



Reducing Blood Transfusions to
Increase Care Efficiency: The Dawn
of Patient Blood Management at VMC
Patient Blood Management Team

Unified Quality Improvement
Symposium

March 31, 2017

Collaborative Team Members

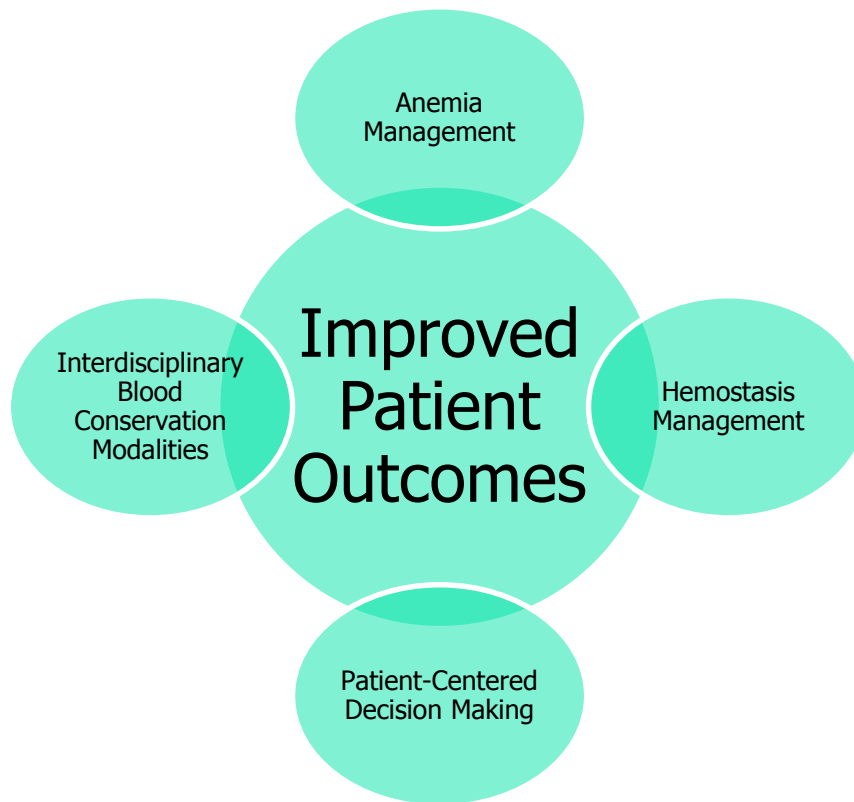
- Dr. Darla Liles, Patient Blood Management Committee Chair
- Dr. Tracy Eskra, Reggie Pearson, Brian Floyd, VMC Administration
- Tammy Goda, DNP, Dr. D'Alonzo, Dr. Elbeery, Dr. Kypson, CV Surgery
- Dr. Knapp (Family Medicine), Dr. Powell (Internal Medicine).
- Dr. John Christie, Mike Passwater, Rick Ross, Pathology

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Background / Introduction

- In 2011, Blood Transfusions were the most common procedures in US hospitals, with over 21 million blood components transfused
- In 2013, the American Hospital Association listed Inpatient Blood Management first in its “top five” list of hospital-based procedures or interventions that should be reviewed and discussed by a patient and physician prior to proceeding.
 - Six professional society “Choosing Wisely” campaigns advised more restrictive approaches to blood transfusions

What is Patient Blood Management (PBM)?



“...the patient-centered approach incorporates many other treatments with transfusion in its rightful place. PBM does not focus on transfusion, but rather on identifying a medical condition that can be treated appropriately for the best clinical outcome.”

Shandler A, Isbister J, and Gombotz H. 2016.
Patient blood management: the global view.

Transfusion 56;S94–S102

The Aim Statement for our project is:

To reduce VMC's dependency on blood transfusions to improve patient outcomes and reduce the cost of care through the adoption of greater awareness of blood sparing approaches to care and best practices for blood utilization.

How Will We Know This Change Is An Improvement?

VMC blood expenses will decrease with no worsening of clinical outcomes

Baseline Data

- FY13
 - \$8.5 million blood supply bill (VMC)
 - 40,044 units transfused
 - Transfused units per CMI weighted discharge = 0.529
 - VMC mortality index unfavorable (>1)
 - Inpatient RBC units transfused per admission = 0.441
 - CV Surgery % patients transfused and units transfused
 - Trauma Red Activation cases requiring massive transfusion

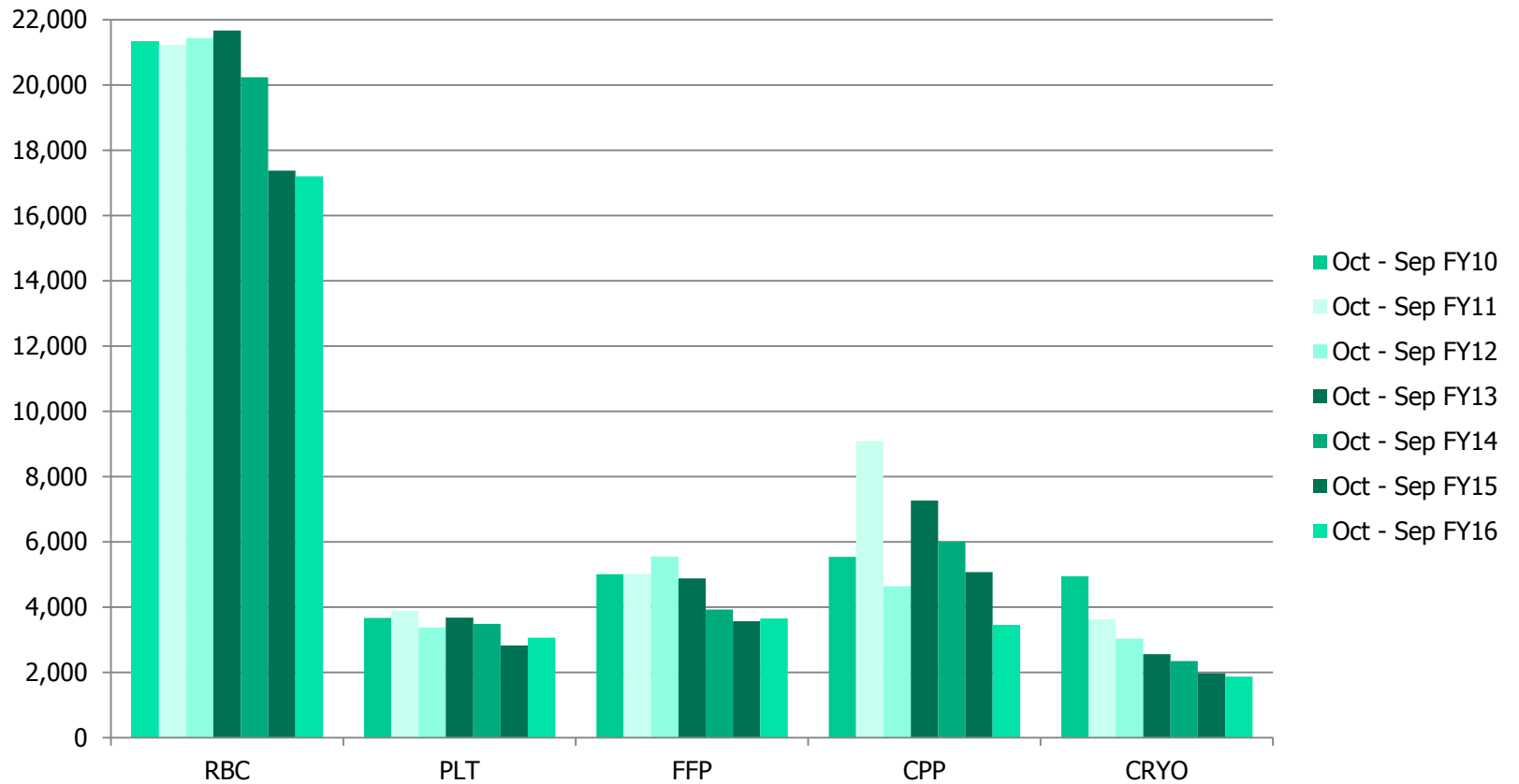
Improvement Strategies Employed

3 Major Provider Driven Sub-Projects

- Trauma / Acute Care Surgery
 - Damage Control Resuscitation protocol revisions including Massive Transfusion Protocols
- Cardiac Surgery Blood Conservation Team
 - Protocol adjustments, functional hemostasis testing, extensive education including testing
- Family Medicine / Internal Medicine
 - More restrictive guidelines for RBC transfusions
- Each sub-project involved extensive learning and benchmarking, followed by implementing best practices

Outcomes

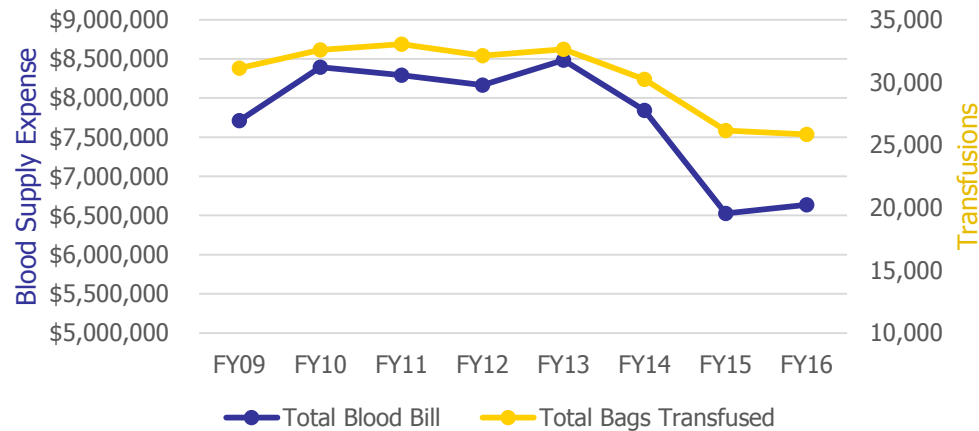
VMC Seven Year Blood Use



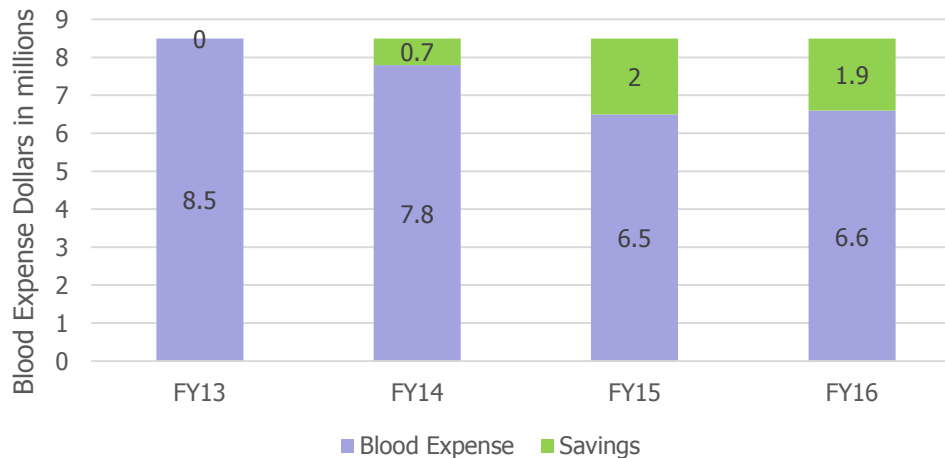
Outcomes

Overall Blood Use and Expense

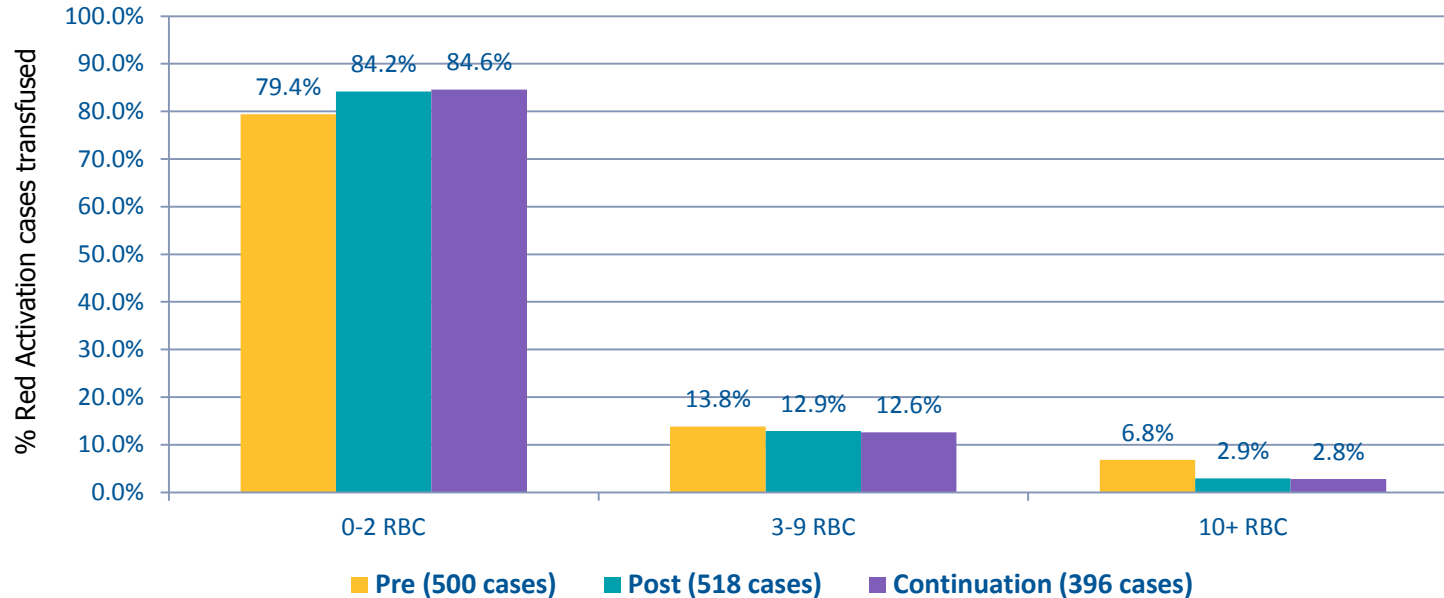
VMC Blood Expense and Transfusions



VMC 3 Year Cumulative Blood Expense Savings
= \$4.6 million



Outcomes – Trauma Red Activations

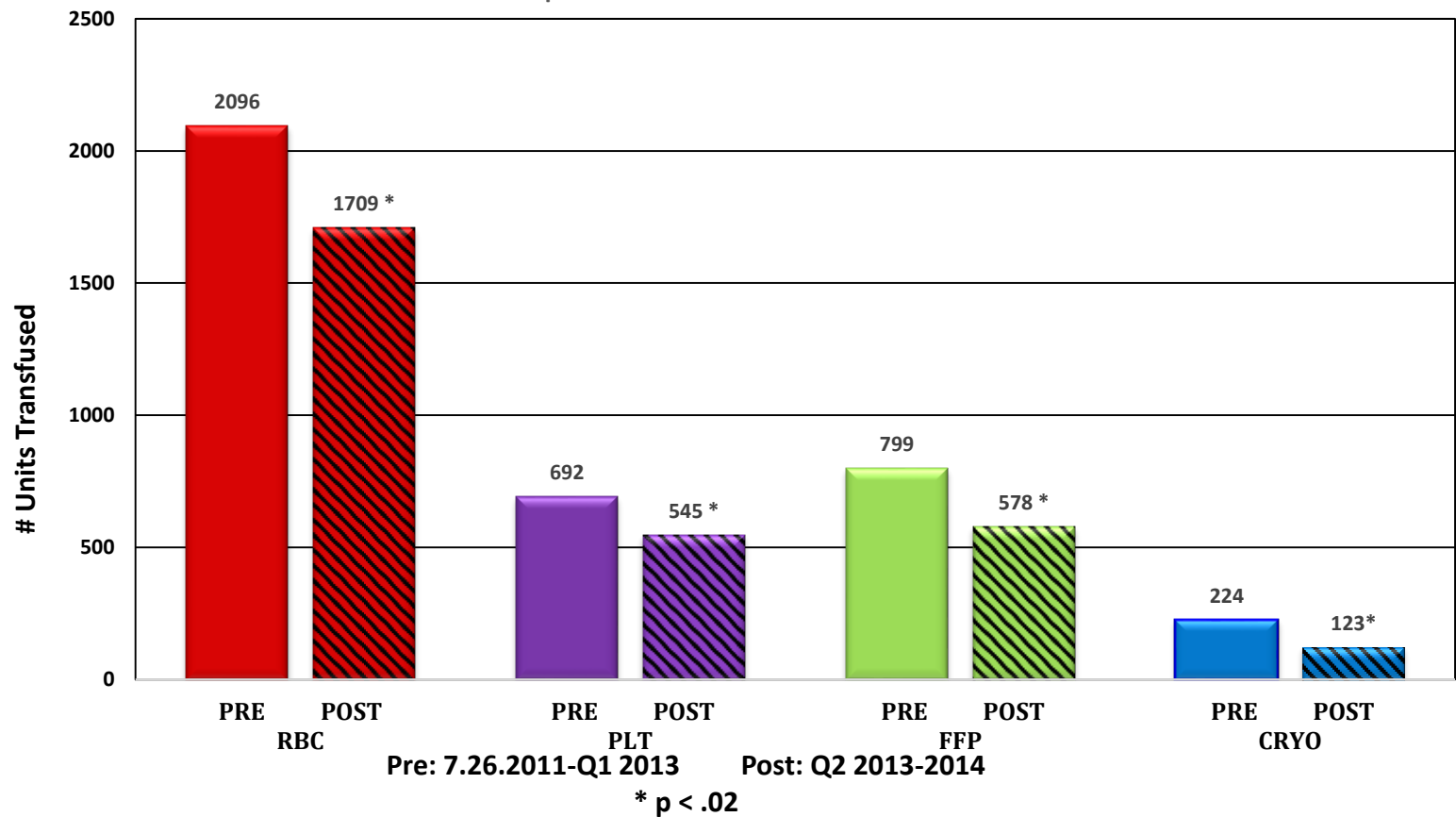


| | 10+ RBC | Avg Initial Blood Use per Red Activation |
|---------------------------------|---------------------------------|---|
| Pre-implementation (500 cases) | 6.8% (65% survival) | 2.21 RBC, 1.04 TP, 0.37 PLT, 0.12 Cryo |
| Post-implementation (518 cases) | 2.9% (p<0.01) (67% survival) | 1.29 RBC, 0.72 TP, 0.19 PLT, 0.06 Cryo |

Outcomes – Cardiac Surgery

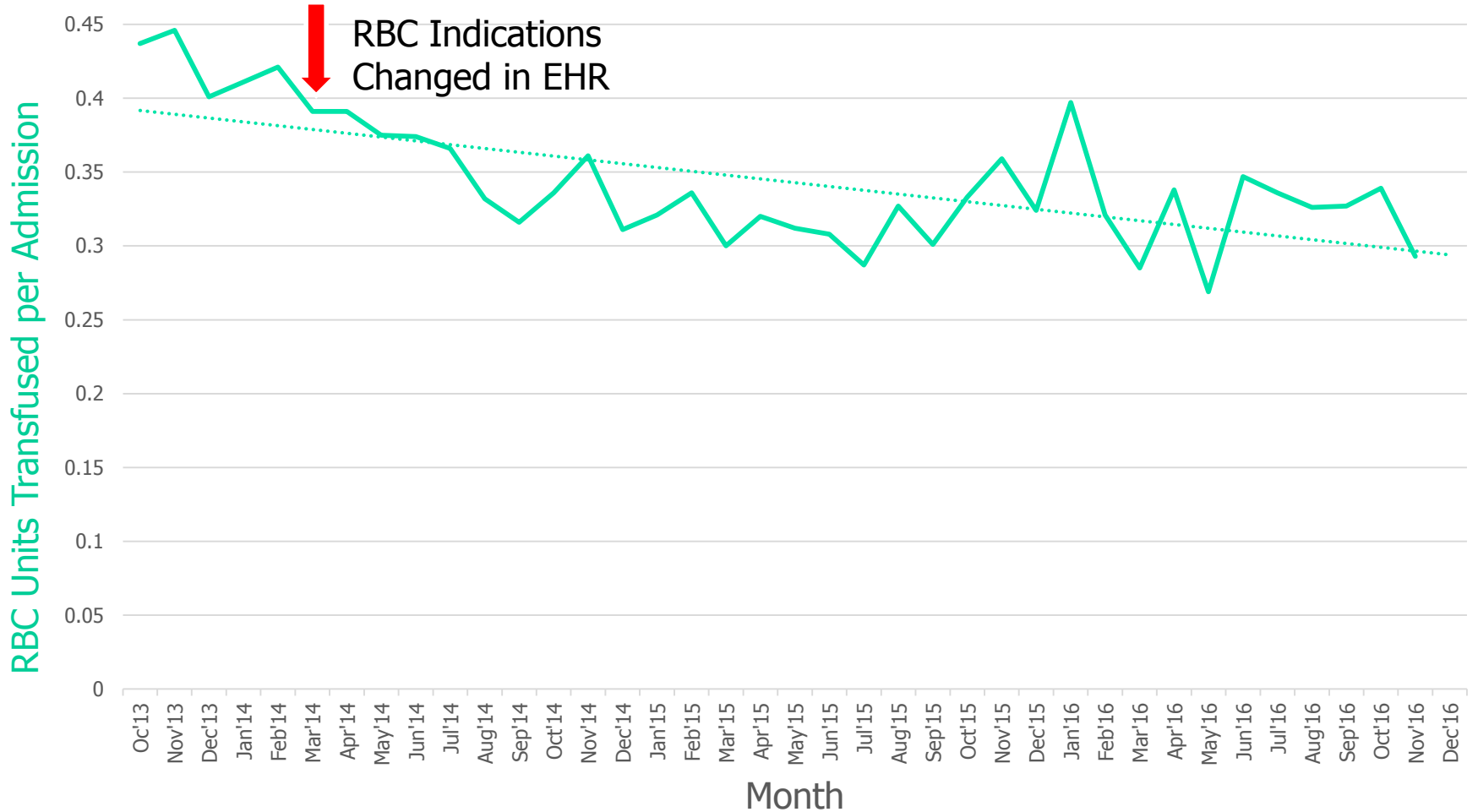
Total Blood Product Transfusion All CAB/Valve Procedures

Population Pre=1134 Post=1133



Outcomes

Family Practice – Internal Medicine



Outcomes - Summary

- 20% reduction in transfusions
- 23.5% supply cost reduction
 - FY16 VH blood expense < FY13 VMC blood expense
- Transfusions / CMI adj discharge dropped to 0.440
- RBC Transfusions / Adm dropped to 0.318
- Blood use reduction coincided with
 - STS top performance rankings
 - VMC mortality index improvement (<1)
 - Healthgrades Top 5% Clinical Outcomes ranking
- Great care with fewer blood transfusions is possible!

Challenges Encountered in QI Process

- Personnel Turn-over
 - Heightened awareness of the need for continuous education and hard-wiring “easy to do the right thing”

Lessons Learned Through QI Efforts

- Regular discussions in a calm, safe environment can promote interdisciplinary teamwork, and optimize patient outcomes and utilization of resources
 - Psychological Safety and Accountability can and should co-exist for optimal team performance
- Changing care patterns for critically ill patients takes time
- Education is required early, often, and forever; at all levels; and must be discipline specific

Next Steps

- System-wide education
- Heart Failure clinical pathway for anemia and iron deficiency system-wide
- Anticoagulant management protocols
- Inpatient anemia management protocol
- Establish evidence-based best practices for prophylactic platelet and plasma use
- Optimize anti-fibrinolytic use in orthopedic surgery
- Transfusion Safety Officer hired in FY17 to facilitate continued implementation of best practices

References / Further Reading

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