

## Patient Treatment Information EC

Your chemotherapy treatment is called EC. It is commonly used to treat breast cancer and has also been used to treat other diseases. EC is made up of two chemotherapy drugs:

- epirubicin (ep-ee-ROO-bi-sin) or Ellence® (ell-ENCE)
- cyclophosphamide (sy-e-kloe-FOSS-fa-mide) or Cytoxan® (sy-e-TOX-an)

These drugs prevent cancer cells from dividing and growing, and can eventually cause the cancer cells to shrink and die.

### What Do I Need to Know Before Starting Treatment?

Be sure to tell your healthcare provider about any prescription or over-the-counter products you are taking, including dietary supplements, vitamins, herbal medicines and homeopathic remedies.

Use an effective birth control method while you are taking these drugs. Chemotherapy drugs can cause harm to a fetus, so be sure to tell your healthcare provider right away if you or your partner become pregnant.

Avoid breastfeeding during treatment. It is not known if these drugs pass into breast milk.

Some chemotherapy drugs can cause sterility. Talk with your healthcare provider about your options if you want to have children in the future.

Do not get any immunizations or vaccinations while taking chemotherapy drugs without the approval of your healthcare provider.

### What Do I Need to Know Before Starting EC?

Epirubicin can cause heart problems during treatment or months or years after your treatment ends. Your risk of heart damage increases as the total dose of epirubicin or similar chemotherapy medicines you take increases. Tell your healthcare provider if you have heart disease or if you have been treated with chemotherapy or radiation therapy to the chest. Call your healthcare provider immediately if you have back pain, flushing or chest tightness while taking epirubicin.

Epirubicin can cause irritation if it accidentally leaks out of the vein. Tell your healthcare provider right away if you feel pain, burning or swelling around the injection site during your treatment.

Epirubicin can cause urine, sweat or tears to turn red for one to two days after treatment. The red color is caused by the medicine, and it is not harmful.

In rare cases, epirubicin can cause secondary cancers or leukemia years after treatment.

Cyclophosphamide can cause delayed wound healing.

Cyclophosphamide can cause bleeding in the bladder. Talk with your healthcare provider about drinking extra fluids and emptying your bladder frequently to reduce the risk of this side effect. Call your healthcare provider right away if you have painful, frequent or difficult urination or blood in the urine.

Your treatment can interact with other medicines, including:

- Digoxin (Lanoxin®)
- Cimetadine (Tagamet®)
- Phenytoin (Dilantin®) or phenobarbital
- Cyclosporine
- Diltiazem (Cardizem®, Cartia®, Diltia XT®, Tiazac® or Dilacor XR®), verapamil (Calan®, Covera-HS®, Isoptin® or Verelan®) or nifedipine (Adalat® or Procardia®)

Please note this list is a summary and does not contain all possible drug interactions. Contact your healthcare provider if you are taking any medications that can interact with your treatment.

**You should not take this treatment if:**

- You are allergic to epirubicin, doxorubicin, any other anthracycline drug or any components of these drugs.
- You have had a recent heart attack or have severe congestive heart failure.

### How Is the Treatment Given?

Your healthcare provider will give you your treatment by injection into a vein. The dose you receive will be based on your weight and height. Your healthcare provider will determine the number of treatments you receive.

You may be given medicines to help prevent and control nausea and vomiting before you receive your treatment. These medicines may be given either by mouth or by injection into a vein.

If you are given any medicine to take at home, do not share it with others. Sharing this medication with anyone else could be harmful.

### When Should I Call My Healthcare Provider?

Call your healthcare provider right away if you have any of the following symptoms:

- Shaking chills or fever of 100.5 degrees F or higher
- Unusual bleeding, easy bruising or pinpoint red spots on your skin
- Vomiting that is severe or lasts several hours
- Painful or frequent urination or blood in your urine
- Diarrhea that causes an additional four bowel movements a day, diarrhea that lasts more than one day, diarrhea at night or diarrhea with fever, cramps or bloody stools
- Irregular or rapid heart beat, chest pain, chest tightness or shortness of breath
- Dizziness or feeling lightheaded
- Inability to eat or weight loss

### What Are the Possible Side Effects?

All drugs can cause side effects, but every person reacts differently to each drug. The following chart lists the possible side effects that can occur with your treatment, how to recognize and minimize symptoms and possible treatments. The side effects are grouped by how often the side effect occurs: Common (occurs in more than 25 percent of patients), Less Common (occurs in 5 to 25 percent of patients) or Rare (occurs in less than 5 percent of patients).

Side Effect	How to Minimize Side Effect	Possible Treatments
<b>Risk of Infection (Common)</b> <ul style="list-style-type: none"><li>• Fever and chills</li><li>• Painful urination</li><li>• Sore throat and cough</li><li>• Nasal congestion</li><li>• Swelling or redness of the skin at the site of a wound</li></ul>	<ul style="list-style-type: none"><li>• Wash your hands often.</li><li>• Brush and floss your teeth daily.</li><li>• Clean cuts right away with warm water, soap and antiseptic.</li><li>• When your white blood cell count is low, stay away from crowds and people with colds or other illnesses.</li></ul>	<ul style="list-style-type: none"><li>• You may be given medicine to increase your white blood cell count.</li><li>• You may be given an antibiotic to treat or prevent infection.</li><li>• Your healthcare provider may decrease your chemotherapy dose or delay further chemotherapy.</li></ul>
<b>Alopecia or Hair Loss (Common. Can range from hair thinning to complete hair loss.)</b> <ul style="list-style-type: none"><li>• More than normal amount of hair loss in your brush, in the shower or on your pillow after sleeping</li><li>• Loss of body hair</li></ul>	<p>Alopecia cannot be prevented but here are tips to help with hair loss:</p> <ul style="list-style-type: none"><li>• Use a soft hairbrush. Do not use brush rollers, color treat your hair or get a permanent.</li><li>• Avoid daily hair washing, use a mild shampoo and avoid using a hairdryer, or use a low setting if you must use one.</li><li>• Have your hair cut short; this will make it look fuller.</li><li>• Your insurance might cover a wig. If you would like a wig, ask your healthcare provider for a prescription for a "hair prosthesis". Your hair color and style can be better matched if you shop for a wig before losing a lot of hair.</li><li>• Use sunscreen or wear a hat or scarf to protect your scalp from the sun.</li></ul>	

Side Effect	How to Minimize Side Effect	Possible Treatments
<p><b>Nausea/Vomiting (Common. Symptoms are generally mild to moderate but can be severe.)</b></p> <ul style="list-style-type: none"> <li>Feeling queasy or sick to your stomach</li> </ul>	<ul style="list-style-type: none"> <li>Eat small, frequent meals and bland foods—such as bananas, rice, applesauce and toast.</li> <li>Eat food cold or at room temperature so the smell of food will not bother you.</li> <li>Avoid fried, spicy or fatty foods.</li> <li>Eat and drink slowly.</li> <li>Drink plenty of liquids during the day, but to avoid bloating, drink small amounts of liquid during meals.</li> </ul>	<ul style="list-style-type: none"> <li>You will be given medicine to help reduce nausea and vomiting.</li> </ul>
<p><b>Mouth Sores and Pain (Common. Symptoms are generally mild to moderate.)</b></p> <ul style="list-style-type: none"> <li>Pain, swelling and redness of the mouth, tongue and throat</li> <li>“Coated tongue”</li> <li>Difficulty talking, swallowing or eating</li> <li>Bleeding ulcers and infection</li> </ul>	<ul style="list-style-type: none"> <li>Brush teeth two to four times a day using a soft bristle brush and fluoride toothpaste.</li> <li>Use non-waxed dental floss daily.</li> <li>Ask your healthcare provider to recommend a mouthwash that does not contain alcohol.</li> <li>Sip water during the day and use sugar-free candy or chewing gum to keep your mouth wet.</li> <li>Eat food cold or at room temperature.</li> <li>Eat soft or pureed food.</li> <li>Avoid food that is acidic, spicy, salty, dry or rough, such as toast.</li> </ul>	<ul style="list-style-type: none"> <li>You may be given medicine to help treat pain.</li> <li>You may be given medicine to treat fungal or viral infections.</li> </ul>
<p><b>Anorexia or Appetite Loss (Less Common. Weight loss is generally mild.)</b></p> <ul style="list-style-type: none"> <li>Not having an appetite</li> <li>Feeling too nauseated to eat</li> <li>Metallic or medicinal taste</li> <li>Change in taste causing dislike for certain foods</li> </ul>	<ul style="list-style-type: none"> <li>Try eating six to eight small meals or snacks each day instead of three larger meals.</li> <li>Vary your diet and try new foods and recipes.</li> <li>Take a walk before meals, when possible. This may make you feel hungrier.</li> <li>Eat with friends or family. When eating alone, listen to the radio or watch TV.</li> </ul>	<ul style="list-style-type: none"> <li>Cook dinners ahead of time and freeze them in small portions so that cooking smells are minimized.</li> <li>Let others help with food, but ask that foods be prepared in small portions that can be frozen. And don't hesitate to let them know which foods to avoid.</li> <li>Add mild spices to change flavor.</li> <li>It might be helpful to have a program, such as Meals on Wheels, deliver food to you.</li> </ul>
<p><b>Diarrhea (Less Common. Symptoms are generally mild.)</b></p> <ul style="list-style-type: none"> <li>Loose or watery stools several times a day</li> <li>Abdominal cramping, gas and bloating</li> </ul>	<ul style="list-style-type: none"> <li>Eat small, frequent meals and bland foods—such as bananas, rice, applesauce and toast.</li> <li>Avoid caffeine; alcohol; raw fruits and vegetables; raw eggs; undercooked meats; spicy, fatty and greasy foods; milk and dairy products; foods that cause gas, such as beans and other legumes; high fiber and high-fat foods; foods left un-refrigerated for more than two hours (one hour for egg dishes and cream or mayonnaise-based foods); bulk laxatives; and stool softeners.</li> </ul>	<ul style="list-style-type: none"> <li>Drink eight to ten glasses of clear liquids every day.</li> <li>Your healthcare provider may prescribe medicine to help treat diarrhea.</li> </ul>
<p><b>Anemia (Rare)</b></p> <ul style="list-style-type: none"> <li>Fatigue or weakness</li> <li>Dizziness</li> <li>Pale skin</li> <li>Feeling out of breath</li> <li>Feeling cold</li> </ul>	<ul style="list-style-type: none"> <li>Plan rest periods throughout the day.</li> <li>Organize daily activities so that you conserve your energy.</li> <li>Try to eat a well balanced diet and drink plenty of fluids.</li> <li>Stand up slowly to avoid getting dizzy.</li> </ul>	<ul style="list-style-type: none"> <li>You may be given medicine to increase your red blood cell count.</li> <li>Your healthcare provider may decrease your chemotherapy dose or delay further chemotherapy.</li> </ul>
<p><b>Bleeding (Rare)</b></p> <ul style="list-style-type: none"> <li>Unusual bleeding, easy bruising</li> <li>Black or tar-like stools</li> <li>Blood in your urine</li> <li>Pinpoint red spots on your skin</li> <li>Bleeding gums or nosebleeds</li> </ul>	<ul style="list-style-type: none"> <li>Avoid aspirin and aspirin-like drugs, such as ibuprofen.</li> <li>Use caution with sharp objects, such as razors and nail cutters.</li> <li>Avoid activities that can cause cuts, bumps and bruises.</li> </ul>	<ul style="list-style-type: none"> <li>You may be given medicine to increase your platelet count.</li> <li>Your healthcare provider may need to decrease the dose or delay further chemotherapy.</li> </ul>

Side Effect	How to Minimize Side Effect	Possible Treatments
<b>Radiation Recall (Rare)</b> <ul style="list-style-type: none"> <li>Redness, tenderness or swelling on areas of the skin that have previously been treated with radiation</li> <li>May include wet sores, peeling skin or discoloration after the skin has healed</li> </ul>	<ul style="list-style-type: none"> <li>Stay out of the sun and avoid tanning beds.</li> <li>If you are in the sun, wear protective clothing and use sunscreen with an SPF of 30 or higher.</li> </ul>	<ul style="list-style-type: none"> <li>You may be given a corticosteroid to reduce swelling.</li> </ul>

## What Are the Other Possible Side Effects?

The chart below lists additional side effects found with the individual drugs in this treatment. It does not list all possible side effects. For more information, talk with your healthcare provider.

Common Side Effects	Less Common Side Effects	Rare Side Effects
<ul style="list-style-type: none"> <li>Fatigue or weakness</li> <li>Muscle and joint pain</li> <li>Stopping of menstrual periods or premature menopause</li> </ul>	<ul style="list-style-type: none"> <li>Congestion or sneezing</li> <li>Eye irritation</li> <li>Darkening or discoloration of the nails</li> </ul>	<ul style="list-style-type: none"> <li>Scarring of lung tissue</li> <li>Blood clots in the veins</li> </ul>

## Notes

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March 2008

## References:

- Piccart M et al. Phase III Trial Comparing Two Dose Levels of Epirubicin Combined With Cyclophosphamide With Cyclophosphamide, Methotrexate, and Fluorouracil in Node-Positive Breast Cancer. *J Clin Oncol.* 2001;19: 3103 – 3110.
- Langley RE, et al. Phase III trial of epirubicin plus paclitaxel compared with epirubicin plus cyclophosphamide as first line chemotherapy for metastatic breast cancer: United Kingdom National Cancer Research Institute trial ABO1. *J Clin Oncol.* 2005;23:8322-8330.