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PSO Monthly Brief

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Where Do Most Lab Errors Occur? Not the Lab

Even though it accounts for a very small fraction of U.S. healthcare spending—about 2%, laboratory testing is a key part of patient care. If an error occurs somewhere during the preanalytic, analytic, or postanalytic phase, the patient is at risk of delayed diagnosis, missed diagnosis, incorrect treatment, or no treatment at all.

However, many of what are commonly considered "lab errors," in fact, are not. Only 7% to 18% of lab errors occur in the lab, during analysis. Some 11% to 47% occur after the test is completed, and a whopping 45% to 71% of lab errors occur before the test is even performed. Therefore, an organizationwide approach is necessary when examining systemic causes of error related to lab testing.

Preanalysis errors (the most common lab errors submitted to ECRI Institute PSO) include patient identification errors, specimen labeling errors, and inadequate specimen quality or quantity. Errors during analysis could result from equipment failure, sample mix-up, human error, or quality control failure. Errors after analysis typically deal with communication breakdowns—either a delay or failure in the communication of findings.

So, since the literature suggests that as many as three-quarters of lab-related errors are preventable, how can these errors be avoided?

A sense of "team" and stakeholder engagement is the first step. Any approach to improve patient safety requires support at all levels of the organization. With this support, a proactive risk assessment, such as a failure mode and effects analysis (FMEA), could identify potential process-based flaws. Consider FMEA or another assessment for such processes as specimen collection, labeling, and result communication. Reporting events or near misses to a patient safety organization such as ECRI Institute PSO can help the facility understand such circumstances at a higher level. Laboratory leadership should provide guidance to physicians on test ordering, indications, and frequency.

Patient and specimen identification, as well as specimen quality, should be addressed through policies and processes that must be shared with and followed by the practitioners ordering the tests—for example, according to the Joint Commission's National Patient Safety Goal on patient identification, staff should use two patient identifiers when collecting the specimen and label the container in the presence of the patient. Test results should be communicated in a consistent format that clearly presents the findings, and communication of critical results should follow the steps laid out by the Joint Commission's National Patient Safety Goal. Lastly, regular education can help keep all staff members up-to-date on lab procedures that can ensure safe patient care—especially since so much of the process occurs outside the lab.

Sample Strategies to Minimize Lab Errors by Test Stage

Preanalytic	Analytic	Postanalytic	All Stages
Bar-code systems for patient and specimen identification	Laboratory automation	Automatic transmission of reports by computer, pager, or other electronic means	Event reporting and analysis of lab errors and near misses
Electronic order entry	Quality control procedures	Easily understood format for reporting test results	Proactive risk assessment of high-risk processes
Clear protocols for patient and specimen identification (e.g., use two patient identifiers, label specimen in patient's presence)	Standardized testing techniques	Facilitywide approach for critical results reporting (e.g., definition of critical results, time frame for reporting results, process to notify ordering clinician)	Ongoing safety improvements based on findings from event investigations
Standardized specimen collection procedures		Laboratory expertise available for test result interpretation	Leadership support for a safety culture to develop systemwide solutions for laboratory safety
		Monitoring of test turnaround time	Stakeholder engagement in laboratory medicine safety
		Policy to read back results reported verbally	

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How Can We Help You?

Whether you have questions about the final rule or want to learn more about ECRI Institute PSO and/or support for other PSOs, we would be happy to hear from you. Please contact ECRI Institute at pso@ecri.org or call (610) 825-6000, ext. 5558.