

Transfusion Events in Hemodialysis Patients by Hemoglobin Level, ESA Users vs. Non-ESA Users

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Introduction

- Anemia is a common condition among end-stage renal disease (ESRD) patients.
- Erythropoiesis stimulating agents (ESAs), iron, and red blood cell transfusions are the primary treatments to increase hemoglobin (Hb) levels.
- Assessing transfusion use and Hb levels had been possible only for ESA-treated ESRD patients due to Medicare reporting requirements.
- In 2012, CMS began requiring Hb levels to be reported for all dialysis patients regardless of ESA use.
- Hb levels from the prior month are reported on the current month's dialysis claim.
- We assessed differences in monthly transfusion use in hemodialysis patients by prior month Hb level among ESA users vs. non-ESA users.

Methods

- Monthly cohorts, April-December 2012 (first complete reporting), were created from Medicare ESRD standard analysis files.
- Patients receiving hemodialysis as of the first day of the month were included and followed from that day until death, kidney transplant, loss to follow-up, or the last day of the month.

- ESA use and transfusion events were evaluated during the follow-up period.
- ESA use was assessed from Part A outpatient claims. Transfusions were assessed from Parts A and B claims. Hb levels were extracted from outpatient dialysis claims and were from the last measurement of the prior month.

Results

- There were 265,693 ESRD patients on hemodialysis with Medicare as their primary payer in April 2012. 85.3% (or 226,704) were ESA users during the month.
- In April 2012, for hemodialysis patients with Hb ≥ 13 g/dL, 2.84% of ESA users and 0.45% of non-ESA users received transfusions (Figure 1).
- For hemodialysis patients with Hb 12-<13 g/dL, 1.45% of ESA users and 0.85% of non-ESA users received transfusions (Figure 1).
- For hemodialysis patients with Hb 10-<11 g/dL and 11-<12 g/dL, transfusion use was 2.26% and 1.58% for ESA users and 2.93% and 1.22% for non-ESA users (Figure 1).
- Transfusion use was 5.41% and 16.03% for ESA users with Hb 9-<10 g/dL and <9 g/dL; corresponding percentages were 16.10% and 27.60% for non-ESA users (Figure 1).
- Similar patterns in monthly transfusion use were observed for the May-December 2012 cohorts (Figures 2 and 3).

Table 1. Percentage of hemodialysis patients receiving transfusion among ESA users vs. non-ESA users

Hb levels	ESA use	2012									
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
<9 g/dL	No ESA use	27.60	27.02	32.98	30.05	33.40	31.97	34.90	32.71	35.71	
	ESA use	16.03	16.90	16.89	16.23	16.59	15.33	16.29	15.61	15.04	
9-<10 g/dL	No ESA use	16.10	15.34	11.22	13.46	13.55	11.47	12.46	13.59	12.43	
	ESA use	5.41	5.49	5.30	5.17	5.14	4.94	5.08	4.86	4.40	
10-<11 g/dL	No ESA use	2.93	2.88	3.10	2.63	2.17	2.66	2.89	2.06	2.27	
	ESA use	2.26	2.32	2.15	2.21	2.21	2.01	2.27	2.06	1.84	
11-<12 g/dL	No ESA use	1.22	1.01	0.98	1.01	0.96	1.01	1.10	1.12	0.85	
	ESA use	1.58	1.60	1.45	1.55	1.50	1.47	1.60	1.49	1.29	
12-<13 g/dL	No ESA use	0.85	0.85	0.47	0.60	0.49	0.66	0.79	0.62	0.64	
	ESA use	1.45	1.82	1.71	1.57	1.70	1.50	1.72	1.52	1.29	
13+ g/dL	No ESA use	0.45	0.42	0.36	0.47	0.48	0.44	0.41	0.47	0.37	
	ESA use	2.84	2.50	2.62	3.04	3.69	3.37	3.08	2.93	2.24	

Figure 1. Percentage of hemodialysis patients receiving transfusions among ESA users vs. non-ESA users, April 2012

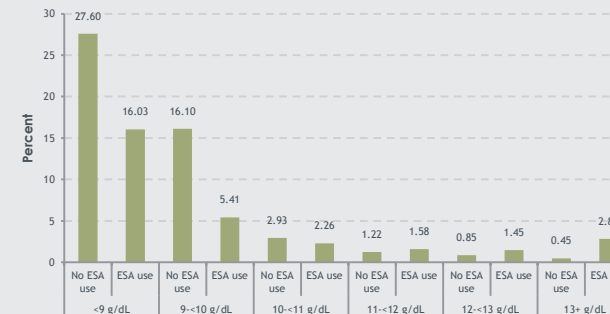


Figure 2. Percentage of hemodialysis patients receiving transfusions among ESA users

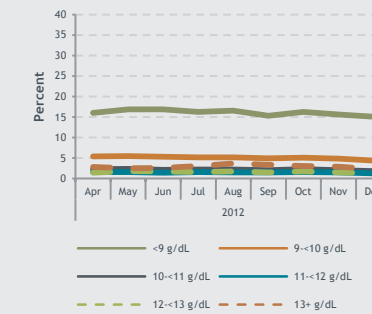
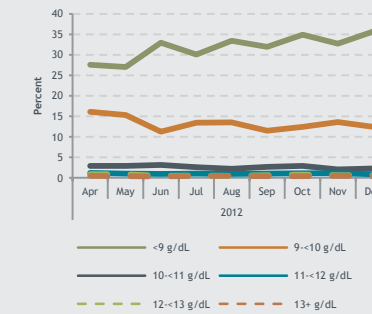


Figure 3. Percentage of hemodialysis patients receiving transfusions among non-ESA users



Conclusions

- For hemodialysis patients with Hb 10-<12 g/dL, transfusion use was similar between ESA users and non-ESA users.
- For hemodialysis patients with low Hb levels (<10 g/dL), transfusion risk was higher for non-ESA users than for ESA users in the next month.
- Longer-term assessment is needed to determine the sustained risk of transfusions when Hb falls below 10 g/dL.



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