The Next Frontier in Patient Blood Management: Platelet Transfusions

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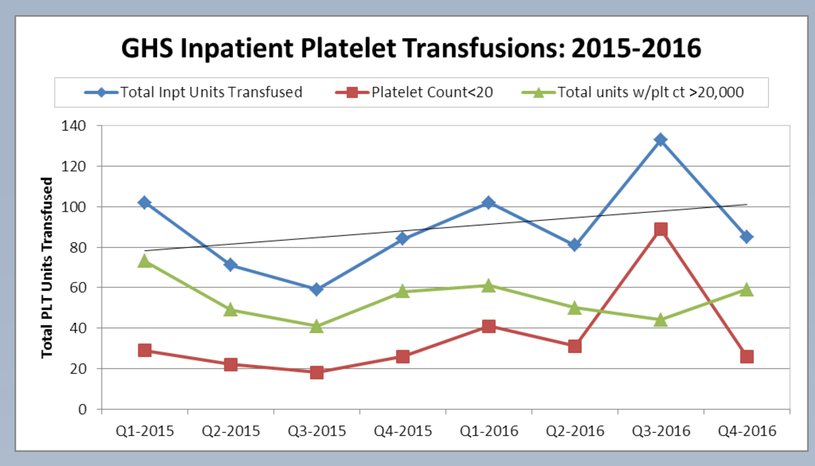
Background:

- Platelets are the most expensive blood component to purchase and the most challenging product to stock because of short shelf life
- Cost of platelets is rising with the implementation of pathogen reduction technology
- Usage patterns at our hospital suggested room for improvement in platelet transfusion, especially in non-Hematology/Oncology (non-H/O) inpatients
- Project undertaken to identify and eliminate platelet ordering habits that do not add benefit to the patient



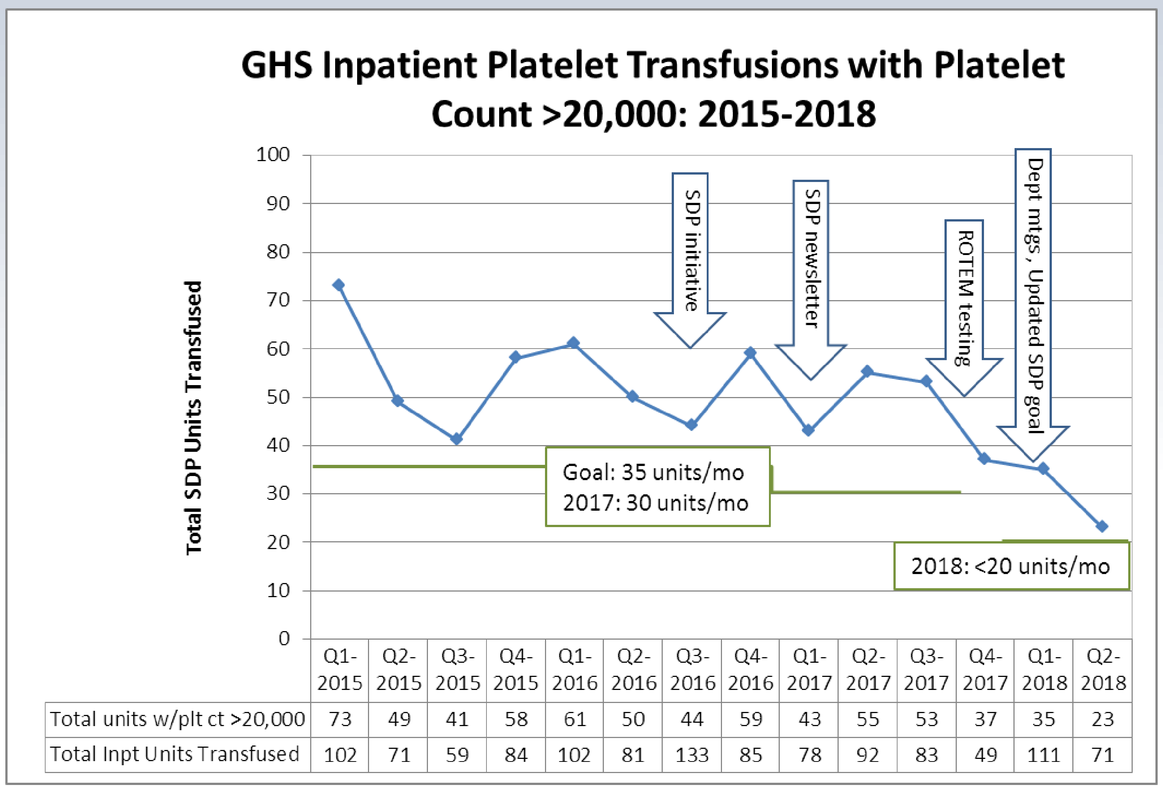
AIM: Optimize Use of Platelet Transfusions in non-Hematology/Oncology Inpatients by end of 2018

Actions and Changes:

- Creation of project plan, interdisciplinary committee established (Q3-2016)

Goals:

- Initial goal: reduce platelet transfusions from 35 units to <30 units per month for all inpatients
- Jan 2018: goal changed to reduce monthly total platelet transfusions <20/month in non-excluded patients with platelet count > 20k & exclude inpatient H/O and neonates



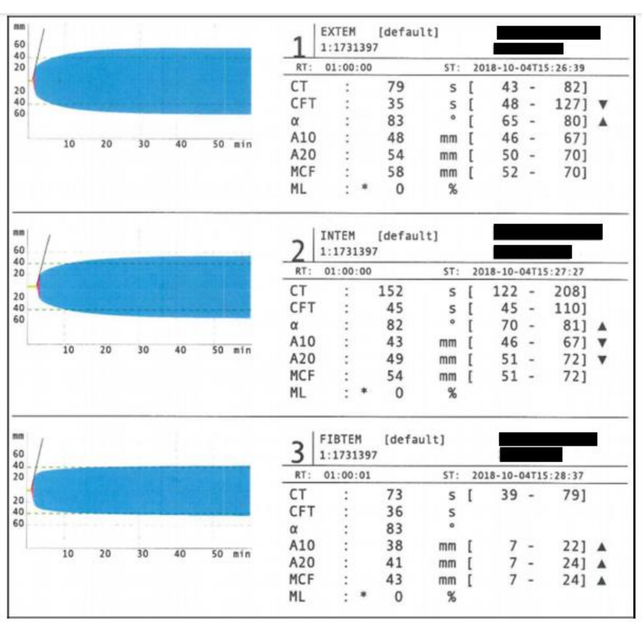
	Q1-2015	Q2-2015	Q3-2015	Q4-2015	Q1-2016	Q2-2016	Q3-2016	Q4-2016	Q1-2017	Q2-2017	Q3-2017	Q4-2017	Q1-2018	Q2-2018
Total units w/plt ct >20,000	73	49	41	58	61	50	44	59	43	55	53	37	35	23
Total Inpt Units Transfused	102	71	59	84	102	81	133	85	78	92	83	49	111	71

Methods:

- Education to all healthcare staff: evidence-based platelet transfusion indications, current usage and available lab testing (Q1-2017)
- Data gleaned from BCW analytics tool: pre-transfusion platelet count, patient demographics, ordering service line, location of transfusion, procedure
  - More than 60% total platelet transfusions were given to non-H/O inpatients
  - Majority of platelets were transfused to CT surgery patients followed in frequency by massive transfusion, misc. general medical patients, Hem/Onc inpatients, Neurosurgery and GI bleeding
- In-depth chart review of all platelet transfusions with platelet count >20k: clinical status & other factors affecting bleeding & platelet function (medications, diagnosis)
- Utilization Rate reports shared with selected provider service lines; including information about current available platelet function testing (P2Y12, Immature Platelet Function)
- Laboratory implemented ROTEM testing (Sept. 2017) to assess need for platelet transfusion
  - Education to surgeons and anesthesiologists
  - Lab staff in coagulation department trained to perform ROTEM, test interpretation completed by TM Medical Director
  - ROTEM test added to MTP order set
  - Anesthesiologists order test and draw samples during surgery
- On-going monitoring of platelet transfusions
- Utilization data continues to be shared with providers

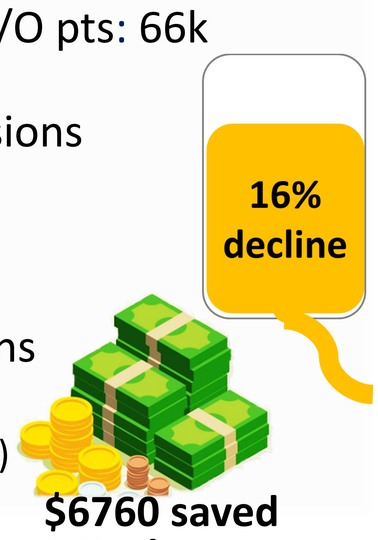
Case Example:

- 58 y/o man with relapsed AML receiving Decitabine (10 day/month) begun 07.12.18
- Platelet counts consistently < 40k; usually < 20k despite platelet transfusion
- Treatment held beginning 09.13.18 due to fever and RLQ pain
- Surgery required for perforated appendicitis on 10.03.18; Platelet count: 25k; ROTEM predicted no need for platelets
- Successful laparoscopic appendectomy
- No blood products needed



RESULTS:

- Median pre-transfusion platelet count in non-H/O pts: 66k
- 16% decline in total inpatient platelet transfusions to non-H/O inpatients from 2017-2018
- $6760 average quarterly savings
  24% decrease in quarterly platelet transfusions to non-H/O inpatient platelet transfusions with platelet count>20k(2017-18:246 units transfused)



$6760 saved
24% decrease

Conclusion:

- Collaboration with providers & implementation of ROTEM testing have led to significant declines in platelet transfusions for select patient populations

Next Steps:

- Promote use of ROTEM to determine need for platelets in surgical patients with platelet count <100,000
- Educate anesthesiologists to interpret ROTEM test results
- Assess post-transfusion platelet count for inpatient hematology patients & need for 2nd unit within 24 hours

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