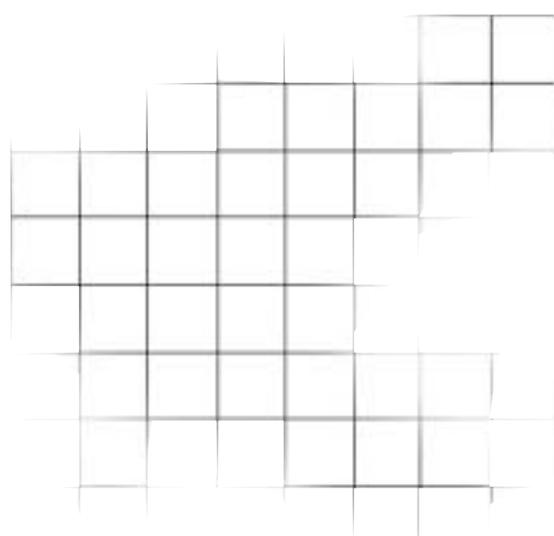


Patient Guide

# ASCO

*Information for  
People Living  
with Cancer*



EPOETIN TREATMENT



Recommendations of the American Society of Clinical Oncology  
and the American Society of Hematology

# Welcome

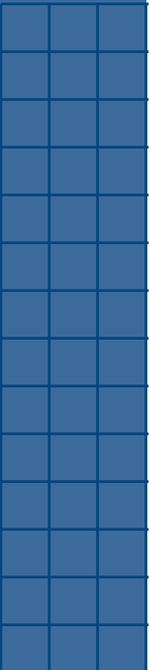
The American Society of Clinical Oncology (ASCO) is the world's leading professional society representing physicians from nearly 100 countries who treat people with cancer. ASCO's more than 19,000 members set the standard for patient care worldwide and lead the fight for more effective cancer treatments, increased funding for clinical and translational research, and, ultimately, cures for the many different cancers that strike 1.2 million Americans every year.

The American Society of Hematology (ASH) is the world's largest professional society concerned with the causes and treatment of blood disorders. Because blood is essential to human function, the science of hematology profoundly affects the understanding of many diseases. ASH represents nearly 11,500 clinicians and scientists committed to furthering the understanding, diagnosis, treatment, and prevention of disorders affecting the blood, bone marrow, and the immunologic, hemostatic, and vascular systems by promoting research, clinical care, education, training, and advocacy in hematology.

ASCO and ASH have joined together to review the latest research and developed a set of recommendations on the use of epoetin for people with cancer. These recommendations are called *clinical practice guidelines*. This patient guide is based on those guidelines.



# Notes





## For your consideration

As you read this guide, please keep in mind the following:

- Every person treated for cancer is different. These recommendations are not meant to replace your judgment or that of your doctor. The final decisions you and your doctors make will be based on your individual circumstances.
- These recommendations do not apply to people enrolled in clinical trials (research studies). The use of epoetin continues to be studied in clinical trials. If ASCO and ASH do not recommend a specific procedure or drug, it is often because there is not enough information to provide such recommendations, not because they have been proven useless or harmful.

Information in ASCO's patient information materials is not intended as medical advice or as a substitute for the treating physician's own professional judgment; nor does it imply ASCO endorsement of any product or company.

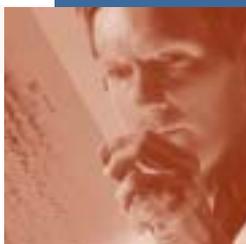
## Definitions

*Definitions to know before reading this guide:*

**Anemia.** Below-normal amount of red blood cells (RBC's). Red blood cells contain *hemoglobin*, a substance that carries oxygen through the body. The body uses iron molecules to build hemoglobin. When RBC levels decrease, the body has to work harder to move oxygen. The extra demands on the body can cause *fatigue*, a feeling of very little energy that keeps people from performing normal activities. People with cancer often have anemia, caused by either the activity of the cancer or by cancer treatments.

**Erythropoietin:** A protein (natural substance found in the body) that makes red blood cells. It is produced by the kidneys and carried through the bloodstream.

**Epoetin:** A *human recombinant* (made by scientists in a lab instead of produced by the body) form of erythropoietin. It has been used since 1989 to treat anemia of chronic renal (kidney) failure. Since then, research has explored if epoetin is a good treatment for people with cancer who have anemia.





## Background

Until the 1990s, *blood transfusions* (putting blood from another person into a person's body) were the only known treatment for anemia. Cancer treatments can cause anemia, so even as new drugs and drug combinations become available, anemia continues to be a problem. Also, since many people worry about infection risks from blood transfusions, there is a demand for other ways to treat anemia.

Since 1989, research on epoetin has focused on whether it can increase hemoglobin levels for cancer patients, reducing the need for transfusions and increasing patients' quality of life. Research continues, and a newer *generation* (longer acting versions) of epoetin drugs is becoming available.

In the meantime, doctors and patients may have questions about the best use of epoetin. These are important questions, especially since there is already one effective treatment, blood transfusion, for treating anemia.

## The Guidelines



In 1997, ASCO and ASH put together a panel of experts that included oncologists and hematologists from universities and community settings, quality of life researchers, guideline specialists, and a patient representative. With the help of a report produced by the Agency for Healthcare Research and Quality (AHRQ) in 2001, the panel made the recommendations listed in this guide.

The guidelines focus on the use of epoetin in these situations only:

- Anemia caused by the activity of the cancer
- Anemia caused by chemotherapy or radiation therapy
- Anemia caused by bone marrow failure (called *myelodysplasia* or *aplastic anemia*)

The questions the panel asked:

- Who should receive epoetin treatments?
- What are the best doses of epoetin treatment?
- What is the best way to give an epoetin treatment?
- How long should epoetin be given?

The panel looked at the best research studies available. They only included studies that would allow them to make conclusions about large groups of people.



## What were the recommendations?

In general, the panel recommended that before epoetin is given, each patient receive:

- Thorough history and physical exam
- Complete history of all drugs taken in the past
- Tests to find out the exact cause of anemia

The panel's guidelines are listed below, as they appear in the original guideline. Each one is followed by a brief explanation, printed in bold. Guidelines 1 through 6 relate to anemia from chemotherapy; numbers 7 and 8 relate to blood cancers.

1. The use of epoetin is recommended as a treatment option for patients with chemotherapy-associated anemia and a hemoglobin concentration that has declined to a level less than or equal to 10 g/dL. Red blood cell transfusion is also an option depending upon the severity of anemia or clinical circumstances.

**Epoetin treatment is appropriate for people whose anemia is from chemotherapy and whose blood cell counts are at or below 10 g/dL (10 grams per deciliter; below this level is considered severe anemia, and where symptoms most often appear). Blood transfusions may also be appropriate for these patients.**

2. For patients with declining hemoglobin levels but less severe anemia (those with hemoglobin levels less than 12 g/dL, but who never have fallen below 10 g/dL), the decision of whether to use epoetin immediately or to wait until hemoglobin levels fall closer to 10 g/dL should be determined by clinical circumstances. Red blood cell transfusion is also a therapeutic option when warranted by severe clinical conditions.

**People whose blood cell count is between 10 and 12 g/dL (considered moderate anemia) should talk with their doctor about any symptoms and whether epoetin treatment is the best choice. If anemia is causing severe symptoms, blood transfusions may be an option.**



3. The recommendations are based on evidence from trials in which epoetin was administered subcutaneously thrice weekly. The recommended starting dose is 150 units/kg thrice weekly for a minimum of 4 weeks, with consideration given for dose escalation to 300 units/kg thrice weekly for an additional 4-8 weeks in those who do not respond to the initial dose. Although supported by less strong evidence, an alternative weekly dosing regimen (40,000 units/wk), based on common clinical practice, can be considered. Dose escalation of weekly regimens should be under similar circumstances to thrice weekly regimens.

**The recommended starting dose for epoetin is 150 units/kg, given by a shot under the skin three times a week for four weeks. If anemia continues, a larger dose may be given. In some patients, a dosing schedule of once per week may be considered.**

4. Continuing epoetin treatment beyond 6-8 weeks in the absence of response (e.g., less than 1-2 g/dL rise in hemoglobin), assuming appropriate dose increase has been attempted in non-responders, does not appear to be beneficial. Patients who do not respond should be investigated for underlying tumor progression or iron deficiency. As with other failed individual therapeutic trials, consideration should be given to discontinuing the medication.

**No current evidence shows treatment for more than six to eight weeks, if anemia is not improving, is effective. People whose anemia does not improve after epoetin treatment may have other medical problems that need care.**

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5. Hemoglobin levels can be raised to (or near) a concentration of 12 g/dL, at which time the dosage of epoetin should be titrated to maintain that level or restarted when the level falls to near 10 g/dL. Insufficient evidence to date supports the “normalization” of hemoglobin levels to above 12 g/dL.

**Research shows that epoetin treatments should be used to help keep patients’ red blood cell counts between 10 and 12 g/dL.**

6. Baseline and periodic monitoring of iron, TIBC, transferrin saturation, or ferritin levels and instituting iron repletion when indicated may be valuable in limiting the need for epoetin, maximizing symptomatic improvement for patients, and determining the reason for failure to respond adequately to epoetin. There is inadequate evidence to specify the optimal timing, periodicity, or testing regimen for such monitoring.

**People who are receiving epoetin treatments may also be tested before treatment begins (baseline) and regularly afterwards. The tests help keep track of iron and how it is stored and flows through the body. For some people, iron supplements may make fewer epoetin treatments needed, or they may help control some symptoms of anemia. Not enough research has been done to show how often these tests should be given.**

7. There is evidence from one well-designed, placebo-controlled randomized trial that supports the use of epoetin in patients with anemia associated with low risk myelodysplasia, but there are no published high-quality studies to support its use in anemic myeloma, non-Hodgkin's lymphoma, or chronic lymphocytic leukemia patients in the absence of chemotherapy. Treatment with epoetin for patients with myeloma, non-Hodgkin's lymphoma, or chronic lymphocytic leukemia experiencing chemotherapy-associated anemia should follow the recommendations outlined above.



**There is not enough evidence to support giving epoetin treatments to people with anemia caused by myeloma, non-Hodgkin's lymphoma, or chronic lymphocytic leukemia (CLL) who are not receiving chemotherapy. People with these cancers whose anemia is caused by chemotherapy should be treated according to the guidelines above. People with anemia caused by low risk myelodysplasia (abnormality in bone marrow cells that form blood) may be advised to receive epoetin treatments.**

8. Physicians caring for patients with myeloma, non-Hodgkin's lymphoma, or chronic lymphocytic leukemia are advised to begin treatment with chemotherapy and/or corticosteroids and observe the hematologic outcomes achieved solely through tumor reduction before considering epoetin. If a rise in hemoglobin is not observed following chemotherapy, epoetin should be used in accordance with the criteria outlined above for chemotherapy-associated anemia if clinically indicated.

**In people with these cancers, chemotherapy alone may improve anemia. If it does not, epoetin treatments according to guidelines 1 through 6 may be considered.**



## What should future research focus on?

The panel also recommended areas where more research is needed. As more information is available on these topics, more specific recommendations can be made on the best uses of epoetin. People who are interested in more information about clinical trials should talk with their doctor.

The panel discussed ways that future studies could help provide the best information:

- More information on baseline health status (patients' health before they begin epoetin treatments)
- Details of other treatments patients receive while taking epoetin
- Studies that use proper methods and are large enough to allow researchers to make general recommendations
- Studies that show the validity of quality of life instruments (proving that ways of measuring quality of life are good measures and can be used by other studies)

The panel also discussed topics that need more research:

- If epoetin treatments that increase hemoglobin to levels above 12 g/dL are useful
- Exact information on how epoetin might affect men and women differently (normal ranges of hemoglobin levels are different for men and women)

- How once-weekly dosing schedules compare to ones that give epoetin three times a week
- The proper role of iron supplements in people with anemia from cancer
- If newer drugs that stimulate red blood cell production are as effective, or more effective, and can be given less frequently than epoetin



Some other areas that would benefit people with cancer by further research:

- If anemia causes other side effects (such as breathing problems) that could be treated with epoetin
- If there are any factors that would help doctors predict which patients will benefit the most from epoetin (called *prognostic factors*)
- If people with cancer who take epoetin live longer than those who don't (called a *survival advantage*)
- More studies that include children
- Studies that look at the costs of epoetin treatments



## Where can I get the original Clinical Practice Guidelines?

The full text of this and all ASCO Clinical Practice Guidelines are available on ASCO's website at [www.asco.org](http://www.asco.org).

This guideline is also available on ASH's website at [www.hematology.org](http://www.hematology.org).

## Where can I find more information on cancer?

If you have questions about epoetin or about clinical trials that are evaluating epoetin, talk with your oncologist or hematologist.

More information on cancer is available on ASCO's patient information website, People Living With Cancer, at [www.plwc.org](http://www.plwc.org).

## Resources

Many organizations offer support to people with cancer and their families. Ask your doctor or call your local hospital to find out about such groups in your community. In addition, these organizations can provide information or educational materials about cancer.

### **Agency for Healthcare Research and Quality**

2101 E. Jefferson Street, Suite 501  
Rockville, MD 20852  
(301) 594-1364  
[www.ahrq.gov](http://www.ahrq.gov)

### **American Society of Hematology**

1900 M Street, NW, Suite 200  
Washington, DC 20036  
(202) 776-0544  
[www.hematology.org](http://www.hematology.org)

### **Cancer Care, Inc.**

275 Seventh Avenue  
New York, NY 10001  
(800) 813-HOPE  
[www.cancercaare.org](http://www.cancercaare.org)

### **National Cancer Institute**

NCI Public Inquiries Office  
6116 Executive Boulevard, MSC 8322  
Bethesda, MD 20892-8322  
(800) 4-CANCER  
[www.cancer.gov](http://www.cancer.gov)

### **National Coalition for Cancer Survivorship**

1010 Wayne Avenue, Suite 770  
Silver Spring, MD 20910  
(301) 650-9127  
[www.canceradvocacy.org](http://www.canceradvocacy.org)



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