



Indiana Medicaid Therapeutics Committee **Therapeutic Class Review Summary**

Therapeutic Class:

Hematinics

Overview:

Epoetin alfa and darbepoetin are human recombinant erythropoietins for the treatment of anemia associated with end-stage renal disease and chemotherapy. As alternatives to blood transfusions, epoetin alfa and darbepoetin reduce the risk of infection and improve quality of life in severely anemic patients. However, recombinant erythropoietins are only effective in patients with erythropoietin deficiency. Patients with other causes of anemia, such as chronic blood loss, infection, inflammation, folate or vitamin B₁₂ deficiency may not have an adequate response to epoetin alfa or darbepoetin. Epoetin alfa and darbepoetin have the same biological activity as endogenous erythropoietin; they regulate the production of red blood cells by stimulating progenitor cells in the bone marrow. Based on National Kidney Foundation guidelines for anemia, the target hemoglobin and hematocrit for epoetin therapy should be 11-12 g/dl and 33-36%, respectively. Iron storage is important for either product to be effective. Prior to and during therapy, the patient's transferrin saturation and serum ferritin should be evaluated. Sufficient iron should be administered to maintain a transferrin saturation of $\geq 20\%$, and a serum ferritin level of ≥ 100 ng/mL. The major safety concerns with recombinant erythropoietin products are cardiovascular risk due to thrombotic events and hypertension. The product labeling contains a black box warning regarding the increased risk of death and serious cardiovascular events when these agents are administered to target a hemoglobin of ≥ 12 mg/dL. With careful management of target hemoglobin level and a slow rate of hemoglobin increase, cardiovascular risk may be avoided.

Epoetin alfa was approved in 1989; darbepoetin came to the market in 2001. Darbepoetin has a 2- to 3-fold longer half-life than epoetin alfa and, initially, had the advantage of requiring only once weekly, once every two weeks, or once every three weeks administration. Epoetin alfa was initially administered three times weekly. However, in June 2004, a once weekly dosing regimen for Epogen[®] (epoetin alfa) was approved. Additionally, epoetin alfa has FDA approved indications for the treatment of anemia induced by zidovudine therapy

in HIV-infected patients and the treatment of anemic patients undergoing surgery to reduce the need for allogeneic blood transfusions. The two brands of epoetin alfa are Epogen[®] and Procrit[®]. Both are developed by the same company but are marketed under two different brand names. The FDA has not granted interchange approval, but there are no differences in prescribing information or clinical outcomes.

Generic Name	Brand Name	Manufacturer	Generic Available
Epoetin Alfa	Epogen [®]	Amgen	N
Epoetin Alfa	Procrit [®]	Ortho Biotech	N
Darbepoetin	Aranesp [™]	Amgen	N

Summary:

Due to the unique mechanism of action and high cost of recombinant erythropoiesis agents, the PDL process should entail ensuring these agents are provided to patients who will benefit from the treatment.