Failure to timely diagnose breast cancer during pregnancy
The breast is made up of lobes and ducts. Each breast has 15 to 20 sections called lobes are smaller lobes called lobules are composed of many parts. Lobes and lobules by thin tubes called ducts are connected. Each breast also has blood vessels and lymph nodes. An almost colorless fluid called lymph vessels that carry lymph. Lymph nodes are found throughout the body. Gangs in the lymph nodes near the breast in the armpit (under the arm), above the collar bone and chest are. Sometimes breast cancer in pregnant women or women who have recently delivered, may be diagnosed. In women who are pregnant or have recently delivered, breast cancer occurs most often between the ages of 32 and 38 years. Breast cancer during pregnancy occurs in about 1 in every 3,000. Early detection of breast cancer in pregnant or lactating women, their breasts are often tender and swollen, it may be difficult. Next are identified. Breast examination should be part of prenatal care and the birth is. To detect breast cancer, pregnant and lactating women should be self-examine your breasts. Also, women should have routine tests during prenatal and postnatal, clinical breast exams are done. Studies that examine the breasts are used to detect and diagnose breast cancer are used. Results showed that in women with pregnancy-associated breast cancer is more advanced tumors than women who were not pregnant and due to the late diagnosis of cancer occurs.

Cancer During Pregnancy
This section has been reviewed and approved by the Cancer.Net Editorial Board, 1/2013

Key Messages:
- Cancer during pregnancy is rare.
- Some cancer treatments are safe to use during pregnancy, while others can harm the fetus (unborn baby).
- It is important to talk with your doctor to learn the risks and benefits of specific diagnostic tests and treatment options for cancer if you are pregnant.

Cancer during pregnancy is uncommon, occurring in approximately one out of every 1,000 pregnancies. Because of this, both doctors and women were often unsure about how to deal with cancer during pregnancy for many years. However, as more women with cancer are deciding with their doctors to start or continue treatment while pregnant, more information about treating and living with cancer during pregnancy is available than ever before.

Most importantly, a pregnant woman with cancer is capable of giving birth to a healthy baby because cancer rarely affects the fetus directly. Although some cancers may spread to the placenta (a temporary organ that connects the mother to the fetus), most cancers cannot spread to the baby. However, being pregnant with cancer is extremely complicated for both the mother and the health care team. Therefore, it is important to find a doctor who has experience treating pregnant women with cancer. Learn more about finding an oncologist.
Diagnosis
Being pregnant often delays a cancer diagnosis because some cancer symptoms, such as abdominal bloating, frequent headaches, or rectal bleeding, are common during pregnancy and are not considered suspicious. On the other hand, pregnancy can sometimes uncover cancer that has previously gone undetected. For example, a Pap test done as part of standard prenatal care can detect cervical cancer. Similarly, an ultrasound performed during pregnancy can find ovarian cancer that might otherwise go undiagnosed.

The cancers that tend to occur during pregnancy are those that are more common in younger people, such as cervical cancer, breast cancer, thyroid cancer, Hodgkin lymphoma, non-Hodgkin lymphoma, and melanoma, as well as gestational trophoblastic tumor, which is a rare cancer that occurs in a woman's reproductive system.

The most common cancer in pregnant women is breast cancer, which affects approximately one in 3,000 pregnancies. Pregnancy-related breast enlargement may make it difficult to detect small breast tumors, and most women do not have a mammogram while pregnant. As a result, researchers have estimated that pregnant women with breast cancer are often diagnosed two to six months later than non-pregnant women.

If cancer is suspected during pregnancy, women and their doctors may be concerned about diagnostic tests such as x-rays. However, research has shown that the level of radiation in diagnostic x-rays is too low to harm the fetus. Computed tomography (CT) scans are similar to x-rays because they use ionizing radiation. However, CT scans are much more accurate than x-rays at outlining internal organs and structures and can be very helpful in making a diagnosis of cancer or determining whether the cancer has spread. CT scans of the head or the chest are generally considered safe during pregnancy as there is no direct radiation exposure to the fetus. When possible, women may use a lead shield that covers the abdomen (stomach) for extra protection during both x-rays and CT scans. CT scans of the abdomen or pelvis should be done only if absolutely necessary and after discussion with the medical team. Other diagnostic tests such as magnetic resonance imaging (MRI), ultrasound, and biopsy are also considered safe during pregnancy because they don't use ionizing radiation.

Treatment
When making treatment decisions for cancer during pregnancy, the doctor considers the best treatment options for the mother and the possible risks to the developing baby. The type of treatment chosen depends on many factors, including the gestational age of the fetus (stage of the pregnancy); the type, location, size, and stage of the cancer; and the wishes of the expectant mother and her family. Because some cancer treatments can harm the fetus, especially during the first trimester (the first three months of pregnancy), treatment may be delayed until the second or third trimesters. When cancer is diagnosed later in pregnancy, doctors may wait to start treatment until after the baby is born, or they may consider inducing labor early. In some cases, such as early-stage (stage 0 or IA) cervical cancer, doctors may wait to treat the cancer until after delivery.

Some cancer treatments may be used during pregnancy but only after careful consideration and treatment planning to optimize the safety of both the mother and the unborn baby. These include surgery, chemotherapy, and rarely, radiation therapy.

Surgery. Surgery is the removal of the tumor and surrounding tissue during an operation. It poses little risk to the developing baby and is considered the safest cancer treatment option during pregnancy. In some cases, more extensive surgery can be done to avoid having to use chemotherapy or radiation therapy.

Chemotherapy. Chemotherapy is the use of drugs to destroy cancer cells, usually by stopping the cancer cells' ability to grow and divide. Chemotherapy can harm the fetus, particularly if it is given during the first trimester of pregnancy when the fetus' organs are still developing. Chemotherapy during the first trimester may cause birth defects or even the loss of the pregnancy (miscarriage).

During the second and third trimesters, some types of chemotherapy may be given without necessarily harming the fetus. The placenta acts as a barrier between the mother and the baby, and some drugs
cannot pass through this barrier, or they pass through in very small amounts. If the planned chemotherapy includes a drug that is not safe during any stage of pregnancy, the doctor can sometimes substitute another drug.

Although chemotherapy in the later stages of pregnancy may not directly harm the developing baby, it may cause side effects like malnutrition and anemia (a low red blood cell count) in the mother that may cause indirect harm. In addition, chemotherapy given during the second and third trimesters sometimes causes early labor and low birth weight, both of which may lead to further health concerns for the mother and the baby. The baby may struggle to gain weight and fight infections, and the mother may have trouble breastfeeding.

Radiation therapy. Radiation therapy is the use of high-energy x-rays or other particles to destroy cancer cells. Because radiation therapy can harm the fetus, particularly during the first trimester, doctors generally avoid using this treatment. Even in the second and third trimesters, the use of radiation therapy is uncommon, and the risks to the developing baby depend on the dose of radiation and the area of the body being treated.

Breast feeding
Although cancer cells cannot pass to the infant through breast milk, doctors advise women who are being treated for cancer not to breastfeed. Chemotherapy can be especially dangerous because the drugs may be transferred to the infant through breast milk. Similarly, radioactive components that are taken internally, such as radioactive iodine used in treating thyroid cancer, may also get into breast milk and harm the infant.

How pregnancy affects recovery from cancer
The prognosis (chance of recovery) for a pregnant woman with cancer is often the same as other women of the same age with the same type and stage of cancer. However, if a woman's diagnosis or treatment is delayed during pregnancy, the extent of the cancer may be greater, resulting in a worse overall prognosis. In addition, because of the amount of hormones produced during pregnancy, it has the potential to affect the growth and spread of some types of cancer. It is important to talk with your doctor about how pregnancy may affect your specific cancer, as well as your recovery.

Questions to ask the doctor
Consider asking your doctor the following questions if you are pregnant and have recently been diagnosed with cancer.

? How much experience do you have treating pregnant women with cancer?
? How will you work with my obstetrician (a doctor who specializes in pregnancy and childbirth)?
? Do I need to have any special tests?
? What treatment plan do you recommend? Why?
? Do I need to begin treatment right away, or should I wait to start treatment?
? Could delaying treatment affect my prognosis?
? What are the short- and long-term risks of my treatment plan to me? To the baby?
? Will treatment affect my delivery? How?
? Will I be able to breastfeed?
? What support services and other resources are available to me? To my family?

Pregnancy and Breast Cancer
Having breast cancer during pregnancy is very rare. But more and more women are choosing to have children later in life, and the risk of breast cancer goes up as women get older. Because of this, doctors expect there will be more cases of breast cancer during pregnancy in the future.

Current estimates range anywhere from 1 in every 1,000 to 1 in every 10,000 pregnant women diagnosed with breast cancer every year. And breast cancer is the most common type of cancer found
during pregnancy, while breastfeeding, or within the first year of delivery. You may hear this called gestational breast cancer or pregnancy-associated breast cancer (PABC). The special concerns of breast cancer during pregnancy are reviewed here.

Breast cancer risk

What is cancer?

Normal body cells grow, divide into new cells, and die in an orderly fashion. When a person is young, normal cells divide more quickly until the person becomes an adult. After that, cells in most parts of the body divide only to replace worn-out or dying cells and to repair injuries.

Cancer cells keep on growing and dividing, which makes them very different from normal cells. Instead of dying, they outlive normal cells and keep making new, abnormal cells. Hormones like estrogen help normal breast cells grow and divide, but these same hormones can also promote the growth of breast cancer cells.

How your menstrual cycles affect your breast cancer risk

Women who have had more menstrual cycles because they started their periods earlier (before age 12) and/or went through menopause later (after age 55) have a slightly higher risk of breast cancer. The increase in risk may be due to a longer lifetime exposure to the hormones estrogen and progesterone.

How pregnancy affects breast cancer risk later in life

Pregnancy causes many hormone changes in the body. For one thing, pregnancy stops monthly menstrual cycles and shifts the hormone balance toward progesterone rather than estrogen. This is why women who become pregnant while they are young and have many pregnancies may have a slightly lower risk of breast cancer later on. They are exposed to less estrogen. Women who have had no children or who had their first pregnancy after age 30, on the other hand, have a slightly higher breast cancer risk.

How breastfeeding affects breast cancer risk

Some studies suggest that breastfeeding may slightly lower breast cancer risk. This is more likely if a woman breastfeeds for 1½ to 2 years. The reason for this may be that breastfeeding reduces a woman's total number of lifetime menstrual cycles. But this has been a difficult area to study, especially in countries like the United States, where breastfeeding for this long is uncommon. Still, more research is needed to understand the effects of breastfeeding.

Finding breast cancer during pregnancy

When a pregnant woman develops breast cancer, it's often diagnosed at a later stage than it would be if the woman were not pregnant. It's also more likely to have spread to the lymph nodes. This is partly because hormone changes during pregnancy make a woman's breasts larger, more tender, and lumpy. This can make it harder for the woman or her doctor to notice a lump until it gets quite large.

Mammograms are also harder for doctors to read during pregnancy because the breast tissue becomes denser. The early changes caused by cancer are easily mistaken for, or hidden by the normal changes that happen with pregnancy. Delayed diagnosis remains one of the biggest problems with breast cancer in pregnancy. Any suspicious breast changes should be biopsied before assuming they are a normal response to pregnancy.

It's thought to be fairly safe to have a mammogram during pregnancy, and mammograms can detect most of the breast cancers that start when a woman is pregnant. But some patients (and even doctors) postpone routine screening because they worry about the safety of doing a mammogram during pregnancy. The amount of radiation needed for a mammogram is small. And the radiation is focused on the breast so that most of it does not reach other parts of the body. For extra protection, a lead shield is placed over the lower part of the belly to stop radiation from reaching the womb. Still, scientists can't be certain about the effects of even a small dose of radiation on an unborn baby. If your doctor does not believe you need to have your screening mammogram right away, it may be best to wait.

Even during pregnancy, early detection is an important part of breast health. Talk to your doctor or nurse about breast exams and the best time for your next mammogram, especially if you are age 40 or older, or if you or your doctor notices a change in how your breasts look or feel. As always, if you find a lump or
change in your breasts, tell your doctor or nurse right away.

Breast cancer diagnosis and staging during pregnancy

Breast biopsy during pregnancy

A new lump or abnormal imaging test result may cause concern, but a biopsy is needed to find out if a breast change is cancer. During a biopsy a piece of tissue is taken from the area of concern. This is usually done either using a long, hollow needle or through a small surgical incision (cut). A breast biopsy during pregnancy can usually be done as an outpatient procedure. The doctor uses medicine to numb just the area of the breast involved in the biopsy. This causes little risk to the fetus. But, if needed, a biopsy can be done under general anesthesia (where drugs are used to put the patient into a deep sleep) with only a small risk to the fetus.

You can get more details on different types of breast biopsies in our document called For Women Facing a Breast Biopsy.

Tests to learn the breast cancer stage

If breast cancer is found, other tests may be needed to find out if cancer cells have spread within the breast or to other parts of the body. This process is called staging. Staging is very important for pregnant women with breast cancer because their cancers tend to be found at a more advanced stage (the tumor is likely to be bigger and to have spread beyond the breast). Which staging tests may be needed depends on your case.

Keep in mind that the fetus is not exposed to radiation with tests like ultrasound and magnetic resonance imaging (MRI) scans. Overall, these tests are thought to be safe and can be used if they are important to your care. But the contrast material (dye) sometimes used in MRI crosses the placenta, the organ that connects the mother to the fetus. It has been linked with fetal abnormalities in lab animals. For this reason, an MRI with contrast dye is not recommended during pregnancy. But an MRI without contrast can be used if needed.

Chest x-rays are sometimes needed to help make treatment decisions. They use a small amount of radiation. They are thought to be safe for pregnant women when the belly is shielded.

Other tests, such as bone scans or computed tomography (CT) scans of the chest, abdomen (belly), or pelvis, are more likely to expose the fetus to radiation. These tests are not often needed, especially if the cancer is thought to be just in the breast. In rare cases when these scans are needed, doctors can adjust the way the test is done to limit the amount of radiation the fetus is exposed to.

In very few cases, the cancer has reached the placenta (the organ that connects the mother to the fetus). This could affect the amount of nutrition the fetus gets from the mother, but there are no reported cases of breast cancer being transferred from the mother to the fetus.

Breast cancer treatment during pregnancy

If breast cancer is found during pregnancy, the type and timing of treatment depends on many things, such as:

? The size of the tumor
? Where the tumor is
? Whether and how far the cancer has spread
? How far along the pregnancy is
? What the woman prefers

Treating a pregnant woman with breast cancer has the same goals as treating a non-pregnant woman: control the cancer in the place where it started and keep it from spreading. But the extra concern of protecting a growing baby may make reaching these goals more complex.

If a pregnant woman needs chemotherapy, hormone therapy, or radiation to treat breast cancer in early pregnancy, she may be asked to think about ending the pregnancy. This is because these treatments may harm the fetus. It's easier to treat a woman who is not pregnant because there is no fear of harming the fetus. But no studies have proven that ending a pregnancy in order to have cancer treatment improves a woman's prognosis (outlook). Still, this option may be discussed when looking at all the treatment choices available.
Surgery
When possible, surgery is the first treatment for any woman with breast cancer, including those who are pregnant. Removing only the part of the breast with the tumor (breast-conserving surgery) or the entire breast (mastectomy), and/or taking out the lymph nodes under the arm carry little risk to the fetus. But there are certain times in pregnancy when anesthesia (the drugs used to make you sleep for surgery) may be riskier for the fetus.

Many doctors, such as a high-risk obstetrician, a surgeon, and an anesthesiologist will need to work together to decide the best time during pregnancy to do surgery. If the surgery is done later in the pregnancy, the obstetrician may be there just in case there are any problems with the baby during surgery. Together, these doctors will decide which drugs and techniques are the safest for both the mother and the baby.

Mastectomy can often be used as the first treatment for early-stage cancers. Lymph nodes in the armpit may also be taken out if the doctor suspects that the cancer has spread there. Depending on the how far along you are in pregnancy and your cancer stage, your doctor may not be able to do a sentinel lymph node biopsy (SNLB). This procedure uses tracers and dye to pinpoint the nodes most likely to contain cancer cells. SNLB allows the doctor to remove fewer nodes. But there is concern that the radioactive tracer used for SNLB may affect the fetus if used when its organs are growing quickly. More research is needed on this. But for now, it's standard to take out the lymph nodes to decrease the chance of cancer spread.

Depending on the cancer's stage, a woman may get more treatment such as chemotherapy, radiation, and/or hormone therapy after surgery to help lower the risk of the cancer coming back. This is called adjuvant treatment. In some cases, this treatment can be put off until after delivery. Women who have breast-conserving surgery often need radiation therapy afterward. The need for radiation is an important issue for pregnant women when choosing which surgery to have. Radiation could affect the fetus if given during the pregnancy, so it's not used until after delivery. Doctors don't know how this delay may affect a woman's risk of the cancer coming back. Cancer found in the third trimester may involve very little delay in radiation treatments, so there would likely be no effect on outcome. And a woman who will be getting chemotherapy before radiation may have little or no delay in her radiation treatments. But cancers found early in the pregnancy may mean a longer delay in starting radiation. Treatment must always be considered on a case-by-case basis.

Chemotherapy
Chemotherapy, which is also called chemo, may be used along with surgery (as an adjuvant treatment) for some earlier stages of breast cancer. It also may be used by itself for more advanced cancers.

Chemo should not be given during the first 3 months of pregnancy (the first trimester). This is because most of the baby's internal organs develop during this time. The risk of miscarriage (losing the baby) is also the greatest during the first trimester. The safety of using chemo during this time has not been studied because of concerns about damage to the growing baby. It was once thought that all chemo drugs would harm an unborn baby. But studies have shown that certain chemo drugs used during the second and third trimesters (months 4 through 9 of pregnancy) do not raise the risk of birth defects, stillbirths, or health problems shortly after birth. But researchers still do not know if these children will have any long-term effects.

When a pregnant woman with early breast cancer needs adjuvant chemo after surgery, it's usually delayed until at least the second trimester. If a woman is already in her third trimester when the cancer is found, the chemo may be delayed until after birth. The birth may be induced (brought on) a few weeks early in these cases. These same treatment plans may also be used for women with more advanced cancer.

Chemo should not be given after 35 weeks of pregnancy or within 3 weeks of delivery because it can lower the mother's blood counts. This could cause bleeding and increase the chances of infection during birth. Holding off on chemo for the last few weeks before delivery allows the mother's blood counts to return to normal before childbirth.
Radiation therapy
Radiation therapy to the breast is often used after breast-conserving surgeries (lumpectomy or partial mastectomy) to help reduce the risk of the cancer coming back. The high doses of radiation used for this can harm the fetus any time during pregnancy. It may cause miscarriage, birth defects, slow fetal growth, or a higher risk of childhood cancer. Because of this, doctors don't use radiation treatment during pregnancy.

Pregnant women who choose lumpectomy or partial mastectomy can usually have surgery during pregnancy and then wait until after the baby is born to get radiation therapy. But this treatment approach has not been well-studied in pregnant women. It's not known if the delay might affect how well the radiation works.

Hormone therapy
Hormone therapy, such as treatment with tamoxifen, may be used as adjuvant treatment after surgery or as treatment for advanced cancer. Its use in pregnant women has not been well-studied, so its full effects are not known. But there have been reports of miscarriage and fetal death, as well as head and face birth defects and genital defects in babies born to women who became pregnant while taking tamoxifen in early pregnancy.

Hormone therapy should not be used during pregnancy, but delayed until after the woman has given birth.

Targeted therapy
Drugs that target HER2, like trastuzumab, pertuzumab, and lapatinib, are an important part of the treatment of HER2-positive breast cancers. Only trastuzumab is used as a part of adjuvant treatment after surgery, but all 3 of these drugs can be useful in treating advanced cancer. Based on animal studies and reports of women who were treated during pregnancy, none of these drugs are safe for the fetus if taken during pregnancy.

Breastfeeding during cancer treatment
Most doctors recommend that women who have just had babies and are about to be treated for breast cancer should stop (or not start) breastfeeding.

If surgery is planned, stopping breastfeeding will help reduce blood flow to the breasts and make them smaller. This can help with the operation. It also helps reduce the risk of infection in the breast and can help avoid having breast milk collect in biopsy or surgery areas.

Many chemo, hormone, and targeted therapy drugs can enter breast milk and be passed on to the baby. So, if the mother is getting chemo, hormone, or targeted therapy, she shouldn't breastfeed.

If you have questions, such as when it might be safe to start breastfeeding, be sure to talk with your health care team. If you plan to start back after you've stopped breastfeeding for a while, you will want to plan ahead. You may need extra help from breastfeeding experts.

Pulling all the treatment plans together
The hardest part of treatment is when there is a conflict between the best known treatment for the mother and the well-being of the fetus. A woman who has breast cancer during her pregnancy may have hard choices to make-she needs to know all her options and she needs expert help. Her obstetrician will need to work with her surgeon, her oncologist, her radiation oncologist, and others involved in her care. Through all this, the woman with breast cancer will need emotional support, so a counselor or psychologist should also be part of her health care team.

If you would like more information on breast cancer and its treatment, please read our document called Breast Cancer.

Survival after pregnancy during breast cancer
Pregnancy can make it harder to find, diagnose, and treat breast cancer. Most studies have found that the outcomes among pregnant and non-pregnant women with breast cancer are about the same for cancers found at the same stage, but not all studies agree.

Some doctors believe that ending the pregnancy may help slow the course of more advanced breast cancers, and they may recommend termination in these cases.Ending the pregnancy may make
treatment simpler, but research has not shown that it improves the women's outcomes. It's hard to do research in this area, and very few good studies exist. Still, the studies that have been done have not found that ending the pregnancy improves a woman's overall survival or cancer outcome, and there are no reports showing that breast cancer is harmful to the baby.

Studies have not shown that the treatment delays, sometimes needed during pregnancy, have an effect on breast cancer outcome either. But this, too, has proven to be a difficult area to study.

Pregnancy after breast cancer treatment

Some treatments for breast cancer, such as certain chemo drugs, may affect a woman's ability to have a baby (fertility). Still, many women are able to become pregnant after treatment. Women concerned about their fertility should talk to their doctors about this before starting breast cancer treatment.

Doctors are not sure if women who have had breast cancer in the past increase their risk of the cancer coming back by becoming pregnant. But most studies have found that pregnancy does not increase the risk of the cancer coming back after successful treatment.

Doctors do know that there's a clear link between estrogen levels and growth of breast cancer cells. Because of this link, many doctors advise breast cancer survivors to wait at least 2 years after treatment before trying to get pregnant, though the best length of time to wait is not clear. Two years is thought to give them the chance to find any early return of the cancer, which could affect a woman's decision to become pregnant later on. Still, this advice is not based on data from any clinical trials. And some studies point out that breast cancer can come back after the 2 year mark, so every case is different. Each woman's decision is based on many things, such as her age, fertility, desire for more pregnancies, type of breast cancer, risk of an early relapse, and the potential effect estrogen may have on her risk of a breast cancer coming back.

Women taking hormone therapy, such as tamoxifen, or targeted therapy, such as trastuzumab, should talk with their doctors before trying to become pregnant. These drugs could affect a growing fetus. (See the sections called "Hormone therapy" and "Targeted therapy.")

There is no proof that a woman's past breast cancer has any direct effect on her baby. Researchers have found no increased rate of birth defects or other long-term health concerns in children born to women who have had breast cancer.

There's also no proof that breastfeeding after breast cancer treatment shortens survival. But women who have had breast surgery and/or radiation should know that they may have problems breastfeeding from the affected breast. Studies have shown reduced milk production in that breast as well as structural changes that can make it difficult and painful for the baby to latch onto the breast.

Another important thing to remember is that chemotherapy for breast cancer can damage the ovaries, sometimes causing immediate or delayed infertility. Cancer treatment can also cause women to delay trying to get pregnant. These factors together often mean that a woman has less chance of getting pregnant after breast cancer treatment. For more information about how cancer treatment can affect fertility, see our document called Fertility and Cancer: What Are my Options?

All women who have had breast cancer and are thinking about having children should talk with their doctors about how treatment could affect their chances for pregnancy. This discussion should also cover the risk of the cancer coming back. In many cases, counseling can help women sort through the choices that come with surviving breast cancer and planning a pregnancy.

References

Ayyappan AP, Kulkarni S, Crystal P. Pregnancy-associated breast cancer: spectrum of imaging