Implementation of Alert in the Electronic Medical Record Reduces Incidence of Non-OR Blood Transfusions for Hb > 8.0 g/dL

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Background:

- A multicenter, randomized clinical trial of transfusion requirements in critical care[1] concluded that restrictive transfusion strategies for RBCs in critically ill patients were at least as effective, if not superior, in patient outcomes

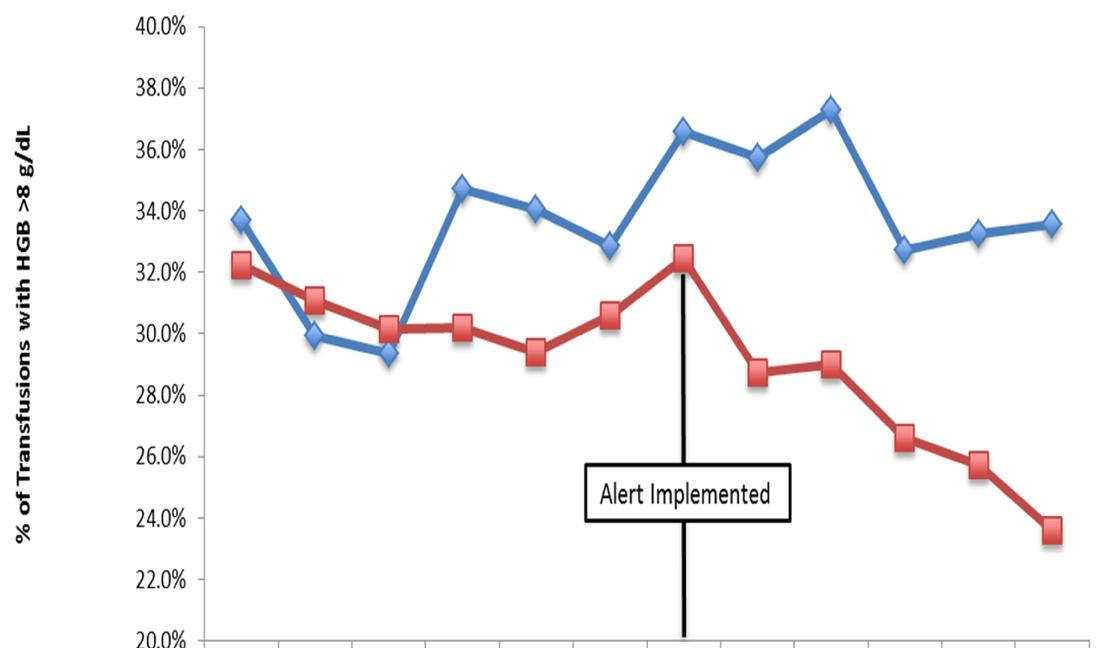
Objective:

- Implement an EMR alert to reduce exposure of patients to unnecessary transfusions and utilization of limited resources

Methods:

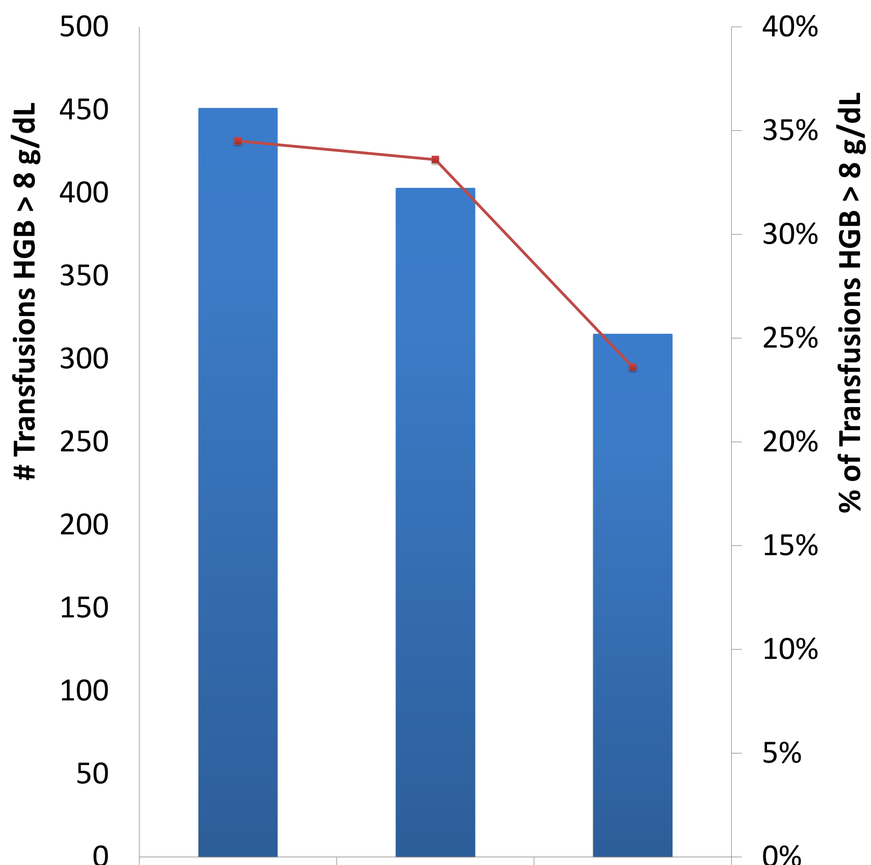
- Beginning September 2012, an EMR alert was initiated if a patient's last hemoglobin (Hb) was > 9.0 g/dL
  - ➢ Alert stated recent Hb level and prompted RBC transfusion justification
- Hb of 9.0 g/dL selected to reduce likelihood of sending alerts for patients with active hemorrhage
- Obtained transfusion information immediately pre/post alert implementation

Figure 1: Historical Utilization Pre- and Post-Implementation of Alert: RBC transfusions with HGB > 8 g/dL, 2011 – 2013



	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb
Mar '11-Feb '12	33.7%	29.9%	29.4%	34.7%	34.1%	32.9%	36.6%	35.7%	37.3%	32.7%	33.2%	33.6%
Mar '12-Feb '13	32.2%	31.1%	30.2%	30.2%	29.4%	30.6%	32.5%	28.7%	29.0%	26.6%	25.7%	23.6%

Figure 2: RBC transfusions with HGB > 8 g/dL by year



	Feb '11	Feb '12	Feb '13
Sum of > 8	451	403	315
% of > 8	34.50%	33.60%	23.60%

Results:

- Marked reduction in the % of blood transfusions "post-alert" implementation
- Average transfusion rate for > 8.0 g/dL "pre-alert" (Oct '11-Feb '12) was 34% vs. 27% "post-alert" ($p<.001$) for the same time period, and was lower "post alert" at each time point (Figure 1)
- February transfusion rate > 8.0 g/dL was 10% lower (34% vs. 24%) "post-alert," meaning 136 fewer units of RBCs transfused (Figure 2)

Conclusions:

- Implementation of an alert when ordering RBC transfusions significantly reduced incidence of transfusion for Hb >8.0 g/dL
- Data require further investigation to determine other factors that contribute to poor transfusion guideline compliance

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References:

1. Herbert PC, Wells G, Blajchman MA, et al. "A Multicenter, Randomized, Controlled Clinical Trial of Transfusion Requirements in Critical Care." *The New England Journal of Medicine* **1999**; 340: 409-417.