

Reducing Unnecessary Routine Post-Operative CBCs in the Pediatric Intensive Care Unit



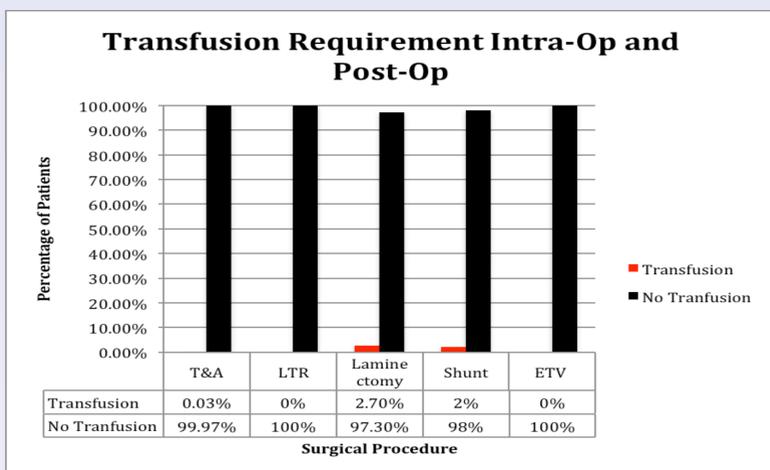
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Introduction

- High cost and high variability of common laboratory testing in the intensive care unit¹
- Complete blood count (CBC) testing commonly occurs in post-operative patients to determine the need for blood transfusions
- Post-operative CBCs are believed to be “routine” and needed for patients following surgery among many providers
- Excessive blood tests can lead to iatrogenic anemia and subsequent transfusions to reducing unnecessary testing benefits all patients²

Background

- Data from our own institution identified patients with very low to no risk of needing transfusions



- Patients undergoing these five surgical procedures should not require routine complete blood cell count testing post-operatively
- At our institution, this cohort receives routine post-operative CBCs 30% of the time at our institution

SMART Aim

- ◆ To decrease unnecessary complete blood count testing in a low risk cohort of post-operative patients in the PICU at The Children's Hospital of Philadelphia by 50% within 6 months.

Methods

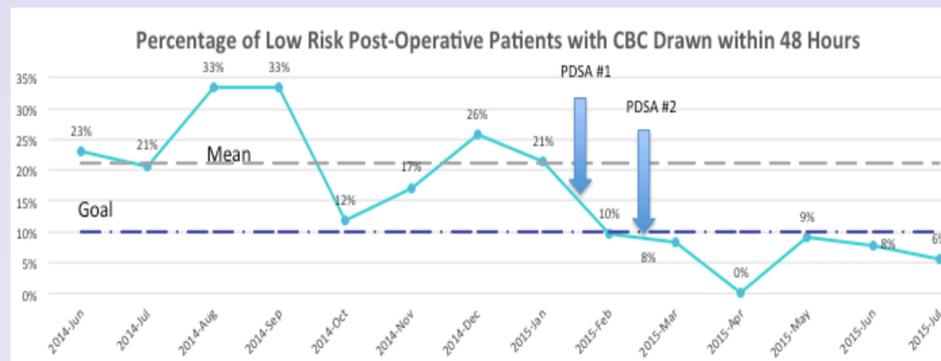
- Baseline survey data gathered from key stakeholders on the utilization of routine post-operative laboratory testing
- PDSA cycle #1:
 - Simple education and feedback at weekly clinical quality improvement meetings with video clips
 - Work place reminders were posted in all stationary clinical ordering areas
- PDSA cycle #2:
 - Laminated cards with reminders
 - Discussion of laboratory testing was added to the post-operative handoff tool at this time.

Primary Outcome Measure: Percent of post-operative patients receiving CBCs within 48 hours of post-op admission to PICU

Primary Process Measure: number of CBCs drawn within 48 hours of post-op admission to PICU

Balancing measure: hemoglobin <8 mg/dL in patients for whom CBCs were sent, blood transfusions up to 7 days post-op for any patients in this cohort

Results



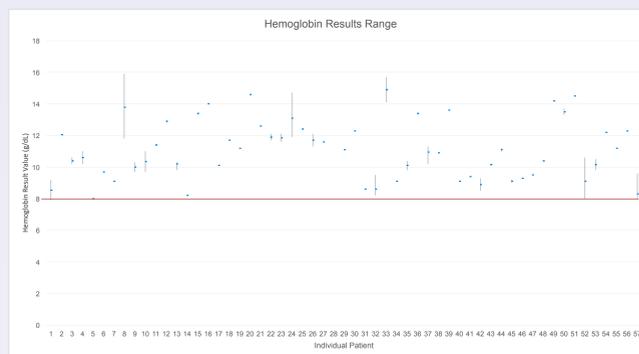
- The robust nature of our data proving safety, as well as the support of key stakeholders, allowed our project to be successful after just two small PDSA cycles.
- Our balancing measures did not demonstrate any concerns. There were no hemoglobin results <8 mg/dL or blood transfusions in this patient population.



Pre-intervention hospital charges due to post-operative CBCs: \$27,643.84 over 6-month period

Post-intervention hospital charges due to post-operative CBCs: \$3,702.30 over six months

Hospital charges decreased by 87%.



Balancing Measure: For patients who had routine post-operative CBCs drawn, no values noted below 8 g/dL

Conclusions

- A simple approach to a systemic problem in the PICU of unnecessary laboratory testing in the pediatric intensive care unit is feasible and effective
- By utilizing local historical data, we were able to identify a cohort of patients for whom routine post-operative CBC testing is unnecessary
- Through our focused work on decreasing CBCs, we saw decreases in other laboratory testing for this cohort with no impact on the safety of these patients

References

1. Attali M, Barel Y, Somin M, *et al.* A cost-effective method for reducing the volume of laboratory tests in a university-associated teaching hospital. *Mt Sinai J Med* 2006;**73**:787–94.
2. Barie PS: Phlebotomy in the intensive care unit: Strategies for blood conservation. *Crit Care* 2004; 8(Suppl 2):S34–S36