



CMS Measure ID/CMS QCDR ID: CAP 10

Measure Title: Blood Laboratory Samples for Potassium Determination with Hemolysis Drawn in ED

Measure Description	<p>Percentage of blood laboratory samples for potassium determination drawn in the emergency department (ED) with hemolysis.</p> <p>INSTRUCTIONS: This measure is to be reported each time an ED patient having blood drawn for potassium determination during the performance period. This measure is an episode-of-care measure; the level of analysis for this measure is every potassium laboratory test during the measurement period. For example, for every laboratory test performed to evaluate a potassium level, the sample should be evaluated for hemolysis.</p>
Denominator Statement	<p>All ED patients, regardless of age, having blood drawn for potassium determination. CPT©: 99281, 99282, 99283, 99284, 99285, 84132</p>
Denominator Exclusions	None
Denominator Exceptions	None
Numerator Statement	<p>ED blood samples for potassium determination with hemolysis detected.</p> <p>Numerator guidance: Quantitative thresholds for hemolysis are unique to each laboratory equipment manufacturer. As such, hemolysis thresholds from facility to facility may not be comparable. To address the variation across laboratory manufacturers, this quality measure has been specified using a qualitative description. Hemolysis status may include:</p> <ul style="list-style-type: none"> • Positive • Negative • Cannot determined <p>Numerator Instructions: INVERSE MEASURE - A lower calculated performance rate for this measure indicates better clinical care or control. The "Performance Not Met" numerator option for this measure is the representation of the better clinical quality or control. Submitting that numerator option will produce a performance rate that trends closer to 0%, as quality increases. For inverse measures, a rate of 100% means all of the denominator eligible patients did not receive the appropriate care or were not in proper control.</p>
Numerator Exclusions	None
Measure Information	
NQS Domain	Effective Clinical Care



Meaningful Measures Area(s)	Patient Experience with Care
Meaningful Measure Rationale	<p>Hemolysis is the rupture red blood cells with a release of hemoglobin and other intracellular content into plasma interfering with multiple laboratory tests including potassium. Hemolyzed samples account for the majority of rejected samples (1). The American Society of Clinical Pathology consider a hemolysis rate below 2% best practice (2). The Emergency Department accounts for a large proportion of a hospital’s labs rejected specimens for hemolysis (3).</p> <p>Although hemolyzed specimens may reflect the presence of hemolytic anemia, in most cases they are due to preanalytical sources related to incorrect procedures or failure to follow procedures for collection, handling and storage of the samples; some of these are typical of the ED. Since hemolyzed specimens are often an important cause of relationship, economic, organizational and clinical problems between the ED and the clinical laboratory, it is essential to develop effective processes for systematically identifying unsuitable specimens, differentiating in vitro from in vivo hemolysis, troubleshooting the potential causes, and maintaining good relations between the clinical laboratory and the ED.</p> <ol style="list-style-type: none"> 1. Proehl JA, Bradford JY, Leviner S, et al. Emergency Nursing Resources Development Committee. Clinical practice guideline: prevention of blood specimen hemolysis in peripherally-collected venous specimens. 2012. 2. Lowe G, Stike R, Pollack M, Bosley J, O’Brien P, Hake A, et al. Nursing blood specimen collection techniques and hemolysis rates in an emergency department: analysis of venipuncture versus intravenous catheter collection techniques. J Emerg Nurs 2008;34:26-32. 2. Heyer, N. J., Derzon, J. H., Wings, L., Shaw, C., Mass, D., Snyder, S. R., et al. (2012). Effectiveness of practices to reduce blood sample hemolysis in EDs: A laboratory medicine best practices systematic review and meta-analysis. Clinical Biochemistry, 45(13–14), 1012-1032.
Measure Type	Intermediate Outcome
Data Source	Discrete data fields in most LIS; Hospital EHRs.
Summary of Performance Gap Evidence	Mechanical hemolysis of blood samples can lead to inaccurate laboratory results and repeat draws on the patient, causing unnecessary pain and treatment delays. Hemolysis is the rupture of red blood cells with a release of hemoglobin and other intracellular content into plasma interfering with the analytical performance and/or result accuracy of multiple laboratory tests including potassium. Hemolyzed samples account for the majority of rejected samples. The American Society of Clinical Pathology consider a hemolysis rate below 2% best practice (1). Mechanical hemolysis of blood samples can



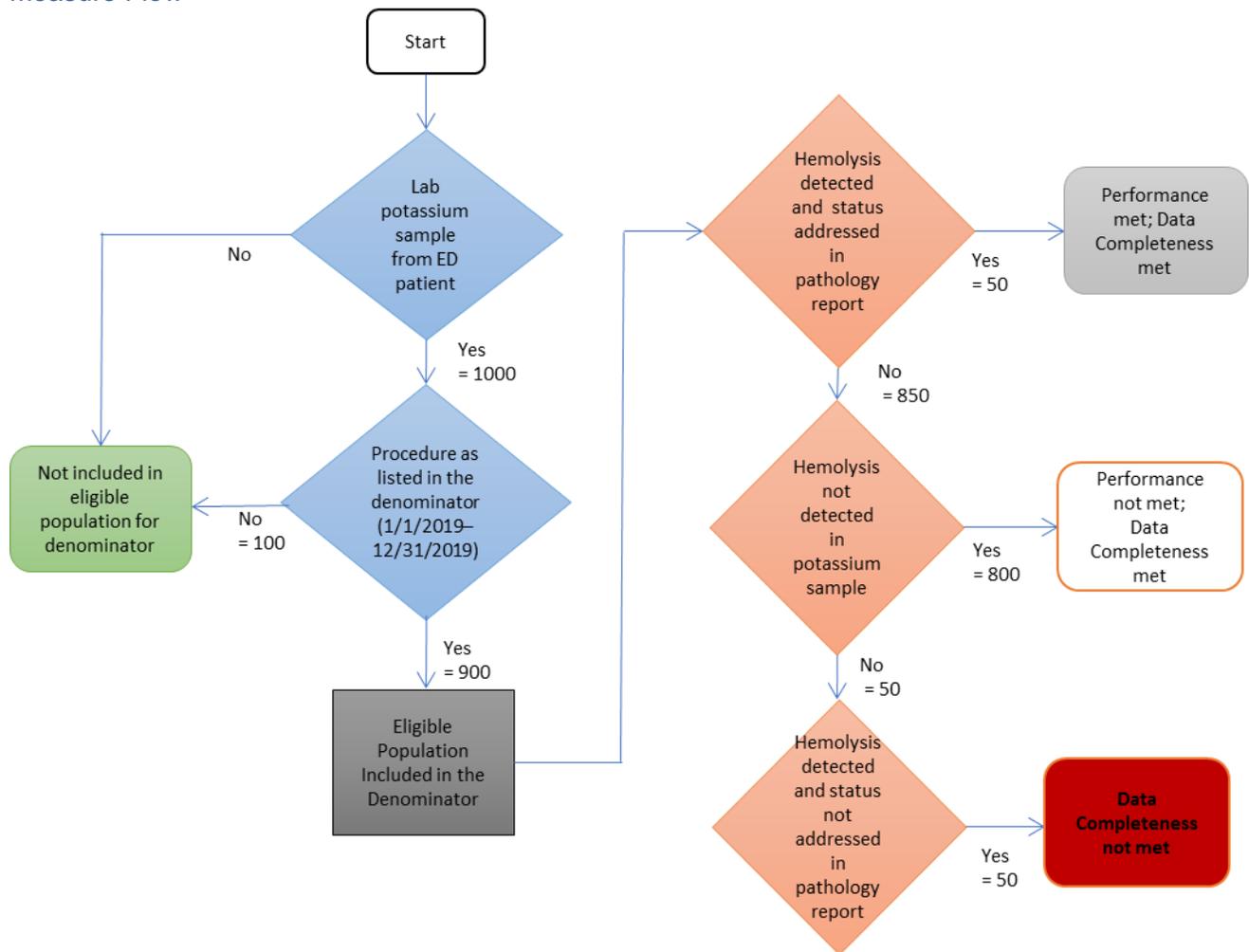
	<p>lead to inaccurate laboratory results and repeat draws on the patient, causing unnecessary pain and treatment delays. External factors such as needle size and syringe type can impact hemolysis rates. The Emergency Department accounts for a large proportion of a hospital's labs rejected specimens for hemolysis (2).</p> <ol style="list-style-type: none"> 1. Lowe G, Stike R, Pollack M, Bosley J, O'Brien P, Hake A, et al. Nursing blood specimen collection techniques and hemolysis rates in an emergency department: analysis of venipuncture versus intravenous catheter collection techniques. J Emerg Nurs 2008;34:26-32. 2. Heyer, N. J., Derzon, J. H., Wings, L., Shaw, C., Mass, D., Snyder, S. R., et al. (2012). Effectiveness of practices to reduce blood sample hemolysis in EDs: A laboratory medicine best practices systematic review and meta-analysis. Clinical Biochemistry, 45(13-14), 1012-1032.
Measure Owner	College of American Pathologists
NQF ID	None
Number of Performance Rates	1
Overall Performance Rate	1st Performance Rate
High-priority	Yes Outcome
Improvement Notation	<p>Inverse Measure: Yes (Lower score indicates better quality) Proportional Measure: Yes Continuous Variable Measure: No Ratio Measure: No Risk-adjusted: No</p>
Specialty	Pathology
Current Clinical Guideline the Measure is Derived From	<p>To determine the cause of and possible solution for an excessive number of hemolyzed specimens received from the emergency department (ED) - Description of Decision Options / Interventions with Level of Recommendation of Moderate or higher: Evidence for the prevention of hemolysis of blood specimens in the pre-analytic phase:</p> <ul style="list-style-type: none"> • Low (partial) vacuum tubes result in less hemolysis [Moderate] • Direct venipuncture with straight needles is less likely to cause hemolysis than blood collection through intravenous catheters [Moderate] <p>During and After the Draw</p>



	<ul style="list-style-type: none">Hemolysis is less likely when blood is drawn from the antecubital fossa [Moderate] <p>Proehl JA, Bradford JY, Leviner S, et al. Emergency Nursing Resources Development Committee. Clinical practice guideline: prevention of blood specimen hemolysis in peripherally-collected venous specimens. 2012.</p>
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Measure Flow



Data Completeness =		
Denominator Exclusions + Denominator Exceptions + Performance Met + Performance Not Met	50+800	
	=	$\frac{850}{900} = 94\%$
Eligible Population	900	
Performance Rate =		
Performance Met	50	
	=	$\frac{50}{850} = 5.9\%$
Data completeness Numerator – Denominator Exclusions – Denominator Exceptions	850	

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