

# Anemia Management Protocol Template

Anemia is best managed using a protocol that guides treatment decisions and provides a consistent therapeutic approach. This section can help you customize an anemia management protocol that will help patients achieve more stable Hb (Hct) within the target range of 11 to 12 g/dL for hemodialysis (or peritoneal dialysis) suggested by the National Kidney Foundation-Kidney Disease Outcomes Quality Initiatives (NKF-K/DOQI) guidelines.<sup>22</sup>

The anemia management protocol guide is a conceptual scheme based on recommendations included within the EPOGEN<sup>®</sup> package insert. Since clinical medicine does not always follow a standard pathway, all dosing decisions should be consistent with the actual protocol, standing orders, and physicians' orders in place in your facility. A protocol does not replace physician's orders, documentation of care, or the patient's response to care.

## Step 1: Select a target hemoglobin (hematocrit) range.

	Parameters	Clinical Notes
Define target Hb (Hct):	Hb ___ to ___ g/dL Hct ___% to ___%	<ul style="list-style-type: none"> <li>The NKF-K/DOQI guidelines recommend a target Hb range of 11 to 12 g/dL (Hct of 33% to 36%)</li> <li>The EPOGEN<sup>®</sup> package insert recommends a target Hb (Hct) range of 10 to 12 g/dL (30% to 36%)</li> </ul>

## Step 2: Define parameters for use of EPOGEN<sup>®</sup> (Epoetin alfa).

	Parameters	Clinical Notes
A. Start dose at:	___(U/kg TIW)	<ul style="list-style-type: none"> <li>Dose EPOGEN<sup>®</sup> by weight: recommended starting dose is 50 to 100 U/kg three times a week (TIW)</li> <li>Maintenance doses may range from 12.5 to 525 U/kg TIW in a Phase 3 clinical trial, and must be individualized</li> </ul>
B. Monitor Hb (Hct) to measure outcomes every:		<ul style="list-style-type: none"> <li>Twice a week for 2 to 6 weeks following any dose adjustment</li> <li>Monthly when the EPOGEN<sup>®</sup> dose has stabilized</li> </ul>
C. Increase dose by ___% when Hb (Hct) approaches:		<ul style="list-style-type: none"> <li>Increase the dose in increments of 10% to 25%</li> <li>Increase the dose when the Hb (Hct) approaches the lower end of the facility's target range</li> <li>When initiating therapy, increase the dose if the Hb</li> </ul>

D. Decrease dose by \_\_\_\_% when Hb (Hct) approaches:

E. Hold the dose when Hb (Hct) is:

F. If the dose is held, check Hb (Hct) every:

Restart EPOGEN<sup>®</sup> at a reduced dose when Hb (Hct) is:

(Hct) does not increase 1.7 to 2 g/dL (5 to 6 points) after 8 weeks, and the Hb (Hct) is below the suggested target range

- Unless clinically indicated, dose adjustments should not be made more frequently than once every 4 weeks
- Decrease the dose in decrements of 10% to 25%
- Decrease the dose when the Hb (Hct) approaches 12 g/dL/36%, or the upper end of the facility's target range
- If the Hb (Hct) rises more than 1.3 g/dL (4 points) in any 2-week period, decrease the dose
- Unless clinically indicated, dose adjustments should not be made more frequently than once every 4 weeks
- Hold the dose of EPOGEN<sup>®</sup> (Epoetin alfa) when the Hb (Hct) is > 12 g/dL (36%) AND a 10% to 25% decrease in the dose does not slow the rate of rise in the Hb (Hct)
- Holding the EPOGEN<sup>®</sup> dose can lead to a dramatic decrease in the Hb (Hct). In some cases, Hb (Hct) levels > 12 g/dL may be appropriate on the basis of individual patient clinical characteristics, and the discretion of the physician.
- Check the Hb (Hct) weekly to determine trends
- Restart EPOGEN<sup>®</sup> at a 10% to 25% reduction in dose when the Hb (Hct) has decreased to within the facility's target range

**Step 3: Define the parameters for use of iron.** <sup>14,22-26</sup>

	Parameters	Clinical Notes
A. Select TSAT and ferritin target range:	<p>TSAT ___% to ___%</p> <p>Ferritin ___ng/mL to ___ng/mL</p>	
B. Monitor	<p>TSAT _____</p> <p>Ferritin _____</p> <p>TIBC _____</p>	<ul style="list-style-type: none"> <li>• The EPOGEN® package insert recommends regular evaluation of iron status for all patients receiving therapy. A TSAT <math>\geq 20\%</math> and a ferritin <math>\geq 100</math> ng/mL are recommended to support erythropoiesis.</li> <li>• The NKF-K/DOQI guidelines recommend evaluating iron parameters at least every 3 months</li> </ul>
C. Start oral iron at ____; when:		<ul style="list-style-type: none"> <li>• Iron deficiency is defined as TSAT &lt; 20% and ferritin &lt; 100 ng/mL</li> <li>• Many dialysis patients will require higher levels</li> <li>• Oral iron supplements are safe and inexpensive, but reduced intestinal absorption and poor patient compliance limit their effectiveness</li> <li>• Oral iron may be sufficient for peritoneal dialysis patients</li> <li>• Hemodialysis patients may require IV iron supplements</li> <li>• Recommended dosing for oral iron = 200 mg of elemental iron per day</li> </ul>
D. Stop oral iron and start IV iron when:		<ul style="list-style-type: none"> <li>• Consider IV iron if oral iron is ineffective, or the patient cannot tolerate oral iron and TSAT and ferritin are below the facility's target levels</li> <li>• Rule out other causes of hyporesponse that may affect iron levels (see <a href="#">step 4</a>)</li> </ul>
E. Calculate the total dose of IV iron required to treat anemia and to replace iron stores/ongoing blood loss.		<ul style="list-style-type: none"> <li>• Calculate iron needs on the basis of actual iron deficiency and blood loss (see specific IV Iron Package Insert)</li> <li>• For patients with poor dietary intake, add the calculation for replacing obligatory iron loss (average 1 mg/day = 365 mg/year)</li> <li>• If necessary, administer a test dose</li> </ul>

before the initial dose. Administration of subsequent test doses during therapy should be considered.

F. Discontinue IV iron and use oral iron when:

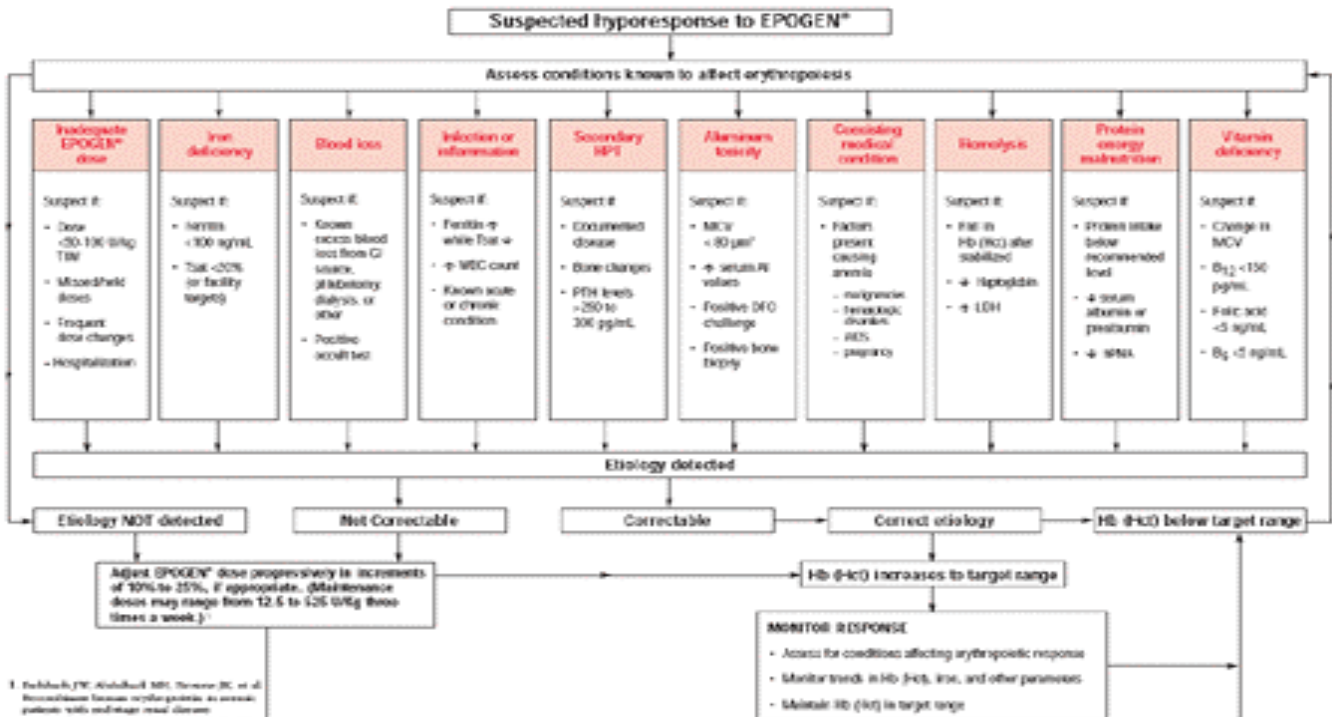
- The patient has an allergic reaction
- Use caution when administering IV iron to a patient who has an infection/inflammation

G. Discontinue all iron supplements when:

- Safe upper limits for iron parameters in dialysis patients remain controversial
- The NKF-K/DOQI Anemia Work Group recommends maximum levels of 50% for TSAT and 800 ng/mL for serum ferritin
- In a subsequent analysis of safety considerations, Fishbane recommended that ferritin levels not exceed 500 ng/mL<sup>25</sup>

Step 4: Monitor outcomes and assess for causes of hyporesponse if the target Hb (Hct) is not achieved.

### EPOGEN® (Epoetin alfa) Hyporesponse and Dosing Algorithm



1. Fishbach, JN; Alachkar, M; Torres, JC, et al. Recommendations for iron therapy in chronic kidney disease patients with end-stage renal disease: results of a phase III multicenter clinical trial. *Am J Kidney Dis*. 1998;31:952-960.

25. NKF-K/DOQI recommends a target Hb (Hct) range of 11 to 12 g/dL (33% to 39%). The EPOGEN® (Epoetin alfa) package insert recommends a target Hb (Hct) range of 10 to 12 g/dL (30% to 39%).

NKF-K/DOQI recommends a target Hb (Hct) range of 11 to 12 g/dL (33% to 36%).

The EPOGEN<sup>®</sup> (Epoetin alfa) package insert recommends a target Hb (Hct) range of 10 to 12 g/d

**Step 5: Document anemia management to achieve target Hb(Hct).**

Parameters	Clinical Notes
Does your medical record include the following?	<ul style="list-style-type: none"><li>• Most recent Hb (Hct) (include date)</li><li>• Target Hb (Hct)</li><li>• Rationale for target Hb (Hct)</li><li>• Current EPOGEN<sup>®</sup> (Epoetin alfa) Dose (if change required)</li><li>• New EPOGEN<sup>®</sup> Dose (if change required)</li><li>• Rationale for new EPOGEN<sup>®</sup> dose</li><li>• Physician signature and date</li></ul>