

INTRODUCTION

When hemoglobin (Hb) overshoots the intended target in the course of anemia management, practitioners encounter a dilemma: temporarily discontinue erythropoiesis stimulating agent (ESA) therapy, risking serious anemia as a consequence; or, continue but down-titrate ESA therapy despite perceptions of potential harm. To permit discontinuation of IV Epoetin alfa (holding) for Hb > 12 g/dL while maintaining fewer than 10% of patients with Hb < 10 g/dL, we evaluated anemia management strategies designed to slow overall rates of Hb rise or fall.

We tested the hypothesis that quality improvement program for anemia management would slow overall rates of Hb rise or fall.

METHODOLOGY

- In a large scale, multicenter quality improvement program, we evaluated the following strategies:
 - Hb test weekly for patients placed on hold;
 - restart IV Epoetin when Hb < 12 g/dL;
 - bimonthly Hb for all others;
 - Epoetin dose adjustment linked to 6 categories of absolute Hb level (from < 9.5 to 12.0 g/dL) and 5 rates of rise or fall (from ± 0-0.19 to > 0.6 g/dL per 14 days);
 - down-titration for any rapid Hb rise;
 - progressive limits for those on maximum Epoetin doses for Hb ≥ 10.0 g/dL; and
 - computer assistance to display data trends, list per-protocol dose, provide off-protocol dose adjustment, prompt review after hospitalization and track adherence-to-protocol.

RESULTS

Table 1. Demographics

	Patients
N	7,212
Age (yr)	61.3 ± 15.7
% Male	51.9%
<i>Race and Ethnicity</i>	
% African American	31.4%
% Hispanic	11.9%
% Asian, Pacific Islander	2.7%
% Native American	0.8%
% Other	0.2%
% Diabetic	71.5%
Vintage (yr)	1.9 ± 3.2
BMI	28.1 ± 8.0

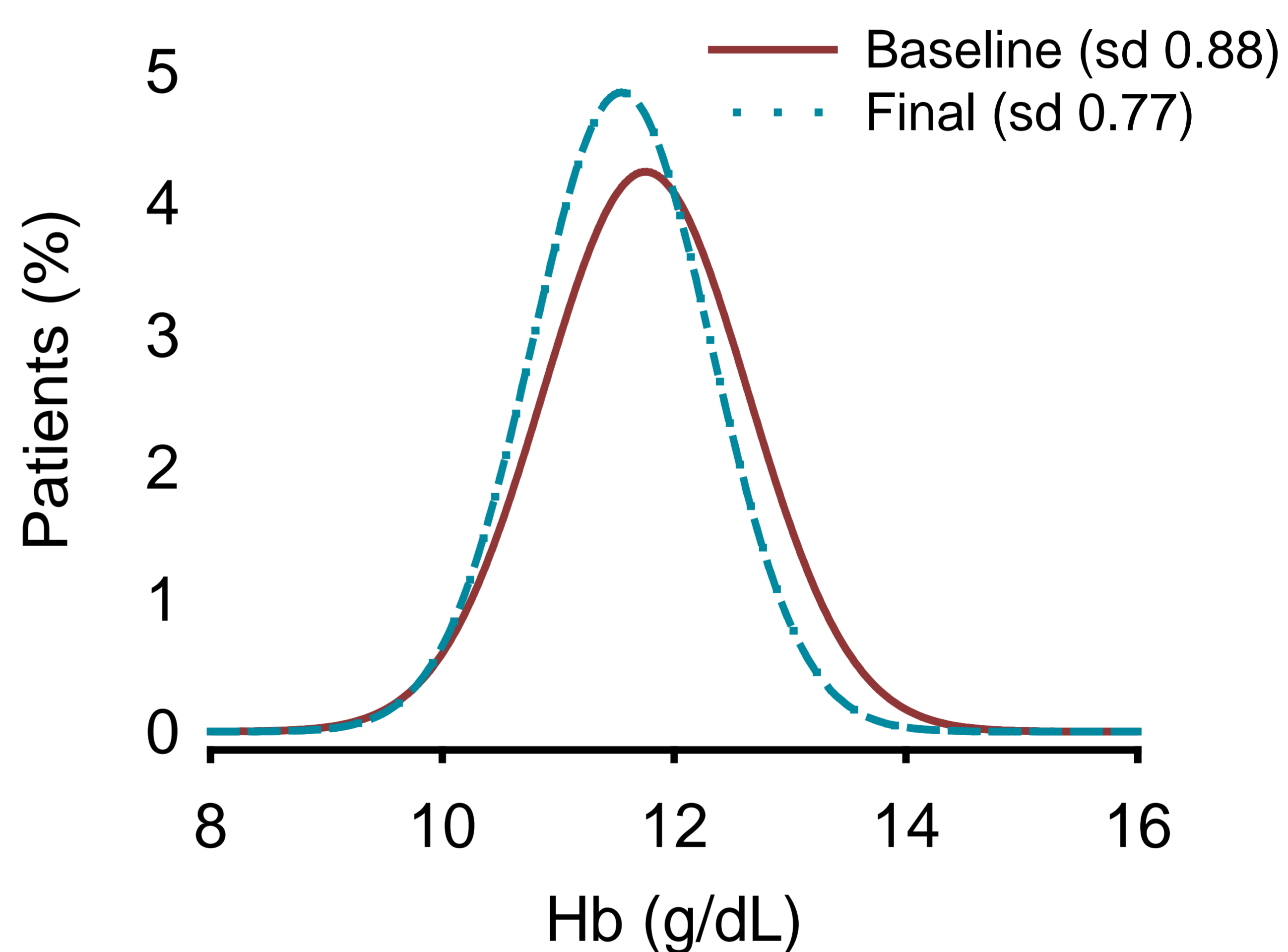


Figure 1. Hb distribution in patients before and after initiating the SHAPE pilot protocol

Table 2. Hb levels and Categories by Adherence Rate

Cohort	Rate of Per-Protocol Orders	Hb 10-12 g/dL (%)
All participating pilot facilities	> 60%	71.3
Highest-adherence pilot facilities	> 95%	77.7
All DaVita Facilities Aug '10		62.4

CONCLUSIONS

- Information in more than 7000 chronic hemodialysis (HD) patients followed for at least 12 weeks showed
 - a narrow single-month Hb distribution curve (SD 0.89),
 - fewer than 10% of patients with below-target Hb, and
 - improved performance with higher rates of protocol adherence.

KEY LEARNINGS

- ✓ Dose adjustment strategies designed to limit the rate of rise or fall of Hb achieve excellent anemia management results, particularly with high adherence to protocol, and permit dose-holding of Epoetin alfa for all patients with Hb overshoot.