

# Cyclophosphamide

Names	The generic drug name is cyclophosphamide (syeh-kloe-FOS-fa-mide). Cytoxan® and Neosar® are brand names. There may be other names for this medication.
How is it Administered?	Cyclophosphamide comes as a tablet you can take by mouth, and as an injection, which can be injected into a vein (intravenous/IV), a muscle (intramuscular/IM), or the lining of the lung or abdomen. Tablets should be taken with food or after meals. Do not cut or crush the tablets. Your dose depends on many factors, including your height and weight, your general health, and the type of cancer being treated. Your doctor will determine your exact dosage and schedule.
Why am I Taking This Medication?”	This drug is used to treat some types of lymphoma, leukemia, and sarcoma; multiple myeloma; and breast, testicular, ovarian, endometrial, and lung cancers. It may be part of a conditioning regimen before a bone marrow transplant, or used to treat noncancerous conditions.
How Does it Work?	<p>Cancer is a group of diseases in which abnormal cells divide without control. Both normal and cancer cells go through cycles that include a resting phase, active growing phases, and division (reproduction). Your chemotherapy schedule is based upon the type of cancer you have, the rate at which the cancer cells divide, and when each drug is the most likely to be effective. This is why chemotherapy is typically given in cycles.</p> <p>Cyclophosphamide is in a class of drugs known as alkylating agents, which slows down or stops the growth of cancer cells. Alkylating agents are most active in the resting phase of the cell cycle. Cyclophosphamide is derived from mustard gas.</p>
What Should I Tell My Doctor Before I Begin this Medication?	<p>Tell your doctor if you:</p> <ul style="list-style-type: none"><li>• have had an allergic reaction to cyclophosphamide or other alkylating agents such as bendamustine or melphalan</li><li>• have recently had x-rays taken</li><li>• have, or have ever had, kidney disease; have ever had chemotherapy</li><li>• are pregnant or breastfeeding</li></ul> <p><b>This drug may interact with other medications or cause harmful side effects. Tell your doctor and pharmacist about <u>all</u> prescription or over-the-counter medications, vitamins, herbal, or diet supplements that you are taking.</b></p>

## What Are Some Possible Side Effects?

- Low blood counts - low levels of white blood cells, red blood cells, and/or platelets, which can increase your risk for infection, fatigue, and/or bleeding
- Hair loss, which starts 3-6 weeks after treatment begins, is usually temporary. Hair grows back after treatment ends.
- Decreased appetite, nausea, and/or vomiting - particularly with higher doses.
- Changes in color or growth of finger or toe nails
- Diarrhea
- Mouth or tongue sores
- Decreased fertility (men and women, may be permanent or temporary)
- Fatigue
- Bladder irritation or bleeding (hemorrhagic cystitis)

## How Can I Manage These Side Effects?

- Drink about ten 8 ounce glasses of fluid and urinate frequently for the first 24 hours after a treatment. After the first 24 hours, drink 2-3 quarts of fluids (especially water) every day, and urinate at least once every 6 hours. This is especially important if you have had chemotherapy before. This will help flush the medications out and help prevent dehydration, constipation, and cystitis. Try to drink a variety of fluids to help provide the calories, sodium (salt), and other electrolytes your body needs.
- To help avoid infections, stay away from crowds or people with colds, flu, or other infections, wash your hands often, and talk to your doctor before you have any vaccinations (immunizations), such as a flu shot.
- If you are fatigued, take rests during the day, and limit your activities to the time of day when you have the most energy. Learn to ask for and accept help with household chores.
- If your platelet count is low, be careful when handling sharp objects; stay away from rough sports or other situations where you could be bruised, cut, or injured; and use an electric razor.
- Drink about ten 8 ounce glasses of fluid and urinate frequently for the first 24 hours after a treatment. After the first 24 hours, drink 2-3 quarts of fluids (especially water) every day, and urinate at least once every 6 hours. This is especially important if you have had chemotherapy before.
- Ask your doctor about medication to help prevent/lessen nausea, vomiting, or diarrhea.
- Small, frequent meals may help with nausea. Avoid spicy and fried foods.
- Some people cut their hair for their own comfort once it begins to fall out. Hair will grow back once chemo is over, but it may have a different color or texture. You can get a wig in the Resource Center for Patients and Families; call **716-845-1729**.

- Wear protective clothing, a hat, and sunblock with SPF 30 or higher when you are in the sun. If you get a rash, keep the area clean and dry. Talk to your doctor before putting anything on a rash.
- Mouth care is very important. Rinse your mouth with a mixture of ½ tsp of baking soda in 8 ounces of water after every meal and at bedtime. Brush your teeth and gums often with soft toothbrush. (Soften it further by running it under warm water before brushing). Avoid smoking, alcohol, and mouthwashes that contain alcohol.
- Speak with your doctor if you plan on having children in the future. Ask for information on sperm or egg banking.

When Should I  
Call the  
Doctor?

**Call 911 or go to the nearest hospital emergency department if you have life-threatening symptoms such as** signs of severe allergic reaction: Swelling or tingling in your face, tongue, mouth, or throat; chest tightness; wheezing; trouble breathing or swallowing; dizziness, shortness of breath; heart palpitations; or hives.

Please let us know if you go to the emergency room or are admitted to the hospital.

**Call your doctor immediately if you have:**

- any sign of infection: **Fever of 100.4°F (38°C)** or higher, chills, cough, sore throat, pain or burning upon urination; redness or tenderness along a vein, at an IV site, or at any other wound or skin irritation
- unusual bruising or bleeding: Bleeding lasts more than 10-15 minutes or that causes dizziness; black or bloody stools; vomit that is bloody or that looks like coffee grounds; blood in your urine or mucus, bloody nose, or superficial bleeding into the skin that appears as a rash of pinpoint-sized reddish-purple spots (petechiae)

**Call your doctor as soon as possible if you:**

- have more than 4-5 episodes of vomiting or diarrhea in 24 hours
- nausea or vomiting unrelieved by prescribed medication or that prevents you from eating and drinking
- painful mouth or throat that makes it difficult to eat or drink
- pain or burning when you urinate
- yellowing of skin or eyes
- swelling of legs, ankles, or feet

## What Else Do I Need to Know?

- Cyclophosphamide may interfere with the normal menstrual cycle (period) in women, stop sperm production in men, or cause permanent infertility. **Do not**, however, assume that you cannot get pregnant or that you cannot get someone else pregnant. Use a reliable method of birth control to prevent pregnancy during and for a time after treatments have ended. Barrier methods such as condoms are recommended. Cyclophosphamide may harm a fetus.
- Keep all your lab and doctor appointments.
- Cyclophosphamide may increase the risk that you will develop other cancers. Talk to your doctor about the risks of using this medication.
- Always tell all your doctors and dentists that you are, or were, taking cyclophosphamide.
- Do not take aspirin or any medications containing aspirin unless you get your doctor's permission first.
- Your doctor may need to delay your treatment or adjust your dose of cyclophosphamide depending on your response to treatment and any side effects that you experience.
- If you would like more information on cyclophosphamide, please talk to your doctor or pharmacist.