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Colony Stimulating Factors Program Summary

Effective 2/1/2020

***Biosimilar preferred strategy**

FDA APPROVED INDICATIONS AND DOSAGE[1-7,13]

Agent(s)	Indication(s)	Dosing
Fulphila™ (pegfilgrastim-jmdb)	• Decrease the incidence of infection, as manifested by febrile neutropenia, in patients with non-myeloid malignancies receiving myelosuppressive anti-cancer drugs associated with a clinically significant incidence of febrile neutropenia Limitations of Use: Fulphila is not indicated for the mobilization of peripheral blood progenitor cells for hematopoietic stem cell transplantation	**Nonmyeloid malignancies** 6 mg subcutaneously once per chemotherapy cycle. Do not administer Fulphila between 14 days before and 24 hours after administration of cytotoxic chemotherapy
Granix® (tbo-filgrastim)	• Adult and pediatric patients 1 month and older for the reduction in the duration of severe neutropenia in patients with non-myeloid malignancies receiving myelosuppressive anti-cancer drugs associated with a clinically significant incidence of febrile neutropenia	**Nonmyeloid malignancies** 5 mcg/kg/day as a subcutaneous injection. Give the first dose no earlier than 24 hours following myelosuppressive chemotherapy. Continue dosing until expected neutrophil nadir is passed and count has recovered to normal range
Leukine® (sargramostim)	• To shorten time to neutrophil recovery and to reduce the incidence of severe and life-threatening infections and infections resulting in death following induction chemotherapy in adult patients 55 years and older with acute myeloid leukemia (AML)	**AML:** 250 mcg/m^2/day intravenously over a 4-hour period starting approximately on day 11 or 4 days after completion of induction chemotherapy if the day 10 bone marrow is hypoplastic with <5% blasts. Continue until ANC >1500 cells/mm^3 for 3 consecutive days or max of 42 days. Do not administer Leukine within 24 hours preceding or following receipt of chemotherapy or radiotherapy
	• Mobilization of hematopoietic progenitor cells into peripheral blood for collection by leukapheresis in adult patients with cancer undergoing autologous	**Autologous peripheral blood progenitor cell mobilization and collection:** 250 mcg/m^2/day intravenously over 24 hours or subcutaneously once daily.

	hematopoietic stem cell transplantation	Continue through period of peripheral blood progenitor cell collection
	• Acceleration of myeloid reconstitution following autologous peripheral blood progenitor cell or bone marrow transplantation in adult and pediatric patients 2 years of age and older with non-Hodgkin's lymphoma (NHL), acute lymphoblastic leukemia (ALL), and Hodgkin's lymphoma	**Autologous peripheral blood progenitor cell transplantation:** 250 mcg/m^2/day intravenously over 24 hours or subcutaneously once daily immediately following infusion of progenitor cells and continuing until an ANC >1500 cells/mm^3 for 3 consecutive days. Do not administer Leukine within 24 hours preceding or following receipt of chemotherapy or radiotherapy **Autologous bone marrow transplantation:** 250 mcg/m^2/day intravenously over a 2-hours period beginning two to four hours after bone marrow infusion, and not less than 24 hours after the last dose of chemotherapy or radiotherapy. Do not administer Leukine until the post marrow infusion ANC is less than 500 cells/mm^3. Continue Leukine until an ANC greater than 1500 cells/mm^3 for 3 consecutive days is attained. Do not administer Leukine within 24 hours preceding or following receipt of chemotherapy or radiotherapy
	• Acceleration of myeloid reconstitution in adult and pediatric patients 2 years of age and older undergoing allogeneic bone marrow transplantation from HLA-matched related donors	**Allogeneic bone marrow transplantation:** 250 mcg/m^2/day intravenously over 2 hours beginning 2-4 hours after bone marrow infusion, and not less than 24 hours after last dose of chemotherapy or radiation. Do not administer Leukine until the post marrow infusion ANC is <500 cells/mm^3. Continue until ANC >1500 cells/mm^3 for 3 consecutive

		days is attained. Do not administer Leukine within 24 hours preceding or following receipt of chemotherapy or radiotherapy
	• Treatment of adult and pediatric patients 2 years and older who have undergone allogeneic or autologous bone marrow transplantation in whom neutrophil recovery is delayed or failed	**Bone Marrow Transplantation Failure or Engraftment Delay:** 250 mcg/m2/day for 14 days as 2-hour intravenous infusion. Dose can be repeated after 7 days if neutrophil recover has not occurred. If neutrophil recovery still has not occurred, a third course of 500 mcg/m^2/day for 14 days may be tried after another 7 days off therapy.
	• Increase survival in adult and pediatric patients acutely exposed to myelosuppressive doses of radiation [Hematopoietic Syndrome of Acute Radiation Syndrome (H-ARS)]	**H-ARS:** In adult and pediatric patients weighing greater than 40 kg: 7mcg/kg subcutaneously once daily In pediatric patients weighing15 kg to 40 kg: 10 mcg/kg subcutaneously once daily In pediatric patients weighing less than 15 kg: 12 mcg/kg/day subcutaneously once daily Continue Leukine until the ANC remains greater than 1,000 cells/mm^3 for 3 consecutive CBCs or exceeds 10,000 cells/mm^3
Neulasta® (pegfilgrastim)	• Decrease the incidence of infection, as manifested by febrile neutropenia, in patients with non-myeloid malignancies receiving myelosuppressive anti-cancer drugs associated with a clinically significant incidence of febrile neutropenia	**Patients receiving myelosuppressive anti-cancer drugs:** 6 mg subcutaneously once per chemotherapy cycle. Do not administer 14 days before and 24 hours after cytotoxic chemotherapy
	• Increase survival in patients acutely exposed to myelosuppressive doses of radiation (Hematopoietic	**Acute Radiation Syndrome:** Two doses, 6 mg each, administered subcutaneously one week apart. Administer

	Subsyndrome of Acute Radiation Syndrome) Limitation of Use: Neulasta is not indicated for the mobilization of peripheral blood progenitor cells for hematopoietic stem cell transplantation	the first dose as soon as possible after suspected or confirmed exposure of radiation levels >2 gray (Gy). Administer the 2nd dose 1 week after the first dose
Neupogen® (filgrastim)	• Decrease the incidence of infection, as manifested by febrile neutropenia, in patients with nonmyeloid malignancies receiving myelosuppressive anti-cancer drugs associated with a significant incidence of severe neutropenia with fever • Reduce the time to neutrophil recovery and the duration of fever, following induction or consolidation chemotherapy treatment of patients with acute myeloid leukemia (AML) • Reduce the duration of neutropenia and neutropenia-related clinical sequelae (e.g., febrile neutropenia) in patients with nonmyeloid malignancies undergoing myeloablative chemotherapy followed by bone marrow transplantation • Mobilization of hematopoietic progenitor cells into the peripheral blood for collection by leukapheresis	**Nonmyeloid malignancies:** 5 mcg/kg/day by subcutaneous injection, short IV infusion, or continuous IV infusion. Adjust dose based on ANC nadir. Administer daily for up to 2 weeks or until ANC has reached 10,000/mm^3. Use should be discontinued if ANC surpasses 10,000/mm^3 **AML:** 5 mcg/kg/day by subcutaneous injection, short IV infusion, or continuous IV infusion. Adjust dose based on ANC nadir. Administer daily for up to 2 weeks or until ANC has reached 10,000/mm^3. Use should be discontinued if ANC surpasses 10,000/mm^3 **Bone Marrow Transplantation:** 10 mcg/kg/day after bone marrow transplant as IV infusion for no longer than 24 hours. First dose should be given at least 24 hours after cytotoxic chemotherapy and marrow infusion. Dose titration recommended based on labeling **Autologous Peripheral Blood Progenitor Cell Collection:** 10 mcg/kg/day by subcutaneous injection. Give at least 4 days before first leukapheresis and continue to the last leukapheresis. Dose

		modifications based on WBC and discontinue when WBC is >100,000/mm^3
	• Reduce the incidence and duration of sequelae of neutropenia (e.g., fever, infections, oropharyngeal ulcers) in symptomatic patients with congenital neutropenia, cyclic neutropenia, or idiopathic neutropenia	**Congenital neutropenia**: 6 mcg/kg subcutaneously twice daily Dose adjust based on patient clinical course and ANC **Idiopathic/Cyclic neutropenia:** 5 mcg/kg/day subcutaneously Dose adjust based on patient clinical course and ANC
	• Increase survival in patients acutely exposed to myelosuppressive doses of radiation (hematopoietic syndrome of acute radiation syndrome)	**Acute Radiation Syndrome:** 10 mcg/kg subcutaneously daily until ANC remains greater than 1,000/mm^3 for 3 consecutive CBCs or exceeds 10,000/mm^3 after a radiation-induced nadir
Nivestym™ (filgrastim-aafi)	• Decrease the incidence of infection, as manifested by febrile neutropenia, in patients with nonmyeloid malignancies receiving myelosuppressive anti-cancer drugs associated with a significant incidence of severe neutropenia with fever	**Nonmyeloid malignancies:** 5 mcg/kg/day by subcutaneous injection, short IV infusion, or continuous IV infusion. Adjust dose based on ANC nadir. Administer daily for up to 2 weeks or until ANC has reached 10,000/mm^3. Use should be discontinued if ANC surpasses 10,000/mm^3
	• Reduce the time to neutrophil recovery and the duration of fever, following induction or consolidation chemotherapy treatment of patients with acute myeloid leukemia (AML)	**AML:** 5 mcg/kg/day by subcutaneous injection, short IV infusion, or continuous IV infusion. Adjust dose based on ANC nadir. Administer daily for up to 2 weeks or until ANC has reached 10,000/mm^3. Use should be discontinued if ANC surpasses 10,000/mm^3
	• Reduce the duration of neutropenia and neutropenia-related clinical sequelae, e.g., febrile neutropenia, in patients with nonmyeloid malignancies undergoing myeloablative chemotherapy followed by bone marrow transplantation (BMT)	**Bone Marrow Transplantation:** 10 mcg/kg/day after bone marrow transplantation as IV infusion for no longer than 24 hours. First dose should be given at least 24 hours after

		cytotoxic chemotherapy and marrow infusion.
	• Mobilize autologous hematopoietic progenitor cells into the peripheral blood for collection by leukapheresis	**Autologous Peripheral Blood Progenitor Cell Collection:** 10 mcg/kg/day by subcutaneous injection. Give at least 4 days before first leukapheresis and continue to last. Dose modifications based on WBC and discontinue when WBC is >100,000/mm^3
	• Reduce the incidence and duration of sequelae of severe neutropenia (e.g., fever, infections, oropharyngeal ulcers) in symptomatic patients with congenital neutropenia, cyclic neutropenia, or idiopathic neutropenia	**Congenital neutropenia**: 6 mcg/kg subcutaneously twice daily Dose adjust based on patient clinical course and ANC **Idiopathic/Cyclic neutropenia:** 5 mcg/kg/day subcutaneously Dose adjust based on patient clinical course and ANC
Udenyca™ (pegfilgrastim-cbqv)	• Decrease the incidence of infection, as manifested by febrile neutropenia, in patients with nonmyeloid malignancies receiving myelosuppressive anti-cancer drugs associated with a clinically significant incidence of febrile neutropenia Limitations of Use: Udenyca is not indicated for the mobilization of peripheral blood progenitor cells for hematopoietic stem cell transplantation	**Nonmyeloid malignancies:** 6 mg subcutaneously once per chemotherapy cycle. Do not administer between 14 days before and 24 hours after administration of cytotoxic chemotherapy See prescribing information for dosing in pediatric patients weighing less than 45 mg
Zarxio™ (filgrastim-sndz)	• Decrease the incidence of infection, as manifested by febrile neutropenia, in patients with nonmyeloid malignancies receiving myelosuppressive anticancer drugs associated with a significant incidence of severe neutropenia with fever • Reduce the time to neutrophil recovery and the duration of fever, following induction or consolidation	**Nonmyeloid malignancies:** 5 mcg/kg/day by subcutaneous injection, short IV infusion, or continuous IV infusion. Adjust dose based on ANC nadir. Use should be discontinued if ANC surpasses 10,000/mm^3 **AML:** 5 mcg/kg/day by subcutaneous injection, short

	chemotherapy treatment of patients with acute myeloid leukemia (AML)	IV infusion, or continuous IV infusion. Adjust dose based on ANC nadir. Use should be discontinued if ANC surpasses 10,000/mm^3
	• Reduce the duration of neutropenia and neutropenia-related clinical sequelae, e.g., febrile neutropenia, in patients with nonmyeloid malignancies undergoing myeloablative chemotherapy followed by bone marrow transplantation (BMT)	**Bone Marrow Transplantation:** 10 mcg/kg/day after bone marrow transplant as IV infusion for no longer than 24 hours. First dose should be given at least 24 hours after cytotoxic chemotherapy and marrow infusion
	• Mobilize autologous hematopoietic progenitor cells into the peripheral blood for collection by leukapheresis	**Autologous Peripheral Blood Progenitor Cell Collection:** 10 mcg/kg/day subcutaneously. Give at least 4 days before first leukapheresis and continue to last. Discontinue when WBC >100,000/mm^3
	• Reduce the incidence and duration of sequelae of severe neutropenia (e.g., fever, infections, oropharyngeal ulcers) in symptomatic patients with congenital neutropenia, cyclic neutropenia, or idiopathic neutropenia	**Congenital neutropenia:** 6 mcg/kg subcutaneously twice daily Dose adjust based on patient clinical course and ANC **Idiopathic/Cyclic neutropenia:** 5 mcg/kg/day subcutaneously Dose adjust based on patient clinical course and ANC.
Ziextenzo™ (pegfilgrastim-bmez)	• Decrease the incidence of infection, as manifested by febrile neutropenia, in patients with non-myeloid malignancies receiving myelosuppressive anti-cancer drugs associated with a clinically significant incidence of febrile neutropenia	**Patients with cancer receiving myelosuppressive chemotherapy:** 6 mg administered once per chemotherapy cycle. For dosing in pediatric patients weighing less than 45 kg refer to prescribing information

CLINICAL RATIONALE

Granulocyte colony-stimulating factor (G-CSF) and granulocyte-macrophage colony-stimulating factor (GM-CSF) are naturally occurring glycoprotein cytokines. Together, G-CSF and GM-CSF exert major control over the reproduction and maturation of committed myeloid-lineage progenitor cells. The term myeloid growth factor (MGF) is utilized by the National Comprehensive Cancer Network (NCCN) when data

are supported by studies for both G-CSF and GM-CSF. With the advent of recombinant molecular biology techniques, biologically active synthetic copies of MGFs have become available in clinically useful quantities and have been approved by the FDA for clinical use. Recombinant MGFs are administered to enhance recovery of hematopoietic functions in neutropenic individuals, or to decrease the incidence and severity of infections associated with drug-related myelosuppression. MGFs incorporated into cancer regimens improve patient care in prophylactic/therapeutic treatment of febrile neutropenia (FN), hematopoietic cell transplant for mobilization/supportive care, and severe chronic neutropenia. Prophylactic use of MGFs improve delivery of full dose chemotherapy on schedule, reducing chemotherapy related neutropenia in small cell lung cancer, breast cancer, sarcoma, solid tumors, non-small cell lung cancer, and non-Hodgkin's lymphoma. In node positive breast cancer and aggressive lymphoma, MGFs improve disease free and overall survival vs conventional chemotherapy.[8]

For patients with neutropenia, the risk of serious infection increases as the absolute neutrophil count (ANC) falls to the severely neutropenic range (<500/µL). Research has shown a direct correlation between total incidence of life threatening infections and the duration and severity of neutropenia. Febrile neutropenia (FN) (defined as neutropenia [<500 neutrophils/mcl or < 1,000 neutrophils/mcl and a predicted decline to ≤500/mcl over the next 48 hours] AND a fever of ≥101°F (≥38.3°C) orally or ≥100.4°F (≥38.0°C) over 1 hour) is a major dose limiting toxicity of chemotherapy which can result in hospital stays, chemotherapy dose reductions, and/or treatment delays for subsequent cycles. Reducing chemotherapy doses or delaying subsequent chemotherapy cycles can affect patient outcomes. The use of prophylactic MGFs has been shown to decrease the risk of neutropenia as well as rates of infection. MGFs have also been shown to improve the delivery of full dose-intensity chemotherapy at the planned schedule, although in most studies this has not been shown to result in higher overall survival. The use of MGFs has reduced the incidence, length, and severity of chemotherapy-related neutropenia in several different cancers.[8]

The National Comprehensive Cancer Network (NCCN) Supportive Care: Myeloid Growth Factors guidelines are based on the risk of febrile neutropenia associated with chemotherapy. When considering prophylactic use of MGFs, patients should be placed into one of following three risk categories based on disease type, chemotherapy regimen (high-dose, dose-dense, or standard-dose therapy), patient risk factors, and treatment intent (curative vs palliative): overall high-risk group (>20% risk of FN), intermediate-risk group (10-20% risk), or low-risk group (<10% risk).[8]

Risk for developing FN should be assessed prior to the first chemotherapy cycle and before each subsequent cycle. If a patient had FN or a dose-limiting neutropenic event (a nadir or a day-of-treatment count impacting the planned dose of chemotherapy) in a previous treatment cycle, with the same dose and schedule planned for the current cycle, this patient is now in the high-risk group. If the patient experiences such an episode despite receiving MGF, the recommendation is a dose reduction or change in treatment regimen unless there is an impact on patient survival. When choosing among MGFs for prophylactic treatment of FN, filgrastim, filgrastim-sndz, tbo-filgrastim, and pegfilgrastim are considered NCCN Category 1 recommendations; sargramostim is no longer recommended in this setting. According to NCCN, the use of peg-filgrastim after chemotherapy given every 3 weeks is a category 1 recommendation and category 2A when chemotherapy is administered every 14 days. There are insufficient data to support the dose and schedule for weekly regimens; therefore, use of peg-filgrastim in patients receiving weekly chemotherapy cannot be recommended. The prophylactic use of MGF in patients given concurrent chemotherapy and radiation has not been evaluated and is therefore not recommended.[8]

American Society of Clinical Oncologist (ASCO) guidelines on the use of white blood cell growth factors recommend the use of CSF for primary prophylaxis when the risk of FN is ≥20% and no other equally effective and safe regimen that does not require CSFs is available. Similar to NCCN guidelines, high risk determination is based on several factors including age, medical history, disease characteristics, and myelotoxicity of the chemotherapy regimen. ASCO also recommends immediate administration of CSFs when there are lethal doses of total-body radiotherapy given (with the exception of doses high enough to lead to certain death as a result of organ injury). Use for secondary prophylaxis is recommended when a patient had a neutropenic complication from a prior cycle of chemotherapy and a reduced dose and/or

treatment delay will compromise disease-free/overall survival or treatment outcome. CSFs are also supported for use after chemotherapy to mobilize peripheral-blood progenitor cells, after autologous or allogeneic stem-cell transplantation to reduce the duration of severe neutropenia, and can be considered in diffuse aggressive lymphoma in those age ≥65 years who are treated with curative chemotherapy especially when the patient has comorbidities. The choice of agent [pegfilgrastim, filgrastim, tbo-filgrastim, and filgrastim-sndz (and other biosimilars, as they become available)] depends on convenience, cost, and clinical situation.[9]

COMPENDIA SUPPORTED INDICATIONS
Myelodysplastic syndrome (MDS)
MDS represent myeloid clonal hemopathies with relatively heterogenous spectrums of presentation. The major clinical problems in these disorders are morbidities caused by patients' cytopenias and the potential for MDS to evolve into acute myeloid leukemia (AML).[11] NCCN guidelines note that CSF products are not recommended for routine infection prophylaxis, but should be considered for use in recurrent or resistant infections in neutropenic patients. NCCN compendia supports filgrastim, filgrastim-sndz, and tbo-filgrastim in MDS (2a level of recommendation) [11] The American Society of Clinical Oncology (ASCO) recommendations for the use of white blood cell growth factors note that CSFs can increase the absolute neutrophil count in neutropenic patients with MDS. However, data supporting the routine use of long-term continuous use of CSFs is lacking. Intermittent administration of CSFs may be considered in a subset of patients with severe neutropenia and recurrent infection.[9]

Therapeutic Use of CSFs in Neutropenia
Compared to prophylactic use, there is less evidence supporting the therapeutic use of MGFs for febrile neutropenia as an adjunct to antibiotics. It has been found that there is no difference in mortality outcomes; however, there is evidence to support shorter hospitalization stays, faster neutrophil recovery, shorter duration of grade 4 neutropenia, and antibiotic therapy with treatment. The National Comprehensive Cancer Network (NCCN) guidelines recommend patients who have FN and who are already receiving prophylactic G-CSFs (filgrastim, filgrastim-sndz, or tbo-filgrastim) continue with the same CSF. Those who received prophylactic pegfilgrastim should not be treated with additional MGF. NCCN recommends those who have FN and are not on prophylactic CSF that an evaluation for risk factors for infection-related complications or poor clinical outcome be done. NCCN lists the following as factors for consideration: old age (>65 years), sepsis syndrome, severe (ANC <100 neutrophils/mcL) or anticipated prolonged (>10 days) neutropenia, pneumonia, invasive fungal infections or other clinically documented infections, hospitalization, and a prior episode of FN. If risk factors are present, then MSFs should be considered. Filgrastim, filgrastim-sndz, or sargramostim (2b) may be administered in the therapeutic setting. Tbo-filgrastim and pegfilgrastim have only been studied for prophylactic use.[8] ASCO guidelines suggest CSFs be considered in patients with fever and neutropenia who are at high risk for infection-associated complication or who have prognostic factors predictive of poor clinical outcomes. [9]

MEDICAL DRUG CRITERIA

TARGET AGENTS
Preferred
Granix® (tbo-filgrastim)
Fulphila™ (pegfilgrastim-jmdb)
Nivestym™ (filgrastim-aafi)
Udenyca™ (pegfilgrastim-cbqv)
Zarxio™ (filgrastim-sndz)
Ziextenzo™ (pegfilgrastim-bmez)

Nonpreferred Agents
Leukine® (sargramostim)
Neulasta® (pegfilgrastim)
Neupogen® (filgrastim)

Brand (generic)	GPI	HCPCS Code	Multisource Code
Fulphila (pegfilgrastim-jmdb)			
6mg/0.6 mL prefilled syringe	8240157020E520	Q5108	M, N, O, or Y
Granix (tbo-filgrastim)			
300 mcg/0.5 mL prefilled syringe	8240152070E530	J1447	M, N, O, or Y
300 mcg/mL vial	82401520702020	J1447	M, N, O, or Y
480 mcg/0.8 mL prefilled syringe	8240152070E540	J1447	M, N, O, or Y
480 mcg/1.6 mL vial	82401520702030	J1447	M, N, O. or Y
Leukine (sargramostim)			
250 mcg injection	82402050002120	J2820	M, N, O, or Y
Neulasta (pegfilgrastim)			
6mg/0.6 mL prefilled syringe	8240157000E520	J2505	M, N, O, or Y
6mg/0.6 mL prefilled syringe kit (Onpro kit)	8240157000F820	J2505	M, N, O, or Y
Neupogen (filgrastim)			
300 mcg/0.5 mL prefilled syringe	8240152000E545	J1442	M, N, O, or Y
480 mcg/0.8 mL prefilled syringe	8240152000E550	J1442	M, N, O, or Y
300 mcg/mL injection	82401520002010	J1442	M, N, O, or Y
480mcg/1.6 mL injection	82401520002012	J1442	M, N, O, or Y
Nivestym (filgrastim-aafi)			
300 mcg/0.5 mL prefilled syringe	8240152010E520	Q5110	M, N, O, or Y
480 mcg/0.8 mL prefilled syringe	8240152010E530	Q5110	M, N, O, or Y
300 mcg/mL single use vial	82401520102020	Q5110	M, N, O, or Y
480 mcg/mL single use vial	82401520102030	Q5110	M, N, O, or Y
Udenyca (pegfilgrastim-cbqv)			
6 mg/0.6 mL prefilled syringe	8240157010E520	Q5111	M, N, O, or Y
Zarxio (filgrastim-sndz)			
300 mcg/0.5 mL prefilled syringe	8240152060E530	Q5101	M, N, O, or Y
480 mcg/0.8 mL prefilled syringe	8240152060E540	Q5101	M, N, O, or Y
Ziextenzo (pegfilgrastim-bmez)			
6 mg/0.6 mL prefilled syringe	8240157005E520	TBD	M, N, O, or Y

PRIOR AUTHORIZATION CRITERIA FOR APPROVAL

The target agent will be approved when ALL of the following are met:

1. The requested agent is not being given for prophylactic use if the patient is receiving BOTH concurrent chemotherapy and radiation
   AND
2. ONE of the following:
   a. The requested agent is Leukine (sargramostim) AND ONE of the following:
      i. The patient has a diagnosis of acute myeloid leukemia (AML) AND is receiving or has had induction or consolidation chemotherapy
         OR
      ii. The patient has undergone an allogeneic or autologous BMT and has a delayed or failed engraftment
         OR
      iii. The patient has a non-myeloid malignancy AND is undergoing myeloablative chemotherapy followed by autologous or allogeneic bone marrow transplantation (BMT)
         OR
      iv. The requested agent is being used for mobilization of autologous hematopoietic progenitor cells into the peripheral blood for collection by leukapheresis
         OR
      v. The patient was acutely exposed to myelosuppressive doses of radiation to increase survival [hematopoietic syndrome of acute radiation syndrome (H-ARS)]
         OR
      vi. The patient has another FDA labeled indication for the requested agent
         OR
      vii. The patient has another indication that is supported in compendia (AHFS, NCCN 1 or 2a recommended use, DrugDex 1 or 2a level of evidence) for the requested agent

   OR

   b. The requested agent is Granix (tbo-filgrastim), Neupogen (filgrastim), Nivestym (filgrastim-aafi), or Zarxio (filgrastim-sndz) AND ONE of the following:
      i. The patient has acute myeloid leukemia (AML) AND is receiving or has had induction or consolidation chemotherapy
         OR
      ii. The patient has a non-myeloid malignancy AND is undergoing myeloablative chemotherapy followed by autologous or allogeneic bone marrow transplantation (BMT)
         OR
      iii. The patient was acutely exposed to myelosuppressive doses of radiation [hematopoietic syndrome of acute radiation syndrome (H-ARS)] AND the requested agent will be used to increase survival
         OR
      iv. The requested agent is being used for mobilization of autologous hematopoietic progenitor cells into the peripheral blood for collection by leukapheresis
         OR
      v. The requested agent is being used for therapeutic use for febrile neutropenia (FN) AND BOTH of the following:
         1. The requested agent is NOT Granix (tbo-filgrastim)
            AND
         2. The patient has at least one risk factor for infection-related complications or poor clinical outcome (e.g., old age [> 65 years], sepsis syndrome, severe [ANC < 100 neutrophils/mcL] or anticipated prolonged [> 10 days] neutropenia, pneumonia, invasive fungal infections or clinically documented infections, hospitalization, or prior episode of FN)

         OR
      vi. The patient has a diagnosis of myelodysplastic syndrome AND ONE of the following:
         1. The patient has an ANC ≤ 500/mm^3 AND a history of recurrent or resistant bacterial infections
            OR

2. The requested agent will be used for enhancement of erythropoietic activity for the treatment of refractory anemia AND ALL of the following:
    a. The requested agent will be used concurrently with an erythropoietin stimulating agent (e.g., Epogen, Procrit)
    AND
    b. The patient has a serum erythropoietin level ≤ 500 mU/mL
    AND
    c. The patient currently has adequate iron stores (i.e., ≥ 20% transferrin saturation or serum ferritin ≥ 100 ng/ml)

OR

vii. The patient has a diagnosis of severe chronic neutropenia (i.e., congenital neutropenia, cyclic neutropenia, or idiopathic neutropenia) AND BOTH of the following:
    1. The patient has at least one symptom (e.g., fever, infections, oropharyngeal ulcers)
    AND
    2. Diagnostic labs have been evaluated (e.g., CBC with differential, platelet counts, and bone marrow morphology and karyotype)

OR

viii. The requested agent will be used as secondary prophylaxis in patients who had a neutropenic episode or dose-limiting neutropenic event from a prior chemotherapy cycle AND a reduced dose or change in treatment regimen may compromise disease or overall survival or treatment outcomes

OR

ix. The requested agent will be used as primary prophylaxis for the prevention of febrile neutropenia (FN) in patients receiving a chemotherapy regimen who have an overall risk of > 20%

OR

x. The requested agent will be used as primary prophylaxis for prevention of FN in patients receiving a chemotherapy regimen who have an overall risk of 10 to 20% AND the prescriber has assessed the patient risk factors and determined that the patient has greater than 1 risk factor (e.g., prior chemotherapy or radiation therapy, persistent neutropenia, bone marrow involvement by tumor, recent surgery and/or open wounds, liver dysfunction [bilirubin > 2.0], renal dysfunction [creatinine clearance < 50], age > 65 years receiving full chemotherapy dose intensity, poor performance status, HIV infection, etc)

OR

xi. The patient has another FDA labeled indication for the requested agent

OR

xii. The patient has another indication that is supported in compendia (AHFS, NCCN 1 or 2a recommended use, DrugDex 1 or 2a level of evidence) for the requested agent

OR

c. The requested agent is Fulphila (pegfilgrastim-jmdb), Neulasta (pegfilgrastim), or Udenyca (pegfilgrastim-cbqv) AND ONE of the following:
    i. The requested agent will be used for secondary prophylaxis in patients who had a neutropenic episode or dose-limiting neutropenic event from a prior chemotherapy cycle AND BOTH of the following:
        1. A reduced dose or change in treatment regimen may compromise disease or overall survival or treatment outcomes
        AND
        2. The patient's chemotherapy is NOT being used on a weekly basis

    OR

    ii. The requested agent will be used for primary prophylaxis for the prevention of febrile neutropenia (FN) in patients receiving a chemotherapy regimen who have an overall risk of > 20% AND the patient's chemotherapy is NOT being used on a weekly basis

OR

iii. The requested agent will be used for primary prophylaxis for prevention of FN in patients receiving a chemotherapy regimen who have an overall risk of 10 to 20% AND BOTH of the following:
    1. The prescriber has assessed the patient risk factors and determined that the patient has greater than 1 risk factor (e.g., prior chemotherapy or radiation therapy, persistent neutropenia, bone marrow involvement by tumor, recent surgery and/or open wounds, liver dysfunction [bilirubin >2.0], renal dysfunction [creatinine clearance < 50], age > 65 years receiving full chemotherapy dose intensity, poor performance status, HIV infection, etc)
    AND
    2. The patient's chemotherapy is NOT being used on a weekly basis

OR

iv. The patient was acutely exposed to myelosuppressive doses of radiation [hematopoietic syndrome of acute radiation syndrome (H-ARS)] AND the requested agent will be used to increase survival

OR

v. The patient has another FDA labeled indication for the requested agent

OR

vi. The patient has another indication that is supported in compendia (AHFS, NCCN 1 or 2a recommended use, DrugDex 1 or 2a level of evidence)

AND

3. ONE of the following:
    A. The requested agent is a preferred agent (Preferred and Nonpreferred Agents to be determined by client)
    OR
    B. The patient is currently being treated with a non-preferred agent or the patient has been treated with the non-preferred agent within the past 6 months and is reinitiating therapy
    OR
    C. The patient has tried and had an inadequate response to a preferred agent
    OR
    D. The patient has a documented intolerance, FDA labeled contraindication, or hypersensitivity to ALL of the preferred agent(s) that is not expected to occur with the requested agent
    OR
    E. The prescriber has submitted documentation in support of the use of the non-preferred agent over the preferred agent(s)

AND

4. The patient does NOT have any FDA labeled contraindications to the requested agent