Colony Stimulating Factors — Pegfilgrastim: Neulasta®; Fulphila™; Udenyca®; Ziextenzo™; Nyvepria™ (Subcutaneous)

Document Number: IC-0234

Last Review Date: 10/01/2021 Date of Origin: 10/17/2008

Dates Reviewed: 06/2009, 12/2009, 06/2010, 07/2010, 09/2010, 12/2010, 03/2011, 06/2011, 09/2011, 12/2011, 03/2012, 06/2012, 09/2012, 12/2012, 03/2013, 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, 05/2017, 08/2017, 11/2017, 02/2018, 06/2018, 09/2018, 12/2018, 03/2019, 06/2019, 09/2019, 12/2019, 02/2020, 06/2020, 07/2020, 09/2020, 01/2021, 04/2021, 10/2021

I. Length of Authorization 1-5,10-14

- Bone marrow transplantation (BMT) failure or engraftment delay: Coverage will be provided for 1 dose only and may not be renewed.
- Peripheral blood progenitor cell (PBPC) mobilization and transplant: Coverage will be provided for 1 dose only and may not be renewed.
- All other indications: Coverage will be provided for four months and may be renewed unless otherwise specified.

II. Dosing Limits

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

- Neulasta 6 mg prefilled syringe: 1 syringe per 14 days
- Fulphila 6 mg prefilled syringe: 1 syringe per 14 days
- Udenyca 6 mg prefilled syringe: 1 syringe per 14 days
- Ziextenzo 6 mg prefilled syringe: 1 syringe per 14 days
- Nyvepria 6 mg prefilled syringe: 1 syringe per 14 days

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

	Neulasta	Fulphila	Udenyca	Ziextenzo	Nyvepria
	(J2505)*	(Q5108)	(Q5111)	(Q5120)	(Q5122)
Acute Radiation Exposure	1 billable unit weekly x 2 doses	12 billable units weekly x 2 doses			
BMT failure or engraftment delay/ PBPC mobilization and transplant	1 billable unit x 1 dose	12 billable units x 1 dose			
All other indications Note: J2506 is effective	1 billable unit per 14 days	12 billable units per 14 days			

III. Initial Approval Criteria 1-10,18,19

Coverage is provided in the following conditions:

 Patients must have failed, or have a contraindication, or intolerance to Neulasta AND Udenyca prior to consideration of any other long-acting G-CSF product.

Prophylactic use in patients with non-myeloid malignancy †

- Patient is undergoing myelosuppressive chemotherapy with an expected incidence of febrile neutropenia* of greater than 20% §; OR
- Patient is undergoing myelosuppressive chemotherapy with an expected incidence of febrile neutropenia* of 10% to 20% § AND one or more of the following co-morbidities:
 - Age >65 years receiving full dose intensity chemotherapy
 - Extensive prior exposure to chemotherapy
 - Previous exposure of pelvis, or other areas of large amounts of bone marrow, to radiation
 - Persistent neutropenia (ANC ≤ 1000/mm³)
 - Bone marrow involvement by tumor
 - Patient has a condition that can potentially increase the risk of serious infection (i.e., HIV/AIDS with low CD4 counts)
 - Recent surgery and/or open wounds
 - Poor performance status
 - Renal dysfunction (creatinine clearance <50 mL/min)
 - Liver dysfunction (elevated bilirubin >2.0 mg/dL)
 - Chronic immunosuppression in the post-transplant setting, including organ transplant
 <u>Note</u>: Dose-dense therapy, in general, requires growth factor support to maintain dose
 intensity and schedule. In the palliative setting, consideration should be given to dose
 reduction or change in regimen.

Patient who experienced a neutropenic complication from a prior cycle of the same chemotherapy ‡

<u>Note</u>: Dose-dense therapy, in general, requires growth factor support to maintain dose intensity and schedule. In the palliative setting, consideration should be given to dose reduction or change in regimen.

Patients acutely exposed to myelosuppressive doses of radiation (Hematopoietic Acute Radiation Syndrome [H-ARS]) $\dagger \Phi$

Bone marrow transplantation (BMT) failure or engraftment delay ‡

Peripheral blood progenitor cell (PBPC) mobilization and transplant ‡

Wilms Tumor (Nephroblastoma) 7 ‡

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- Patient has favoralbe histology disease; AND
- Used in combination with a cyclophosphamide-based chemotherapy regimen (i.e., Regimen M or I only)
- † FDA-labeled indication(s); ‡ Compendia recommended indication(s); Φ Orphan Drug

*Febrile neutropenia is defined as:

- <u>Temperature</u>: a single temperature ≥38.3 °C orally or ≥38.0 °C over 1 hour; **AND**
- Neutropenia: <500 neutrophils/mcL or <1,000 neutrophils/mcL and a predicted decline to ≤500 neutrophils/mcL over the next 48 hours

§ Expected incidence of febrile neutropenia percentages for myelosuppressive chemotherapy regimens can be found in the NCCN Hematopoietic Growth Factors Clinical Practice Guideline at NCCN.org

IV. Renewal Criteria 1-10,18,19

Note: Coverage for use in BMT failure or engraftment delay and PBPC mobilization and transplant may NOT be renewed.

Coverage for all other indications can be renewed based upon the following criteria:

- Patient continues to meet indication-specific relevant criteria such as concomitant therapy requirements (not including prerequisite therapy), performance status, etc. identified in section III; AND
- Absence of unacceptable toxicity from the drug. Examples of unacceptable toxicity include: splenic rupture, acute respiratory distress syndrome (ARDS), serious allergic reactions/anaphylaxis, sickle cell crisis, glomerulonephritis, leukocytosis, thrombocytopenia, capillary leak syndrome, potential for tumor growth stimulation of malignant cells, aortitis, myelodysplastic syndrome and acute myeloid leukemia, etc.

V. Dosage/Administration 1-10,13-19

Indication	Dose
Prophylactic use in patients with non-myeloid malignancy Patient who experienced a neutropenic complication from a prior cycle of the same chemotherapy	 6 mg subcutaneously once per chemotherapy cycle and dosed no more frequently than every 14 days For pediatric patients weighing <45 kg: <10 kg = 0.1 mg/kg 10-20 kg = 1.5 mg 21-30 kg = 2.5 mg 31-44 kg = 4 mg
Acute Radiation Exposure (Hematopoietic Acute Radiation Syndrome)	 6 mg subcutaneously weekly x 2 doses For pediatric patients weighing <45 kg: <10 kg = 0.1 mg/kg 10-20 kg = 1.5 mg 21-30 kg = 2.5 mg

	-31-44 kg = 4 mg
BMT failure or engraftment delay	6 mg subcutaneously for 1 dose only
PBPC mobilization and transplant	

^{*}Do not administer within 14 days before and 24 hours after administration of cytotoxic chemotherapy. *Onpro On-body Injector may be applied on the same day as chemotherapy as long as the Neulasta is administered no less than 24 hours after administration of chemotherapy. Not recommended for use in patients with acute radiation exposure or in pediatric patients.

VI. Billing Code/Availability Information

HCPCS Code:

- J2505 Injection, pegfilgrastim, 6 mg; 1 billable unit = 6 mg (Discontinue use on 01/01/2022)
- J2506 Injection, pegfilgrastim, 0.5 mg; 1 billable unit = 0.5 mg (Effective 01/01/2022)
- Q5108 Injection, pegfilgrastim-jmdb, biosimilar, (Fulphila), 0.5 mg: 1 billable unit = 0.5 mg
- Q5111 Injection, pegfilgrastim-cbqv, biosimilar, (Udenyca), 0.5 mg; 1 billable unit = 0.5 mg
- Q5120 Injection, pegfilgrastim-bmez, biosimilar, (Ziextenzo), 0.5 mg: 1 billable unit = 0.5 mg
- Q5122 Injection, pegfilgrastim-apgf, biosimilar, (Nyvepria), $0.5~\mathrm{mg}$: 1 billable unit = $0.5~\mathrm{mg}$ NDC:
- Neulasta 6 mg prefilled syringe: 55513-0190-xx
- Neulasta 6 mg prefilled syringe Onpro Kit: 55513-0192-xx
- Fulphila 6 mg prefilled single-dose syringe: 67457-0833-xx
- Udenyca 6 mg prefilled single-dose syringe: 70114-0101-xx
- Ziextenzo 6 mg single-dose prefilled syringe: 61314-0866-xx
- Nyvepria 6 mg single-dose prefilled syringe: 00069-0324-xx

VII. References

- 1. Neulasta [package insert]. Thousand Oaks, CA; Amgen Inc; February 2021. Accessed March 2021.
- 2. Fulphila [package insert]. Morgantown, WV; Mylan Pharmaceuticals; June 2020. Accessed March 2021.
- 3. Udenyca [package insert]. Redwood City, California; Coherus Biosciences; September 2019. Accessed March 2021.
- 4. Ziextenzo [package insert]. Princeton, NJ; Sandoz, Inc; September 2020. Accessed March 2021.
- 5. Nyvepria [package insert]. Lake Forest, IL; Pfizer Oncology; June 2020. Accessed March 2021.
- 6. Vogel CL, Wojtukiewicz MZ, Carroll RR, et al. First and subsequent cycle use of pegfilgrastim prevents febrile neutropenia in patients with breast cancer: a multicenter, double-blind, placebo-controlled phase III study. J Clin Oncol. 2005 Feb 20;23(6):1178-84.

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- 7. Referenced with permission from the NCCN Drugs & Biologics Compendium (NCCN Compendium®) pegfilgrastim. National Comprehensive Cancer Network, 2021. 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 March 2021.
- 8. Referenced with permission from the NCCN Drugs & Biologics Compendium (NCCN Compendium®) Hematopoietic Growth Factors. Version 1.2021. National Comprehensive Cancer Network, 2021. 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 March 2021.
- 9. Holmes FA, O'Shaughnessy JA, Vukelja S, et al. Blinded, randomized, multicenter study to evaluate single administration pegfilgrastim once per cycle versus daily filgrastim as an adjunct to chemotherapy in patients with high-risk stage II or stage III/IV breast cancer. J Clin Oncol. 2002;20:727–31.
- 10. Green MD, Koelbl H, Baselga J, et al.; International Pegfilgrastim 749 Study Group. A randomized double-blind multicenter phase III study of fixed-dose single-administration pegfilgrastim versus daily filgrastim in patients receiving myelosuppressive chemotherapy. Ann Oncol. 2003;14(1):29-35.
- 11. Burris HA, Belani CP, Kaufman PA, et al. Pegfilgrastim on the same day versus next day of chemotherapy in patients with breast cancer, non-small-cell lung cancer, ovarian cancer, and non-Hodgkin's lymphoma: Results of four multicenter, double-blind, randomized phase II studies. J Oncol Pract. 2010;6(3):133-140.
- 12. Russel N, Mesters R, Schubert J, et al. A phase 2 pilot study of pegfilgrastim and filgrastim for mobilizing peripheral blood progenitor cells in patients with non-Hodgkin's lymphoma receiving chemotherapy. Haematologica March 200893:405-412;doi:10.3324/haematol.11287
- 13. Isidori A, Tani M, Bonifazi F, et al. Phase II study of a single pegfilgrastim injection as an adjunct to chemotherapy to mobilize stem cells into the peripheral blood of pretreated lymphoma patients. Haematologica January 200590:225-231
- 14. Jagasia MH, Greer JP, Morgan DS, et al. Pegfilgrastim after high-dose chemotherapy and autologous peripheral blood stem cell transplant: phase II study. Bone Marrow Transplant. 2005 Jun;35(12):1165-9.
- 15. Bruns I, Steidl U, Kronenwett R, et al. A single dose of 6 or 12 mg of pegfilgrastim for peripheral blood progenitor cell mobilization results in similar yields of CD34+ progenitors in patients with multiple myeloma. Transfusion. 2006 Feb;46(2):180-5.
- 16. Staber PB, Holub R, Linkesch W, et al. Fixed-dose single administration of Pegfilgrastim vs daily Filgrastim in patients with haematological malignancies undergoing autologous

- peripheral blood stem cell transplantation. Bone Marrow Transplant. 2005 May;35(9):889-93.
- 17. Vanstraelen G, Frere P, Ngirabacu MC, et al. Pegfilgrastim compared with Filgrastim after autologous hematopoietic peripheral blood stem cell transplantation. Exp Hematol. 2006 Mar;34(3):382-8.
- 18. Spunt S, Irving H, Frost J, et al. Phase II, Randomized, Open-Label Study of Pegfilgrastim-Supported VDC/IE Chemotherapy in Pediatric Sarcoma Patients. J Clin Oncol. 2010 Mar 10; 28(8): 1329–1336.
- 19. Hankey KG, Farese AM, Blaauw EC, et al. Pegfilgrastim Improves Survival of Lethally Irradiated Nonhuman Primates. Radiat Res. 2015 Jun;183(6):643-55. Epub 2015 Jun 2.
- 20. Waller CF, Ranganna GM, Pennella EJ, et al. Randomized phase 3 efficacy and safety trial of proposed pegfilgrastim biosimilar MYL-1401H in the prophylactic treatment of chemotherapy-induced neutropenia. Ann Hematol. 2019 May;98(5):1217-1224. doi: 10.1007/s00277-019-03639-5. Epub 2019 Mar 1.
- 21. Hoy SM. Pegfilgrastim-jmdb/MYL-1401H: A Pegfilgrastim Biosimilar. BioDrugs. 2019 Feb;33(1):117-120. doi: 10.1007/s40259-019-00334-9.
- 22. Blackwell K, Donskih R, Jones CM, et al. A Comparison of Proposed Biosimilar LA-EP2006 and Reference Pegfilgrastim for the Prevention of Neutropenia in Patients With Early-Stage Breast Cancer Receiving Myelosuppressive Adjuvant or Neoadjuvant Chemotherapy: Pegfilgrastim Randomized Oncology (Supportive Care) Trial to Evaluate Comparative Treatment (PROTECT-2), a Phase III, Randomized, Double-Blind Trial. Oncologist. 2016 Jul; 21(7): 789–794. Published online 2016 Apr 18. doi: 10.1634/theoncologist.2016-0011
- 23. Nakov R, Gattu S, Wang J, et al. Abstract P3-14-10: Proposed biosimilar pegfilgrastim LA-EP2006 shows similarity in pharmacokinetics and pharmacodynamics to reference pegfilgrastim in healthy subjects. Abstracts: 2017 San Antonio Breast Cancer Symposium; December 5-9, 2017; San Antonio, Texas. DOI: 10.1158/1538-7445.SABCS17-P3-14-10 Published February 2018
- 24. Glaspy JA, O'Connor PG, Tang H, et al. Randomized, single-blind, crossover study to assess the pharmacokinetic and pharmacodynamic bioequivalence of CHS-1701 to pegfilgrastim in healthy subjects Journal of Clinical Oncology35, no. 15_suppl. DOI: 10.1200/JCO.2017.35.15_suppl.e21693. Published onlineMay 30, 2017.
- 25. National Government Services, Inc. Local Coverage Article: Billing and Coding: Filgrastim, Pegfilgrastim, Tbo-filgrastim and biosimilars (A52408). Centers for Medicare & Medicaid Services, Inc. Updated on 2/05/2021 with effective date 01/01/2021. Accessed March 2021.
- 26. Palmetto GBA. Local Coverage Article: Billing and Coding: Neulasta® (pegfilgrastim) Onpro® Kit (On-body Injector) (A54682). Centers for Medicare & Medicaid Services, Inc. Updated on 10/03/2019 with effective date 10/10/2019. Accessed March 2021.
- 27. First Coast Service Options, Inc. Local Coverage Article: Billing and Coding: Pegfilgrastim (A57725). Centers for Medicare & Medicaid Services, Inc. Updated on 02/05/2021 with effective date 01/01/2021. Accessed March 2021.

28. Palmetto GBA. Local Coverage Article: Billing and Coding: White Cell Colony Stimulating Factors (A56748). Centers for Medicare & Medicaid Services, Inc. Updated on 02/05/2021 with effective date 01/01/2021. Accessed March 2021.

Appendix 1 – Covered Diagnosis Codes

ICD-10	ICD-10 Description		
D61.81	Pancytopenia		
C64.1	Malignant neoplasm of right kidney, except renal pelvis		
C64.2	Malignant neoplasm of left kidney, except renal pelvis		
C64.9	Malignant neoplasm of unspecified kidney, except renal pelvis		
D70.1	Agranulocytosis secondary to cancer chemotherapy		
D70.9	Neutropenia, unspecified		
T45.1X5A	Adverse effect of antineoplastic and immunosuppressive drugs initial encounter		
T45.1X5D	Adverse effect of antineoplastic and immunosuppressive drugs subsequent encounter		
T45.1X5S	Adverse effect of antineoplastic and immunosuppressive drugs sequela		
T66.XXXA	Radiation sickness, unspecified, initial encounter		
T66.XXXD	Radiation sickness, unspecified, subsequent encounter		
T66.XXXS	Radiation sickness, unspecified, sequela		
W88.1	Exposure to radioactive isotopes		
W88.8	Exposure to other ionizing radiation		
Z41.8	Encounter for other procedures for purposes other than remedying health state		
Z48.290	Encounter for aftercare following bone marrow transplant		
Z51.11	Encounter for antineoplastic chemotherapy		
Z51.12	Encounter for antineoplastic immunotherapy		
Z51.89	Encounter for other specified aftercare		
Z52.011	Autologous donor, stem cells		
Z76.89	Persons encountering health services in other specified circumstances		
Z94.81	Bone marrow transplant status		
Z94.84	Stem cells transplant status		

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

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 Determination (NCD), Local Coverage Determinations (LCDs), and Local Coverage Articles (LCAs) may exist and compliance with these policies is required where applicable. They can be found at: http://www.cms.gov/medicare-coverage-database/search/advanced-search.aspx. Additional indications may be covered at the discretion of the health plan.

Medicare Part B Covered Diagnosis Codes (applicable to existing NCD/LCD/LCA):

Jurisdiction(s): 6, K NCD/LCD/LCA Document (s): A52408

 $\frac{https://www.cms.gov/medicare-coverage-database/search/document-id-search-results.aspx?DocID=A52408\&bc=gAAAAAAAAAAA&$

Jurisdiction(s): N NCD/LCD/LCA Document (s): A57725

https://www.cms.gov/medicare-coverage-database/search/article-date-search.aspx?DocID=A57725&bc=gAAAAAAAAAA

Jurisdiction(s): J, M NCD/LCD/LCA Document (s): A56748

https://www.cms.gov/medicare-coverage-database/search/article-date-search.aspx?DocID=A56748&bc=gAAAAAAAAA

Jurisdiction(s): J, M NCD/LCD/LCA Document (s): A54682

https://www.cms.gov/medicare-coverage-database/search/article-date-search.aspx?DocID=A54682&bc=gAAAAAAAAAA

	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, LLC			
M (11)	NC, SC, WV, VA (excluding below)	Palmetto GBA, LLC			
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			