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 unit
• 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 patients

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%.

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


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