PATIENT SAFETY QUALITY INDICATOR:

Delayed Test Result Reporting Due to Specimen Rejection in Critical Care Settings

Background

Delays in reporting laboratory test results can have significant and costly impact on patient diagnosis and outcomes, putting a patient's safety at risk. Specifically, delays in laboratory test result reporting in critical care settings, such as an emergency department (ED), intensive care unit (ICU) or urgent care setting can contribute to a longer length of stay (LOS) and extended time for patient diagnosis, treatment or triage. A longer LOS is associated with higher rates of preventable medical errors and poor patient outcomes [1]. Delays in test result reporting can occur in any step of the total testing process (TTP). The collection and submission of unacceptable specimens that require specimen rejection is a common error in the pre-analytical phase that impacts on timely result reporting.

Measure Description – Critical Care Area

Reducing the number of rejected specimens will improve patient safety and outcomes. Additionally, it can shorten LOS and associated costs. Specimen rejection rate is defined as the occurrence frequency for which specimens are rejected and require recollection to allow test performance. Specimens may be classified as unacceptable and require rejection due to multiple reasons, including but not limited to identification errors, unacceptable specimens, and specimen integrity errors.

Data Collection, Analysis, and Reporting:

Scope of Indicator: Define the indicator specific service area (e.g. ED, ICU, Urgent Care, or combination) to monitor

Numerator: Total number of rejected specimens that require recollection

Instructions:

- Record and count each specimen that is rejected for testing and requires recollection
- Example categories of unacceptable specimens that require recollection include:
  - Patient or specimen identification error (i.e. wrong patient, specimen labeling error, etc.)
  - Unacceptable specimen type (i.e. wrong matrix, incorrect container/tube, no specimen, quantity not sufficient, inadequate specimen-anticoagulant ratio, etc.)
  - Specimen integrity (i.e. hemolyzed, lipemic, clotted, incorrect temperature or storage, incorrect preparation, contaminated, too old, specimen leaking or damaged in transport, etc.)

Denominator: Total number of specimens received

Instructions:

- Do not count specimens that were submitted as 'extras' (i.e. are not required to complete testing ordered).
- Count only the number of specimens (i.e. tubes/collection containers) required to perform testing ordered.

Data Collection Time Frame: 1 calendar month (e.g. January 1-31: June 1-30)

Instructions:

- Suggested Baseline Assessment: collect and report three (3) individual consecutive calendar months
- Data collection may be collected more frequently in a way that is manageable for the laboratory (e.g. daily, weekly, monthly)
- Final data collected must include all days in the calendar month

Occurrence Rate Calculation:

$$\frac{\text{Total \# of specimens rejected}}{\text{Total \# of specimens received}} \times 100 = \text{Rejection Rate (\%)}$$

References

1. Li L, Georgiou A, Vecellio E, Eigenstetter A, Toouli G, Wilson R, Westbrook JI. The effect of laboratory testing on emergency department length of stay: a multihospital longitudinal study applying a cross-classified random-effect modeling approach. Acad Emerg Med. 2015 Jan;22(1):38-46.
2. Plebani M et al. Quality indicators in laboratory medicine: A fundamental tool for quality and patient safety. Clin Biochem. 2013;46:1170-1174.
3. Plebani M et al. Quality indicators to detect pre-analytical errors in laboratory testing. Clin Chim Acta. 2014;432:44-8.