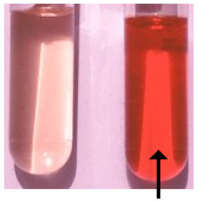
Sustaining Decreased Hemolysis Rates in the ED

The Problem in 2008

A symptom of congested work flow in the Emergency Department is hemolysis in blood samples, a defect in blood specimen quality. The rate of hemolysis for all lab specimens drawn in the ED was 23%, approximately five times higher than that of the West Campus inpatient units (3.9%). Hemolyzed blood samples require redrawing and re-testing of the specimen, which results in the patients' length of stay being increased by an average of 56 minutes. The ED is an environment where time and accurate results are valuable and this problem presented a chance to examine methodology and current work flow to improve patient care. A multidisciplinary team was brought together to identify improvement opportunities.



Hemolyzed

Aim/Goal

Reduce the rate of hemolysis for ED specimens

- Improve quality through better specimen integrity
- Create standard work flow and methods for blood draws in the ED
- Build teamwork and communication between departments with a focus on patient care

The Team in 2008

- Manny Alves, West Lab
- Bonnie Baker, BT
- Kirsten Boyd, ED
- Jane Dufresne, ED
- Kimberly Eng, BT
- Susie Fontes, ED
- Tammy Galloway, Chemistry
- Kellie Glynn, ED
- Brandan Holbrook, BT
- Pam Hulme, Phlebotomy
- Alice Lee, BT
- Gina McCormack, Pathology
- Larry Mottley, ED
- Blanche Murphy, Venous Access
- Brian Orsatti, ED
- Christine Yennaco, ED

The Interventions

- 2008 Study - rate of hemolysis for all ED potassium specimens
- 2008 Study - rate of hemolysis due to varying methods for specimen draws
- 2008 - Created standardized work for drawing and labeling lab specimens
- 2008 - Designed improved workflow in which all blood specimens are drawn via peripheral stick, focusing on communication between RNs and technicians
- **Ongoing in 2012** - Training new staff using basic concepts from standardized work developed by staff in 2008 for drawing blood

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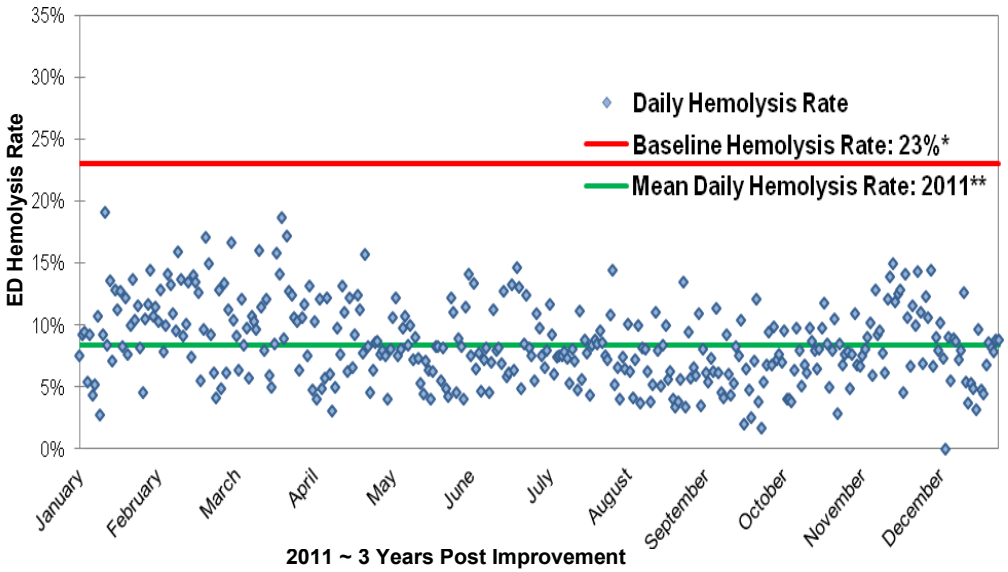
The Results/Sustainment to Date



2011 ~ 3 Years Post Improvement

*During the initial observation week, a sample of 315 specimens was obtained, resulting in a baseline hemolysis rate of 23.0% (95% CI: 16.7–29.1). The tracking program that was later used to obtain data for all specimens throughout 2011 was not accessible during the initial observation week

**Represents mean hemolysis rate for all drawings taken throughout the past year to date. The specifications for what constitutes a hemolyzed specimen has changed since the initial observation week

Lessons Learned: *Why have the results sustained?*

The standardized work for drawing bloods has sustained by the nursing and tech staff because they were part of the problem solving and design work to examine products as well as actual techniques used to draw bloods.

Through simulations, staff saw firsthand how their workflow was impacted when their techniques for drawing blood varied. For them it meant redrawing a patient's blood, and delaying care or treatment of a potential critical lab value. To see how this impacts their workflow has impacted practice changes as well as how new staff are trained in the department.

Publications

Straszewski SM, Sanchez L, McGillicuddy D, Boyd K, Dufresne J, Joyce N, Wolfe R, Lee AW, Fisher J, Mottley JL. Use of separate venipunctures for IV access and laboratory studies decreases hemolysis rates. Intern Emerg Med. 2011 Aug;6(4):357-9. Epub 2011 Apr 6. PubMed PMID: 21468698.

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