

Risk management triggers in postanalytical phase

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Background. The Laboratory routinely monitors TAT at each step of the testing process to maintain stated quality goals.

Aim. Assessing the compliance with the meeting criteria (TAT <1 h) for pivot test (Hb, glucose, potassium, cTnI) ordered in the Emergency Department (ED); mapping the risk and assessing the impact of a prolonged TAT (> 2h) on the outcome of the patient.

Methods. The TATs (analytical, preanalytical, postanalytical) of 5000 patients were retrospectively collected and the causes of delays were analyzed with Root Cause Analysis (RCA). Moreover, clinical data of 245 consecutive patients were collected to map the patient's risk associated with delays in TAT. By a questionnaire ED professionals (14 physicians, 32 nurses) evaluated the risk induced by a delayed TAT (> 2 h).

Results. The 90th percentile of TAT are 43 min for Hb, 70 for glucose, 67 for potassium, 79 for cTnI. The mean and median of the monthly TATs are respectively: preanalytical 30 and 27 min; first analytical result 27 and 13 min; complete analytical results 49 and 38 min; postanalytical 125 and 46 min; Vein-to-brain 146 and 80 min. The RCA identified outliers in Drawn-to-receipt by incomplete demographic data entry in CPOE, delay in specimen collection, delay in transport the specimens to laboratory; in Receipt-to-Report by influence of different processing and testing of the specimens, verification and availability of results (abnormal results: unsuitable sample, critical results,

reviewing and repeats/rerunning); in Result-to-brain, by delayed night/morning staff change.

Risk mapping has shown correlation between the attention of the ED staff and patient risk. The questionnaire showed that the customized order test profiles and imaging test orders are related with the Emergency Severity Index level (ESI), and that specialist's referral are required for complex patients or for rule out purposes. According to respondents to the questionnaire, a delay of more than 2 hours can produce serious consequences in 14 clinical suggested situations, but it has not same impact in 13 other proposed cases. In 8% of cases all ordered tests' results are not available at the expected time.

Conclusions. The preanalytical TAT, mainly the transport to the laboratory, is the predominant outliers' factor and actions were considered for improvement, such as POCT, automatic transport of samples to laboratory, communication of the patient ESI to the laboratory.

The monitoring of TATs and analysis of the causes of outliers, discussion over the findings, and elaboration of possible solutions with the ED's "clients" were powerful tools for team interaction and collaborative decision-making, and real opportunities for improving care path for critically ill patients. Therefore, the monitoring of TAT is not only a control of the total testing process, but an indicator of the quality of the communication and the risk management.

Key-words: risk management, TAT, risk assessment.