Reducing Inappropriate Lab Draws on Unit 5A4 – A Quality Improvement Initiative

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Background: A retrospective study of 17676 patients, researchers determined that nearly 20% of hospitalized patients developed "moderate to severe hospital-acquired anemia" (hemoglobin decrease from normal to <11g/dL) and that the volume of phlebotomy in hospitalized patients is directly related to the occurrence of anemia. The development of hospital-acquired anemia is associated with increased blood transfusions, extended length of stay, higher hospital charges, and mortality. Lower levels of kidney function are associated with a lower hemoglobin and an increased prevalence and severity of anemia (AT RISK POPULATION). Drawing blood for lab tests that do not contribute any useful information to the diagnosis or management of a patient is inappropriate. Such lab unnecessarily add to the volume of phlebotomy, which is in turn associated with worsening anemia. They also add unnecessary costs to the system.

Problem: It is widely accepted among nephrologists that, aside from the generally accepted monthly labs, routine ureas and creatines in chronic dialysis patients do not contribute any information towards their diagnosis or management. Moreover, it has been shown in other quality improvement initiatives that labs ordered as ‘daily’ are often left unchecked and contribute to unnecessary lab draws. A screening chart review on unit 5A4 done in December 2017 showed that over one quarter of patients admitted to 5A4 have inappropriate creatines ordered and over half of patients admitted to 5A4 have daily labs ordered. Addressing these inappropriate lab ordering practices could reduce the volume of phlebotomy and therefore the burden of hospital acquired anemia as well as eliminate spending on these unnecessary tests.

Aim: By Sept 1st, 2018:

- 50% reduction of inappropriate creatine and urea lab orders on chronic hemodialysis patients
- 25% reduction of daily lab orders
- Improve residents and physicians awareness of lab test ordering practices.
- Establish a standardized, integrated unit process and resident process to review and assess the ordered lab blood tests
- Create an algorithm for identifying root causes and areas on hemodialysis patients that can be used by residents.

Baseline:

- 100% of lab tests ordered upon admission to 5A4 will be reviewed and flagged as daily/standing/creatinine orders if required
- 100% of labs to be ordered as daily/standing lab orders
- Inappropriate creatinine will not be ordered for 100% of applicable hemodialysis patients admitted to unit 5A4 in the last 6 months

Process Assessment: Brief literature review was conducted along with the completion of QI tools to assist with identifying root causes and areas of opportunity.

Interventions:

- Educational package including: description of appropriate vs inappropriate uses of creatine and urea for hemodialysis patients, an algorithm for ordering creatine and urea, laboratory costs chart, orientation for the unit, and key points for ordering labs. This package was presented at the beginning of new resident blocks starting June 4, 2018. Starting July 3, the package was emailed to the residents prior to the training.

- No formal review of labs by physicians

- Lack of unit orientation

- Bundled order form

- Educational presentation only once per block

- Posters with the information about the QI project were placed on the unit. The posters were put up by the QI team July 3, 2018.

Results:

- Lab Draws and Repeated Tests
- Inappropriate Ureas Per Patient by Week
- Lab Draws on Unit 5A4 by Month
- Inappropriate labs, To Patients
- Why This Quality Improvement Matters
- To obstetrics
- This initiative aims to improve the efficiency of obstetricians for patients by affording Obstetrics confidence in their health care system.
- To the Healthcare System
- Reducing inappropriate lab orders decreases unnecessary health spending, and the burden on the health care team; allowing more effective allocation of the system resources.

Limitations

- The ward was shut down for renovations in May 2018.
- Team sheets from July 13th were replaced by a package today.
- Adding the educational information (Creatinine Ordering Algorithm, etc.) package to the emails sent to the residents at the start of each block.
- A formal review of the lab frequencies was inserted into Tuesday AM multidisciplinary rounds beginning July 3, 2018. The Unit Clerk prints off the lab frequencies Monday night, and the Charge Nurse brings the information to rounds. Thus, bringing any issues to the attention of the physician.
- Additionally, the Unit Clerk highlights lab frequencies that appear to have issues; started July 3, 2018.

Lessons Learned:

- Unit 5A4 moved locations (due to renovations) in May, this move impacted our initial results.
- In an informal meeting with residents, they reported that it was hard to keep track of the printed version of our orientation package. The orientation package is now emailed to the residents.
- The medical team often will order inappropriate lab tests even if they are aware that the patient is on hemodialysis. This ordering practice is supported by a operational culture of ‘ordering the current panel’ on the admission paper order set.
- A lack of a standard process to review lab order frequency supports the continuation of inappropriate lab orders post admission.

In this initiative, we aimed to improve the efficiency of obstetricians for patients by affording Obstetrics confidence in their health care system.

- To obstetrics

- To the Healthcare System

- Reducing inappropriate lab orders decreases unnecessary health spending, and the burden on the health care team; allowing more effective allocation of the system resources.