

Measure Abbreviation: TRAN 01

Description: Percentage of cases with a blood transfusion that have a hemoglobin or hematocrit value documented prior to transfusion.

NQS Domain: Effective Clinical Care

Measure Type: Process

Measure Scope: Measured on a per transfusion basis.

Measure Summary: Blood management protocols have been implemented to prevent unnecessary blood transfusions and therefore decrease the risk to patients and decrease resource utilization. This patient blood management measure evaluates the incidence of red blood cell transfusions that have a hemoglobin or hematocrit value documented prior to transfusion.

Rationale: The American Association of Blood Banks (AABB) recommends a transfusion threshold of hemoglobin concentration less than or equal to 8 g/dL or when patient is symptomatic (chest pain, orthostatic hypotension, tachycardia unresponsive to fluid resuscitation, or congestive heart failure).^{1,2} Furthermore, blood transfusions in non-cardiac surgery have been associated with increased risk of 30-day mortality and morbidity.³

Although the literature is not conclusive on the exact hemoglobin concentration that requires transfusion, the evidence is clear that use of fewer RBC transfusions reduces cost and risk for adverse effects of transfusion, and that transfusion for hemoglobin values greater than 10 g/dL is usually not indicated.

TRAN 01 is a process measure focused on measuring hemoglobin or hematocrit prior to transfusion. The rationale for this measure is that the decision to transfuse should include knowledge of the hemoglobin value before administration of blood. Because the literature is not absolutely conclusive on a specific hemoglobin threshold for transfusion, TRAN 01 does not include the actual hemoglobin value as part of the measure.

Inclusions: All surgical patients receiving anesthetics who receive a transfusion of red blood cells.

Exclusions:

- Massive Transfusion: Transfusion of 4 or more units of blood. If a cubic centimeter (cc) to unit conversion rate has not been provided, ASPIRE will default to 350cc/unit if transfusion is documented in cubic centimeters (cc's).
- EBL > 2000 ml
- Patients < 2 years of age
- Patients <12 years old undergoing a cardiac procedure (CPT: 00560, 00561, 00562, 00563, 00567, 00580).
- Burn cases (CPT Codes 01951, 01952, 01953)
- ASA 5 & 6

MPOG Concept IDs Required:

Blood Product MPOG Concept IDs		Point of Care Testing MPOG Concept IDs		Formal Lab MPOG Concept IDs		EBL MPOG Concept ID	
10489	Packed Red Blood Cells- Autologous	3415	POC-Blood gas- Hct measured	5005	Formal lab- Hemoglobin	10499	EBL
10490	Packed Red Blood Cells- Homologous	3435	POC- hematocrit spun	5006	Formal lab- Hematocrit		
10492	Whole Blood- Homologous	3440	POC- Coulter counter- Hemoglobin	5038	Formal lab- Blood gas- Hct measured		
10616	Packed Red Blood Cells- Unknown Type	3450	POC- Coulter counter- Hematocrit	5080	Formal lab- Blood gas- Hemoglobin		
10617	Whole Blood- Unknown Type	5081	POC- Blood gas- Hemoglobin				
10618	Categorized Note- Blood Products						

Data Diagnostics Affected:

- Percentage of Inpatient Cases with Documented Blood Loss
- Percentage of Cases with Documented Blood Transfusions
- Percentage of Fluids with a Meaningful Fluid Mapping
- Percentage of Labs Mapped to a Meaningful Lab Mapping
- Percentage of Cases with a Lab Drawn During Anesthesia
- Percentage of Cases with Point of Care Hematocrit Labs
- Percentage of Cases with Point of Care Hemoglobin Labs
- Percentage of Cases with any Staff Tracking
- Percentage of Anesthesia Provider Sign-Ins that are Timed

Failed Case Grid Template

Failed TRAN 01 Cases						
Link to Case	Date of Service	Operating Room	Procedure	Transfusion Time	Type of Blood	MPOG Case ID

Case Viewer Template:

- › Cardiovascular
- › Ventilator
- › Neuromuscular blockade
- › Glucose management
- › Prophylaxis
- › Medications
- › Fluids
- ▼ Labs

POC-Blood gas-Base Excess	ASPIR	PS	-8.2	-10.9	-8	-9.1	PE	POR	AE
POC-Blood gas-Glucose							202		
POC-Blood gas-HCO3			18.4	16.2	18.4	15.6			
POC-Blood gas-Hct measu...			25	21	24	28			

Success:

- Documentation of hemoglobin and/or hematocrit prior to blood transfusion
- Considerations:
 - For the first unit of transfusion, a hematocrit or hemoglobin of any value should be checked in a time period of 0 to 90 minutes before the transfusion, or the most recent documented hematocrit or hemoglobin of less than 24/8 should be within 36 hours of the transfusion.
 - If the last hemoglobin or hematocrit drawn before the first transfusion is $\leq 5/16$, a second unit could be administered without rechecking hematocrit/hemoglobin.
 - If a subsequent transfusion is administered, there should be a hematocrit/hemoglobin measurement before the subsequent transfusion, anywhere from 0 to 90 minutes before subsequent transfusion, or between initial and subsequent transfusion if time between those is less than 90 minutes.
 - Transfusion is defined as:
 - Packed Red Blood Cells-Autologous, Homologous, Unknown Type
 - Whole Blood-Homologous, Unknown Type
 - Categorized Note- Blood Products
 - Hematocrit/hemoglobin are defined as:
 - POC - Blood gas-Hct measured, Hemoglobin
 - POC – Hematocrit spun
 - POC – Coulter counter – Hematocrit, Hemoglobin
 - Formal lab – Hematocrit, Hemoglobin

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- Formal lab - Blood gas - Hct measured, Hemoglobin

Threshold: 90%.

Responsible Provider: Provider(s) who administered blood product.

Risk Adjustment (for outcome measures):

Not applicable.

References:

1. Carson JL, Grossman BJ, Kleinman S, et al. Red blood cell transfusion: a clinical practice guideline from the AABB*. *Annals of internal medicine*. 2012;157(1):49-58.
2. Carson JL, Guyatt G, Heddle NM, et al. Clinical Practice Guidelines From the AABB: Red Blood Cell Transfusion Thresholds and Storage. *Jama*. 2016;316(19):2025-2035.
3. Glance LG, Dick AW, Mukamel DB, et al. Association between intraoperative blood transfusion and mortality and morbidity in patients undergoing noncardiac surgery. *Anesthesiology*. 2011;114(2):283-292.