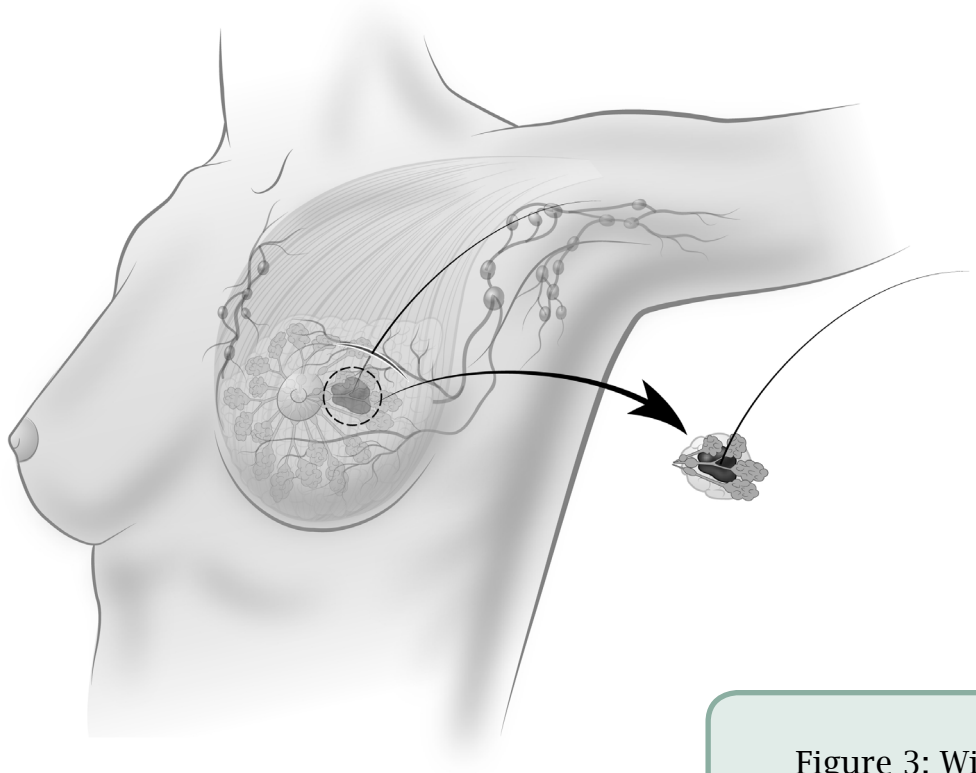


Figure 3: Wire Localization Lumpectomy

If you need wire localization you will go to the Breast Imaging Department on the day of surgery, as the wire localization is done before the lumpectomy. Before surgery you will receive detailed information on exactly when and where to go for the surgery procedure(s) from the University of Michigan Surgery Scheduling and/or the Preoperative Team.

You will be informed when and where to report to the preoperative area (usually at least one hour before the scheduled surgery). Once you are in the operating room, the surgeon will perform the lumpectomy and then any additional necessary breast cancer surgery (such as sentinel lymph node mapping and biopsy or axillary lymph node dissection). After surgery you will recover from the surgery and anesthesia in the surgical recovery observation unit next to the operating room. You may have one to two visitors in this area while you recover. As long as you feel strong enough, you can go home from the surgery that day. Some women do stay overnight and go home the next day.

What is adjuvant therapy?

Adjuvant therapy is therapy that is given in addition to surgery. Adjuvant treatment is given once the cancer has been removed.

Once the final pathology report has been discussed with a full review and discussion with other breast cancer specialists at the BCC Multidisciplinary Tumor Board, then recommendations will be made depending upon the characteristics of the cancer of the individual patient.

For women who have had a lumpectomy, radiation therapy to the breast is recommended to control the microscopic disease elsewhere in the breast. This radiation therapy is called adjuvant radiation therapy. It usually begins after about three to four weeks after the lumpectomy surgery.

Radiation therapy to the breast is usually given every day Monday through Friday for about six weeks. You will have a consultation with your radiation oncologist who will outline your treatment plan and obtain your permission or "consent" for treatment. Then the radiation treatment is planned. These planning or "simulation" visit(s) may take a number of hours and require several appointments. The treatments themselves may take only a few minutes. Many patients continue to work during breast radiation.

Depending upon the characteristics of the invasive cancer of the individual patient, chemotherapy may also be recommended. If adjuvant chemotherapy is recommended, it is usually given before radiation.

What are the side effects of radiation therapy to the breast?

Side effects of radiation therapy to the breast during treatment include fatigue, some "sunburning" of the skin and even swelling. Timing of the treatments and the use of lotions are used to help with these side effects.

Can I have a lumpectomy without the radiation therapy?

Most breast cancer patients having lumpectomy surgery require whole-breast radiation. Some patients may be candidates to receive partial breast radiation, which can be given in a shorter period of time. Some patients such as older patients with small, biologically favorable cancers may be candidates not to have radiation.

When your cancer results are reviewed at the BCC Multidisciplinary Tumor Board, these alternative breast radiation options are also considered. You will be told of all choices that appear to be safe treatment approaches for you as an individual. Sometimes these treatment options include participating in a clinical trial.

Is there cancer in the lymph nodes draining my breast cancer?

Finding out whether the lymph nodes draining the breast have no cancer in them or whether cancer has spread to the lymph nodes (and if so, how many lymph nodes have cancer in them) is important for your doctor to know so that she/he can recommend treatment that gives you the best chance of becoming and staying cancer free. These treatment recommendations include discussing whether additional surgery, radiation therapy, or systemic therapy with chemotherapy may benefit you.

Lymph fluid drains from the site of the tumor in the breast to an initial lymph node or cluster of lymph nodes before draining through lymph node channels to other lymph nodes. The lymph nodes where the cancer first drains are called sentinel lymph nodes. Because they are the first lymph node(s), they are usually the first place the cancer is likely to spread. In breast cancer, the cancer usually drains to the group of lymph nodes under the arm- the axillary nodes.

Needle Biopsy

After a physical examination, if you appear to have disease in your lymph nodes in the underarm/axilla area, you may need to undergo a needle biopsy of these lymph nodes. A pathologist will review the biopsy to look for cancer in these lymph nodes. If cancer is found on lymph node needle biopsy, it is important in planning additional treatment.

Sentinel Lymph Node Mapping

The sentinel lymph node(s) are the first lymph node(s) to which the cancer drains.

How do surgeons find the sentinel lymph node(s)?

There are two methods to find the sentinel node(s). The first is to inject a blue dye into the cancerous breast during your surgery in the operating room. The dye accumulates in the sentinel node(s), making it easy for the surgeon to see the node(s).

A second method is to inject a safe, small amount of a weak radioactive tracer solution into the breast. A hand-held probe (like a Geiger counter) is used to find the "hot-spot" of the lymph node(s) that contain the weak radioactive solution. It takes longer for the radioactive tracer to get to the lymph nodes than it does for the blue dye, so the radioactive tracer is injected at least a few hours before the surgery. The radioactive solution is harmless. You can be around other people after the radioactive injection.

There are several different choices regarding the timing and the selection of the blue dye and/or the radioactive tracer solution. At the University of Michigan Health System, most patients will have the radioactive tracer injected into the central portion of the breast around the areola on the day before surgery in the Nuclear Medicine Radiology Department of University Hospital. The nuclear medicine radiologist will then "scan" the breast and axilla approximately two hours later. The scan is basically a photograph that shows the "hot spots" of the radioactive solution in the sentinel node(s). Your surgeon will let you know whether the blue dye injection will be necessary.

Once in the operating room, the surgeon will make an incision in the skin of the axilla/underarm. The hand-held probe will be used to locate the radioactive "hot" node(s). If the preoperative scan did not show the sentinel lymph node, the surgeon may still be able to find it with the hand-held probe. The surgeon will also look to locate the blue node(s). The surgeon removes the sentinel

node(s) once they are located. Figure 4 illustrates the sentinel lymph node procedure done in combination with a lumpectomy.

Most patients have two sentinel lymph nodes, but some patients have only one and some patients have many more. The amount of fatty tissue and glands removed with the sentinel lymph node procedure is quite small, so it is not necessary to leave a drainage tube in place. The risk of side effects such as lymphedema is quite low.

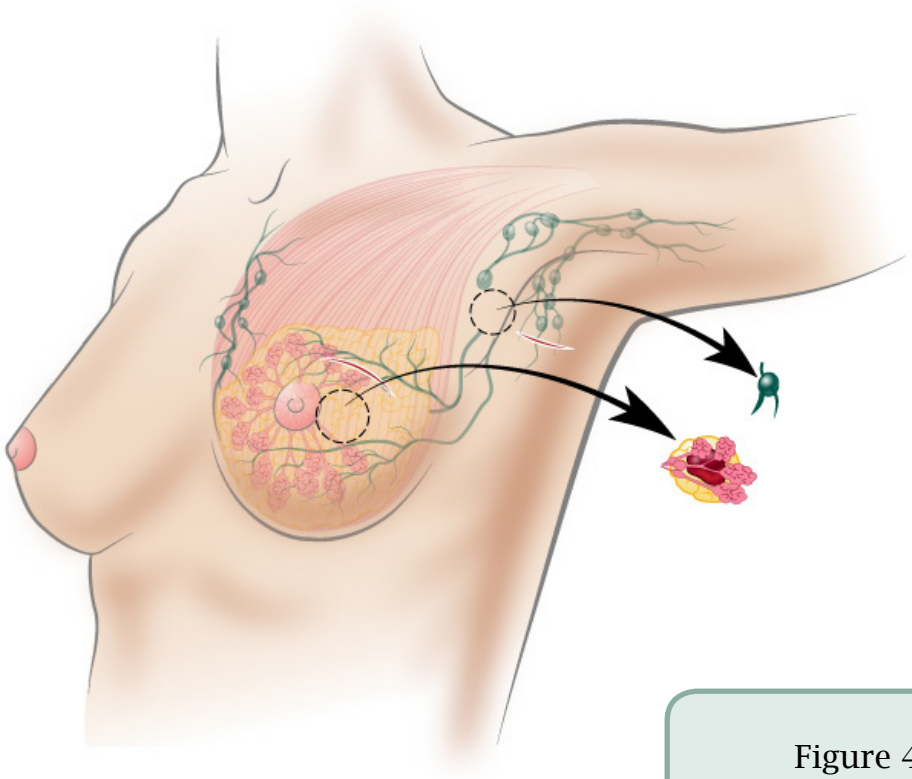


Figure 4: Lumpectomy with Sentinel Node Biopsy

Once the surgery is complete, you will be taken to the recovery area. If you were given the blue dye, your skin may be discolored, but it will clear. Some patients have rapid absorption of the blue dye. The blue dye is cleared through the kidneys so your urine may be temporarily blue, but it will also clear.

What are the advantages of a sentinel lymph node biopsy?

Sentinel lymph node biopsy has many advantages.

- There is no need to stay overnight in the hospital.
- There are no drains in the underarm.
- The risk or chance of lymphedema is low since only a few lymph nodes are removed (compared with the greater number in a full axillary lymph node dissection).
- If there is no cancer found in the lymph nodes removed with the sentinel lymph node biopsy, then there is a greater than 95 percent chance that the other lymph nodes remaining in the axilla are also free of cancer.

Does every woman with breast cancer have a sentinel lymph node biopsy procedure?

No, there are a number of reasons why you may not have sentinel lymph node biopsy.

- A sentinel lymph node biopsy is only appropriate for patients who have an axilla/underarm area that appears to be free of obvious lymph node metastatic disease by physical examination.
- Patients who have already been diagnosed with axillary metastases by needle biopsy do not need to have sentinel lymph node mapping because their nodal status is already known.
- Sentinel lymph node biopsy is not usually necessary in women undergoing lumpectomy/breast-conserving surgery for noninvasive

breast cancer/ductal carcinoma in situ. However, if invasive breast cancer is found in the lumpectomy specimen, then you will need to have another surgery to stage the axilla with a sentinel lymph node biopsy.

Sentinel lymph node biopsy is recommended for patients having a mastectomy who have non-invasive ductal carcinoma in situ. The biopsy is usually done before or along with the mastectomy surgery so that the axillary staging information is available if invasive disease is identified in the mastectomy specimen.

Use of sentinel lymph node biopsy in patients receiving neo-adjuvant chemotherapy is the subject of ongoing studies. Your surgeon will review this with you if needed.

What will happen the day of the surgery?

Your breast cancer surgery with sentinel lymph node mapping/biopsy begins in the Nuclear Medicine Radiology Department of University Hospital. Usually this appointment is on the day before your surgery, but it may be scheduled the morning of your surgery.

Your lymphatic mapping will be done at the **Nuclear Medicine Radiology Department on Level B1 University Hospital.** While you are awake, a weak radioactive solution will be injected into the central part of the breast to make the sentinel node(s) draining the breast radioactive. The injection and then making the “scan” photograph of the lymph node(s) requires two to four hours in Nuclear Medicine. The lymphatic mapping helps the surgeon by providing a map of the lymph node(s) so the surgeon can find them later with a hand-held probe when you are in the operating room.

Note: Most patients will have an injection for the scan on the afternoon or evening before the surgery itself. The surgical scheduler will give you your specific appointment times.

Once you are in the operating room, the surgeon will perform the sentinel lymph node mapping and biopsy and any additional breast cancer surgery previously planned (such as lumpectomy or mastectomy).

What are the side effects of sentinel lymph node biopsy?

Side effects of sentinel lymph node biopsy can include:

- Infection.
- Bleeding or hematoma (accumulation of blood in the surgical area) including the need for reoperation.
- Seroma (clear fluid collection in the surgical area).
- Scarring.
- Damage to adjacent soft tissues, including blood vessels and nerves.
- Minor pain or bruising at the biopsy site.
- Numbness of the skin around the incision or under the arm (but this is uncommon).
- Lymphedema or swelling of the arm (but this is rare).
- An allergic reaction to the blue dye (but this is rare).
- The area of the breast where the blue dye was injected will have a blue color. The blue dye can be seen for several weeks to several months but gets less blue with time and eventually fades away.
- Permanent skin discoloration.
- The blue dye is eliminated from your body through your kidneys in your urine. Your urine will be a blue-green color the day after the procedure.
- Failure of procedure; need to convert to open procedure, including the need for axillary dissection and drain placement.

- Need for reoperation.
- Need for additional tests/procedures.
- Deep vein thrombosis or pulmonary embolism (blood clot in the leg and/or lung).
- Risks of anesthesia.

What happens if my surgeon cannot find any sentinel lymph node(s)?

The breast cancer surgeons at the University of Michigan Health System are extremely experienced in performing this kind of surgery so it is very unlikely that they will not be able to find any sentinel lymph nodes for removal. However, some patients have unusual or blocked lymphatic drainage channels that make sentinel lymph node mapping/biopsy difficult or impossible. Your surgeon may request that you agree/"consent" to performing an axillary lymph node dissection if they cannot find sentinel lymph nodes. Your surgeon will try to use surgery that has the least side effects, but the most important goal of treatment is to perform surgery that will completely remove your cancer.

What happens if no cancer is found in my sentinel lymph nodes?

If the sentinel lymph node(s) are identified and removed and shown to have no cancer in them, this is wonderful news! This is consistent with a breast cancer in an early, limited stage. Less than 5 percent of patients who are shown to have no cancer in the sentinel lymph nodes have microscopic disease in the remaining non-sentinel lymph nodes. The full axillary dissection is not necessary when the sentinel lymph nodes are negative, and therefore the risk of developing lymphedema is very low.

What happens if cancer is found in my sentinel lymph nodes?

Of course it is disappointing and frightening to find out that the breast cancer

has spread to the lymph nodes. However, this information does not mean that the breast cancer cannot be treated and cured. This information is used to guide treatment recommendations. Patients who have breast cancer in the lymph nodes are more likely to have micrometastatic cancer cells hiding in other organs of the body and therefore they are more likely to benefit from chemotherapy treatment.

Some patients with sentinel lymph node-positive breast cancer will need to undergo the full axillary lymph node dissection. If you have a lumpectomy and have small amounts of cancer in your sentinel lymph nodes, usually you are treated with radiation therapy. This radiation also covers portions of the underarm/axillary tissue that contains lymph nodes.

Recent breast cancer clinical trials have shown that the likelihood of cancer coming back in the breast, in the axillary lymph nodes or in distant organs for patients who have small amounts of cancer in their sentinel lymph nodes is the same for lumpectomy/sentinel lymph node/radiation patients as for those who also have a full axillary dissection added to their therapy. Therefore, we can often avoid the full axillary lymph node dissection in lumpectomy patients that have cancer in one or two sentinel lymph nodes.

In breast cancer patients treated with mastectomy that have cancer in their sentinel lymph nodes, radiation may or may not be necessary. The number of lymph nodes containing cancer may help make that determination. Patients with four or more lymph nodes containing cancer usually require radiation to the chest wall after mastectomy to decrease the chance of the cancer coming back on the chest wall (“chest wall recurrence”). Patients with one to three lymph nodes containing cancer may or may not require radiation, but this depends on other cancer-related features. In this situation, patients with cancer in their sentinel nodes will likely be recommended to have an axillary lymph

node dissection. Your doctors will discuss with you the benefits and risks of axillary lymph node dissection versus radiation in this setting.

At the University of Michigan Health System, the Multidisciplinary Tumor Board, breast cancer specialists carefully evaluate every patient with breast cancer to determine the safest treatment choices balanced against the side effects of the treatment. The most important goal of the recommended treatment is to control the cancer.

When will I find out whether there was cancer in the sentinel lymph nodes?

Your surgical team will discuss with you whether the sentinel lymph nodes should be examined during surgery itself ("intraoperative frozen section analysis"). If recommended, your surgical team will discuss with you how intraoperative/frozen section analysis of the sentinel lymph nodes results would affect your treatment and outcome. In some patients, if there is cancer found in the sentinel lymph nodes at the time of surgery, it might be advantageous to perform a full axillary lymph node dissection at that time.

For most patients, recommendations regarding possible further axillary lymph node surgery is made after the final sentinel lymph node pathology results are available and in combination with other patient and cancer characteristics.

The final pathology results of the sentinel lymph node surgery are usually finished two to four business days after the surgery. Generally your surgery team will call you with the final results when they are available and make plans at that time for your next follow-up visit.

Mastectomy

What is a mastectomy?

A mastectomy is removal of all of the breast tissue on the chest wall. Your surgeon will peel or dissect the breast tissue out from under the breast skin and off of the underlying chest wall.

Removing this breast tissue with a mastectomy minimizes the possibility of developing a new breast cancer in this area but is not a guarantee that it will never happen. Breast cancers that are biologically aggressive can recur on the chest wall even with the mastectomy. Some patients (those whose disease is "locally advanced" or who have cancer spread to multiple lymph nodes) have a particularly high risk of a recurrence on the chest wall. In these situations, radiation therapy after the mastectomy ("post mastectomy radiation") may be recommended to decrease the chance of recurrence on the chest wall.

Microscopic amounts of breast tissue can hide in the skin, muscle or underarm region after a mastectomy. This is why some patients who had mastectomy may still develop a new breast cancer in that area (although this is very rare). This is also why patients who have never actually been diagnosed with breast cancer but choose double/bilateral mastectomy to prevent breast cancer may still develop breast cancer, although this risk is very low. Lastly, patients who have breast cancer in one breast "unilateral" who choose to have double/bilateral mastectomy to reduce the chance of developing breast cancer still have a low risk of developing breast cancer on the opposite side.

It is important to remember that the more extensive breast cancer surgery of double/bilateral mastectomy does not change the risk of metastatic spread of breast cancer to distant organs for an individual patient.

Different types of mastectomy surgery will now be described. After mastectomy and/or lymph node surgery, fluid normally accumulates in the area where the tissue was removed. For most patients undergoing mastectomy, the surgeon will leave one or more thin plastic tubes/catheters in the surgical area. This is to drain the fluid that accumulates after surgery. These drains are often called a Jackson-Pratt or JP drains. The drain is attached to a bulb with a cap. Your surgical and preoperative teams will teach you how to care for these drains. Some patients will have visiting nurse services arranged to help with drain care. Depending upon the amount of fluid that collects in the bulb, the drains are usually removed one to three weeks after the surgery. We recommend that you take your prescribed narcotic pain medication before having your drains removed. If you don't have any narcotic pain medication left, talk with your doctor about getting a prescription.

Total Mastectomy, also called Simple Mastectomy

A total mastectomy is a surgery which completely removes the breast and in addition to breast tissue also removes the nipple-areolar skin and tissue (See Figure 5). The chest wall/pectoralis muscles under the breast tissue are not removed. The lymph nodes in the axilla/underarm are not removed (although sometimes a few of these lymph nodes are attached to the breast tissue in this area and thus are removed with the breast tissue).

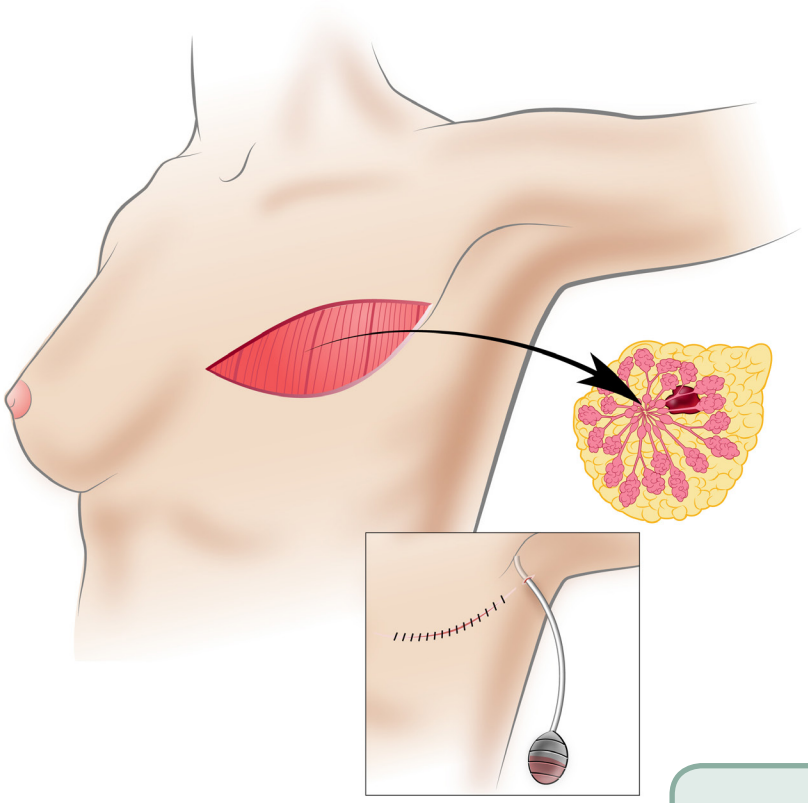


Figure 5: Simple Mastectomy (removal of breast tissue only)

Modified Radical Mastectomy (MRM)

A modified radical mastectomy is a total mastectomy plus an axillary lymph node dissection (ALND). Some patients require surgery to remove the majority of the lymph nodes that drain the breast and the breast cancer that are in the fat pad in the underarm/axillary region. This is called an axillary lymph node dissection. When a total/simple mastectomy and an axillary lymph node dissection are performed in the same surgery, it is called a modified radical mastectomy (MRM) and is illustrated (See Figure 6). Usually two drains are required with the MRM operation.

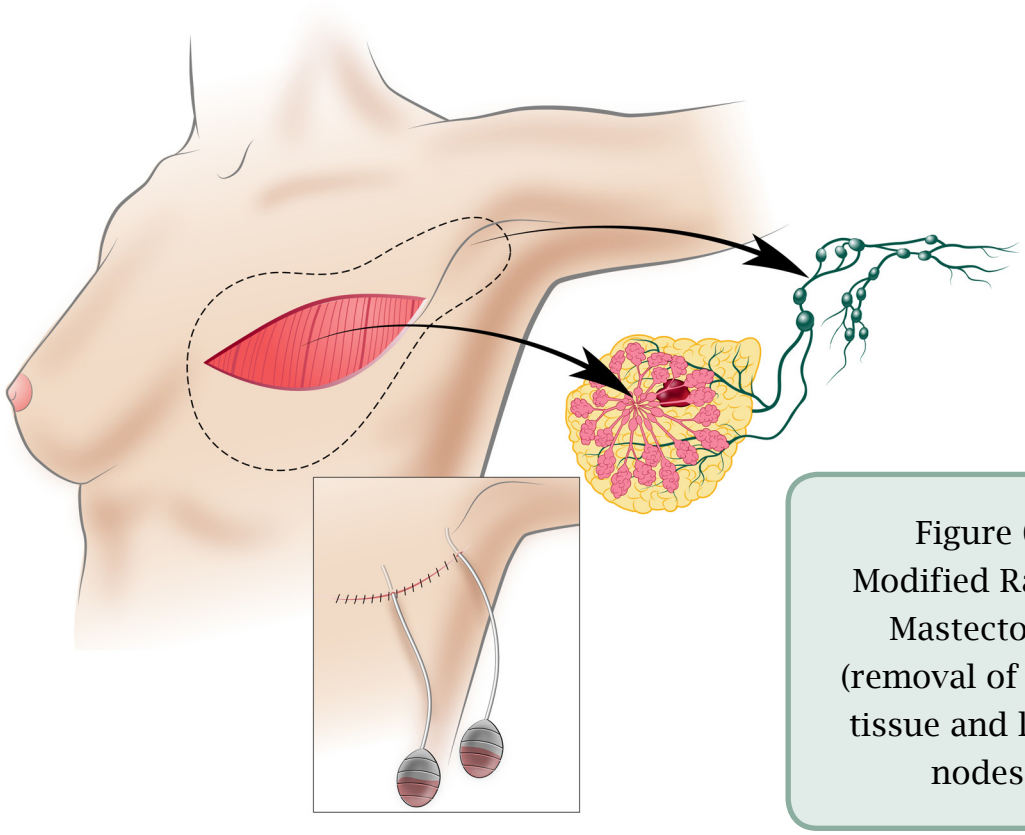


Figure 6:
Modified Radical Mastectomy
(removal of breast tissue and lymph nodes)

Skin-Sparing Mastectomy and Immediate Breast Reconstruction

Many patients having total mastectomy surgery will also have reconstruction of the breast. When the breast reconstruction is performed at the same time as the mastectomy surgery (called “immediate reconstruction”), the breast surgeon and the plastic surgeon will work together to plan the skin incisions that will give you the best cosmetic result.

Usually these skin incisions closely surround the dark skin of the areola and nipple in the center of the breast. Both the underlying breast tissue and the central areola/nipple skin are removed, but the remainder of the breast skin “envelope” remains for the plastic surgeon to use to reconstruct the breast “mound.” The skin-sparing mastectomy is generally used only for patients

having immediate breast reconstruction as excessive fluid can accumulate in the skin flaps and be a source for infection.

Nipple-Sparing Mastectomy and Immediate Breast Reconstruction

The nipple-sparing mastectomy is a total/simple mastectomy with complete removal of the breast tissue but the skin over the nipple and areola is not removed (See Figure 7). This is another choice that may be offered to patients having immediate breast reconstruction. There is an increased chance of microscopic amounts of breast tissue (and cancer) hiding in the nipple-areolar skin compared with skin in other areas and the small incision used for nipple-sparing mastectomy can potentially compromise mastectomy surgery. There are ongoing studies regarding the safety of preserving the nipple/areolar skin. The initial results are quite promising. Your surgical team will discuss with you if the nipple-sparing mastectomy is appropriate for your type of breast cancer.

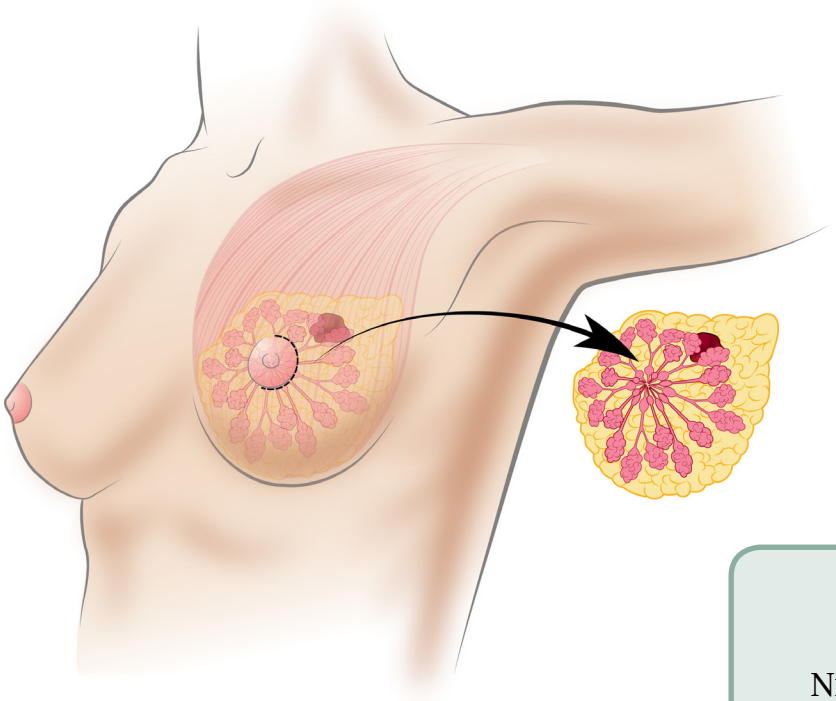


Figure 7:
Nipple-Sparing
Mastectomy

If I have a mastectomy, can I have plastic surgery for breast reconstruction?

Yes. Breast reconstruction can be performed during the same operation immediately after mastectomy, called "immediate reconstruction." Or it can be performed months later, called "delayed reconstruction." Talk to your breast cancer and plastic surgery treatment team about which surgery will give you the best result.

What are the side effects and/or complications of a mastectomy?

The possible side effects of a mastectomy include:

- Infection of the surgical area.
- Accumulation of clear fluid in the surgical area (seroma).
- Accumulation of blood in the surgical area (hematoma).
- Damage to adjacent soft tissues including blood vessels and nerves.
- Scarring, skin loss or positive or close margins requiring additional treatment.
- Skin flaps that do not heal well (called "flap necrosis"). Smoking increases your risk of flap necrosis.
- Deep vein thrombosis or pulmonary embolism (blood clot in the leg and/or lung).
- Risks of anesthesia.

The possible side effects of a modified radical mastectomy with removal of the underarm/axillary lymph nodes (ALND) include:

- Slight, permanent numbness to the chest wall.
- Slight, permanent numbness to the back of the arm.
- Burning/tingling/electric shock sensation to the arm.
- Ache to the wrist.
- Temporary or permanent limitations in arm and shoulder movement

after surgery. See the information on Pages 103-115 for exercises to begin after surgery to help keep your arms and shoulders moving freely and normally.

- Arm swelling, called lymphedema. This is a significant risk that can occur weeks, months, years, or decades after ALND. Please see the information on Pages 117-125 for information regarding prevention of lymphedema and its treatment.
- Deep vein thrombosis or pulmonary embolism (blood clot in the leg and/or lung).
- Need for additional tests/procedures.
- Risks of anesthesia.

Additional risk for immediate reconstruction with expander:

- Infection requiring expander removal, flap or skin loss, failure of reconstruction.

Additional risk for immediate reconstruction with tissue transfer:

- Flap or skin loss, failure of reconstruction.

What will happen the day of surgery?

Your surgeon will perform your mastectomy in an operating room either at the East Ann Arbor Ambulatory Surgery Center, Medical Procedures Center or in an operating room on the first floor of University Hospital. It may also be performed at another University of Michigan Health System surgery center.

The surgical scheduling team will notify you in advance of when and where to arrive. You will go to the admitting area at least one hour before the surgery. The admitting area is directly inside the main doors at the East Ann Arbor Ambulatory Surgery Center and at University Hospital next to the operating

rooms on the first floor.

You will be prepared for surgery in the preoperative area and taken to the operating room and the surgeon will perform the mastectomy (and any other planned breast cancer surgery). Once the surgery is finished, you will be taken to the recovery room. After you recover from the surgery you will be admitted to the hospital. Most patients stay the first night in the hospital and are well enough to go home the next day.

If I have a mastectomy, does that mean I won't need radiation therapy?

Not necessarily. Patients who have bulky cancers, usually defined as an invasive cancer larger than 5 centimeters (about 2 inches) and/or cancers growing into the skin or the rib cage, called "locally advanced breast cancer," or patients whose cancers have spread to multiple lymph nodes in the underarm/axilla have an increased risk that the cancer will grow back in the skin, muscle or in lymph nodes draining the breast outside the underarm/axilla such as the lymph nodes above the collar bone ("supraclavicular lymph nodes") or the lymph nodes below the breast bone ("internal mammary lymph nodes").

Patients who have these more extensive cancers and had a mastectomy will be recommended to receive radiation treatments after the mastectomy (called "postmastectomy" radiation), which treats the skin/chest wall of the mastectomy as well as the other lymph node areas (called "extended field" or "regional" radiation). If a patient has cancer in four or more underarm/axillary lymph nodes, postmastectomy extended field regional radiation would be recommended. If a patient has cancer in one, two or three underarm/axillary lymph nodes, then other cancer features that affect the risk of local/chest wall recurrence would be considered in deciding whether postmastectomy extended field regional radiation treatment is recommended.

Lumpectomy versus Mastectomy: Making the Treatment Decision

Which is better for me, lumpectomy or mastectomy?

If you are a candidate for breast conservation therapy with lumpectomy and radiation therapy, the most important thing for you to remember is that your survival rate (the chance of being alive) is the same, regardless of whether you choose lumpectomy and radiation or mastectomy. It is also important to remember that the recommendation for you to have chemotherapy (or not) is the same regardless of whether you choose lumpectomy and radiation or mastectomy.

The important advantage of breast conservation therapy is that **you keep your breast.** However, there are two main disadvantages: radiation therapy to the breast and a higher risk of developing another in-breast, cancer-related problem. This can happen because the original cancer regrows, most commonly at the location of the lumpectomy. Generally we see this within the first five years after breast cancer treatment. It can also happen in the form of a completely new breast cancer which can occur in either breast and this risk continues throughout life.

The important disadvantage of mastectomy is that **you lose your breast which is irreversible.** Some patients will require radiation to the chest wall after mastectomy. Mastectomy patients have a smaller chance of developing a recurrence of the original cancer or a new breast cancer on the side of their mastectomy as compared with lumpectomy patients. Mastectomy patients continue to have a risk of developing a new breast cancer in the opposite, natural breast throughout life.

The likelihood of the original breast cancer coming back is increased if the breast cancer is biologically more aggressive regardless of whether the patient

chooses lumpectomy surgery or mastectomy. Your treatment team may be able to provide you with more precise estimates of risk of recurrence based upon the biological characteristics of your individual cancer.

The likelihood of developing a completely new breast cancer is increased in patients who have inherited a predisposition for breast cancer.

For patients whose cancer has spread to the sentinel lymph nodes, lumpectomy patients are more likely to be able to avoid a full axillary lymph node dissection, whereas mastectomy patients are more likely to be treated with the more extensive surgery of a full axillary lymph node dissection (see following section on axillary lymph node dissection).

For patients who are candidates for breast-conserving surgery, the choice between lumpectomy and mastectomy is a very personal decision. If you are unsure about this decision, please remember that an initial lumpectomy can be followed by a mastectomy if you are dissatisfied with your breast's cosmetic appearance or if fears regarding breast preservation disturb your quality of life. However, a mastectomy surgery is **irreversible**.

Axillary Lymph Node Dissection

For you and your doctor to know the best course of treatment to control your cancer, you need to know whether the cancer has spread to the lymph nodes in the armpit/axilla, and if so, how many lymph nodes have cancer in them.

As discussed earlier, most patients will have a needle biopsy of an axillary lymph node or a sentinel lymph node biopsy to stage the underarm lymph nodes for cancer. The more extensive surgery of axillary lymph node dissection is reserved for specific patients where cancer is known to be in the lymph nodes or where sentinel lymph node biopsy cannot be done for technical reasons.

To perform the axillary lymph node dissection, the surgeon makes an incision in your armpit under your arm and removes the fatty tissue where the lymph nodes are located.

Figure 8 illustrates an axillary lymph node dissection performed with a lumpectomy where there will be two incisions. There will also be one drain from the axillary lymph node dissection site (not illustrated).

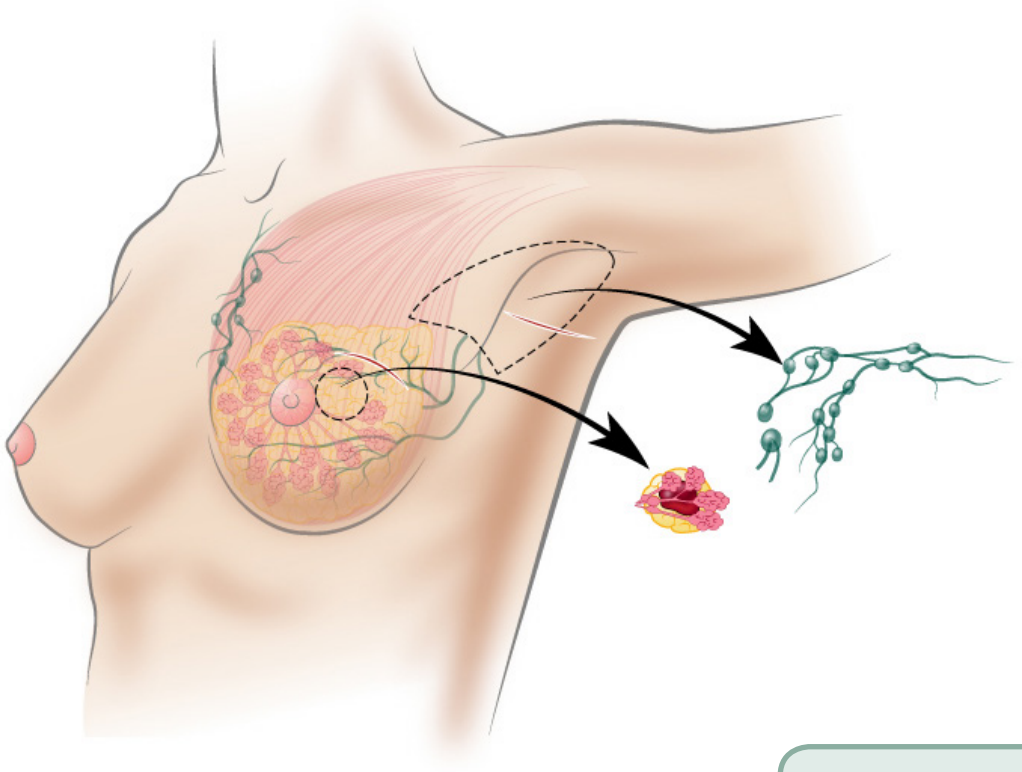


Figure 8: Axillary Lymph Node Dissection & Lumpectomy

When the axillary lymph node dissection is performed with a mastectomy (called a modified radical mastectomy) there will be only one incision as shown in Figure 6 (on Page 49), but two drains.

Most patients will have between 10 to 20 lymph nodes in the axillary fat pad removed with the axillary lymph node dissection. However, the actual total number varies for each patient. Each lymph node is analyzed separately under the microscope to determine whether it contains cancer. The final pathology report will state the total number of lymph nodes found in the axillary fat pad and how many of the lymph nodes contained cancer.

The axillary lymph node dissection is an operation carefully standardized to safely remove the underarm fat pad while keeping intact the important blood vessels and nerves that control muscle activity. The nerves that control the sensation to the skin of the underarm, upper/inner arm and shoulder are usually damaged, resulting in these areas becoming numb.

What will happen the day of surgery?

Most axillary lymph node dissection operations are performed as outpatient/ ambulatory surgery but require general anesthesia. The tissues that remain under the armpit tend to "leak" some lymph fluid after the lymph nodes are removed, so a tube is placed to drain the fluid until the area has healed - usually one to three weeks. The drain is a flexible plastic tube that comes through the skin and is connected to a plastic bulb to collect the fluid. See Figure 14 on Page 94 for an illustration of a drain.

Your clinic and preoperative team will give you instructions regarding care of the drain. Depending on your insurance, you may have a visiting nurse to assist you. When the drainage decreases to a certain amount, you will have the drain removed in the clinic. Ask your doctor about taking pain medicine before the drain is removed.

You will be given instructions about the exercises we recommend to be done after surgery to maintain strength and flexibility in the shoulder while the axillary lymph node dissection area heals. See the exercises on Pages 99-115.

What are the side effects of an axillary lymph node dissection?

Patients who have an axillary lymph node dissection may have chronic, long-term problems such as swelling of the arm (lymphedema) or pain or discomfort in the area of the dissection.

Almost all patients have some numbness under the inside of the arm. This is not bothersome to most, but some have a burning or dull pain in this area.

Some of the other side effects and/or complications that can occur with axillary lymph node dissection are:

- Infection of the surgical area.
- Accumulation of blood in the surgical area (hematoma).
- Accumulation of clear fluid in the surgical area (seroma).
- Temporary or permanent limitations in movement of the arm and shoulder on the side of the axillary lymph node dissection.
- Arm swelling (lymphedema) on the side of the axillary lymph node dissection.

Of these side effects, lymphedema is usually the most bothersome. Lymphedema of the arm can occur after an axillary lymph node dissection because the underarm glands that drain fluid (and potentially cancer cells) from the breast also drain normal body fluids from the muscles and soft tissues of the arm. Lymphedema happens in about 10 percent to 40 percent of patients undergoing an axillary dissection. Patients who have an increased chance of lymphedema include those who are obese, require radiation after the axillary surgery and who have breaks in the skin and/or infections in the arm. You can reduce your chance of lymphedema by maintaining a healthy body weight, exercising regularly and protecting the skin of the arm and hand.

Lymphedema may occur from time-to-time, often starting as a feeling of heaviness in the arm. Treatment may include occupational or physical therapy, manual massage of the arm and breast, special elastic gloves and sleeves and compression devices. Please see the arm exercises on Pages 103-115 to do after surgery to regain the full range of motion of your arm and decrease the chance of lymphedema.

Your doctor encourages you to use your hands and arms soon after the axillary lymph node dissection. **Your surgeon may want you to limit the extent of your arm exercises until after your drain(s) are removed. Ask your surgeon when you can start the various exercises.**

If you have had a mastectomy and reconstruction surgery, the plastic surgery team will go over additional activity restrictions with you. At the University of Michigan Health System we have a lymphedema class and occupational and physical therapy lymphedema experts who can help you with exercises to decrease the chance of axillary lymph node dissection surgical side effects. To find out more about the class or to register, call: 877-907-0859.

Making the Choice – Breast Reconstruction

Our first priority is to work with you to develop a treatment plan that is most likely to safely and successfully eliminate the breast cancer. In addition to that goal, we want to minimize any disfiguring surgery so you can maintain or restore your optimal body image. Your cancer treatment team and the University of Michigan Health System specialists in breast plastic surgery and reconstruction will work with you to develop options that work best for you as an individual.

We want to provide you with the most up-to-date information on breast reconstruction (plastic surgery) after breast cancer surgery. Because there are many surgical choices and breast reconstruction surgery is changing and advancing all the time, we have chosen to provide you with limited information on reconstruction surgery in this handbook. We encourage you to visit: http://surgery.med.umich.edu/plastic/patient/breast/ where you can watch a patient-centered video and download two informational booklets:

- Your Options: Breast Reconstruction Overview and Decision Guide
- The Decision Guide to Breast Reconstruction: Comprehensive look at choices related to breast reconstruction following mastectomy

You can also pick up a copy of each handbook in the Patient Education Resource Center, located on Level B2/ground floor of the Comprehensive Cancer Center.

For questions or to make a clinic appointment, contact the Plastic and Reconstructive Surgery Clinic at: 734-998-6022.

Plastic Surgery Clinic
Domino's Farms, Lobby A
Suite A 1200
24 Frank Lloyd Wright Drive
P. O. Box 441
Ann Arbor, MI 48106

Clinic Phone Number: 734-998-6022
Clinic Fax Number: 734-998-6403

GPS: 4029 Ave Maria Drive, Ann Arbor, MI 48106

Breast Reconstruction at the University of Michigan Health System

Your cancer treatment needs, body size/shape and health will affect which surgeries are possible for you. Whether you had a mastectomy on one side and have a remaining natural breast or you had both breasts removed ("bilateral mastectomy") will affect which reconstruction options are possible. Share your personal preferences with your plastic surgeon. That way you and your surgeon can make the best choice for you.

Patients who are unhappy with their appearance after breast conserving surgery/lumpectomy are also candidates to undergo plastic surgery procedures that can improve their cosmetic results.

When you consider breast reconstruction, keep this in mind:

- First, although newer techniques produce cosmetically superior results, reconstructive surgery can never exactly duplicate your natural breast.
- Also, we attempt to match the opposite breast as best we can; however, creating a precise, "mirror-image" of the remaining side is usually beyond the scope of even the most up-to-date procedures.
- The skin of the reconstructed breast is usually numb.

Despite these limitations, the vast majority of reconstruction patients are quite pleased with their results. Ask your doctor to see before and after photos of women who have had breast reconstruction so you have a realistic vision of possible results.

Breast reconstruction is either “immediate” or “delayed”

In immediate reconstruction, the new breast mound is created immediately following mastectomy. When the surgical oncologist has finished the mastectomy, the plastic surgeon will then begin the reconstruction. If there is any question concerning the safety of immediate reconstruction, we advise patients to postpone this procedure. Patients who require radiation treatment are advised to delay reconstruction until the radiation is complete.
The second approach is delayed reconstruction. This operation may be performed months or years after the initial mastectomy. Delayed reconstruction uses the same techniques as immediate reconstruction.

Types of Breast Reconstruction

Breast reconstruction surgery can be performed using an implant (a silicone pouch filled with a silicone gel or saline solution) or it can be performed using your natural tissue (skin, fat, and muscle) from another part of your body. Both types of surgery have specific advantages and disadvantages.

Implant Reconstruction

Advantages	Disadvantages
Shorter surgery	Possibility of rupture over time
Shorter recovery	Scar formation around the implant over time
Shorter hospital stay	Difficulty matching the other breast
Patient has more options in determining size of her reconstructed breast(s)	Implant infection can result in loss of reconstruction

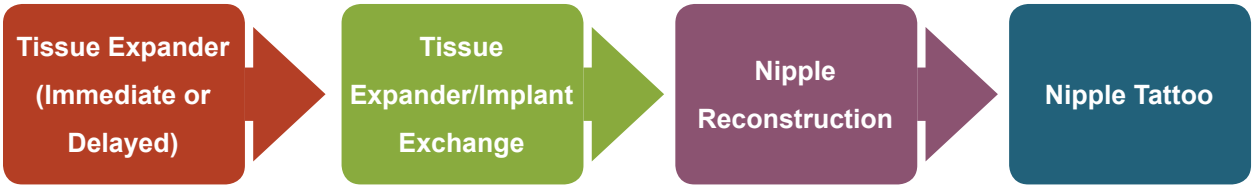
Natural Tissue Reconstruction

Advantages	Disadvantages
Most natural appearance and feel	Potential donor site complications such as infection
Fewer problems in long-term after reconstruction is complete	Longer surgery Longer hospital stay
Adjusts to patient's weight gain/ loss	Breast size limited by amount of donor site tissue Scar at donor site
Very effective in radiated patients	
Provides some contouring of abdomen	

Breast Reconstruction with Implants

After mastectomy, a “tissue expander” pouch is placed. Saline solution is injected into the pouch in the plastic surgery clinic until the skin is stretched enough for the desired size implant. In a second operation, the expander is removed and the silicone pouch implant is placed. Some women may be able to have the silicone pouch implant placed without needing expansion. The plastic surgeon will discuss what is appropriate for you.

Breast Reconstruction with Implants Procedures

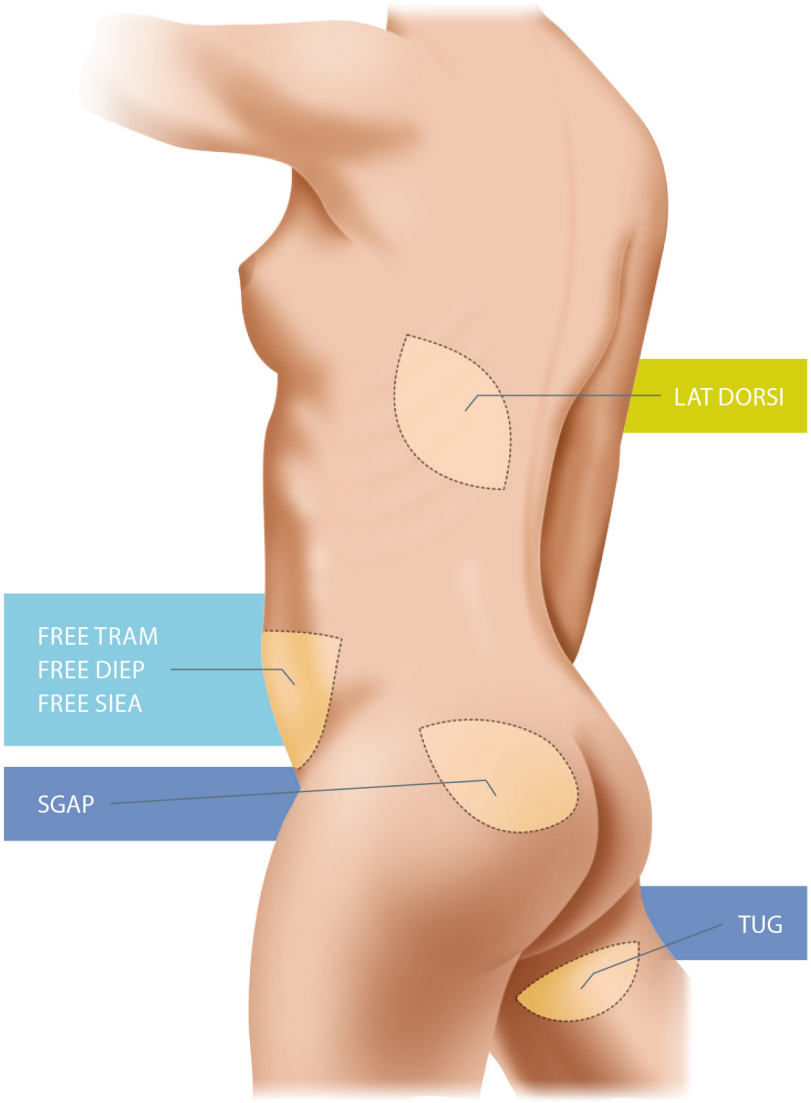


Natural Tissue Reconstruction

The second approach to breast reconstruction uses your skin, fat and muscle from another part of your body to reconstruct your breast. This choice has many benefits as it provides a more natural looking breast because the tissue is soft and closely mirrors breast tissue.

Natural Tissue Reconstruction – Donor Site Locations

This picture shows areas of the body that can be used for donor tissue.



The most commonly used donor tissue is the fatty tissue located in your lower abdomen. These include:

- Pedicled or Tunneled TRAM (Transverse Rectus Abdominis Myocutaneous) Flap
- Free TRAM (Transverse Rectus Abdominis Myocutaneous) Flap
- Free Muscle-Sparing TRAM (Transverse Rectus Abdominis Myocutaneous) Flap
- Free DIEP (Deep Inferior Epigastric Perforator) Flap
- Free SIEA (Superficial Inferior Epigastric Artery) Flap

Reconstructions using any of these donor sites in the abdomen leave a scar across the abdomen below the belly button and the reconstructed breast.

If there is not enough fatty tissue in the lower abdomen, an alternate donor site may be recommended. These may include:

- LAT DORSI (Latissimus Dorsi) Flap (upper back)
- SGAP (Superior Gluteal Artery Perforator) Flap (buttocks)
- TUG (Transverse Upper Gracilis) Flap (inner thigh)

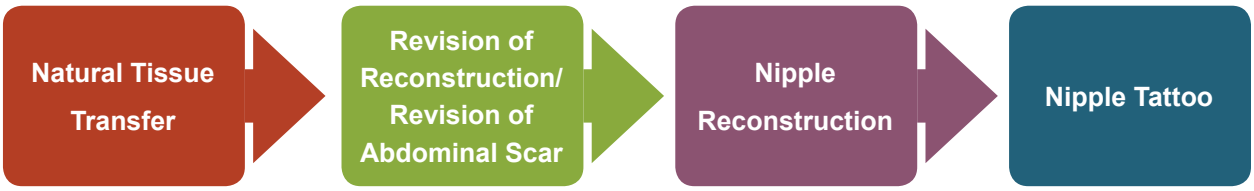
Each of these will have a scar at the donor site and on the reconstructed breast.

The TRAM Flap and Lat Dorsi Flap both use the arteries and the veins that provide blood flow to the tissue. The tissues remain connected with donor skin as they are “tunneled” from the donor site underneath other tissue to the mastectomy site. Since the donor tissue remains connected to its original blood supply, the risk of losing the reconstruction due to blood flow problems is decreased.

Other “Free” Flaps, SGAP and TUG surgeries all divide the blood flow supply in the donor tissue and the blood vessels are reattached to blood vessels in the central chest using microsurgical techniques. This microsurgically reattached blood supply requires monitoring for a few days after surgery.

Taking donor tissue from your own body results in scars at the donor site and your reconstructed breast as well as less natural tissue at the donor site, so your doctors will discuss with you what is best for your body size and shape and lifestyle.

Natural Tissue Reconstruction Procedures



Additional Surgeries after Reconstruction

Nipple – Areola Reconstruction

Like the initial operation of creating the “breast mound,” nipple-areolar reconstruction is entirely a matter of patient preference. Although many patients choose to have nipple-areolar reconstruction, some patients do not. This secondary operation is usually performed at least three months after the creation of the breast mound. The wait time is to allow for swelling to go down and for the reconstructed breast to “settle” into its shape and position on your chest.

The nipple is formed from small skin flaps in the reconstructed breast, which are brought together in the shape of a nipple. This area is then surrounded by a skin graft taken from the underarm or groin. Reconstructed nipples have little to no sensation when touched. In addition, the skin used to create the areola and nipple can be tattooed to match the color of your natural nipple. This procedure can be done after the reconstruction site has healed. This operation can be performed under local or general anesthesia.

Finally, sometimes we recommend altering the opposite natural breast. These procedures include uplifting the remaining side or enlargement ("augmentation") or reduction in size. For some patients these alternatives represent the most effective approach for achieving symmetry.

Preparing for Surgery

Once you have made your treatment decision, all necessary surgeries and appointments may be scheduled. This process involves many different people and departments and is a complex process.

Please allow the surgical scheduler 72 hours after your initial appointment to schedule all necessary appointments. They will contact you after this time with your surgery appointment dates and times.

Our surgical scheduler(s) will work with you to make this process as smooth, uncomplicated and quick as possible.

We recognize that waiting for surgery once the decision has been made can be very difficult.

This may be a good time to talk with a social worker or other mental health professional.

They can work with you to develop coping and stress reduction strategies. In addition, the Cancer Center has music, art and guided imagery. These complimentary therapies are free of charge and available to you.

You may want to read the ***Patient & Family Support Services Handbook***. This handbook is available in:

- The Patient Education Resource Center (PERC) Level B2/ground floor of the Cancer Center
- Clinic
- Breast Annex (Floor 1 between clinic check-in and waiting room)
- Practical Assistance Center (PAC), (Floor 1, Room 1139)

It is important to us that every patient receives the right support at the right time. We offer a wide range of support services and amenities to each cancer patient and family member at the University of Michigan Comprehensive Cancer Center. These services are described in detail in our handbook. Please take a minute to look at the support and educational opportunities available to you and your family.

It is recommended that you be in the best possible health before surgery. That means eating a well-balanced diet, getting regular exercise and enough rest. Making small changes to your daily routine can have a big effect on how well you recover after surgery. The Michigan Surgical & Health Optimization Program (MSHOP) can help you maintain or improve your health in these four areas: physical activity, lung health, nutrition and relaxation. Visit http://www.med.umich.edu/surgery/mshop/ for more information on how you can prepare for surgery.

Smoking can greatly impact your surgical risk and recovery. If you smoke, you must quit. We do not suggest that you simply stop smoking ("cold turkey") without help, as this can be harmful to your health, too. There are many stop smoking programs available to you. Talk to your health care team about quitting smoking. If you would like help to quit smoking or the use of other tobacco products, please call the MHealthy Tobacco Consultation Service at 734-998-6222 or visit www.mhealthy.umich.edu/tobacco.

Some women may receive chemotherapy before their surgery. Surgery will be scheduled approximately three weeks after the last chemotherapy treatment. We will repeat the breast imaging (mammogram and usually ultrasound, too) to evaluate response to the chemotherapy and appropriate surgical options. A complete blood count is drawn before surgery to confirm recovery of blood counts.

Notify your nurse if you take Coumadin or other blood thinners. You will need special instructions before surgery.

Medications and Supplements to Avoid

Many medications have an effect on bleeding or on the anesthesia that is given during surgery or procedures. **It is important that you review all medications and supplements with your doctor or nurse before any procedure is performed.** This includes all medications: prescription and those purchased over the counter as well as any herbal supplements (pills, teas, etc.) or vitamins.

This handbook contains a list of some of the common aspirin-containing medications (see Pages 74-77) or other medications known to affect bleeding. Many medications for colds, flu, headaches and other conditions have some amount of aspirin which affects bleeding. It is important to read the labels for ***acetylsalicylic acid***, which is the name for aspirin. New medications are available daily, so be sure to ask your doctor or pharmacist about medications and supplements not found on this list.

Medications that Affect Thromboembolic (Blood clotting) Risks

Some women who are scheduled to undergo breast cancer surgery have a history of taking hormonally-active medications to control osteoporosis (weakening of the bones), for birth control or for cancer prevention. These medications can increase the risk of developing dangerous blood clots in the legs or lungs. You need to stop taking these medications at least **two weeks before surgery**. Examples of these medications are:

- Oral contraceptive pills (be sure to arrange for an alternate form of contraception.)
- Hormone replacement therapy (which is generally discouraged on a permanent basis because of breast cancer risk).
- Tamoxifen
- Raloxifene

Medications that Thin the Blood

If you are on blood-thinning medications such as:

- Arixtra®
- Coumadin®
- Eliquis®
- Fragmin®
- Lovenox®
- Pradaxa®
- Savaysa®
- Xarelto®

please talk with your prescribing doctor for a management plan before and after surgery.

Medications that Affect Bleeding (Stop taking one (1) week before surgery)

If you are on anticoagulant or antiplatelet medications such as:

- Brilinta®
- Effient®
- Plavix®
- Ticlid®

please talk with your prescribing doctor for a management plan before and after surgery.

Medications containing aspirin (Do not take for one (1) week before surgery)

Alka-Seltzer	Anacin	Anodynos	Anexsia w/ Codeine
A.S.A.	Ascriptin	Axotal	Aspergum
B-A-C	Bayer	Bexophene	BC Power
Buffaprin	Bufferin	Cama Arthritis Strength	Buffinol
Congesprin	Cope	Damason-P	Darvon
Dasin	Dia-Gesic	Doxaphene	Dolorn #3 Tablets
Easprin	Ecotrin	Emagrin Forte	Empirin
Equagesic	Equazine M	Fiogesic	Excedrin
Fiorgen PF	Fioricel	4-way Cold Tablets	Fiorinal
Gemnisyn	Liquiprin	Magnaprin	Lortab ASA
Marnal	Measurin	Meprobamate	Midol
Momentum	Norgesic	Norwich	Orphengesic
Pabalate	P-A-C	Pepto Bismol	Percodan
Persistin	Presalin	Robaxisal	Roxiprin
Saleto	Salocol	Sine-Off	Soma compound
St. Joseph Aspirin	Supac	Synaigos-DC	Talwin
Trigesic	Vanquish	Zorprin	

Medications containing ibuprofen and Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) (Do not take for one (1) week before surgery)

Please note, this list is selective and does not include all medications that affect bleeding. Check with your doctor or nurse to see whether you are taking any medications that are not on this list.

Advil	Aleve	Anaprox	Ansaid
Artotec	Cataflam	Clinoril	Daypro
Disalcid	Feldene	Haltran	Ibuprofen
Lodine	Lodine XL	Medipren	Midol 200
Motrin	Naperelan	Nalfon	Nuprin
Orudis	Oruvail	Relafen	Rufen
Trilisate	Tolectin	Voltaren	Voltaren Xr
Naprosyn	Naproxen		

Herbs and supplements that may affect bleeding (Do not take for two-three (2-3) weeks before surgery)

Notify your doctor of any herb or supplement that you are taking before to surgery. This list only applies to herbs that are taken in the form of a supplement. You do not need to avoid these herbs in your diet or food. These herbs only affect bleeding in the amounts generally taken as supplements, not in the amounts normally found in food preparations. Many more herbs impact platelet function. This is not an exhaustive list. Please check with your doctor.

Bilberry fruit	Cayenne	Feverfew	Garlic
Ginger	Ginko biloba	Ginsing	Vitamin E

Herbs and supplement products that may affect anesthesia

(Do not take for two-three (2-3) weeks before surgery)

- St. John's Wort

Advance Directives

Advance Directives are legal documents that allow you to spell out your wishes regarding end-of-life care. Doctors recommend that all patients prepare these papers **before surgery**, regardless of their condition or the planned procedure.

A patient's Advance Directives, which include a living will and durable powers of attorney for health care (DPOA-HC) help their family, friends and health care professionals know their wishes in advance, in the event that they become unable to communicate those wishes.

Be sure to notify your health care team that you have completed an Advance Directive document.

If you do not have Advance Directives, consider preparing them. Ask your doctor or nurse for information, or stop by the Patient Education Resource Center (on Level B2/ground floor of the Cancer Center) for materials.

If you have an Advance Directive, a copy will be placed in your medical record. Please bring a copy to your preoperative evaluation or to the admitting lounge on the day of your surgery. Be sure to notify your health care team that you have completed an Advance Directive document.

Scheduling the Preoperative Appointment

The surgery scheduler will call you with your appointment times. Please allow at least 72 hours after your clinic visit to receive your appointment dates and times.

For your safety, your physical health and medical history must be evaluated before all surgical procedures.

Your Preoperative Appointment (before surgery)

To help you prepare for surgery and for recovery after surgery, you will be scheduled for a pre-operative appointment. A complete history and physical examination is required of all patients within 30 days of a surgical procedure. This appointment is scheduled at the **Surgical Preoperative Center at one of several locations.** Every patient is prepared for surgery differently depending on their medical history, type of surgery and postoperative needs. Therefore, some appointments may last one-two hours, while others may take four-six hours and will include several different appointments.
Plan to be at the preoperative center for at least two hours. To reduce stress, you may want to leave more time in your day for this appointment, just in case it's needed.

About your Preoperative Appointment

You will meet with a physician's assistant (PA) or a nurse practitioner (NP) and a nurse on the day of your presurgery appointment. Your surgeon does not normally see you the day of your preoperative appointment. If you have a question regarding your surgery that isn't answered at the preoperative appointment, please call his or her office.

At this visit you will:

- Have a complete history and physical examination including a review of all of your medications and use of supplemental herbs and vitamins.
- Sign your consent to have surgery. You will receive a copy of this consent to take home with you.
- Complete presurgical testing that may include an electrocardiogram (EKG), X-rays and laboratory tests. These tests will be performed that day.
- Receive education about your surgery, its risks, benefits, and anticipated recovery. The clinic nurse will also review any directions you may need with equipment. You'll also receive education or resources that can help you before, during and after your surgery.
- See the anesthesiologist in the anesthesia clinic. This additional appointment may not be scheduled for all patients. The medical team will decide if this is indicated at the time of your preoperative appointment.

Please bring the following to your presurgical appointment:

- Family member(s) or friend(s) who will be caring for you after surgery.
- A list of your current medications and supplements; dosages (amounts) and how often you take your medications. Please include all prescription meds, non-prescription (over-the-counter medications), vitamins, supplements, herbs and homeopathic remedies.
- If you have been on oral contraceptives, bring your alternative contraception plan.

- If you have a cardiac history (for example a past heart attack or history of angina or heart failure), please bring a letter for "Cardiac Clearance" from your cardiologist or internist. If your cardiac tests such as EKG, stress test, and/or echocardiograms were done at a non-University of Michigan Health System facility, please bring a copy of the most recent of these tests to the preoperative appointment also.

- If you are on any blood-thinning medications, you will need to bring a letter from the prescribing doctor approving discontinuation of this medication for five to seven days before surgery (these include medications containing aspirin, non-steroidal medications such as Motrin® and Aleve® and blood thinners such as Coumadin®, Plavix®or Lovenox®). If the prescribing doctor has given you an alternative anticoagulation plan, bring that with you, too. A complete list of these medications is available from the surgical oncology clinic staff. If you have questions about any medication, contact your prescribing doctor or pharmacist.

- Any recent (less than one year old) pulmonary tests that have been done at a non-University of Michigan Health System facility, such as a chest x-ray.

- The phone number where you (the patient) can be reached the day before surgery. We need to record this in case of emergency should we need to contact you.

Female patients: This physical examination does not include a pelvic examination or Pap smear. You will need to see your primary doctor when you are due for your annual gynecologic examination.

What if I need to Reschedule or Cancel my Appointment?

If you need to reschedule or cancel your Presurgery Appointment, please call the surgery scheduler at 734-615-0073 or 734-763-3470.

Blood Donation

Whenever surgery is performed, a certain amount of blood is lost. Patients undergoing surgery for breast cancer do not routinely require blood transfusions. In fact, it is rare and only in emergency situations that a patient would require a blood transfusion.

University Hospital has a blood bank, which works in partnership with the American Red Cross. Together these organizations provide patients with necessary blood and/or blood products. Your safety is our top priority. Careful testing is performed to ensure compatibility and to minimize the risk of disease transmission, such as hepatitis and AIDS.

Please discuss your concerns with your doctor. You may also contact the Blood Transfusion and Apheresis Center at the University of Michigan Health System at 734-936-6900.

Make sure that you have a driver who can drive you home after your surgery. A cab or either car service is not acceptable.

To make the transition easier when you return home from the hospital, try these tips:

General preparation tips

- Have many movies, books, magazines, puzzles, etc… on hand. You'll need to take it easy for a few days and these can help reduce boredom.
- A detachable showerhead can be very useful once you are allowed to shower again.
- Tops and pajamas that button up the front and are soft to the touch are a must.
- A shower chair or bath tub bench may be needed. Ask friends if they have one as this may not be covered under your insurance.
- Lip balm
- Tissues
- Cotton swabs
- Hydrogen peroxide
- Alcohol swabs
- Personal wipes (to freshen up before you can take a shower).
- A watch or timer to remind you to stand and move around.
- A phone or e-mail list for updating family and friends on your progress.
- Food items that help relieve constipation.
- Bottled water
- Bendable straws (makes drinking liquids easier when reclined).
- Milk of Magnesia® or Miralax® to help relieve constipation.

- Stool softener such as Colace®, Senokot®, Phillips®, etc.
- Ice packs, frozen peas or corn to help with swelling.
- Nutritional oral supplements such as Boost® or Ensure® as needed.
- An extra pillow or two to hug when you laugh, cough or sneeze.
- Purchase or borrow grab bars to position along the sides of the toilet.
- Have enough easy-to-prepare food on hand for the first two or three weeks after surgery.

Depending on the extent of your surgery, you may go home with drains. This section gives some practical tips for securing drains so that you can shower and have more mobility. There's helpful information on the web in the way of chats and forums on securing drains, and there are many products available to buy to secure drains. Here are some easy and inexpensive ways to secure your drains:

- Lanyard, grosgrain ribbon or shoelaces to make a necklace to hold your drainage tubes when you shower (your nurse will teach you how to do this).
- Large diaper or safety pins (large enough to go around the drainage tubes to pin them to your lanyard or clothing.
- Apron with two pockets (to hold your drainage tubes), which can be worn under your clothes
- Passport holders (Lewis & Clark brand), which can be worn under your clothes and drains can be put into the passport holder.

Three weeks before surgery

- Arrange for pet or child care, if needed.
- Begin shopping for supplies.
- Eat a well-balanced diet –full of whole grains, lean protein, and fruits and vegetables to promote healing.

Two weeks before surgery

- Have prescriptions filled and buy other medications, including over-the-counter (OTC) items.
- Purchase an oral thermometer, if you don't have one.
- Start the deep breathing exercises on Page 99 to help relieve anxiety and stress. You may also want to try meditation.
- Do the posture mirror test and practice having erect posture.
- Start doing the posture and shoulder mobility exercises every day so that they become part of your daily routine.

One week before surgery

- Clean your house or have it cleaned.
- Pay your bills so you don't have to worry about it during your recovery.
- Make a list of the jobs or duties you normally do so that your spouse, caretaker or friend can help. This could be things like pick-up and drop-off instructions for kids, pet feeding, plant watering, etc.
- If you can, cook your own meals and freeze them ahead of time.

Two-three days before surgery

- If your caretaker will not be preparing meals, shop for easily prepared recovery foods like low-sodium soups, microwavable dinners. You may want to purchase meal replacement shakes and bars.
- If you will not have a caretaker, place your non-perishable food items at hip level, on the counter, along with a can opener and other items you will need, such as pots, oven mitts, silverware, plastic cups, bottled water, etc.
- Take out the trash, recyclables, etc.

- If you can't have either your children or pets cared for, tend to their needs beforehand. For example, put cans of food on the counter with the can opener so you don't have to reach for it. If you have cats, change the litter box beforehand or buy several disposable litter boxes.
- Have all of your laundry taken care of before your surgery. Have clean towels, washcloths, several changes of comfortable clothes, and several pairs of socks easily available and at hip level.
- Place all of your medications either in a weekly pill case or in labeled containers, sorting them by day and time.
- Set up a recovery area with all of your medications, entertainment items, phone, alarm clock (if you need to be reminded of medication times), bottled water, a few packages of crackers, tissues, and anything else you think you will need.
- Have a bedside lamp that has good lighting for reading medication bottles and books and magazines.
- If you have a comfortable recliner, you may want to make this your recovery bed. You may find it is easier to get out of the recliner compared to your bed, so try both out beforehand.
- Have a bucket pail or large coffee can with a lid for the ride home and at your bedside. If you become nauseated, you will have a catch pail and a means to seal it so you don't have to look at it or smell it.
- Place your ice packs, bags of frozen peas or corn in the freezer. If you have a vertical freezer, place the packs and bags at hip level.
- Have your heating pads, hot water bottles and instant heat packs handy.
- Prepare a "kit" for your car for the ride home. This kit could include some low sodium crackers to alleviate nausea; bottles of water or ginger ale, a large coffee can with lid, sunglasses, possibly your pain medications, pillows to prop up around you and a blanket or throw to keep you warm.

One day before surgery

- Place personal care items and toiletries that you will need at hip level so that you do not have to reach above your head or bend over.
- If you will not have a caretaker to prepare food for you, make sure that all of your non-perishable food items, can openers, bowls, plates, silverware and glasses or bottles of water are at hip level. A good place is the kitchen counter or table. You should not bend over or reach over your head during your recovery.
- Wash and dry your hair the night before surgery — it may be some time before you get to do that again.
- Last but not least: relax. Excessive stress can hinder your recovery. It is important to try and not let anxiety get the best of you. Practice your breathing exercises and try to get a good night's sleep.

The Day of Surgery

The schedule for your day of surgery will depend on the type of surgery you are having.

Will I Be Hospitalized?

Most breast cancer surgeries are done on an outpatient basis and do not require that you stay in the hospital. Lumpectomy surgery and sentinel lymph node biopsy surgery are typically performed on an outpatient basis. Most axillary lymph node dissection cases and mastectomy surgeries that are performed without reconstruction will also be performed as outpatient procedures. Patients undergoing outpatient surgery are monitored in the post-operative recovery area and will be discharged to home when they are comfortable, tolerating light foods and urinating.

Some patients require an overnight stay in the University of Michigan Health System Observation Unit, located near the operating room suite. Some axillary lymph node dissection and mastectomy procedures (especially if bilateral/ both sides) will be arranged with an overnight observation unit hospital stay. Your surgery and scheduling team will discuss with you whether or not an observation unit or inpatient hospital stay is necessary.

Patients undergoing reconstruction surgery will usually require a hospital stay lasting from overnight to several days, depending on the type of reconstruction.

Patient safety is the highest priority. If individual medical issues require hospitalization, then you will be admitted.

Patients Having a Mastectomy and/or Axillary Lymph Node Dissection (ALND)

Patients undergoing mastectomy surgery and/or patients undergoing axillary lymph node dissection will require one or two drainage tubes left in place under the surgical scars. You will get instructions at your preoperative appointment on how to care for these drains at home. In addition, some patients are seen by a visiting home nurse. Instructions will be reviewed before you are discharged from the recovery area.

Patients Having a Sentinel Lymph Node Mapping Procedure

Patients undergoing a sentinel lymph node biopsy have a complex schedule involving several appointments prior to arrival at the operating room.

It is important to remember that the day before your surgery (or occasionally the morning of your surgery) you will go directly to the Nuclear Medicine Radiology Department on Level B1 of University Hospital. They will perform the lymphatic mapping there. They will give you the lymphatic mapping films to take with you to your surgery. Be sure to put them with your things you are taking to your surgery.

Patients Having an Outpatient Procedure

If you are scheduled to have surgery as an outpatient, you will have surgery and then usually be released to home on the same day.
Trained medical personnel will monitor you as the effects of anesthesia wear off. You will be released when your condition is stable and your recovery is proceeding well. If your condition requires monitoring, you will be admitted. We suggest that you pack an overnight bag and store it in your car just in case.

You must have someone who will be able to drive you home. A taxi or car service is not an appropriate driver. Please discuss any transportation problems with your doctor or nurse before the day of the procedure.

You will not be released from the outpatient surgery area unless you have a driver present.

When you are released, you will be given:

- Detailed instructions on how to care for yourself at home.
- Medication prescriptions.
- A telephone number to call if you have questions or concerns.

Dressings and Surgical Drains

Dressings

You will have a dressing placed over the surgical site in the operating room. This original dressing should remain in place for two days (48 hours) or as directed by your surgeon.

The type of dressing used will vary by the type of surgery, the location of the incision and the surgeon who performed the surgery.

The following section discusses general wound and dressing care. Your surgical team will give you more information on how to care for your specific incision closure and its wound care requirements.

Incision Closure: Most incisions will be closed with absorbable suture materials that are buried beneath the skin. Most patients will not require any removal of skin stitches after their surgery. The surgeon will place tiny metallic clips in the lumpectomy cavity. These clips are important for planning subsequent radiation treatments and for long-term mammography monitoring. These clips do not interfere with metal detectors in airport security checkpoints. The actual skin incision may be closed with a special skin adhesive, steri-strips, skin stitches or some other technique. This is determined by your surgical team based upon the nature of your surgery and your surgeon's preferences.

Removing the dressing over a surgical site and looking at the incision for the first time can be stressful. Share your concerns with your surgeon or nurse, and make them aware of your feelings. If you are admitted to the hospital, the initial dressing will be removed before you leave and a nurse will assist you. If you are at home, it may be helpful to have a family member or close friend with you to help with the first dressing change.

We do not recommend the use of special lotions, antibiotic ointments or creams on the incision area. It's best to let it heal on its own.

Do not use any antiperspirants or shave under your arm if there is an incision there until it is well healed (approximately seven days). Use caution when shaving under your arm as you may have numbness in the underarm area and accidentally cut yourself. You may want to use an electric razor. You may use moisturizing or softening agents after your incision is healed unless your surgeon has recommended otherwise.

You may be discharged with a "breast binder" (looks like a tube top). Your surgical team will advise you regarding how long to keep the binder in place. Many patients will wear this binder for one to two weeks. The binder provides support to the breast and minimizes any postoperative bleeding. It's okay to sleep with this on. Most patients will be advised to wear some type of comfortable and snugly-fitting support bra around the clock if they decide to remove the binder within the two weeks after the surgical procedure.

Fluid collections and scar tissue that feels like a hard lump are normal under any incision. It will usually go away on its own in one to two months. Please notify your doctor/nurse if the fluid collection continues to increase in size,

becomes painful over the entire breast or has a reddened area greater than one inch in size around the incision area.

Some fluid collections become bulky and uncomfortable even though they are not infected; these are called “seroma” collections. Seroma collections can accumulate in lumpectomy sites, axillary surgery sites (axillary lymph node dissections or sentinel lymph node biopsies) or at mastectomy incisions. If the seroma is bulky and uncomfortable, the fluid can be taken out with a syringe (‘aspirated’) in the clinic. Fluid collections that appear to be associated with infection (wound infection, mastitis or wound abscess) require antibiotics and sometime drainage. Your surgical team will guide you regarding the appropriate management options for a seroma or wound infection.

Surgical Drains

A surgical drain is a soft flexible plastic tube that is connected to a plastic collection bulb. Drains are used to prevent fluid from collecting at the surgery site while your body is healing. They usually remain in place for one-three weeks postoperatively, or until the drainage decreases to a small amount (30 milliliters or less) for two consecutive days.

While your drain is in place:

1. Do not drive until after your drain is removed (or as instructed by your surgeon).

2. Shower every day.

3. Keep the drain-collecting bulb anchored to your clothing to prevent it from accidentally pulling out. You can use a lanyard, shoelace, or

grosgrain ribbon to hold the drain-collecting bulbs in place. Using a diaper pin or large safety pin, pin around the tube and then to your clothing. For more information on securing drains, see Page 84.

Caring for your Drains

The drain tube removes fluid from your wound. This helps prevent swelling and reduce the risk of infection. The tube is held in place by a few stitches. Your health care team will remove the drain when you no longer need it. Your nurse will show you how to empty the drain and record how much how much fluid came out of the wound.

Here are the steps for "stripping" the tube (See Figure 14)

1. Hold the tubing with one hand where it leaves the skin. This keeps it from pulling on the skin.
2. With an alcohol wipe covering the thumb and first finger of your other hand; pinch the upper end of the tubing.
3. Slowly and firmly pull your thumb and first finger down the tubing. The alcohol wipe helps your fingers slide. The motion is similar to curling ribbon for a package. If the pulling hurts or it feels like the tube is coming out of your skin, stop. Begin again more gently.
4. Empty your drain two to three times a day or as instructed by your doctor. Empty it more often if the drain is full.

Call your nurse when the daily drainage is less than 30 milliliters (one ounce) each day for two days in a row.

Figure 14:
Drain Stripping
Procedure

Follow these steps to empty the drainage collector:

1. Wash your hands. Strip the tube. Lift the cap on the drain opening.
2. Drain the fluid into a measuring cup. Wipe the drain opening clean.
3. Squeeze the bulb with your hand until it is collapsed. Replace the cap while the bulb is collapsed. This recreates a vacuum that helps drain fluid from the surgical site. Wash your hands again.
4. Record the amount of fluid each time you empty the drain. If you have more than one drain in each incision area, record them each separately.
5. Record the amount drained on your Surgery Drain Record Sheet found in the pocket of your handbook.

Clean the drain insertion site every day using this procedure:

1. Wash your hands.
2. Remove the old drain-sponge dressing.
3. Prepare a small cup of the cleaning solution: ½ cup tap water and ½ cup hydrogen peroxide.
4. Dip a clean cotton-tipped swab in the solution and clean around the drain area. Use a new cotton swab every time you clean around the incision.
5. Apply a clean drain-sponge around the drain site and tape as needed.
6. Check the skin around the insertion site of the drain (and surgical incision) looking for signs of infection daily. Slight redness around the drain insertion site is not unusual. However, a large area of redness or tenderness around the drain insertion site may indicate a problem.

Surgery Drain Record Sheet

Record your findings on the Drain Record Sheet found in pocket of this handbook. Bring it with you to your appointments.

	Drain #1	Drain #2		Drain #1	Drain #2
Date: ______	__________	__________	Date: ______	__________	__________
Morning	__________	__________	Morning	__________	__________
Mid-Day	__________	__________	Mid-Day	__________	__________
Evening	__________	__________	Evening	__________	__________
	Total: ______	Total: ______		Total: ______	Total: ______
Date: ______	__________	__________	Date: ______	__________	__________
Morning	__________	__________	Morning	__________	__________
Mid-Day	__________	__________	Mid-Day	__________	__________
Evening	__________	__________	Evening	__________	__________
	Total: ______	Total: ______		Total: ______	Total: ______
Date: ______	__________	__________	Date: ______	__________	__________
Morning	__________	__________	Morning	__________	__________
Mid-Day	__________	__________	Mid-Day	__________	__________
Evening	__________	__________	Evening	__________	__________
	Total: ______	Total: ______		Total: ______	Total: ______
Date: ______	__________	__________	Date: ______	__________	__________
Morning	__________	__________	Morning	__________	__________
Mid-Day	__________	__________	Mid-Day	__________	__________
Evening	__________	__________	Evening	__________	__________
	Total: ______	Total: ______		Total: ______	Total: ______

Drain Removal:

Your drain will be removed in the surgery clinic. Most patients experience pain when the drains are removed. You may want to take an over-the-counter pain medication such as ibuprofen, acetaminophen or something stronger such as narcotic pain medication that you used after surgery. Discuss this with your doctor or nurse. Once it has been removed, you may notice a small collection of fluid at the site. A small collection of fluid (about the size of a walnut or quarter) is normal. It will not harm you and will reabsorb into the tissue within a month or two. If the fluid becomes larger than this (about the size of an orange), you should call your surgery clinic at the phone numbers listed in the front of the handbook.

Once the drain has been removed, you should follow these guidelines:

- Keep the site dry with a gauze dressing over it for the first 48 hours.
- Stop using the hydrogen peroxide; use only soap and water for cleaning.
- Some leaking at the drain site is normal. If the site continues to leak after 3 days, call the surgery clinic. A continuously leaking site can lead to infection.

Notify your surgery clinic of any large fluid collections.

Exercises After Breast Surgery

The information in this section describes how to have good posture and how to perform deep breathing, posture, arm and shoulder exercises that have been approved by your doctor. The exercises are to help improve your posture and help you increase the range of motion and strength of your shoulder after surgery. Your doctor can answer more specific questions such as, "When can I expect full range of motion?" "How much weight can I lift while exercising with my affected arm?"

When should I start exercising?

If you had surgery without reconstruction and with no drains, you may begin doing the exercises in this handbook on the first day after your surgery, as long as your surgeon tells you it is safe.

If you had breast surgery with reconstruction and with drains, talk with a member of your plastic surgery team about when it's safe to do each of these exercises. A member of your plastic surgery team will also tell you how much to limit your range of motion after surgery.

Shoulder exercises requiring above-the-shoulder movement should be started **only** after the drains are removed. These exercises are noted as **"after drains are removed"** exercises.

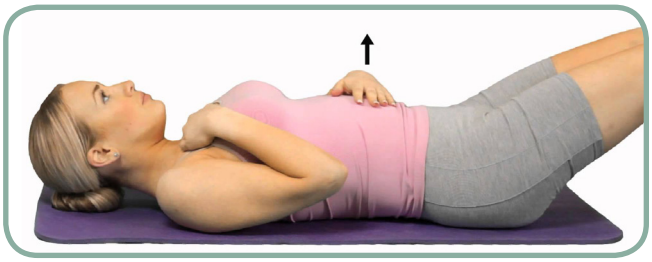
We recommend trying all of the exercises in this handbook before your surgery. This will help you to feel more confident when you do them after surgery.

Deep Breathing (Belly Breathing)

The first exercise you should begin doing after your surgery is Deep Breathing (Belly Breathing). This simple, but effective, exercise is great for stress reduction, pain control and improved lymph flow.

Slow, deep, controlled breathing and movement can help you relax and relieve stress as well as ease discomfort, pain and or tightness around your incision. You can do these exercises before surgery to help with anxiety and to reduce stress.

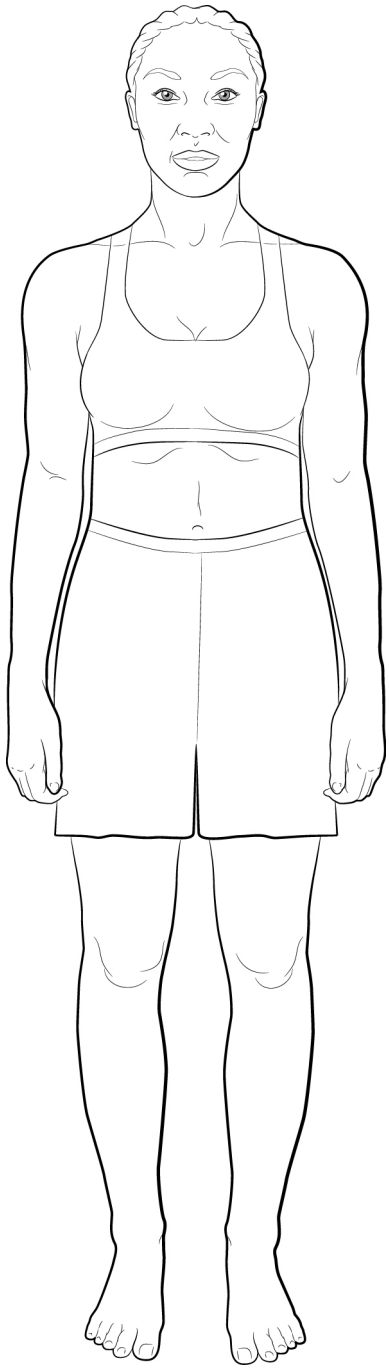
To perform deep breathing exercises:



- **Be comfortable.** Lie down, stand or sit upright as you practice this breath work.
- **Take a slow, deep breath in through your nose.** Let the air completely fill your lungs. Resist the urge to exhale quickly before you've fully inhaled.
- **Let your belly expand.** As you draw in a deep breath, let your belly expand by an inch or two. Place a hand on your belly and the other on your chest as you inhale. You can tell you are breathing deeply and properly if the hand on your belly rises out further than the one on your chest as you inhale.
- **Exhale fully.** Let out your breath through either your mouth or your nose. As you breathe out, pull in your belly toward your spine while exhaling all of the breath out of your lungs. After you exhale, take in another deep breath through your nose and continue breathing deeply. Try to exhale for twice as long as you inhale, and fully expel the air.

Posture

Your posture is the way you carry your head, neck and shoulders. Good posture is important for full shoulder movement, more energy and less stress and fatigue. If you can maintain correct posture after surgery, you will increase your overall comfort. We recommend taking a look at your posture in a mirror from the front and the side to see that your back is erect as possible, shoulders are level and that your chin is tucked.



The Mirror Test

(Front view) Stand facing a full length mirror and check to see whether:

1. Your shoulders are level.
2. Your head is straight.
3. The spaces between your arms and sides seem equal.
4. Your hips are level, your kneecaps face straight ahead.
5. Your ankles are straight.

(Side View) This is much easier to do with the help of another, or by having another person take a photo of you.

Check for the following:

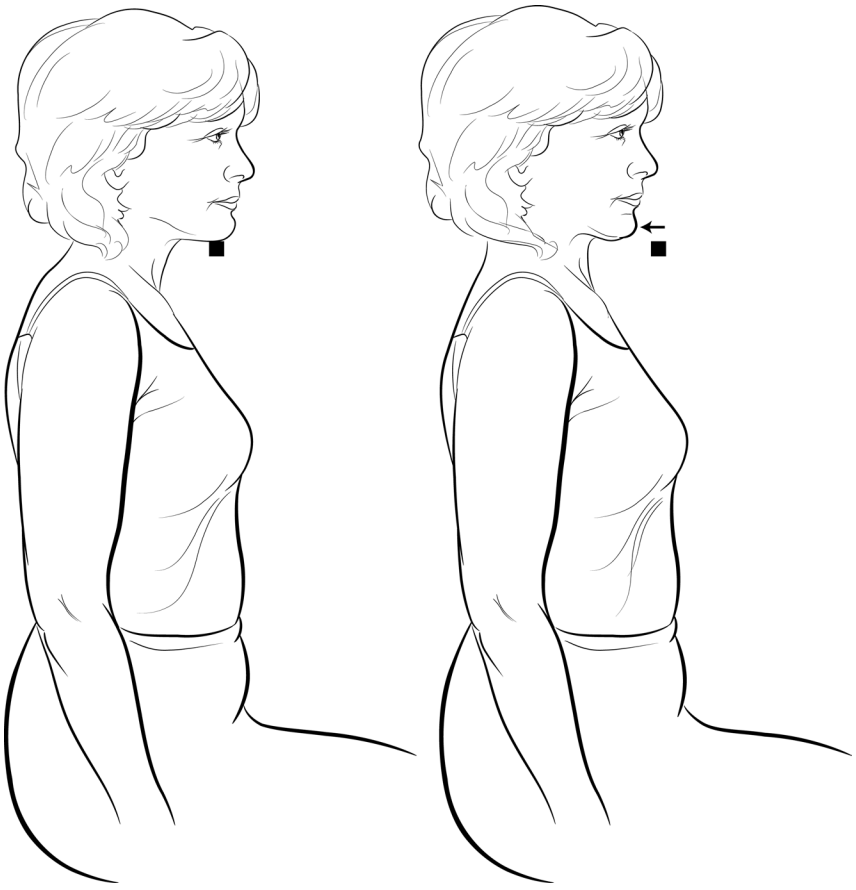
1. Head is erect, not slumping forward or backwards.
2. Chin is parallel to the floor, not tilting up or down.
3. Shoulders are in line with ears, not drooping forward or pulled back.
4. Stomach is flat.
5. Knees are straight.
6. Lower back has a slightly forward curve (not too flat or not curved too much forward, creating a hollow back).

Posture Exercises

Chin Tuck: Sitting in a relaxed position with your back erect, move your head backwards as far as possible, tucking in your chin. Make a double chin as you continue looking straight ahead. Hold for five seconds. Relax. Repeat.

Number of repetitions: 10 times

How often: Two times a day

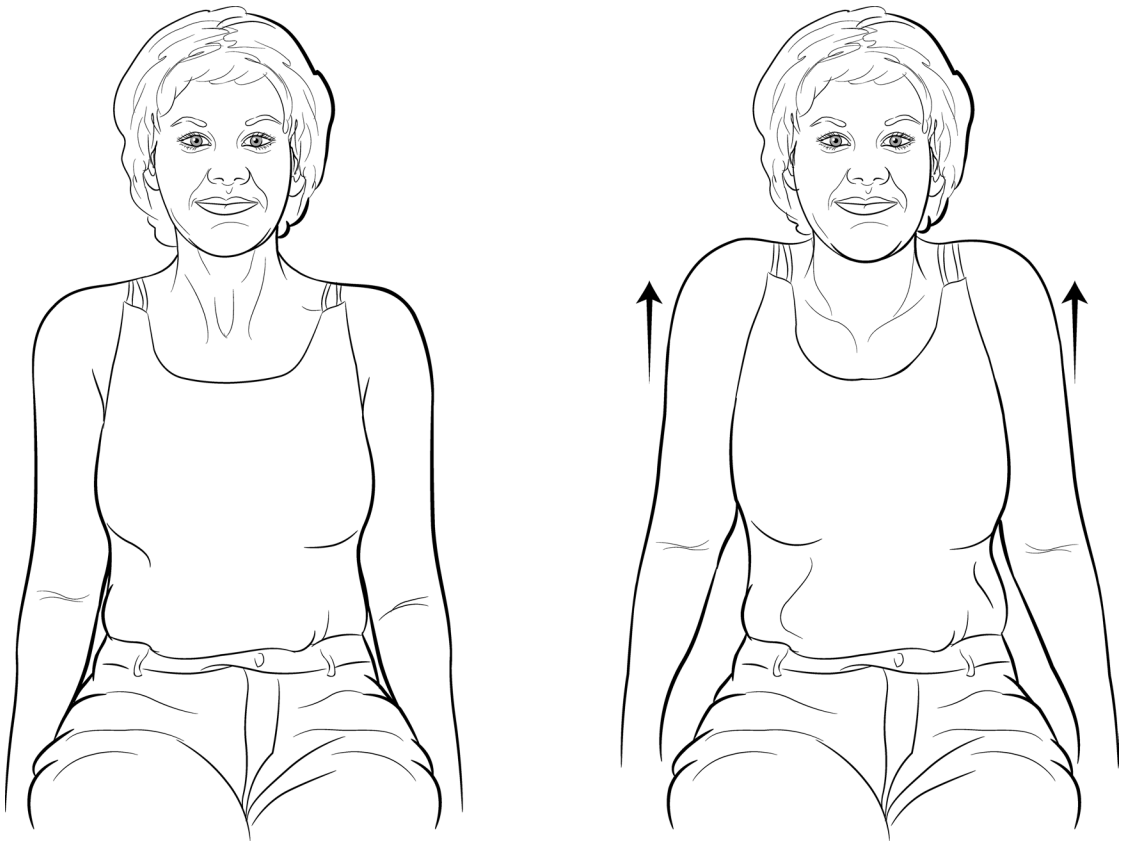


Arm and Shoulder Exercises

Shoulder Shrug: Sit or stand comfortably with shoulders relaxed. If possible, look in a mirror to make sure your shoulders are level. Shrug your shoulders up and toward your ears. Hold for five seconds. Relax. Repeat.

Number of repetitions: 10 times

How often: Two times a day



Shoulder Roll: Sit or stand comfortably with shoulders relaxed. If possible, look in a mirror to make sure your collarbone is moving evenly. Move your shoulders up, back and down in a circular motion. Relax. Repeat.

Number of repetitions: 10 times

How often: Two times a day

W Exercise: Do this exercise standing or sitting. You can also do this exercise with your back against the wall to help maintain the position correctly.

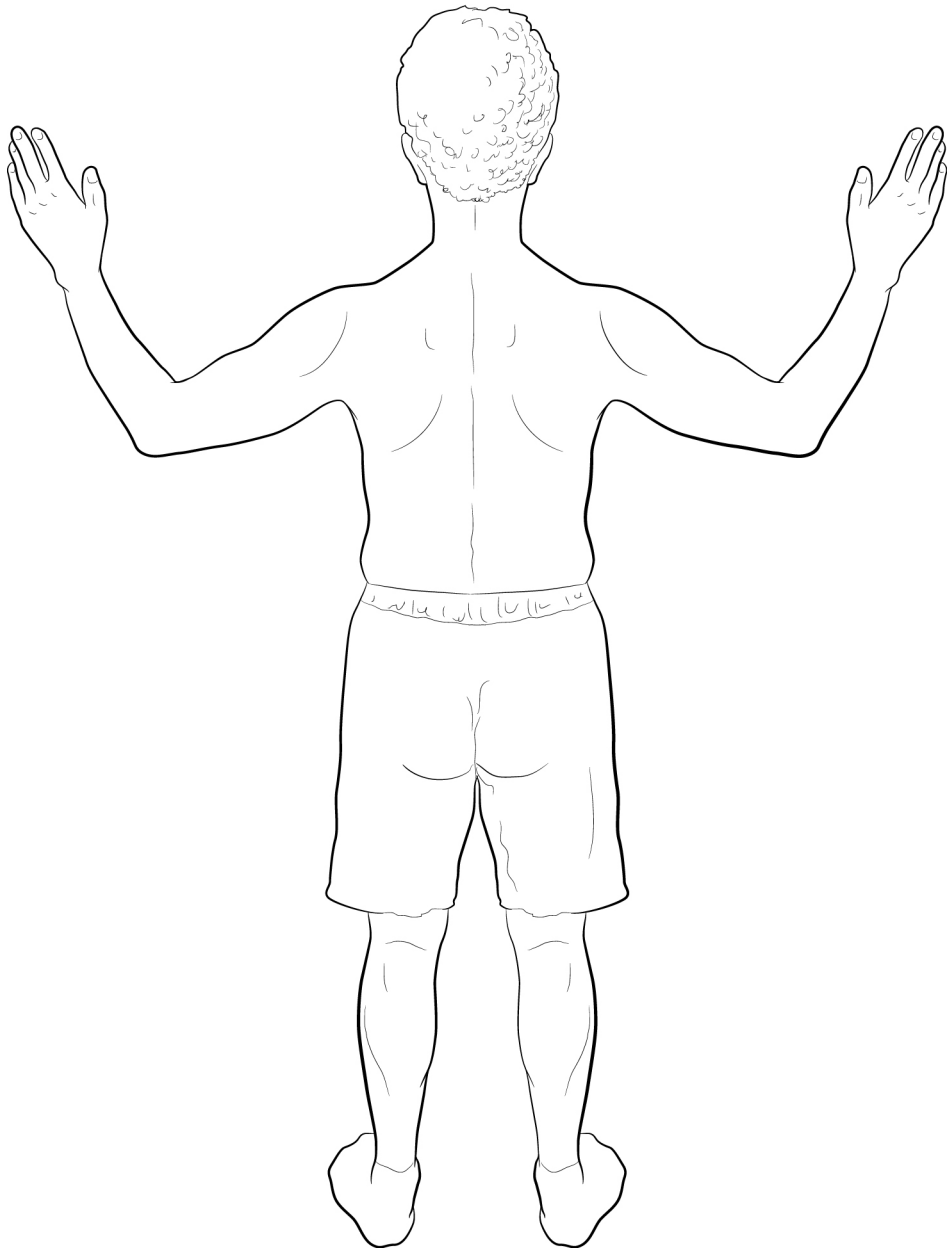
Form a "W" with your arms out to your side and palms facing forward. Try to bring your hands up so they are even with your face. If you cannot raise your arms that high, bring them to your most comfortable, highest position.

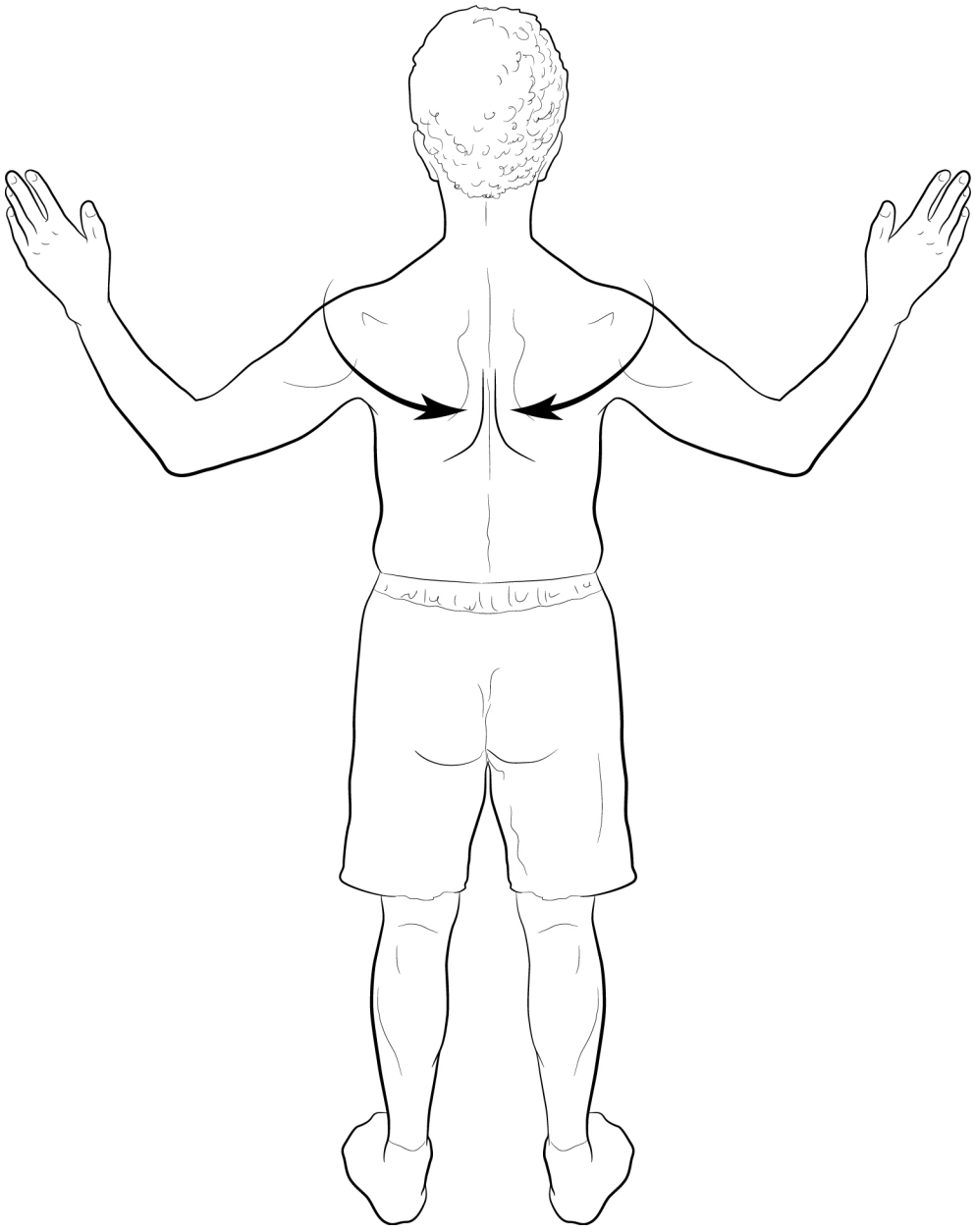
Pinch your shoulder blades together and downward, as if you're squeezing a pencil between your shoulder blades.

If you feel discomfort in the area of your incision, stop the exercise and do some deep breathing exercises. If the discomfort passes, try to bring your arms back a little further. If the discomfort does not pass, do not reach any further. Hold the furthest position you can squeeze your shoulder blades together for five seconds.

Number of repetitions: 10 times

How often: One time a day





Shoulder Mobility

Using your arm in everyday activities, such letting your arms swing as you walk is an excellent means of regaining the shoulder mobility that you had before surgery. The following exercises will help you regain full shoulder mobility.

Perform these exercises slowly. Continue these exercises until full arm mobility is achieved.

Shoulder Mobility Exercises

Arm Circles (Backward/Forward): Do this exercise with each arm separately, one arm at a time. Do not do this exercise with both arms at the same time. This will put too much pressure on your chest. **Check with your surgeon when to begin this exercise.**

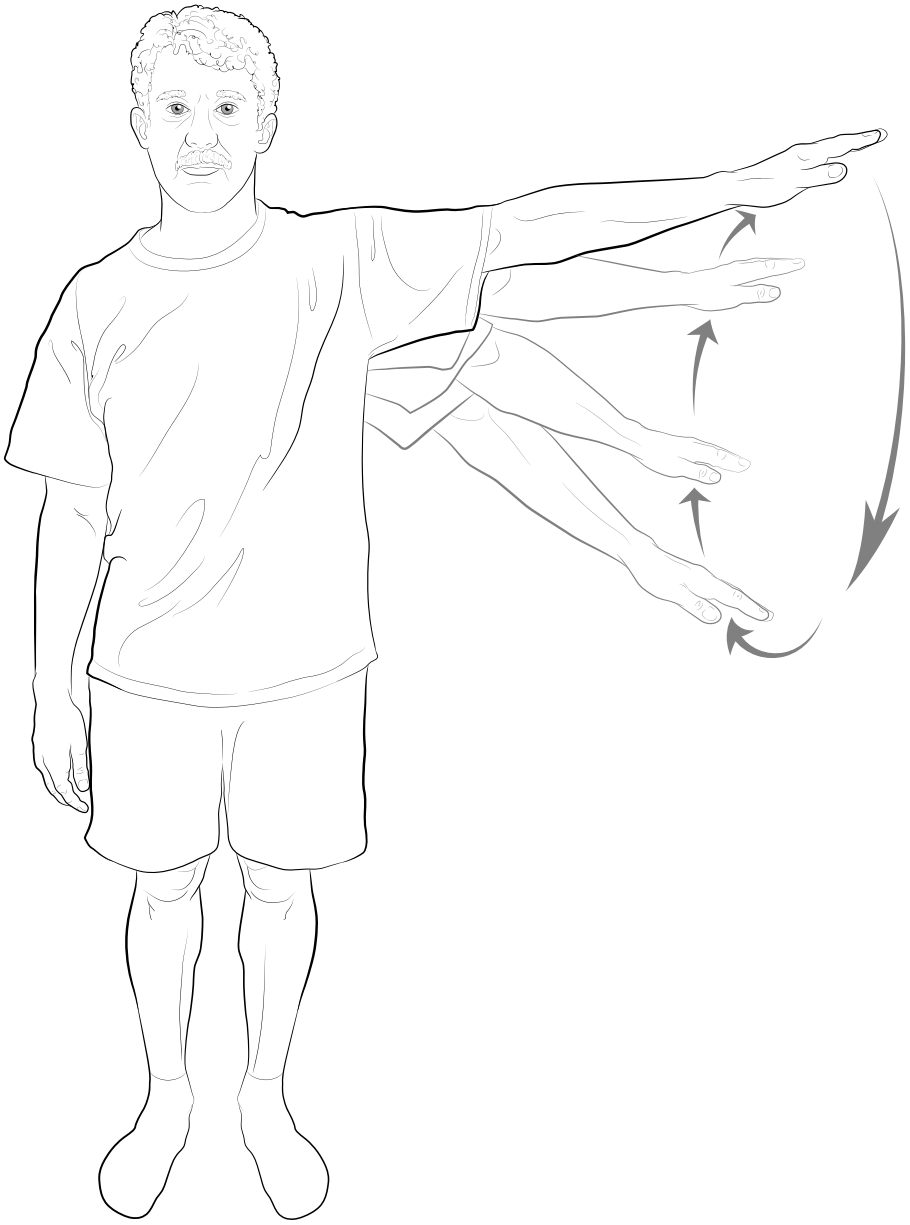
Stand with your feet slightly apart. Raise your affected arm out to the side as high as you can. Begin making slow, backward circles in the air with your arm. Be sure the movement is occurring at the shoulder and not at the elbow. Keep your elbow straight.

Gradually increase the size of your circles until they are as large as you can comfortably make them. Try to complete at least 10 full backward circles. If you feel any aching or if your arm is tired, take a break and rest your arm at your side. Continue doing the exercise when you feel better.

Rest your arm before the second part of the arm circle exercise.

To do the second part of the exercise, raise your affected arm out to the side as high as you can. Begin making slow, forward circles.

Gradually increase the size of your circles until they are as large as you can comfortably make them. Try to complete at least 10 full forward circles. If you feel any aching or if your arm is tired, take a break and rest your arm at your side. Continue doing the exercise when you feel better.



Arm Circles Backward

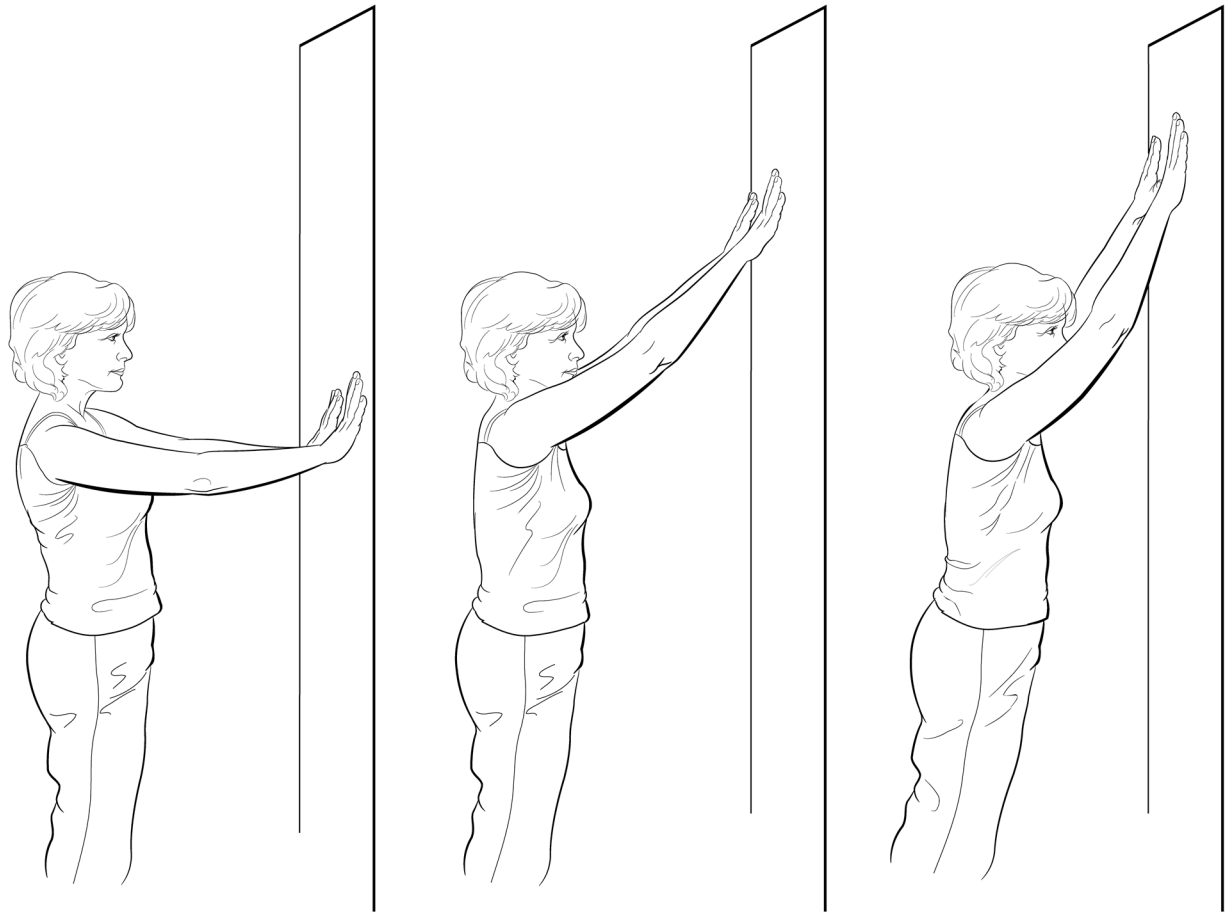
Arm Circles Forward

Forward Wall Slide (check with your surgeon when to start): You will need two pieces of tape for this exercise and soft cloth to help you slide your hands up the wall.

- Start out about six inches from the wall. Reach as high as you can with your unaffected arm and mark the spot with a piece of tape. This will be your goal for your affected arm. If you had surgery on both breasts, set your goal using the arm that moves most freely and comfortably.
- Place both hands on the wall with soft cloth underneath your hands, at a level that is comfortable. Slide your hands up the wall as far as possible, keeping them even with each other. Try not to look up at your hands, but continue to look straight ahead and keep your back straight.
- When you get to the point where you feel a good stretch (but not pain), do the deep breathing exercise that we discussed earlier. Each time you raise your hands try to slide up a little higher.
- Then slide your fingers down the wall to the starting position.
- Repeat.
- Each day mark with a piece of tape the highest point you reached with your affected arm. This will help you see your improvement.

Number of repetitions: 10 times

How often: One time a day



Side Shoulder Wall Slides (check with your surgeon when to start): You will need two pieces of tape for this exercise and soft cloth to help you slide your hands up the wall.

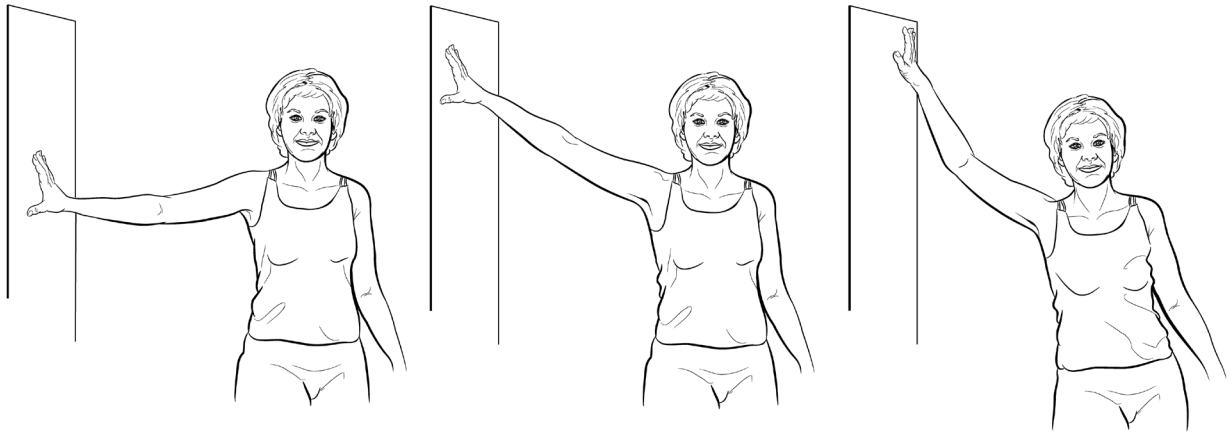
Start out about 12 inches from the wall. Reach as high as you can with your unaffected arm and mark the spot with a piece of tape. This will be your goal for your affected arm. If you had surgery on both breasts, set your goal using the arm that moves most freely and comfortably.

- Turn your body so that your affected side is now facing the wall. Place your hand with the soft cloth underneath on the wall beginning at shoulder level. Slide your fingers up the wall as far as possible. When you get to the point where you feel a good stretch (but not pain), do the deep breathing exercise that we discussed earlier.
- Each time you raise your hand, try to slide a little higher.
- Return to starting position by sliding your fingers back down the wall.
- Each day mark with a piece a tape the highest point you reached with your affected arm. This will help you see your improvement.

You should not feel any pain while doing this exercise. It is normal to feel some tightness or pulling across the side of your chest. By focusing on your normal breathing, your tightness should decrease. Do not hold your breath.

Number of repetitions: 10 times

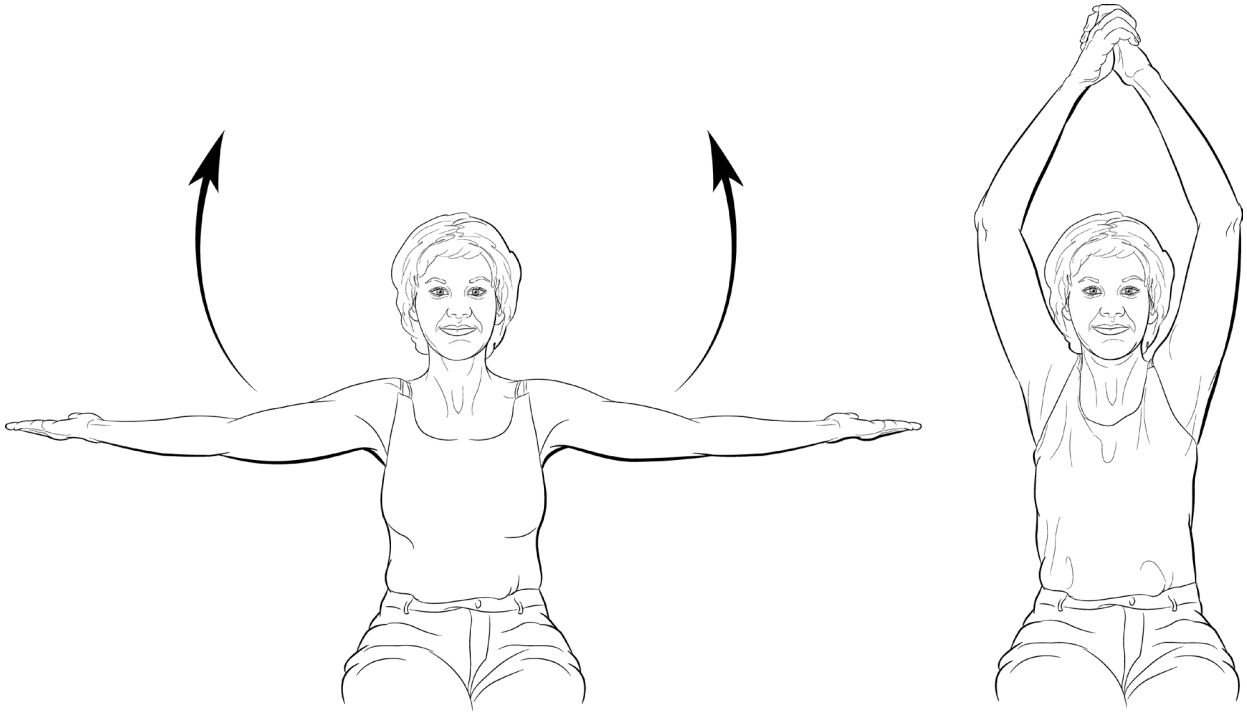
How often: One time a day



Victory Arms (check with your surgeon when to start): Sit or stand comfortably with shoulders relaxed. If possible, look in a mirror to make sure your shoulders are moving evenly. Move your arms outward away from your sides, raise your arms upward (keep your elbows straight), clasp hands overhead; hold for five seconds, return to sides. Relax. Repeat.

Number of repetitions: 10 times

How often: Two times a day



Beginning Other Activities

As you become more comfortable with your improved mobility, you may want to return gradually to physical activity or get involved in a structured exercise program. Participation in water exercise classes or dance classes with emphasis on gentle sustained upper extremity movement may be useful. A recommended program would meet two to three times a week and consist of a warm-up with slow stretching exercises, followed by the primary activity, and ending with a cool-down session. Check with your doctor for specific details about when you may begin these activities.

Important Tips to Remember

Activity

- Maintain good posture habits throughout the day.
- Perform your exercises slowly, twice daily.
- Follow your doctor's restrictions for lifting, pushing, and pulling. Be careful getting out of bed. Side rails should not be used by your affected arm(s) to get out of bed.
- Do use your arm in daily activities.

Swelling

If you notice slight swelling or tightness in your arm, see the care instructions under lymphedema on Pages 123-124.

- Tell your doctor if you have continued swelling.
- Tell them if you had your lymph nodes removed.
- Swelling can be caused by eating salty foods and can occur on hot days.

Infection

When your lymph nodes are removed, you will need to watch for the following signs of infection:

- Redness
- Swelling
- Warmth/heat
- Tenderness in your arm

Call your doctor if you experience any of these symptoms.

The Lymphatic System and Lymphedema

The lymphatic system is a one-way transport system. It moves fluid from the tissue space. The lymphatic system transports proteins, cellular waste, bacteria and viruses. It also sends out lymphocytes (a type of white blood cell) and other cells, which help the body fight infection and disease.

As we discussed earlier in the handbook, if you had a lymph node needle biopsy, sentinel lymph node sampling, axillary lymph node dissection, surgery, radiation or your lymph nodes have been disrupted or removed- and in some cases because of the cancer itself- you are at greater risk for developing a type of swelling in the affected body part called lymphedema.

What is Lymphedema?

Lymphedema is the buildup of the high-protein lymph fluid in the tissues just under the skin. The lymph fluid buildup causes swelling in the area of the body where the circulation of the fluid is changed such as in the breast, arm or leg. Lymphedema is a common complication of cancer and of treatment for cancer and can cause long term issues (physical, social and psychological) for patients.

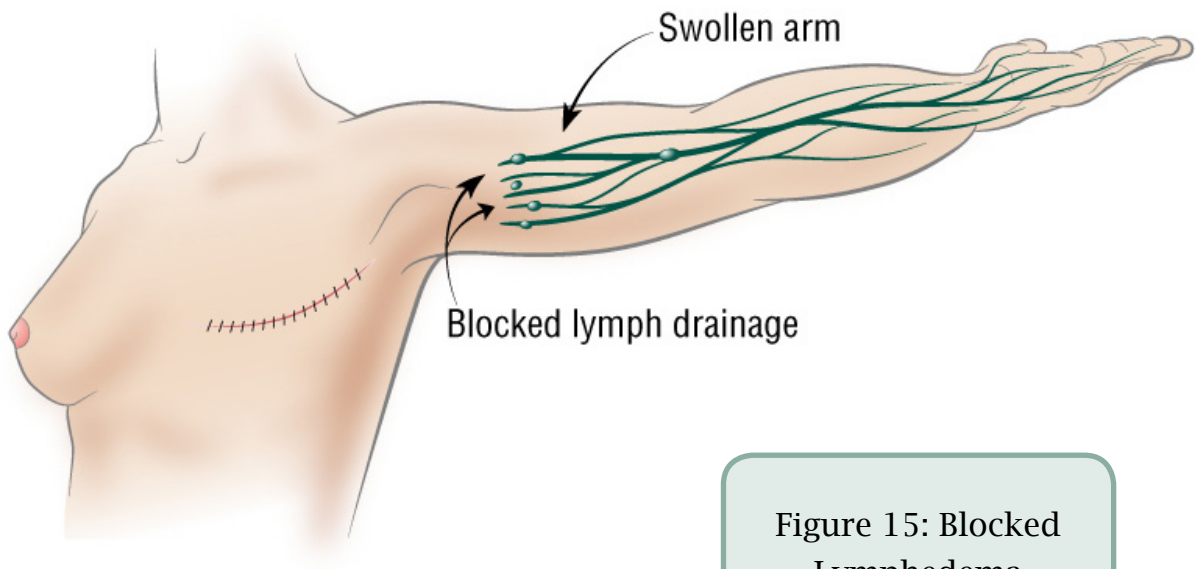


Figure 15: Blocked Lymphedema

You are at greater risk for lymphedema if:

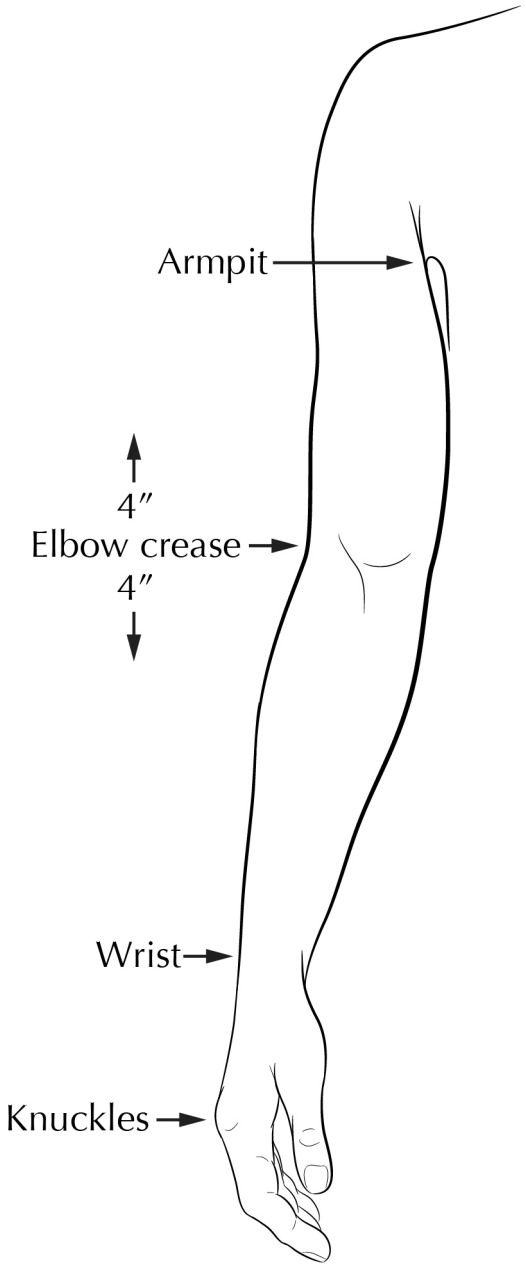
- The cancer has spread to lymph nodes in neck, chest, underarm, abdomen or pelvis since these lymph nodes are part of the lymphatic drainage system.
- There was surgical removal of lymph nodes in the underarm. The higher the number of lymph nodes removed, the higher the risk of lymphedema.
- There was radiation therapy to the breast since there are lymph nodes in the breast.
- There was radiation therapy to the neck, underarm, pelvis or groin since these lymph nodes are part of the lymphatic drainage system.
- There was surgical removal of lymph nodes in the neck, underarm, pelvis or groin since these lymph nodes are part of the lymphatic drainage system.
- You are overweight.
- If your diet is poor.
- If you are inactive.

- There are other medical problems such as diabetes mellitus, high blood pressure, heart disease, thyroid disease, and kidney disease, a history of swelling or phlebitis (inflammation of the vein or blockage of a vein by a blood clot).

Risk Reduction of Lymphedema

The University of Michigan Comprehensive Cancer Center offers a monthly lymphedema education program. Lymphedema education and treatment specialists review prevention measures, symptoms and signs of lymphedema, and resources available to treat early. We encourage **every** patient to **schedule a lymphedema class** either during their postoperative recovery time (or before surgery, if better for your schedule). Call: 877-907-0859 for more information or to schedule your class.

To help you keep track of your arm size, please measure the circumference (the distance around your arm, wrist, hand, etc.) and record the sizes of both arms before surgery. Generally, your dominant arm (the one you write with) is usually half an inch (½) inch larger. Use the accompanying chart to keep track of these measurements. You can also use this chart to keep track after surgery or radiation. Be sure to use the same tape measure every time.


Armpit
4″
Elbow crease
4″
Wrist
Knuckles

Arm Circumference Measurements

Area Measured	Date		Date		Date		Date		Date		Date		Date		Date		Date	
Before Surgery																		
	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L
Just Below The Armpit																		
4 Inches Above Elbow																		
Elbow Crease																		
4 Inches Below Elbow																		
Wrist																		
Mid Hand (Knuckles)																		

Healthy habits

- Maintain a normal weight by eating healthy foods and exercising regularly.
- Gradually build up your activity and exercise.
- Be mindful of any changes in your breast or arm such as soreness, heaviness, firmness and larger size.

Skin care and infection

- Keep the breast and arm clean and dry.
- Use lotion every day to prevent dry skin.
- Protect your nails and do not cut cuticles.
- Use sunscreen and insect repellent.
- Check with your doctor whether you can shave your underarms. If okay, be careful not to nick the skin.
- If possible, have blood draws, injections and blood pressure checks on the arm that didn't have surgery.
- Protect your hand and arm from cuts or other injury. For example, use rubber gloves when washing dishes, use hot pads to prevent burns from the stove and wear leather gloves when working in the garden.
- If the skin is scratched, punctured or bitten by an insect, wash with soap and water, apply antibiotic ointment and watch for signs of infection.
- If you see signs of possible infection such as redness, heat or swelling or you have a fever, call your doctor right away to see whether you need an antibiotic or other treatment.

Symptoms of lymphedema

Call your doctor right away if you have these symptoms:

- Feeling of tightness in the hand, arm or breast.
- Rings that have become tighter.
- Pain, aching, heaviness in the hand, arm or breast.
- Weakness or loss of grip strength in the arm or hand.

Treatment of Lymphedema

Lymphedema treatment after breast cancer surgery may include:

- Medication prescribed by your physician to control infection or inflammation.
- Good skin care.
- Massage of the breast, chest wall, and arm to help the fluid move through blocked or cut lymphatic vessels to drain the fluid buildup.
- Fitted garments that apply controlled pressure such as fitted elastic compression sleeves, gloves, or bras.
- Wrapping with bandages or similar devices.
- Using a compression pump.
- Low-level laser treatments - improves collagen formation, decreases inflammation and pain by decreasing oxidative stress and increasing the body's energy source - Adenosine triphosphate (ATP).
- PhysioTouch® - a tool to enhance lymphatic return by releasing fascial tissue and decreasing scar tissue and inflammation.
- Individualized exercise program.

Psychosocial concerns

Because lymphedema can be disfiguring and often painful and disabling, it can create physical, mental and sexual challenges. Coping with lymphedema in the arm or breast after breast cancer treatment is difficult, but it's especially hard for patients who have little social support. Some patients may react to the problem by withdrawing. Patients with lymphedema may be helped by group and individual counseling that provides information about ways to prevent lymphedema, the role of diet and exercise, advice for picking comfortable and flattering clothes and emotional support.

The University of Michigan Physical Medicine and Rehabilitation Department has a specialized **Lymphedema and Cancer Rehabilitation Treatment Team**. Your doctor can refer you to this team if needed.

For more information on lymphedema, visit the National Lymphedema Network at http://www.lymphnet.org/. The site has great information to help you maintain good lymphatic health.

Resources

Many wonderful advocacy and survivor networks have been established to help support newly diagnosed breast cancer patients. However, personal experiences and histories of other breast cancer patients will not necessarily be relevant to your individual cancer case and treatment needs. Advocacy programs are important support resources, but they are not intended to provide cancer treatment advice.

Furthermore, the news media (both print as well as broadcast) and the Web can be great, sources of information. However it can be very difficult to navigate through vast and complex information that may be accessible to you. Some of these resources give more accurate and up-to-date information than others. You should talk to your cancer treatment team if you are getting confusing or conflicting information. The sections below describe some of the more popular and well-established resources.

Reach to Recovery

The American Cancer Society's Reach to Recovery program has been helping breast cancer patients (female and male) cope with their diagnosis, treatment and recovery for more than 30 years.

When a person first finds out they have breast cancer, they may feel overwhelmed, vulnerable and alone. While under this stress, many people must also learn about complex medical treatments and choose the best one.

Talking with a specially trained Reach to Recovery volunteer at this time can provide a measure of comfort and an opportunity for emotional grounding and informed decision-making. Volunteers are breast cancer survivors who give patients and family members an opportunity to express feelings, verbalize fears and concerns, and ask questions of someone who is knowledgeable and level-headed. Most importantly, Reach to Recovery volunteers offer understanding, support and hope because they themselves have survived breast cancer and have gone on to live normal, productive lives.

Through face-to-face visits or by phone, Reach to Recovery volunteers provide support for:

- People recently diagnosed with breast cancer.
- People facing a possible diagnosis of breast cancer.
- Those interested in or who have undergone a lumpectomy or mastectomy.
- Those considering breast reconstruction.
- Those who have lymphedema.
- Those who are undergoing or who have completed treatment such as chemotherapy and radiation therapy.
- People facing breast cancer recurrence or metastasis (the spread of cancer to another part of the body).

Volunteers are trained to provide support and up-to-date information, including literature for spouses, children, friends and other loved ones. Volunteers can also, when appropriate, provide breast cancer patients with a temporary breast form and information on types of permanent prostheses as well as lists of where those items are available within a patient's community. No products are endorsed.

A representative from the American Cancer Society's Reach to Recovery program is available on-site during most of the University of Michigan Breast Care Center weekly multidisciplinary tumor board conference/clinic days, and will assist with signing up for the Reach to Recovery services.

For more information, or to locate a Reach to Recovery program, contact the UM Department of Social Work at 734-647-8587, or contact the American Cancer Society at 800-227-2345.

Personal Touch™

The University of Michigan's Department of Orthotics and Prosthetics offers postmastectomy products for women through a program called Personal Touch™. Services are provided by appointment in a private, comfortable setting with personal attention. Products include breast prosthesis, mastectomy bras, camisoles, swimforms, swimwear and accessories for women who have had breast cancer surgery. Specially trained fitters will help you find the products, most of which are stocked at the Personal Touch Boutique.

Personal Touch™ is open Monday through Friday, 8:00 a.m. to 5:00 p.m. Appointments can be made by calling 734-973-2400. You will need to bring your doctor's prescription for breast prosthesis with you to the appointment. Personal Touch™ accepts most health insurance plans, including Medicare and Medicaid.

Patient and Family Support Services

It is important to us that every patient receives the right support at the right time. We offer a wide range of support services and amenities to each cancer patient and family member at the University of Michigan Comprehensive Cancer Center. These services are described in detail in our ***Patient & Family Support Services Handbook.*** This handbook is available in:

- The Patient Education Resource Center (PERC) Level B2/ground floor of the Cancer Center
- Clinic
- Breast Annex (Floor 1 between clinic check-in and waiting room)
- Practical Assistance Center (PAC), (Floor 1, Room 1139)

Please take a minute to look at the support and educational opportunities available to you and your family.

Web Resources

- **American Cancer Society** – section on Breast Cancer
  → Go to the American Cancer Society site at: http://www.cancer.org/
  → Click on "Learn About Cancer"
  → Select "Breast Cancer" from the pull down menu and click "Go"

- **BreastCancer.org** http://www.breastcancer.org/
  A wealth of information on breast cancer, including an extensive "Questions and Answers" section written by breast cancer experts.

- **Living Beyond Breast Cancer** http://www.lbbc.org/
  This site focuses on news concerning breast cancer treatment and clinical trials. It also includes recordings and transcripts of educational events.

- **National Cancer Institute** http://www.cancer.gov/
  → Under "Types of Cancer" choose "Breast Cancer" and then select your area of interest, including risk factors, stages, coping with side-effects and more.

- **NCCN Guidelines for Patients** http://www.nccn.org/patients/
  → Under "Patient & Caregiver Resources" select "Information by Cancer Type"
  → Select "Breast Cancer"
  This site has an informative guide as well as a video library consisting of 12 videos on various topics related to Breast Cancer.

- **Sisters Network, Inc.** – African American Breast Cancer Survivorship Organization. http://www.sistersnetworkinc.org/

- **Susan G. Komen Foundation** http://www.komen.org/
  The section "About Breast Cancer" has information about diagnosis and treatment, complementary therapies, life after breast cancer treatment and quality medical care. The site also includes a multimedia section with audiovisual educational programs.

- **SusanLoveMD.com** http://www.susanlovemd.com
  The information on this site aims to assist women in treatment decision making and deal with the changes and challenges brought on by breast cancer.

- **Triple Negative Breast Cancer Foundation**
  http://www.tnbcfoundation.org/
  This site aims to increase public awareness and support of this subtype of breast cancer.

Breast Reconstruction

- **Michigan Breast Reconstruction Outcome Study (MBROS) Consumer's Guide to Breast Reconstruction**
  http://surgery.med.umich.edu/plastic/patient/breast/

- **University of Michigan Plastic and Reconstructive Surgery**
  http://surgery.med.umich.edu/plastic/patient/breast/

Select Booklets Available for Download:

Your Options: A Breast Reconstruction Overview and Decision Guide

The Decision Guide to Breast Reconstruction: A comprehensive look at choices related to breast reconstruction following mastectomy

Male Breast Cancer

- **All About Male Breast Cancer**
  → Go to the American Cancer Society site at: http://www.cancer.org
  → Click on "Learn About Cancer"
  → Under "Select a Cancer Type" there is a dropdown menu
  → Select "Breast Cancer in Men" from the list and click "Go"

- **Male Breast Cancer Treatment PDQ**
  A copy of this is available to view or print at the National Cancer Institute site at:
  http://www.cancer.gov/cancertopics/pdq/treatment/malebreast/Patient

- **Fertility Preservation**
  The following online resources can guide patients in understanding the financial implications of fertility preservation therapy and available support:
  http://www.livestrong.org/we-can-help/fertility-services/
  http://www.myoncofertility.org/

- **Lymphedema**
  National Lymphedema Network www.lymphnet.org. Choose from position papers, lymphedema overview, featured articles and videos.

Notes: