

Aranesp® (darbepoetin alfa) (Subcutaneous/Intravenous)

NON-DIALYSIS

Document Number: IC-0242

Last Review Date: 05/02/2024

Date of Origin: 10/17/2008

Dates Reviewed: 11/2008, 06/2009, 12/2009, 09/2010, 12/2010, 02/2011, 03/2011, 06/2011, 08/2011, 09/2011, 12/2011, 03/2012, 06/2012, 09/2012, 10/2012, 12/2012, 03/2013, 05/2013, 06/2013, 09/2013, 12/2013, 03/2014, 06/2014, 09/2014, 12/2014, 03/2015, 05/2015, 08/2015, 11/2015, 02/2016, 05/2016, 08/2016, 11/2016, 02/2017, 04/2017, 8/2017, 11/2017, 02/2018, 05/2018, 04/2019, 04/2020, 09/2020, 05/2021, 05/2022, 05/2023, 05/2024

I. Length of Authorization

- Coverage will be provided for 45 days and may be renewed.

II. Dosing Limits

A. Quantity Limit (max daily dose) [NDC unit]:

- Aranesp 10 mcg prefilled syringe: 1 syringe up to every 7 days
- Aranesp 25 mcg vial or prefilled syringe: 1 vial or syringe up to every 7 days
- Aranesp 40 mcg vial or prefilled syringe: 1 vial or syringe up to every 7 days
- Aranesp 60 mcg vial or prefilled syringe: 1 vial or syringe up to every 7 days
- Aranesp 100 mcg vial or prefilled syringe: 1 vial or syringe up to every 7 days
- Aranesp 150 mcg prefilled syringe: 1 syringe up to every 7 days
- Aranesp 200 mcg vial or prefilled syringe: 1 vial or syringe up to every 7 days
- Aranesp 300 mcg vial or prefilled syringe: 1 vial or syringe up to every 14 days (MPN may be as frequent as every 7 days)
- Aranesp 500 mcg prefilled syringe: 1 syringe up to every 14 days

B. Max Units (per dose and over time) [HCPCS Unit]:

- MDS: 500 billable units every 14 days
- MPN: 300 billable units every 7 days
- CKD (Non-Dialysis Patients): 600 billable units every 28 days
- Chemotherapy-induced: 600 billable units every 21 days

III. Initial Approval Criteria ^{1,4,5}

Coverage is provided in the following conditions:

- Patient is at least 18 years of age (unless otherwise specified); **AND**

- Initiation of therapy Hemoglobin (Hb) < 10 g/dL and/or Hematocrit (Hct) < 30%; **AND**

Universal Criteria ^{1,3,16,18}

- Lab values are obtained within 30 days of the date of administration (unless otherwise indicated); **AND**
- Patient has adequate iron stores as demonstrated by serum ferritin \geq 100 ng/mL (mcg/L) and transferrin saturation (TSAT) \geq 20% (measured within the previous 3 months for renewal)*; **AND**
- Other causes of anemia (e.g. hemolysis, bleeding, vitamin deficiency, etc.) have been ruled out; **AND**
- Patient does not have uncontrolled hypertension; **AND**

Anemia Due to Myelodysplastic Syndromes (MDS) ‡ ^{2,4}

- Patient has symptomatic anemia; **AND**
- Patient has a serum erythropoietin level \leq 500 mU/mL; **AND**
 - Patient has lower risk disease (defined as IPSS Low/Intermediate-1); **AND**
 - Used as a single agent for del(5q) mutation (*excluding use in patients with cytogenetic abnormality involving chromosome 7*); **OR**
 - Patient has lower risk disease (defined as IPSS-R [Very Low, Low, Intermediate]); **AND**
 - Patient does not have del(5q) mutation; **AND**
 - Patient has ring sideroblasts < 15% (or <5% with an SF3B1 mutation); **AND**
 - Used as a single agent; **OR**
 - Used in combination with either lenalidomide or a granulocyte-colony stimulating factor (G-CSF); **AND**
 - ❖ Patient had no response** (despite adequate iron stores) to an erythropoiesis-stimulating agent (ESA) alone; **OR**
 - ❖ Patient had no response** to luspatercept; **OR**
 - Patient has ring sideroblasts \geq 15% (or ring sideroblasts \geq 5% with an SF3B1 mutation); **AND**
 - Patient had no response** to luspatercept; **AND**
 - ❖ Used as a single agent; **OR**
 - ❖ Used in combination with a G-CSF

** **Note:** No response defined as a lack of \geq 1.5 gm/dL rise in hemoglobin OR lack of a decrease in RBC transfusion requirement (within 6-8 weeks when treated with ESAs or within 3-6 months when treated with luspatercept).

Anemia Due to Myeloproliferative Neoplasms (MPN) - Myelofibrosis ‡ ^{2,5}

- Patient has myelofibrosis-associated anemia with serum erythropoietin level of < 500 mU/mL; **AND**

- Patient has symptomatic splenomegaly and/or constitutional symptoms currently controlled on a JAK inhibitor; **AND**
 - Used in combination with ruxolitinib; **OR**
- Patient has no symptomatic splenomegaly and/or constitutional symptoms; **AND**
 - Used as a single agent

Anemia Due to Chemotherapy Treatment † ‡¹⁻³

- Patient has anemia due to concomitant myelosuppressive chemotherapy for a non-myeloid malignancy; **AND**
 - Patient is receiving chemotherapy that is not intended to cure their disease (i.e., palliative treatment) ±; **AND**
 - There are a minimum of two additional months of planned chemotherapy
- ± **Note:** Patients who are not undergoing palliative treatment and refuse blood transfusions may be reviewed on a case-by-case basis

Anemia Due to Chronic Kidney Disease (Non-Dialysis Patients) † ^{1,16,18}

- Patient at least 1 month of age

† FDA Approved Indications; ‡ Compendia Recommended Indication(s); ◊ Orphan Drug

IV. Renewal Criteria ^{1,4,5,19}

Coverage can be renewed based upon the following criteria:

- Patient continues to meet universal and other indication-specific relevant criteria identified in section III; **AND**
- Previous dose was administered within the past 60 days; **AND**
- Disease response with treatment as defined by improvement in anemia compared to pretreatment baseline; **AND**
- Absence of unacceptable toxicity from the drug. Examples of unacceptable toxicity include: pure red cell aplasia, severe allergic reactions (anaphylaxis, angioedema, bronchospasm, etc.), severe cardiovascular events (stroke, myocardial infarction, congestive heart failure, thromboembolism, etc.), uncontrolled hypertension, seizures, increased risk of tumor progression/recurrence in patients with cancer, severe cutaneous reactions (erythema multiforme, Stevens-Johnson Syndrome [SJS]/Toxic Epidermal Necrolysis [TEN], etc.), etc.; **AND**

Anemia Due to Myelodysplastic Syndrome (MDS):

- Hemoglobin (Hb) < 12 g/dL and/or Hematocrit (Hct) < 36%

Anemia Due to Myeloproliferative Neoplasms (MPN) – Myelofibrosis:

- Hemoglobin (Hb) < 10 g/dL and/or Hematocrit (Hct) < 30%

Anemia Due to Chemotherapy Treatment:

- Refer to Section III for criteria

Anemia Due to Chronic Kidney Disease (Non-Dialysis Patients):

- **Pediatric patients:** Hemoglobin (Hb) < 12 g/dL and/or Hematocrit (Hct) ≤ 36%
- **Adult patients:** Hemoglobin (Hb) < 11 g/dL and/or Hematocrit (Hct) ≤ 33%

* Intravenous iron supplementation may be considered when evaluating iron status

- Functional iron deficiency (i.e., adequate iron stores with an insufficient supply of available iron) may occur in patients with chronic diseases, cancer, and/or in those currently receiving ESAs.
- Iron is not generally recommended in anemic patients with a Ferritin >500 ng/mL.
- Anemic patients with a Ferritin ≤500 ng/mL AND TSAT <50% may derive benefit from IV iron therapy in conjunction with ESA.

V. Dosage/Administration ^{1,3-5,7,17}

Indication	Dose
Anemia due to chemotherapy §	Administer 2.25 mcg/kg subcutaneously every 7 days. May increase up to 4.5 mcg/kg subcutaneously every 7 days for insufficient response -OR- Administer 500 mcg subcutaneously every 21 days Alternative regimens: Administer 100 mcg subcutaneously every 7 days. May increase up to 200 mcg subcutaneously every 7 days for insufficient response -OR- Administer 200 mcg subcutaneously every 14 days. May increase up to 300 mcg subcutaneously every 14 days for insufficient response -OR- Administer 300 mcg subcutaneously every 21 days. May increase up to 500 mcg subcutaneously every 21 days for insufficient response
Anemia due to Chronic Kidney Disease – Non-dialysis §	<u>Pediatric patients:</u> Administer 0.45 mcg/kg intravenously or subcutaneously every 7 days -OR- Administer 0.75 mcg/kg intravenously or subcutaneously every 14 days <u>Adult patients:</u> Administer 0.45 mcg/kg intravenously or subcutaneously every 28 days. May increase to a maximum dose of 600 mcg every 28 days.
Anemia due to MDS §	Administer 150 to 300 mcg subcutaneously every 14 days. May increase up to 500 mcg every 14 days
Anemia due to MPN §	Administer 150 mcg subcutaneously every 7 days. May increase up to 300 mcg every 7 days

§ Dose Adjustments and Discontinuation Guidance

- For patients with CKD:
 - Dose increases of 25% can be considered if after 4 weeks of initial therapy the hemoglobin has increased less than 1 g/dL and the current hemoglobin level is less than the indication specific level noted above.
 - Dose decreases of 25% or more can be considered if the hemoglobin rises rapidly by more than 1 g/dL in any 2-week period.
 - Dose and frequency requested are the minimum necessary for the patient to avoid RBC transfusions.
 - Avoid frequent dose adjustments. Do not increase the dose more frequently than once every 4 weeks; decreases can occur more frequently.
 - If patients fail to respond over a 12-week dose escalation period, further dose increases are unlikely to improve response and discontinuation of therapy should be considered.
- For patients with MDS:
 - After 8 weeks of therapy, if there is no response as measured by at least a 1.5 g/dL increase in hemoglobin or a decrease in RBC transfusions, change of regimen or discontinuation of therapy should be considered.
- For patients with MPN:
 - After 3 months of therapy, if there is no response as measured by at least a 2 g/dL increase in hemoglobin or a decrease in RBC transfusions, discontinuation of therapy should be considered.
- For patients on Cancer Chemotherapy:
 - After 8 weeks of therapy, if there is no response as measured by hemoglobin levels or if RBC transfusions are still required or following completion of a chemotherapy course discontinue therapy.

VI. Billing Code/Availability Information

HCPCS code:

- J0881 – Injection, darbepoetin alfa, 1 microgram (non-ESRD use); 1 billable unit = 1 mcg

NDC(s):

Single-dose Vial		Single-dose Prefilled Syringe	
1 Vial/Pack, 4 Packs/Case		1 Syringe/Pack, 4 Packs/Case	
200 mcg/1 mL	55513-0006-xx	200 mcg/0.4 mL	55513-0028-xx
300 mcg/1 mL	55513-0110-xx	300 mcg/0.6 mL	55513-0111-xx
		500 mcg/1 mL	55513-0032-xx
4 Vials/Pack, 10 Packs/Case		4 Syringes/Pack, 10 Packs/Case	
25 mcg/1 mL	55513-0002-xx	10 mcg/0.4 mL	55513-0098-xx
40 mcg/1 mL	55513-0003-xx	25 mcg/0.42 mL	55513-0057-xx
60 mcg/1 mL	55513-0004-xx	40 mcg/0.4 mL	55513-0021-xx
100 mcg/1 mL	55513-0005-xx	60 mcg/0.3 mL	55513-0023-xx
		100 mcg/0.5 mL	55513-0025-xx
		150 mcg/0.3 mL	55513-0027-xx

VII. References

1. Aranesp [package insert] Thousand Oaks, CA; Amgen Inc; January 2019. Accessed April 2024.
2. Referenced with permission from the NCCN Drugs & Biologics Compendium (NCCN Compendium[®]) darbepoetin alfa. National Comprehensive Cancer Network, 2024. The NCCN Compendium[®] is a derivative work of the NCCN Guidelines[®]. NATIONAL COMPREHENSIVE

CANCER NETWORK[®], NCCN[®], and NCCN GUIDELINES[®] are trademarks owned by the National Comprehensive Cancer Network, Inc. To view the most recent and complete version of the Compendium, go online to NCCN.org. Accessed April 2024.

3. Referenced with permission from the NCCN Drugs & Biologics Compendium (NCCN Compendium[®]) Hematopoietic Growth Factors Version 3.2024. National Comprehensive Cancer Network, 2024. The NCCN Compendium[®] is a derivative work of the NCCN Guidelines[®]. NATIONAL COMPREHENSIVE CANCER NETWORK[®], NCCN[®], and NCCN GUIDELINES[®] are trademarks owned by the National Comprehensive Cancer Network, Inc. To view the most recent and complete version of the Compendium, go online to NCCN.org. Accessed April 2024.
4. Referenced with permission from the NCCN Drugs & Biologics Compendium (NCCN Compendium[®]) Myelodysplastic Syndromes Version 1.2024. National Comprehensive Cancer Network, 2024. The NCCN Compendium[®] is a derivative work of the NCCN Guidelines[®]. NATIONAL COMPREHENSIVE CANCER NETWORK[®], NCCN[®], and NCCN GUIDELINES[®] are trademarks owned by the National Comprehensive Cancer Network, Inc. To view the most recent and complete version of the Compendium, go online to NCCN.org. Accessed April 2024.
5. Referenced with permission from the NCCN Drugs & Biologics Compendium (NCCN Compendium[®]) Myeloproliferative Neoplasms Version 1.2024. National Comprehensive Cancer Network, 2023. The NCCN Compendium[®] is a derivative work of the NCCN Guidelines[®]. NATIONAL COMPREHENSIVE CANCER NETWORK[®], NCCN[®], and NCCN GUIDELINES[®] are trademarks owned by the National Comprehensive Cancer Network, Inc. To view the most recent and complete version of the Compendium, go online to NCCN.org. Accessed April 2024.
6. Younossi ZM, Nader FH, Bai C, et al. A phase II dose finding study of darbepoetin alpha and filgrastim for the management of anaemia and neutropenia in chronic hepatitis C treatment. *Journal of Viral Hepatitis* 2008; 15(5):370-8.
7. Cervantes F, Alvarez-Laran A, Hernandez-Boluda JC, et al. Darbepoetin-alpha for the anaemia of myelofibrosis with myeloid metaplasia. *British Journal of Haematology*, 134: 184–186. doi:10.1111/j.1365-2141.2006.06142.x.
8. Andre JL, Deschenes G, Boudaillies B, et al, “Darbepoetin, Effective Treatment of Anaemia in Paediatric Patients With Chronic Renal Failure,” *Pediatr Nephrol*, 2007, 22(5):708-14.
9. Canon JL, Vansteenkiste J, Bodoky G, et al, “Randomized, Double-Blind, Active-Controlled Trial of Every-3-Week Darbepoetin Alfa for the Treatment of Chemotherapy-Induced Anemia,” *J Natl Cancer Inst*, 2006, 98(4):273-84.
10. Bristoyiannis G, Germanos N, Grekas D, et al, “Unit Dosing of Darbepoetin Alfa for the Treatment of Anemia in Patients With End-Stage Renal Disease Being Switched From Recombinant Human Erythropoietin: Results of a Phase IIIb, 27-Week, Multicenter, Open-Label Study in Greek Patients,” *Curr Ther Res*, 2005, 66(3):195-211.
11. Gabilove J, Paquette R, Lyons RM, et al. Phase 2, single-arm trial to evaluate the effectiveness of darbepoetin alfa for correcting anaemia in patients with myelodysplastic syndromes. *Br J Haematol*. 2008;142(3):379-393.

12. Park S, Fenaux P, Greenberg P, et al. Efficacy and safety of darbepoetin alpha in patients with myelodysplastic syndromes: a systematic review and meta-analysis. *Br J Haematol* 2016;174(5):730-747. Doi: 10.1111/bjh.14116.
13. Park S, Greenberg P, Yucel A, et al. Clinical effectiveness and safety of erythropoietin-stimulating agents for the treatment of low- and intermediate-1-risk myelodysplastic syndrome: a systematic literature review. *Br J Haematol*. 2019;184(2):134-160. doi: 10.1111/bjh.15707.
14. Toto RD, Pichette V, Brenner R, et al, “Darbepoetin Alfa Effectively Treats Anemia in Patients With Chronic Kidney Disease With de novo Every-Other-Week Administration,” *Am J Nephrol*, 2004, 24(4):453-60.
15. Warady BA, Arar MY, Lerner G, et al, “Darbepoetin Alfa for the Treatment of Anemia in Pediatric Patients With Chronic Kidney Disease,” *Pediatr Nephrol*, 2006, 21(8):1144-52.
16. Kidney Disease: Improving Global Outcomes (KDIGO) Anemia Work Group. KDIGO clinical practice guideline for anemia in chronic kidney disease. *Kidney Int Suppl*. 2012;2(suppl):279-335. <https://kdigo.org/guidelines/anemia-in-ckd/>. Published August 2012.
17. Pfeffer MA, Burdmann EA, Chen CY, et al; TREAT Investigators. A trial of darbepoetin alfa in type 2 diabetes and chronic kidney disease. *N Engl J Med*. 2009 Nov 19;361(21):2019-32. doi: 10.1056/NEJMoa0907845.
18. Mikhail A, Brown C, Williams JA, et al. Renal association clinical practice guideline on Anaemia of Chronic Kidney Disease. *BMC Nephrol*. 2017 Nov 30;18(1):345. doi: 10.1186/s12882-017-0688-1.
19. Tefferi A, Cervantes F, Mesa R, et al. Revised response criteria for myelofibrosis: International Working Group-Myeloproliferative Neoplasms Research and Treatment (IWG-MRT) and European LeukemiaNet (ELN) consensus report. *Blood*. 2013 Aug 22;122(8):1395-8. doi: 10.1182/blood-2013-03-488098.
20. National Coverage Determination (NCD) for Erythropoiesis Stimulating Agents (ESAs) in Cancer and Related Neoplastic Conditions (110.21). Centers for Medicare & Medicaid Services, Inc. Updated on 01/14/2021 with effective date 07/30/2007. Accessed April 2024.
21. Wisconsin Physicians Service Insurance Corporation. Local Coverage Article: Billing and Coding: Erythropoiesis Stimulating Agents (ESAs) (A56795). Centers for Medicare & Medicaid Services, Inc. Updated on 05/23/2023 with effective date 06/01/2023. Accessed April 2024.
22. CGS Administrators, LLC. Local Coverage Article: Billing and Coding: Erythropoiesis Stimulating Agents (ESA) (A56462). Centers for Medicare & Medicaid Services, Inc. Updated on 02/29/2024 with effective date 03/07/2024. Accessed April 2024.
23. Palmetto GBA. Local Coverage Article: Billing and Coding: Erythropoiesis Stimulating Agents (ESA) (A58982). Centers for Medicare & Medicaid Services, Inc. Updated on 02/16/2024 with effective date 03/01/2024. Accessed April 2024.

Appendix 1 – Covered Diagnosis Codes

ICD-10	ICD-10 Description
C93.10	Chronic myelomonocytic leukemia, not having achieved remission
C94.40	Acute panmyelosis with myelofibrosis not having achieved remission

C94.41	Acute panmyelosis with myelofibrosis in remission
C94.42	Acute panmyelosis with myelofibrosis in relapse
C94.6	Myelodysplastic disease, not classified
D46.0	Refractory anemia without ring sideroblasts, so stated
D46.1	Refractory anemia with ring sideroblasts
D46.20	Refractory anemia with excess of blasts, unspecified
D46.21	Refractory anemia with excess of blasts 1
D46.4	Refractory anemia, unspecified
D46.9	Myelodysplastic syndrome, unspecified
D46.A	Refractory cytopenia with multilineage dysplasia
D46.B	Refractory cytopenia with multilineage dysplasia and ring sideroblasts
D46.C	Myelodysplastic syndrome with isolated del(5q) chromosomal abnormality
D46.Z	Other myelodysplastic syndromes
D47.1	Chronic myeloproliferative disease
D47.4	Osteomyelofibrosis
D63.0	Anemia in neoplastic disease
D63.1	Anemia in chronic kidney disease
D64.81	Anemia due to antineoplastic chemotherapy
D64.9	Anemia unspecified
D75.81	Myelofibrosis
I12.9	Hypertensive chronic kidney disease with stage 1 through stage 4 chronic kidney disease, or unspecified chronic kidney disease
I13.0	Hypertensive heart and chronic kidney disease with heart failure and stage 1 through stage 4 chronic kidney disease, or unspecified chronic kidney disease
I13.10	Hypertensive heart and chronic kidney disease without heart failure, with stage 1 through stage 4 chronic kidney disease, or unspecified chronic kidney disease
N18.30	Chronic kidney disease, stage 3 (moderate), unspecified
N18.31	Chronic kidney disease, stage 3a
N18.32	Chronic kidney disease, stage 3b
N18.4	Chronic kidney disease, stage 4 (severe)
N18.5	Chronic kidney disease, stage 5
Z51.11	Encounter for antineoplastic chemotherapy
Z51.89	Encounter for other specified aftercare

Dual coding requirements:

- Anemia due to CKD (not on dialysis): must bill D63.1 AND I12.9, I13.0, I13.10, N18.30, N18.31, N18.32, N18.4, or N18.5

Appendix 2 – Centers for Medicare and Medicaid Services (CMS)

The preceding information is intended for non-Medicare coverage determinations. Medicare coverage for outpatient (Part B) drugs is outlined in the Medicare Benefit Policy Manual (Pub. 100-2), Chapter 15, §50 Drugs and Biologicals. In addition, National Coverage Determinations (NCDs) and/or Local Coverage Determinations (LCDs) may exist and compliance with these policies is required where applicable. Local Coverage Articles (LCAs) may also exist for claims payment purposes or to clarify benefit eligibility under Part B for drugs which may be self-administered. The following link may be used

to search for NCD, LCD, or LCA documents: <https://www.cms.gov/medicare-coverage-database/search.aspx>. Additional indications, including any preceding information, may be applied at the discretion of the health plan.

Medicare Part B Covered Diagnosis Codes		
Jurisdiction	NCD/LCA/LCD Document (s)	Contractor
All	110.21	All
J,M	A58982	Palmetto GBA
15	A56462	CGS Administrators, LLC
5,8	A56795	Wisconsin Physicians Service Insurance Corp (WPS)

Medicare Part B Administrative Contractor (MAC) Jurisdictions		
Jurisdiction	Applicable State/US Territory	Contractor
E (1)	CA, HI, NV, AS, GU, CNMI	Noridian Healthcare Solutions, LLC
F (2 & 3)	AK, WA, OR, ID, ND, SD, MT, WY, UT, AZ	Noridian Healthcare Solutions, LLC
5	KS, NE, IA, MO	Wisconsin Physicians Service Insurance Corp (WPS)
6	MN, WI, IL	National Government Services, Inc. (NGS)
H (4 & 7)	LA, AR, MS, TX, OK, CO, NM	Novitas Solutions, Inc.
8	MI, IN	Wisconsin Physicians Service Insurance Corp (WPS)
N (9)	FL, PR, VI	First Coast Service Options, Inc.
J (10)	TN, GA, AL	Palmetto GBA
M (11)	NC, SC, WV, VA (excluding below)	Palmetto GBA
L (12)	DE, MD, PA, NJ, DC (includes Arlington & Fairfax counties and the city of Alexandria in VA)	Novitas Solutions, Inc.
K (13 & 14)	NY, CT, MA, RI, VT, ME, NH	National Government Services, Inc. (NGS)
15	KY, OH	CGS Administrators, LLC