Department:	Pharmacy Management	**Original Approval:**	01/20/2016
Policy #:	PM136	**Last Approval:**	12/12/2018
Title:	Epoetin Products		
Approved By:	UM Committee		

REQUIRED CLINICAL DOCUMENTATION FOR REVIEW.

Documentation required to determine medical necessity for Epoetin alfa History and/or physical examination notes and relevant specialty consultation notes that address the problem and need for the service: -Diagnosis -Labs/Diagnostics -Medication list (current and past) -Dosing and duration requested -Weight -Initial/Extended approval -Age -Prescribed by or in consultation with a hematologist, oncologist or specialist, when indicated.

BACKGROUND

Epoetin alfa is an erythroid stimulating agent (ESA) that is approved for the following indications:[1-2]

1) Treatment of anemia of chronic kidney disease (CKD), including patients on dialysis and patients not on dialysis, to decrease the need for red blood cell (RBC) transfusions.
2) Treatment of anemia due to zidovudine in human immunodeficiency virus (HIV)-infected patients.
3) Treatment of anemia in patients with non-myeloid malignancies where anemia is due to the effect of concomitant myelosuppressive chemotherapy, and upon initiation, there is a minimum of two additional months of planned chemotherapy.
4) Reduction of allogeneic blood transfusions in patients undergoing elective, noncardiac, nonvascular surgery.

Epoetin alfa is given intravenously (IV) or subcutaneously (SC). These agents are supplied as a solution in single-dose and multidose vials, both with preservatives and preservative-free. The products are available in various strengths.

DEFINITIONS

None.

INDICATIONS/CRITERIA

Medicaid Members	Epogen is the preferred Epoetin alfa on the WA HCA Single Preferred Drug list. Procrit and Retacrit are not considered for approval unless member has tried and failed the preferred product (Epogen). ***Continue to criteria for approval below.***

Medicare Members	***Step-utilization of Part D drugs not required.***

Coverage of epoetin alfa is recommended in those who meet one of the following criteria.

FDA-Approved Indications

1. <u>Anemia in Patients with Chronic Kidney Disease (CKD) who are on Dialysis</u>.

Criteria. *<u>Patient must meet the following criteria (A AND B)</u>*:

- **A)** For initial therapy, hemoglobin (Hb) is < 10.0 g/dL for adults and ≤ 11.0 g/dL for children; OR For patients currently receiving Epoetin alfa or Aranesp® (darbepoetin alfa injection), or Mircera® (methoxy polyethylene glycol-epoetin beta injection), Hb is ≤ 11.5 g/dL for adults and ≤ 12.0 g/dL for children; ; AND
- **B)** The patient is currently receiving iron therapy or iron stores are adequate (e.g., epoetin alfa prescribing information recommends supplemental iron therapy when serum ferritin is < 100 mcg/L or when serum transferrin saturation is < 20%).

Epoetin alfa is indicated for the treatment of anemia due to CKD, including patients on dialysis.[1-3] The prescribing information for Epoetin alfa recommends that therapy should be initiated for patients with CKD on dialysis when the Hb level is < 10.0 g/dL and if the Hb level approaches or exceeds 11.0 g/dL, reduce or interrupt the dose of Epoetin alfa.[1-3] The Kidney Disease Improving Global Outcomes (KDIGO) clinical practice guidelines for anemia in CKD, published in 2012, state that for adults with CKD on dialysis, ESA therapy should be used to avoid having Hb concentrations fall below 9.0 g/dL by initiating ESA therapy when the Hb is between 9.0 and 10.0 g/dL. In general, ESAs should not be used to maintain Hb concentrations above 11.5 g/dL in adult patients with CKD. For pediatric patients with CKD, the Hb concentration in which ESAs should be initiated in the individual patient should be considered while being aware of the potential benefits and potential harms. In all pediatric patients with CKD receiving ESA therapy the selected Hb concentration should be in the range of 11.0 to 12.0 g/dL. For adult patients with CKD on ESA therapy who are not receiving iron supplementation, a trial of intravenous iron (or oral iron therapy in patients with CKD not on dialysis) is recommended when transferrin saturation is < 30% and ferritin is ≤ 500 mcg/L. For all pediatric patients with CKD receiving ESA therapy who are not receiving iron supplementation, oral iron (or intravenous iron in patients with CKD who are on dialysis) should be administered to maintain transferrin saturation > 20% and ferritin > 100 mcg/L. During the initiation of ESA therapy, KDIGO guidelines recommend to measure Hb concentration at least monthly. During the maintenance phase of ESA therapy for patients with CKD on dialysis, measure Hb concentrations at least monthly. KDIGO recommends to evaluate iron status (transferrin saturation and ferritin) at least every 3 months during ESA therapy, including the decision to start or continue iron therapy.[4]

Dosing in Patients with CKD who are on Dialysis. *<u>Dosing must meet the following (A OR B)</u>:*

A) For adults, initiate therapy at 50 to 100 Units/kg three times weekly (TIW) IV or SC;[1-3] OR
B) For pediatric patients initiate therapy at 50 Units/kg TIW SC or IV.[1-3]

Note: The IV route is recommended for patients on hemodialysis. If the Hb approaches or exceeds 11.5 g/dL for adults or 12.0 g/dL for children, reduce or interrupt the Epoetin alfa dose. Refer to the prescribing information regarding titration of Epoetin alfa. Use the lowest dose that will maintain a Hb level sufficient to reduce the need for red blood cell (RBC) transfusions.[1-3]

Initial Approval/Extended Approval.

A) *Initial Approval*. Initial approval is for 6 months if Hb is < 10.0 g/dL for adults and ≤ 11.0 g/dL for children.
B) *Extended Approval*. Extended approval is at 6-month intervals if the Hb is ≤ 11.5 g/dL for adults and ≤ 12.0 g/dL for children and the patient responds to therapy. Response is defined as Hb has increased, Hb has stayed the same and not decreased further, RBC transfusions are not required, and/or the number of RBC transfusions has decreased. For patients not responding, discontinue Epoetin alfa and evaluate and treat for other causes of anemia.

Duration of Therapy in Patients with CKD who are on Dialysis. Indefinite as long as the patient has CKD and is receiving dialysis.

Labs/Diagnostics. *Patient must meet the following criteria (A AND B)*:

A) Monitor Hb at therapy initiation and at 6-month intervals; AND
B) Iron stores (for example, serum iron, total iron binding capacity, serum ferritin, percent transferrin saturation [TSAT], bone marrow biopsy) must be evaluated at therapy initiation and at 6-month intervals, unless the patient is currently receiving iron therapy.

2. Anemia in Patients with Chronic Kidney Disease (CKD) who are not on Dialysis.

Criteria. *Patients must meet the following criteria (A AND B)*:

A) For initial therapy Hb level is **<** 10.0 g/dL for adults and ≤ 11.0 g/dL for children; OR For patients currently receiving Aranesp or Epoetin alfa, Hb is ≤ 11.5 g/dL for adults and ≤ 12.0 g/dL for children OR for patients currently receiving Mircera, Hb is ≤ 11.5 g/dL for adults; AND
B) The patient is currently receiving iron therapy or iron stores are adequate (e.g., Epoetin alfa prescribing information recommends supplemental iron therapy when serum ferritin is < 100 mcg/L or when serum transferrin saturation is < 20%).

Epoetin alfa is indicated for the treatment of anemia due to CKD in patients not on dialysis.[1--3] The prescribing information for Epoetin alfa recommends for patients with CKD not on dialysis, Epoetin alfa should be initiated when the Hb is < 10.0 g/dL and other considerations apply (e.g., patient is likely to need transfusions). If the Hb exceeds 10.0 g/dL, reduce or interrupt the Epoetin alfa dose and use the lowest dose sufficient to reduce the need for RBC transfusions.[1-3] Clinical practice guidelines for anemia in CKD from KDIGO recommend against initiating ESA therapy for adult patients with CKD who are not on dialysis when Hb levels are ≥ 10.0 g/dL.[4] For adult patients with CKD who are not on dialysis with Hb levels < 10.0 g/dL, the decision whether to initiate ESA therapy should be individualized based on many

factors (e.g., prior response to iron therapy, the risk of needing a transfusion, presence of symptoms). In general, ESAs should not be used to maintain Hb concentrations above 11.5 g/dL in adult patients with CKD. For pediatric patients with CKD, the Hb concentration in which ESAs should be initiated in the individual patient should be considered with awareness of the potential benefits and harms. In all pediatric patients with CKD receiving ESA therapy the selected Hb concentration should be in the range of 11.0 to 12.0 g/dL. For adult patients with CKD on ESA therapy who are not receiving iron supplementation, a trial of intravenous iron (or oral iron therapy in patients with CKD not on dialysis) is suggested when transferrin saturation is < 30% and ferritin is ≤ 500 mcg/L. For all pediatric patients with CKD receiving ESA therapy who are not receiving iron supplementation, oral iron (or intravenous iron in patients with CKD who are on dialysis) should be administered to maintain transferrin saturation > 20% and ferritin > 100 mcg/L. KDIGO guidelines recommend during the initiation of ESA therapy to measure Hb concentrations at least monthly. For patients with CKD not on dialysis during the maintenance phase of ESA therapy, measure Hb concentration at least every 3 months. KDIGO recommends to evaluating iron status (transferrin saturation and ferritin) at least every 3 months during ESA therapy, including the decision to start or continue iron therapy.

Dosing in Patients with CKD who are not on Dialysis. *Dosing must meet ONE of the following (A <u>OR</u> B):*[1-3]

A) Initiate therapy in adults at 50 to 100 Units/kg TIW IV or SC; OR

B) Initiate therapy in children at 50 Units/kg TIW IV or SC.

<u>Note</u>: If Hb exceeds 11.5 g/dL for adults or 12.0 g/dL in children, reduce or interrupt the Epoetin alfa dose, and use the lowest dose sufficient to reduce the need for RBC transfusions. Refer to the prescribing information regarding titration of Epoetin alfa.

Initial Approval/Extended Approval.

A) *<u>Initial Approval</u>*. Initial approval is for 6 months if Hb is < 10.0 g/dL for adults and ≤ 11.0 g/dL for children.

B) *<u>Extended Approval</u>.* Extended approval is at 6-month intervals if the Hb is ≤ 11.5 g/dL for adults and ≤ 12.0 g/dL for children and the patient responds to therapy. Response is defined as Hb has increased, Hb has stayed the same and not decreased further, RBC transfusions are not required, and/or the number of RBC transfusions has decreased. For patients not responding discontinue Epoetin alfa and evaluate and treat for other causes of anemia.

Duration of Therapy in Patients with CKD who are not on Dialysis. Indefinite as long as the patient has CKD.

Labs/Diagnostics. *<u>Patient must meet the following criteria (A AND B)</u>*:

A) Monitor Hb at therapy initiation and at 6-month intervals; AND

B) Iron stores (for example, serum iron, total iron binding capacity, serum ferritin, TSAT, bone marrow biopsy) must be evaluated at therapy initiation and at 6-month intervals, unless the patient is currently receiving iron therapy.

3. <u>Patients with Anemia and Human Immunodeficiency Virus (HIV) who are Receiving Zidovudine.</u>

Criteria. *The patient must meet the following criteria (A, B AND C)*:[1-3, 5]

- **A)** The patient is currently receiving zidovudine therapy; AND
- **B)** Hb is ≤ 10.0 g/dL for initial therapy; OR
  endogenous erythropoietin levels are ≤ 500 mUnits/mL for initial therapy; OR
  Hb is ≤ 12.0 g/dL for patients currently receiving Epoetin alfa; AND
- **C)** The patient is currently receiving iron therapy or iron stores are adequate (e.g., Epoetin alfa prescribing information recommends supplemental iron therapy when serum ferritin is < 100 mcg/L or when serum transferrin saturation is < 20%).

Epoetin alfa is indicated for the treatment of anemia due to zidovudine given at ≤ 4,200 mg per week in HIV-infected patients with endogenous serum erythropoietin levels of ≤ 500 mUnits/mL.[1-3] It is recommended to withhold Epoetin alfa if Hb exceeds 12.0 g/dL.[1-3] Data show that Epoetin alfa elevated or maintained Hb and/or hematocrit and decreased transfusions in these anemic patients (Hb < 10.0 g/dL) who were receiving zidovudine. Patients with baseline endogenous serum erythropoietin levels ≤ 500 mUnits/mL derived greater benefit with Epoetin alfa (e.g., achievement of higher hematocrit, reduction in transfusion requirements) compared with those having levels greater than this threshold.[1-3] A published randomized, multicenter, double-blind, placebo-controlled, 3-month clinical trial[5] involving 63 patients with HIV receiving zidovudine also found similar results.

Dosing for Patients with Anemia and HIV who are Receiving Zidovudine. *Dosing must meet ONE of the following (A OR B)*:

- **A)** For adults initiate at 100 Units/kg IV or SC TIW for 8 weeks and increase up to 300 Units/kg TIW; OR
- **B)** For pediatric patients, the dose is 50 to 400 Units/kg SC or IV two to three times per week.

Note: Refer to the Epoetin alfa prescribing information for titration of the dose.

Initial Approval/Extended Approval.

- **A)** *Initial Approval*. Initial approval is for 4 months.
- **B)** *Extended Approval*. Approval can be given at 4-month intervals if the Hb is ≤ 12.0 g/dL and the patient responds to therapy. Response is defined as Hb has increased, Hb has stayed the same and not decreased further, RBC transfusions are not required, and/or the number of RBC transfusions has decreased. If no response is achieved, discontinue therapy and evaluate for other causes of anemia. If the patient does not have a response, discontinue Epoetin alfa. Discontinue Epoetin alfa when the patient stops zidovudine therapy.

Labs/Diagnostics. *Patient must meet the following criteria (A AND B)*:

- **A)** Monitor Hb or serum erythropoietin levels at therapy initiation and monitor Hb at 4-month intervals; AND
- **B)** Iron stores (for example, serum iron, total iron binding capacity, serum ferritin, TSAT, bone marrow biopsy) must be evaluated at therapy initiation and at 4-month intervals, unless the patient is currently receiving iron therapy.

4. Anemia in Patients with Cancer due to Cancer Chemotherapy.

Criteria. *The patient must meet the following criteria (A, B AND C)*:

- **A)** Hb is < 10.0 g/dL for initial therapy; OR
  Hb is ≤ 12.0 g/dL for patients currently receiving Epoetin alfa or Aranesp; AND
- **B)** The patient is currently receiving myelosuppressive chemotherapy; AND
- **C)** The patient is currently receiving iron therapy or iron stores are adequate (e.g., Epoetin alfa recommends supplemental iron therapy when serum ferritin is < 100 mcg/L or when serum tranferrin saturation is < 20%).

Epoetin alfa is indicated for the treatment of anemia in patients with non-myeloid malignancies where the anemia is due to the effect of concomitant myelosuppressive chemotherapy and, upon initiation, there is a minimum of 2 additional months of planned chemotherapy. Discontinue Epoetin alfa following the completion of a chemotherapy course. Initiate Epoetin alfa for patients on cancer chemotherapy only if the Hb is < 10.0 g/dL. Use the lowest dose of Epoetin alfa necessary to avoid RBC transfusions.[1-3] Hb can be increased to (or near) a concentration of 12.0 g/dL, at which time the dose of Epoetin alfa should be titrated to maintain that level.[6] Iron studies should accompany ESA therapy to monitor the development of iron deficiency. Iron supplementation can improve response to ESA therapy.[6-7] Baseline and periodic monitoring of iron, total iron-binding capacity, transferrin saturation, or ferritin levels and instituting iron replacement when needed may be useful in limiting the need for ESAs, maximizing symptomatic improvement in patients, and determining the reason for failure to adequately response to ESAs.[6] Iron deficiency can occur following continued ESA use and, therefore, iron supplementation is required in most patients to maintain an optimal response.[5]

Dosing in Anemia due to Cancer Chemotherapy. *Dosing must meet ONE of the following (A, B, C, D, OR E)*:

Adults

- **A)** 150 Units/kg TIW SC (increase Epoetin alfa up to 300 Units/kg TIW SC)[1-3,6] until completion of a chemotherapy course; OR
- **B)** 40,000 Units once every week SC (increase dose to 60,000 Units every week by SC injection)[1-3,7] until completion of a chemotherapy course; OR
- **C)** 80,000 Units every 2 weeks SC until completion of a chemotherapy course; OR[6]
- **D)** 120,000 Units every 3 weeks SC until completion of a chemotherapy course; OR[6]

Pediatric patients (aged 5 to 18 years)

- **E)** 600 Units/kg IV weekly[1-3] until completion of a chemotherapy course.

Note: Different doses and intervals between doses have been used for initiating therapy and for adjusting the dose to maintain a response. Examples of some initial and maximum doses of Epoetin alfa are listed above. Use the lowest dose needed to avoid RBC transfusions. Dosing modifications are determined by the prescribing physician.

Initial Approval/Extended Approval.

- **A)** *Initial Approval*. Initial approval is for 4 months if Hb is < 10.0 g/dL.

B) *Extended Approval*. Approval can be given at 4-month intervals if the Hb is ≤ 12.0 g/dL and the patient responds to therapy. Response is defined as Hb has increased, Hb has stayed the same and not decreased further, RBC transfusions are not required, and/or the number of RBC transfusions has decreased. If the patient does not have a response, discontinue Epoetin alfa. Discontinue Epoetin alfa following completion of a chemotherapy course.

During of Therapy in Anemia due to Cancer Chemotherapy. Indefinite as long as the patient is receiving myelosuppressive chemotherapy.

Labs/Diagnostics. *Patients must meet the following criteria (A AND B)*:

A) Monitor Hb at therapy initiation and at 4-month intervals; AND

B) Iron stores (for example, serum iron, total iron binding capacity, serum ferritin, TSAT, bone marrow biopsy) must be evaluated at therapy initiation and at 4-month intervals, unless the patient is currently receiving iron therapy.

5. Reduction of Allogeneic Red Blood Cell (RBC) Transfusions in Patients Undergoing Surgery.

Criteria. *The patient must meet the following criteria (A, B, C, AND D)*:

A) Hb level is ≤ 13.0 g/dL; AND

B) The surgery is elective, nonvascular and noncardiac; AND

C) The patient is not willing or able to donate autologous blood prior to surgery; AND

D) The patient is currently receiving iron therapy or iron stores are adequate (e.g., Epoetin alfa prescribing information recommends supplemental iron therapy when serum ferritin is < 100 mcg/L or when serum transferrin saturation is < 20%).

Epoetin alfa is indicated to reduce the need for allogeneic RBC transfusions in patients with perioperative Hb > 10 g/dL to ≤ 13.0 g/dL who are at high risk for perioperative blood loss from elective, noncardiac, nonvascular surgery. Epoetin alfa is not indicated for surgical patients who are willing to donate autologous blood.[1-3] Several trials support this use.[8-10]In a multicenter, double-blind, placebo-controlled, parallel group trial[8] patients undergoing major orthopedic surgery of the hip or knee were randomized to receive Epoetin alfa 300 IU/kg SC (n = 112), Epoetin alfa 100 IU/kg SC (n = 101) or placebo (n = 103) for 15 consecutive days starting 10 days prior to, on the day of, and for 4 days after major orthopedic surgery of the hip or knee. Patients with a baseline Hb of > 10.0 to ≤ 13.0 g/dL who received Epoetin alfa experienced a statistically significant decrease in the number of units transfused and the percentage of patients given transfusions in this subgroup who received Epoetin alfa 300 IU/kg SC was reduced.

Dosing in Patients Undergoing Surgery (to Reduce Allogeneic RBC Transfusions). *Dosing must meet the following (A OR B)*:

A) 300 Units/kg/day SC for 15 days total: administered daily for 10 days before surgery, on the day of surgery, and for 4 days after surgery; OR

B) 600 Units/kg SC in doses administered 21, 14, and 7 days before surgery and on the day or surgery.

Initial Approval/Extended Approval. Approve for one month.

During of Therapy in Patients Undergoing Surgery (to Reduce Allogeneic RBC Transfusions). Approve for use before surgery for up to one month.

Labs/Diagnostics. *Patient must meet the following criteria (A AND B)*:

- **A)** Monitor Hb at therapy initiation; AND
- **B)** Iron stores (for example, serum iron, total iron binding capacity, serum ferritin, TSAT, bone marrow biopsy) must be evaluated at therapy initiation unless the patient is currently receiving iron therapy.

Other Uses with Supportive Evidence

6. Anemia Associated with Myelodysplastic Syndromes (MDS).

Criteria. *Patient must meet the following criteria (A, B, C, AND D)*:

- **A)** Patient is ≥ 18 years of age; AND
- **B)** Hb is ≤ 10 g/dL for initial therapy; OR serum erythropoietin level is ≤ 500 mU/mL for initial therapy; OR Hb is ≤ 12.0 g/dL for patients currently receiving Epoetin alfa or Aranesp; AND
- **C)** Epoetin alfa is prescribed by, or in consultation with, a hematologist or oncologist; AND
- **D)** The patient is currently receiving iron therapy or iron stores are adequate (e.g., Epoetin alfa prescribing information recommends supplemental iron therapy when serum ferritin is < 100 mcg/L or when serum transferrin saturation is < 20%).

Data are available regarding use of epoetin alfa in patients with MDS. Response rates vary among the populations studied but benefits have been noted.[11-16] Clinical practice guidelines from the National Comprehensive Cancer Network (NCCN) for MDS (version 2.2018 – February 15, 2018) state that ESAs (epoetin alfa and Aranesp) have a role in anemic, symptomatic patients with MDS if serum erythropoietin levels are ≤ 500 mU/mL. Epoetin alfa has been studied as a single agent, as well as with other hematopoietic growth factors (e.g., granulocyte colony stimulating factor [G-CSF]).[17] The treatment of MDS is largely supportive as it can be highly resistant to conventional chemotherapy and because patients are often elderly and cannot tolerate chemotherapy. Due to the safety issues that have surfaced, the guidelines suggest that ESAs be used in the management of symptomatic anemia in patients with MDS but to aim for a target Hb ≤ 12.0 g/dL.

Dosing in MDS. *Dosing must meet the following*: 40,000 to 60,000 Units 1 to 2 times per week SC.[16]

Initial Approval/Extended Approval.

- **A)** *Initial Approval*. Initial approval is for 6 months if Hb is ≤ 10 g/dL OR the serum erythropoietin level is ≤ 500 mU/mL.
- **B)** *Extended Approval*. Approve at additional 6-months intervals if a response is achieved (increase in Hb or a decrease in transfusions) and Hb is ≤ 12.0 g/dL. For patients not responding, despite dose titrations and/or concomitant use of G-CSF (e.g., Neupogen® [filgrastim injection]) during the first 6 months, discontinue Epoetin alfa and evaluate and treat for other causes of anemia.

Duration of Therapy in Myelodysplastic Syndrome (MDS). Indefinite as long as the patient has MDS.

Labs/Diagnostics. *Patient must meet the following criteria (A AND B)*:

- **A)** Monitor Hb or serum erythropoietin levels at therapy initiation and monitor Hb at 6-month intervals; AND
- **B)** Iron stores (for example, serum iron, total iron binding capacity, serum ferritin, TSAT, bone marrow biopsy) must be evaluated at therapy initiation and at 4-month intervals, unless the patient is currently receiving iron therapy.

Waste Management for All Indications.
Single-dose vials and multidose vials are available in many different strengths. The dose should be calculated and the number of vials needed assessed. Refer to the package insert for more information.

Conditions Not Recommended for Approval
Epoetin alfa has not been shown to be effective, or there are limited or preliminary data or potential safety concerns that are not supportive of general approval for the following conditions. Rationale for non-coverage for these specific conditions is provided below. (Note: This is not an exhaustive list of Conditions Not Recommended for Approval.)

1. **Anemia Associated with Cancer in Patients not Receiving Myelosuppressive Cancer Chemotherapy.** Epoetin alfa is not indicated in cancer patients who are not receiving cancer chemotherapy.[1-3] The American Society of Clinical Oncology (ASCO)/American Society of Hematology (ASH) guidelines for the use of Epoetin alfa and Aranesp in adult patients with cancer recommend that ESAs not be used in treatment of anemia associated with malignancy in those who are not receiving concurrent myelosuppressive chemotherapy.[6]

2. **Anemia Associated with Acute Myeloid Leukemia (AML), Chronic Myelogenous Leukemia (CML) or other Myeloid Cancers.** Epoetin alfa is indicated for use in non-myeloid cancers. AML and CML are examples of myeloid cancers.[1-3]

3. **Anemia Associated with Radiotherapy in Cancer.** Epoetin alfa is not indicated for use in patients with cancer who are only given radiation therapy.[1-3]

4. **To Enhance Athletic Performance.** Epoetin alfa is not recommended for approval because this indication is excluded from coverage in a typical pharmacy benefit.

5. **Anemia in Patients due to Acute Blood Loss.** Use of Epoetin alfa is not appropriate in these types of situations.

6. **Non-Anemic Patients (Hemoglobin [Hb] > 13.0 g/dL) prior to Surgery.** Although studies have been done that involved non-anemic patients undergoing various surgeries receiving Epoetin alfa preoperatively and sometimes postoperatively to prevent transfusions or subsequent anemia, the overall benefit of this therapy in those with relatively normal preoperative Hb level is questionable.

Coverage is not recommended for circumstances not listed in the Recommended Authorization criteria. Criteria will be updated as new published data are available.

SPECIAL CONSIDERATIONS

None.

LIMITATIONS/EXCLUSIONS

Please refer to a product line's certificate of coverage for benefit limitations and exclusions for these services:

PRODUCT LINE	LINK TO CERTIFICATE OF COVERAGE
MEDICARE ADVANTAGE	http://healthfirst.chpw.org/for-members/resource-library/handbooks-and-guides
WASHINGTON APPLE HEALTH	http://chpw.org/our-plans/apple-health/
INTEGRATED MANAGED CARE	http://chpw.org/our-plans/apple-health/

Citations & References

References	1. Procrit® injection for intravenous or subcutaneous use [prescribing information]. Raritan, NJ: Janssen; September 2017. 2. Epogen® injection for intravenous or subcutaneous use [prescribing information]. Thousand Oaks, CA: Amgen, Inc.; September 2017. 3. Retacrit™ injection for subcutaneous or intravenous use [prescribing information]. New York, NY and Lake Forest, IL: Pfizer and Hospira; May 2018. 4. Kidney Disease: Improving Global Outcomes (KDIGO) Anemia Work Group. KDIGO Clinical Practice Guideline for Anemia in Chronic Kidney Disease. *Kidney Inter*. 2012;2(Suppl):279-335. Available at: http://www.kdigo.org/clinical_practice_guidelines/pdf/KDIGO-Anemia%20GL.pdf. Accessed on June 18, 2018.

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7. The NCCN Cancer- and Chemotherapy-Induced Anemia Clinical Practice Guidelines in Oncology (Version 2.2018 – November 21, 2017). © 2017 National Comprehensive Cancer Network, Inc. Available at: http://www.nccn.org/clinical.asp. Accessed on June 18, 2018.
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11. Thompson JA, Gilliland G, Prchal TJ, et al. Effect of recombinant human erythropoietin combined with granulocyte/macrophage colony-stimulating factor in the treatment of patients with myelodysplastic syndrome. *Blood*. 2000;95:1175-1179.
12. Italian Cooperative Study Group for rHuEpo in myelodysplastic syndromes. A randomized double-blind placebo-controlled study with subcutaneous recombinant human erythropoietin in patients with low-risk myelodysplastic syndromes. *Br J Haematol*. 1998;103(4):1070-1074.
13. Terpos E, Mougiou A, Kouraklis A, et al. Prolonged administration of erythropoietin increases erythroid response rate in myelodysplastic syndromes: a phase II trial in 281 patients. *Br J Haematol*. 2002;118:174-180.
14. Stasi R, Pagano A, Terzoli E, Amadori S. Recombinant human granulocyte-macrophage colony-stimulating factor plus erythropoietin for the treatment of cytopenias in patients with myelodysplastic syndromes. *Br J Haematol*. 1999;105(1):141-148.
15. Stasi R, Brunetti M, Terzoli E, et al. Once-weekly dosing of recombinant human erythropoietin alpha in patients with

	myelodysplastic syndromes unresponsive to conventional dosing. *Ann Oncol*. 2004;15(11):1684-1690. 16. Spiriti MA, Latagliata R, Niscola P, et al. Impact of a new dosing regimen of epoetin alfa on quality of life and anemia in patients with low-risk myelodysplastic syndrome. *Ann Hematol*. 2005;84(3):167-176. 17. The NCCN Myelodysplastic Syndromes Clinical Practice Guidelines in Oncology (Version 2.2018 – February 15, 2018). © 2018 National Comprehensive Cancer Network, Inc. Available at www.nccn.org. Accessed on June 18, 2018. **OTHER REFERENCES UTILIZED** • Staples AO, Wong CS, Smith JM, et al. Anemia and risk of hospitalization in pediatric chronic kidney disease. *Clin J Am Soc Nephrol*. 2009;4:48-56.
CFR	
WAC	284-43-2050
RCW	
Contract Citation	☐ WAH ☐ IMC ☐ MA
Other Requirements	
NCQA Elements	

Revision History

Revision Date	Revision Description	Revision Made By
01/13/2016	New	Kelly Force; Yusuf Rashid, RPh
01/20/2016	Approval	MMLT
01/12/2017	No revisions	Fran McGaugh
01/13/2017	Approval	MMLT
07/24/2017	Criteria completely updated and revised	Michael Sporck, Pharmacy Intern Sophia Yun, PharmD
07/25/2017	Approved	MMLT
03/09/2018	Reassigned from UM148 to PM136	Cindy Bush
05/07/2018	Transferred to new template	Cindy Bush
05/23/2018	No revisions	Jennifer Farley, PharmD
06/14/2018	Approval	UM Committee
08/16/2018	Revised and addition of SPDL status	Jennifer Farley, PharmD
11/28/2018	Minor Revision	Jennifer Farley, PharmD
12/12/2018	Approval	UM Committee