Pharmacist Managed Anemia Clinic Improves Guideline Adherence for Darbepoetin

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Primary Intended Outcomes
1. To improve the compliance of darbepoetin administration with current guidelines for patients with non-dialysis chronic kidney disease (CKD).
2. Reduce cost of inappropriate doses and improve percent compliance for IV iron doses.

Relevant PAI Recommendations
Amb Care 1.2. As members of the interprofessional patient care team, pharmacists who provide ambulatory care services perform patient assessments; have prescribing authority to manage disease through medication use and provide collaborative drug therapy management; order, interpret, and monitor medication therapy-related tests; coordinate care and other health services for wellness and prevention of disease; provide education to patients and caregivers incorporating principles of health literacy and cultural sensitivity; and document care processes in the medical record. Amb Care 1.5. Pharmacists who provide ambulatory care services should articulate and promote a standardized pharmacist patient care process.

Situation Analysis
Erythropoiesis stimulating agents (ESA), such as darbepoetin, is used to treat anemia in non-dialysis CKD improving patient’s hemoglobin (Hgb) concentrations, quality of life, and reducing need for blood transfusions. Close monitoring is required due to increased risk of cardiovascular events, myocardial infarction, stroke, venous thromboembolism, and mortality if Hgb rises > 1 g/dL over a 2 week period or when target Hgb levels are greater than 11 g/dL. Patients are screened for iron deficiency anemia quarterly per 2012 KDIGO guidelines while patients are maintained on ESA therapy and more frequently if receiving intravenous (IV) iron replacement therapy or having a gastrointestinal (GI) bleed.

Kalispell Regional Healthcare (KRH) is 340-bed health care system located in Northwest Montana. KRH serves more than 190,000 people within a geographic region of 20,000 square miles. The medical staff includes more than 400 physicians, physician assistants and nurse practitioners, as well as 37 pharmacists practicing in retail, hospital and ambulatory care settings. There is one nephrology clinic consisting of two nephrologists, one LPN, and one front office staff that treats the CKD population consisting of approximately 1200 patients. This large service area requires coordination to identify, monitor, and appropriately treat anemia in CKD.
Prior to the development of the collaborative practice agreement the two nephrologists were faced with interpreting laboratory values between clinic, dialysis, and hospital patients and providing nursing with darbepoetin dosing and next laboratory follow-up. There was no official dosing protocol that was followed and no follow-up to ensure patients received darbepoetin dose or labs when scheduled. There were times when infusion centers would administer darbepoetin to the patient with a standing darbepoetin order and laboratory values were not addressed by a provider. This resulted in patients receiving darbepoetin when Hgb levels were greater than 11 g/dL or inappropriate dose for their given Hgb level. There was lack of documentation regarding whether a patient received darbepoetin dose and when it was administered. With the overwhelming patient workload, the nephrologists approached the two ambulatory care pharmacists about possible collaboration to manage an Anemia Clinic.

The ambulatory care pharmacists worked closely with the nephrologists to identify and standardize the treatment of anemia in non-dialysis CKD patients in our organization. A collaborative practice agreement was designed, using the KDIGO and KDQI guidelines, to allow the pharmacists to provide optimal drug therapy management of anemia in non-dialysis CKD. The nephrologists were immediately pleased with the decrease in workload and the close monitoring the pharmacists were able to provide for their non-dialysis CKD patients. After a few months of darbepoetin management, the nephrologists requested iron replacement therapy be added to the collaborative practice agreement and also be monitored by the pharmacists. The Anemia Clinic, which is located within a mile of the nephrology office, telephonically followed about 40 patients in the first year.

Service Description
The pharmacist managed Anemia Clinic initiates and maintains darbepoetin therapy based on therapeutic response. As an agent of the physician, the pharmacist sends prescriptions that are related to anemia management (i.e. darbepoetin and IV iron) to the Infusion Center at KRH or the infusion center of the patient’s request.

The ambulatory care pharmacists order and evaluate the results of laboratory tests related to anemia in non-dialysis CKD, including: hemoglobin and hematocrit (Hgb/Hct), complete blood count (CBC), transferrin saturation (TSAT), ferritin, vitamin B12, and folate. Patients have labs drawn at 2 week intervals after initiation of darbepoetin therapy and are maintained at 2 or 4 week intervals per the collaborative practice agreement darbepoetin dosing protocol. The physician may request a different frequency for a patient by written or verbal order.

A patient is seen in office by the nephrologist and chronic kidney disease and anemia status are first evaluated. If the patient is requiring darbepoetin therapy an electronic referral to the Anemia Clinic is faxed along with any special instructions (e.g., note on where patient would like to have labs drawn, if patient is residing in a long term care facility, specific infusion center patient requests to get injections at, or specific starting dose or frequency of darbepoetin if physician wishes to deviate from protocol). The pharmacist then ensures all baseline labs have been drawn (folate, ferritin, vitamin B12, TSAT) and Hgb/Hct have been evaluated within 7 days of when first darbepoetin would be administered. The patient’s Hgb must be less than 10 g/dL and iron stores sufficient prior to darbepoetin initiation. The pharmacist documents each encounter in the electronic medical record by entering a telephonic note with initial darbepoetin or IV iron dose and laboratory orders. The type of iron used is defaulted to what the infusion center stocks on hand; the majority of patients received Ferric Gluconate. These orders are then faxed to KRH Infusion Center or the infusion center of the patient’s request. These telephonic notes are all titled “Darbepoetin Dosing” or “Iron Dosing” for easy reference for physicians. The pharmacists also document Hgb, iron labs, darbepoetin dose and frequency in the anemia flowsheet which is sent electronically every week to the nephrologists. When a patient has follow-up Hgb/Hct drawn, the pharmacist ensures previous dose of darbepoetin was administered. If patient does not have labs drawn a reminder phone call is made.

The nephrologist is notified for guidance on darbepoetin or IV iron dosing if: patients laboratory values do not fall inside collaborative practice agreement protocol, Hgb is not responding to darbepoetin therapy over a 12 week period,
iron saturation or ferritin does not respond after two consecutive IV iron administrations, patient misses a dose, Hgb increases 1 g/dL or more over a 2 week period, patient has a weight gain of > 3 kg or SBP > 180 mmHg or DBP > 110 mmHg, or if patient has had recent blood transfusion. The nephrologist is notified for possible patient discharge from the Anemia Clinic if Hgb is greater than 11 g/dL for three consecutive checks or if patient has started dialysis.

Overall, the pharmacist spends about 20 minutes per patient chart. An initial review of medications, labs, and vitals is performed prior to prescribing. Routine monitoring of vitals, labs and reviewing chart for recent hospitalization requiring blood transfusion or darbepoetin administration is done at every encounter.

**Key Elements for Success**
1. Establish physician relationships to improve patient care;
2. Develop evidence-based collaborative practice agreement;
3. Monitor progress and outcomes;
4. Dedicate time for each visit.

**Resource Utilization**

**Personnel:** Two ambulatory care pharmacists that were currently managing an anticoagulation clinic in a cardiology/pulmonology office were used to run the Anemia Clinic. They address 1-3 anemia patients daily taking up 20-60 minutes per day.

**IT and other infrastructure:** Develop laboratory and prescription ordering in the electronic health record. Telephonic capabilities for order clarification and tracking of outside labs.

**Supply Expense:** None.

**Return on Investment:** The number of non-compliant darbepoetin doses decreased from 31.7% to 3.8%. (A dose was considered non-compliant when there was incomplete lab evaluation - i.e., previous and current hemoglobin levels not compared, hemoglobin not drawn, hemoglobin not drawn within 7 days of darbepoetin administration, iron stores not sufficient - darbepoetin was administered when Hgb was greater than 11 g/dL, or darbepoetin dose was not increased, decreased, or held when indicated). A total of 257 doses were evaluated post – pharmacy involvement over a 12 month period and 175 doses pre – pharmacy involvement over a 12 month period. One limitation was not being able to assess all patients pre – pharmacy involvement as identification of patients was difficult. The cost of non-compliant darbepoetin doses decreased from $8,368.02 to $1,705.46. The number of non-compliant IV iron doses decreased from 26.3% to 14.9%. A dose of IV iron was considered non-compliant if lab evaluation was incomplete (i.e., full iron profile not drawn including TSAT and ferritin). A subjective decrease in infusion center chair time was observed as 77% of patients had labs drawn prior to their darbepoetin injection. This cut down on patients waiting for Hgb levels to result, nursing to communicate results to the pharmacists, and pharmacists to evaluate patient’s dose prior to faxing orders back to the infusion centers (in total 1-2 hours of turn-around time).

**Recognized Intangible Benefits**
1. Improved physician satisfaction with reduced phone call interruptions from the Infusion Center.
   a. Pre – pharmacist run Anemia Clinic, patients arrived at the infusion center, had labs drawn and would wait for them to result. These values were then called into the nephrologist for darbepoetin dosing between seeing clinic, hospital, or dialysis patients. The infusion center would then obtain the darbepoetin injection from the inpatient pharmacy and administer to patient and reschedule for next follow-up injection. This process left the patient waiting over an hour for their injection. Post – pharmacist run Anemia Clinic, the pharmacists had the patients draw labs within 7 days prior to arriving at the infusion center so darbepoetin orders were already at the infusion center. Physician satisfaction was measured subjectively by appreciation physicians communicated to pharmacists regularly.
2. Improved patient satisfaction with decreased waiting time on laboratory and prescription orders in the Infusion Center
   a. By having darbepoetin orders at the infusion center prior to patient arrival cut down on patient wait time significantly. Patients were waiting over an hour for labs to result and orders to be sent to the infusion center.

Outcome Measures
The following were assessed:
1. Compliance of administration of darbepoetin and IV iron doses;
2. Reduction of cost for non-compliant darbepoetin and IV iron doses.

Lessons Learned
1. Work collaboratively with physicians, nursing, laboratory, and support personnel to ensure smooth transition from physician management to pharmacist managed Anemia Clinic.
2. Share the successes of the program – increased physician satisfaction, decreased physician workload, and increased reimbursement for darbepoetin.
   a. Pre-pharmacy involvement, the majority of darbepoetin doses were not meeting Medicare reimbursement criteria. The main issues being hemoglobin levels were not drawn within 7 days of darbepoetin administration and iron stores were not replenished prior to darbepoetin injections.

Other Considerations
Other outcomes to measure might include: time reduced in chair at Infusion Center and patient and physician satisfaction.
Our measurements were subjective measurements. A more concrete objective measurement (i.e., patient and physician satisfaction survey) would be of benefit.

Suggestions for Other Hospitals/Health Systems
Provide ancillary staff (ie. front office staff, pharmacy technician, or nurse) to help coordinate lab draws, appointment times, and verify previous darbepoetin dose was received by patient in the Infusion Center if expected increase in Hgb/iron labs does not occur.

Helpful References

Team Members
- Hugh Easley, Pharm.D., Director of Pharmacy, Kalispell Regional Healthcare
- Hanna Cattron, Pharm.D., Ambulatory Care Pharmacist, Kalispell Regional Healthcare
- Michael Dotter, Pharm.D., Ambulatory Care Pharmacist, Kalispell Regional Healthcare
COLLABORATIVE PRACTICE AGREEMENT
FOR ANEMIA MANAGEMENT SERVICES

Montana State Law provides for a collaborative between a physician and a pharmacist for the purpose of drug therapy management of patients.

A Collaborative Practice is defined as a practice in which the prescribing practitioner makes a diagnosis, maintains ongoing supervision of patient care and refers the patient to a pharmacist, who may initiate and modify drug therapy management within the protocol established by the prescribing practitioner, and the pharmacist.

Pharmacists staff the Anemia Management Clinic on the hospital campus. The general activities and duties performed by the pharmacists under the protocol as follows:

1. Initiate and evaluate patients on darbepoetin therapy and adjust dose based on response to therapy.
2. Initiate and evaluate patients on Nulecit® (ferric gluconate) in patients with iron-deficiency anemia.
3. Order and evaluate the results of laboratory tests related to anemia therapy, including:
   a. Hgb/Hct
   b. Complete blood count (CBC)
   c. Iron
   d. TIBC
   e. TSAT
   f. Ferritin
   g. Vitamin B₁₂
   h. Folate
4. As an agent of the physician, prescriptions that are related to anemia management (i.e. darbepoetin, iron) can be either written, faxed or telephoned to the location of administration; typically the Infusion Center.
5. Each encounter will be documented in the Electronic Medical Record.

Full details of the duties carried out by the pharmacist under this agreement are described in the Anemia Management Clinic Practice Guidelines, which is provided to each participating physician.

The participating physician or Medical Director of the Anemia Management Clinic may override this agreement whenever he or she deems it necessary or appropriate.

Agreement:

A collaborative practice agreement has been established between Physician Name, M.D., a licensed practitioner in the State of Montana, and the following pharmacists:

Pharmacist name, Pharm.D.
Pharmacist name, Pharm.D.

Physician’s Signature: _______________________________ Date: ______________
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   b. Complete blood count (CBC)
   c. Iron
   d. TIBC
   e. TSAT
   f. Ferritin
   g. Vitamin B₁₂
   h. Folate
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Full details of the duties carried out by the pharmacist under this agreement are described in the Anemia
Management Clinic Practice Guidelines, which is provided to each participating physician.

The participating physician or Medical Director of the Anemia Management Clinic may override this
agreement whenever he or she deems it necessary or appropriate.

Agreement:

A collaborative practice agreement has been established between referring physicians (see separate
paperwork for individual M.D. signatures) and the following pharmacists:

_____________________________  ______________________________
Pharmacist name, Pharm.D.          Pharmacist name, Pharm.D.
ANEMIA MANAGEMENT CLINIC PRACTICE GUIDELINES
Ambulatory Pharmacy Services

PURPOSE:
To establish guidelines for the monitoring of erythropoiesis stimulating agent (ESA) therapy and/or iron replacement (IR) therapy in referred patients and to clearly define the roles/responsibilities of the Physicians and collaborating Pharmacists. The purpose of the service is to provide continuity of care to patients who require ESA/IR therapy, enhance patient care through monitoring, close follow-up, and reduce adverse events associated with each individual therapy. Data suggests that a pharmacist-managed anemia service can improve care while being more cost-effective.

POLICY:
ESA/IR Management:
Upon receipt of the Outpatient Darbepoetin Order, which serves as the referral form, from the patient’s provider - the Anemia Clinic will assume responsibility for the monitoring and dosing of the ESA. The Pharmacist responsible for the Anemia Clinic may order appropriate laboratory tests, adjust the dose of darbepoetin, monitor for adverse effects, and determine frequency of dosing.

If the patient is found to have iron-deficiency anemia upon baseline labs, iron replacement therapy will be initiated with subsequent iron labs being drawn in one month. If these results remain abnormal, the referring physician will be contacted for further treatment. Otherwise, quarterly routine labs will be drawn (i.e. iron studies).

PROCEDURES:
ESA treatment will be initiated and discontinued only by a Physician’s order. The protocol outlines procedures for monitoring and adjusting darbepoetin doses. Slight deviations from the protocol per clinical judgment may be warranted.

Guidelines for referral
Patients needing ESA therapy will be enrolled into the Anemia Clinic pursuant to receipt of the Darbepoetin referral/order form or by physician’s verbal order which will be reduced to writing on the order referral/order form.

Appointments
Upon receipt of the referral/order, the pharmacist will coordinate with the Infusion Center (or other healthcare infusion rooms) to set up initial appointment. The Pharmacist will provide orders to the nurse at Infusion Room for subsequent appointments based on labs. Phone calls and labs will be documented in the patient’s electronic medical record.

Laboratory
Baseline labs will include hemoglobin (Hgb), hematocrit (Hct), iron, total iron binding capacity (TIBC), transferrin saturation (TSAT), ferritin, vitamin B₁₂, and folate. Hgb must be less than 10 g/dl and drawn within 7 days of initiation of darbepoetin. Iron, Folate, and B₁₂ deficiencies must be corrected as appropriate prior to initiation of therapy.
**Darbepoetin Dosing**
The Darbepoetin Order Set with Dosing Guidelines will serve as the foundation for dose adjustments of darbepoetin. The Pharmacist will use clinical judgment in combination with the Dosing Guidelines to achieve and maintain the target range for Hgb. At any time the pharmacist will consult a physician when questions or concerns arise.

**Monitoring**
Upon initiation of darbepoetin therapy, and each month thereafter, the patient will receive a written Medication Guide for Aranesp® (darbepoetin). Specific adverse effects that the patient will be asked about at each visit include, but not limited to, the following:

- High blood pressure
- Shortness of breath or difficulty breathing
- Fluid retention or weight gain
- Chest pain
- Signs of clotting (ie, DVT/PE or CVA/TIA)
- Premonitory seizure symptoms (tingling in extremities, changes in taste or smell, confusion, weakness, jerking movements of an arm or leg, day dreaming episodes)

**Iron Replacement Dosing**
Upon receiving iron labs showing iron-deficiency anemia, patients will be dosed with a one-time infusion of Nulecit® (sodium ferric gluconate complex). A repeat ferritin and iron panel will be drawn in one month. If further transfusions are required, the referring physician will be contacted.

**Additional Dosing Guidelines for Sodium Ferric Gluconate Complex**
- If patient missed a dose (i.e. did not make their apt), notify provider.

<table>
<thead>
<tr>
<th>Baseline or Quarterly Iron Study Nulecit® Dose</th>
<th>TSAT &lt; 20%</th>
<th>Ferritin &lt; 100 ng/mL</th>
<th>TSAT &gt; 20%</th>
<th>Ferritin &gt; 100 ng/mL</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 mg IVPB x 1-2 doses</td>
<td></td>
<td></td>
<td>No Iron dose given</td>
<td>Repeat Iron Panel and Ferritin in 3 months</td>
</tr>
<tr>
<td>Recheck Iron Panel and Ferritin in 1 month</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Month Iron Study Follow-up Nulecit® Dose</td>
<td>Notify nephrologists for further iron replacement orders and repeat labs</td>
<td>No Iron dose given</td>
<td>Repeat Iron Panel and Ferritin in 3 months</td>
<td></td>
</tr>
</tbody>
</table>

**Documentation**
Upon completion of the patient visit for darbepoetin, a progress note will be created and maintained within the current Renal EMR, which will include an electronic flow sheet for each patient. The flow sheet will be maintained and updated after each visit; and will include current darbepoetin dose, pertinent labs, vitals, side effects, and next visit. Adverse effects will be communicated directly to the referring provider either by direct communication or through the electronic medical record.

**Termination of care**
A patient will be discontinued from the Anemia Clinic service if they are no longer receiving darbepoetin (discontinued by the provider). If the patient fails to maintain appointments with the Anemia
Clinic/Infusion Room, the Pharmacist will discuss with the Attending Nephrologist as how they wish to proceed.

**Quality improvement**
The protocol will be reviewed yearly (January) by the collaborating Pharmacists and Physicians, and revised as necessary. Data will be continuously monitored to ensure patients are receiving optimal care.

**Collaborative Practice Agreement Termination**
Any participating party may cancel their participation in this agreement at any time by written notification.

**Physician ability to override**
At any time the Physician deems necessary, they may override the protocol listed above. They must communicate any changes that were made to the Pharmacist via electronic or other appropriate means.

The Collaborative Drug Therapy Management Protocol will reside at the Anemia Clinic.
DARBEPOETIN (ARANESP®)
OUTPATIENT TREATMENT OF ANEMIA IN CKD

PATIENT NAME: ____________________________________     DOB: ________________

1. ALLERGIES/REACTIONS: ______________________________________________________

2. DIAGNOSIS: Anemia due to CKD □ Stage 3 □ Stage 4 □ Stage 5
   DIAGNOSIS/ICD-CDM CODE(S): ___________________________________________________

3. EXCLUSION CRITERIA: Uncontrollable hypertension, active bleeding or allergic to darbepoetin

4. Height: ___________ in     Weight: ___________ kg

5. Note: In clinical trials, Erythropoiesis Stimulating Agents (ESA) shortened overall survival and/or increased the risk of tumor progression or recurrence in cancer patients. It is crucial that shared providers discuss ESA treatment before administration when caring for CDK patients who have cancer as it may trigger the ESA APPRISE (Assisting Providers and Cancer Patients on the Risks Information for the Safe use of ESAs) program and/or other required actions for care.

6. LABS:
   • BASELINE LABS: DIAGNOSIS/ICD-CDM CODE(S): ______________________________
     Baseline lab results MUST be available prior to appointment for darbepoetin therapy: Hgb/Hct, Fe/TIBC, Ferritin, B-12 and Folate. Note the following:
     • Hgb must be < 10 g/dL and drawn within 7 days of initiation of darbepoetin. Iron, folate and B12 deficiencies must be corrected as appropriate prior to initiating darbepoetin.
     • If IV iron is given, draw a Hgb/Hct 2 weeks after the last dose of IV iron before initiation of darbepoetin.
     • If Hgb is > 11.1 g/dL, check Hgb every 2 weeks x 2. If still above 11.1 g/dL, notify physician and discharge from service.
   □ Other labs with DIAGNOSIS/ICD-CDM CODE(S): ______________________________

   • MONITORING LABS: DIAGNOSIS/ICD-CDM CODE(S): ______________________________
     • Hgb/Hct drawn at least once a month or every 2 weeks based on darbepoetin dosing table.
7. **TREATMENT:**
   Notify physician if:
   - SBP > 180 mmHg or DBP > 110 mmHg
   - Weight gain > 3 kg since last visit
   - If patient has recently received pRBC transfusions; notify provider to hold darbepoetin
   - Refer to darbepoetin table for additional situations when to notify provider

8. **EDUCATION**
   - Provide patients with the darbepoetin (Aranesp®) medication guide at the initiation of therapy.

9. **MEDICATIONS**
   All doses of darbepoetin will be given subcutaneously unless otherwise specified:

   **Table 1. Darbepoetin dosing for INITIAL dosing**

<table>
<thead>
<tr>
<th>Weeks</th>
<th>Initial Dose</th>
<th>Hgb &lt; 10 g/dL</th>
<th>Hgb 10-10.5 g/dL</th>
<th>Hgb 10.6-11 g/dL</th>
<th>Hgb ≥ 11.1 g/dL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>0.45 mcg/kg SC</td>
<td>Return in 2 weeks</td>
<td>Hgb must be &lt; 10 g/dL to start and Hgb/Hct results must be within last 7 days before starting.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 3</td>
<td></td>
<td>Give same dose and return in 2 weeks with Hgb/Hct labs.</td>
<td>No dose, return in 2 weeks with Hgb/Hct labs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 5</td>
<td>Increase dose by 25% and return in 2 weeks with Hgb/Hct labs.</td>
<td>Give same dose and return in 2 weeks with Hgb/Hct labs.</td>
<td>Reduce dose by 25%, administer, and return in 2 weeks with Hgb/Hct labs.</td>
<td>No dose, return in 2 weeks with Hgb/Hct labs.</td>
<td></td>
</tr>
<tr>
<td>Week 7</td>
<td>If dose has not been increased within 28 days, increase dose by 25%, administer, and return in 2 weeks with Hgb/Hct labs.</td>
<td></td>
<td></td>
<td>If Hgb is still &gt; 11 g/dL after holding 2 consecutive doses, hold dose and notify provider for possible discharge of service. OR Hold dose if it does not meet the above condition, and return in 2 weeks with Hgb/Hct labs.</td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td>If dose was increased within 28 days, give same dose and return in 2 weeks with Hgb/Hct labs.</td>
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<td></td>
<td></td>
<td></td>
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</tbody>
</table>
### Table 2. Darbepoetin dosing for MAINTENANCE dosing

<table>
<thead>
<tr>
<th>Week 9 and Beyond</th>
<th>Hgb &lt; 10 g/dL</th>
<th>Hgb 10-10.5 g/dL</th>
<th>Hgb 10.6-11 g/dL</th>
<th>Hgb ≥ 11.1 g/dL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>On 2-week dosing</strong></td>
<td>• If dose has not been increased within 28 days, increase dose by 25%, administer, and return in 2 weeks with Hgb/Hct labs. <strong>OR</strong> • If dose was increased within 28 days, give same dose and return in 2 weeks with Hgb/Hct labs.</td>
<td>• If patient did not receive same dose for the last 2 consecutive doses (i.e. 4 weeks-total), give same dose and return in 2 weeks with Hgb/Hct labs. <strong>OR</strong> • If patient’s Hgb has been between 10-11 g/dL for 2 consecutive doses (i.e. 4 weeks-total) and received the same dose, increase dose by 25%, administer, and return in 4 weeks with Hgb/Hct labs.</td>
<td>• If Hgb is still &gt; 11 g/dL after holding 2 consecutive doses, hold dose and notify provider for possible discharge of service. <strong>OR</strong> • Hold dose if it does not meet the above condition, and return in 2 weeks with Hgb/Hct labs.</td>
<td></td>
</tr>
<tr>
<td><strong>On 4-week dosing</strong></td>
<td>• Increase dose by 25% and return in 4 weeks with Hgb/Hct labs</td>
<td>• Give the same dose and return in 4 weeks with Hgb/Hct labs.</td>
<td>• No dose, return in 2 weeks with Hct/Hgb labs. If still &gt;11 g/dL, continue to hold and return in 2 weeks with Hgb/Hct labs. Once Hgb is &lt; 11.1 g/dL, reduce dose by 25% and return in 4 weeks with Hgb/Hct labs.</td>
<td></td>
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</tbody>
</table>

**ADDITIONAL DOSING GUIDELINES FOR DARBEPOETIN:**
- If the patient’s Hgb rises by 1 g/dL in any 2 week period notify provider; decrease dose by 25%
- Dosing increases can only occur once in 28 days. Decreasing dose can occur more often, but avoid reducing frequently (note trends).
- For patients who have not responded to the target Hgb 10 g/dL over a 12-week period, notify provider
- If patient missed a dose (i.e. did not make their apt), notify provider.

**For Patients already receiving darbepoetin:**
- Round DOWN to the nearest 5 mcg
- c. Patient is currently receiving darbepoetin ________mcg subcutaneously every _____weeks.
  Proceed using the dose adjustment table above.

________________________________________________________________________

**Physician Signature***  
Date

*Signature indicates authorization of the use of Pharmacist Collaborative Practice.*

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ANEMIA CLINIC FAX: ___________________________ Phone: ___________________________