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Blood Transfusion in Elective Total Hip and Total Knee Arthroplasty Patients

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Blood Transfusion in Elective Total Hip and Total Knee Arthroplasty Patients

Bone and Joint Center, St. Cloud Hospital

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Plan

- In January, 2012, the Bone and Joint Center leadership and surgeons from the Disease Specific Care Core Team discussed blood utilization in total hip arthroplasty (THA) and total knee arthroplasty (TKA) patients. Transfusion rate seemed high and standard of care seemed inconsistent between providers. This resulted in further discussion with orthopedic surgeons and nursing staff to get insight from their practice.
 - Common variation in practice included transfusing one unit at times and two at others, not transfusing with a consistent hemoglobin goal (some providers would order blood transfusion with a hemoglobin of 9.0 and some would not order a transfusion with a hemoglobin of 7.6, with patient symptoms also differing).
 - Autologous blood donation was common, and patients would sometimes receive the blood during their inpatient stay, regardless of their hemoglobin or symptoms which may or may not have warranted a transfusion.
- Review of evidence, along with a multidisciplinary approach of directly involving the pathology department demonstrated a recommendation of <3% blood utilization for this patient population.

Do

- A protocol was created, which included a transfusion based on patient symptoms, transfusing one unit instead of two, and a hemoglobin threshold of 7.0 or less. This protocol was initiated with the intent of providing structure to the providers and nurses, with clinical rationale and a standardized approach to blood transfusion in a mostly elective patient population.
- Staff and provider education started in January with discussions of evidence, and formal education completed prior to initiation of protocol.
- Initiate protocol August, 2012

Check

- Total Joint Specialist and core team evaluated specific patients who did receive blood, to determine whether or not protocol was used, to address our performance improvement goal of providing standardized care for these two patient populations
- Costs of blood transfusion evaluated
 - Indirect cost of preparation and storage, nursing time, retrieval time along with evidence discussing introduction of blood from external source, increases risk of reaction and error
 - Direct cost
 - \$495.00 each unit of autologous blood "handling fee", \$1346.38 autologous storage fee, \$474.25 transfusion fee (total of \$2315.63 per unit of autologous blood direct cost, when given to a patient, who may not necessarily need it)
 - \$474.25 transfusion fee for blood bank unit direct cost
 - 50 autologous blood units for elective THA and TKA patients for FY 2012 = \$115,781.50 direct unit cost, \$305 supply cost. Our last autologous unit transfused was in June, 2012.
 - 202 non-autologous blood units for elective THA and TKA patients for FY 2012 = \$95,798.50 direct unit cost, \$1232.20 supply cost. FYTD 2013 through March, 2013 = 92 units, projection for FY 13 end of 122 units when modeled from first three quarters, 80 units less.
- Discussions with surgeons, hospitalists at follow up meetings and individual meetings
- Few minor changes made and communicated to all nursing staff, providers and same meeting groups

Act

- Bone and Joint Clinical Utilization committee evaluates transfusion rate on a monthly basis, results shared quarterly with Department of Orthopedics and Total Joint Steering Committee
 - Rate for TKA patients has consistently averaged 5%, rate for THA patients has decreased from an average of 23.3% to <10%
- Protocol initiated for all other orthopedic order sets November, 2012

ORTHOPEDIC BLOOD TRANSFUSION PROTOCOL (EPIC 2318)	
Only to be used with ORTHOPEDIC PATIENTS	
<ul style="list-style-type: none"> Evaluate Hgb result 5 hours after surgery or after blood salvage transfusion completed. After evaluating each Hgb result, if a patient experiences any of the following scenarios, initiate Orthopedic Blood Transfusion Protocol (Epic 2318): <ul style="list-style-type: none"> Hgb less than 7 Hgb greater than or equal to 7 and symptomatic (symptomatic is defined as one or more of the following: hypotension systolic less than 90 and diastolic less than 50, dizziness, lightheaded) 	
Name of this protocol Surgeon - do not check anything RN will choose orders Orthopedic Blood Transfusion Protocol (Epic 2318)	
If patient experiences any post operative Hgb greater than or equal to 7.0 gm/dL and symptomatic. Check the following order: NaCl bolus 500 mL, infuse over two hours.	
If patient asymptomatic after initial NaCl bolus. Check the following Hgb order unless already ordered for the morning: Recheck Hgb in a.m.	
If remains symptomatic after NaCl and Hgb was greater than 7. Check all the following orders. Check the following Hgb orders unless already ordered in the AM. Re-bolus NaCl 500 mL, infuse over two hours. If remains symptomatic after second NaCl bolus, call surgeon. Hemoglobin in a.m. If Hgb was less than 7.0 gm/dL, call Surgeon.	

PROJECTED DIRECT COST SAVINGS FOR FY 2013

\$116,086.50 IN AUTOLOGOUS BLOOD USAGE

\$40,088 IN BLOOD BANK PRBCs

TOTAL \$156,174.50

*indirect costs of nursing and pathology staff time not included



References

- Pierson, J.L. (2009). A blood-conservation algorithm to reduce blood transfusions after total hip and knee arthroplasty. *Journal of Bone and Joint Surgery*, 86(7), 12-18.
- Spahn, D.R. (2010). Anemia and patient blood management in hip and knee surgery. *Anesthesiology*, 113 (2), 482-495.
- Robson, W.P. (2003) The use of a patient group direction to ensure prompt treatment of postoperative hypotension in orthopedic patients, *Journal of Orthopedic Nursing*, 7, 197-200.