



Measure Abbreviation: TRAN 02

Data Collection Method: This measure is calculated based on data extracted from the electronic medical record combined with administrative data sources such as professional fee and discharge diagnoses data. This measure is explicitly not based on provider self-attestation.

Measure Description: Percentage of cases with a post transfusion hemoglobin or hematocrit value less than or equal to 10 g/dL or 30%.

NQS Domain: Efficiency and Cost Reduction

Measure Type: Outcome

Measure Scope: Measured on a per case basis.

Measure Summary: The recognition of transfusion-related complications, such as transfusion-related infections and immunosuppression, and evidence documenting lack of efficacy has spurred the development of blood management protocols. This measure identifies blood transfusion cases when the hematocrit was $\leq 30\%$ or hemoglobin was ≤ 10 g/dL post-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.^{3,4}

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 to hemoglobin value greater than 10 g/dL or hematocrit greater than 30 is almost always not indicated.⁵ TRAN 02 is an outcome measure examining the number of patients who may have received more blood than necessary.

Inclusions: Any patient that receives a red blood cell transfusion. Transfusion is defined as packed red blood cells or whole blood. See MPOG Concept IDs below for complete list.

Exclusions:

- Patients < 2 years of age
- Patients < 12 years old undergoing a cardiac procedure (CPT: 00560, 00561, 00562, 00563, 00567, 00580).
- Pediatric cases (< 12 years old) where either the transfused PRBC or EBL was greater than 30cc/kg.
- ASA 5 & 6
- EBL ≥ 2000 ml
- Massive Transfusion: Transfusion of 4 or more units of blood. Note for sites that document transfusions in ml instead of units: ASPIRE will default to 350ml/unit.

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- Obstetric Non-Operative Procedures (CPT: 01958, 01960, 01967)
- Obstetric Non-Operative Procedure Rooms (Rooms tagged as OB-GYN- Labor and Delivery)
- Obstetric Non-Operative Procedures with procedure text: “Labor Epidural”
- Exclude patients undergoing cesarean section (CPT: 01961, 01968, 01962, 01963, 01969) with an EBL > 1500cc.
- Exclude patients undergoing cesarean section (CPT: 01961, 01968, 01962, 01963, 01969) with a HR>110, SBP<85, DBP<45, or O2Sat <95%.
- Exclude postpartum hemorrhage cases (ICD-10 code: O72.0, O72.1, O72.2, O72.3).

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

Success:

- Hematocrit value documented as less than or equal to 30% and/or hemoglobin value documented as less than or equal 10 g/dL.
- Considerations:
 - All hemoglobin/hematocrit lab values drawn after the last transfusion and before anesthesia end will be evaluated. If the lowest of these values is $\leq 10\text{g/dL}$ or $\leq 30\%$, the case will pass.
 - If no hemoglobin or hematocrit is drawn after the last transfusion and before anesthesia end, then the **first** hemoglobin/hematocrit after anesthesia end will be evaluated. If this value is $\leq 10/30$, the case will pass. This measure will only examine lab values up to 6 hours after anesthesia end to identify a hemoglobin or hematocrit value. Once the first hemoglobin or hematocrit value is identified after anesthesia end, additional values will not be considered.
- No hematocrit or hemoglobin checked within 6 hours of anesthesia end.

Threshold: 90%

Responsible Provider: Individual who administered the transfusion.

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.
4. Napolitano LM, Kurek S, Luchette FA, et al. Clinical practice guideline: red blood cell transfusion in adult trauma and critical care. *The Journal of trauma*. 2009;67(6):1439-1442.
5. Practice guidelines for perioperative blood management: an updated report by the American Society of Anesthesiologists Task Force on Perioperative Blood Management*. *Anesthesiology*. 2015;122(2):241-275.