

## **Latent Errors in Lab Services: The Lab's Disconnect from Patients**

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### **Question: What is a latent error and what are some examples in lab testing?**

Two terms commonly used in error analysis are "active errors" and "latent errors"(1). Each has a distinct definition in error analysis. Understanding the difference between these two types of errors can help laboratorians better analyze errors and improve the quality of the lab's services.

In healthcare, active errors are obvious errors that occur at the interface between the healthcare worker and the patient. Examples in lab services include failing to identify the patient before a blood draw and missing the blood vessel when performing phlebotomy. Active errors also include miscues that occur during the interaction of a healthcare worker with some other aspect of the healthcare system, such as a collection device, transportation system, instrument, or computer. Examples in lab services include mislabeling of blood tubes, failure to retrieve a specimen from a pneumatic tube system, data entry errors, pipetting errors, and failure to respond to an instrument flag.

Latent errors are less apparent failures of organization or design that contribute to the occurrence of active errors (1). Failure to install a computer interface between an automated instrument and the LIS is an example of a latent error that leads to many data-entry (active) errors.

Table 1 lists some common categories of latent errors in lab medicine along with some specific examples within each category. The specific examples often fall under more than one category. As the table shows, however, one latent error can produce multiple active errors. Combinations of latent errors can be particularly problematic as they can cause the lab to drift into a dangerous, error-prone state.

<b>Examples of Latent Errors in Lab Services</b>	
<b>Category</b>	<b>Examples</b>
Staffing	<ul style="list-style-type: none"> <li>Chronic understaffing on evening shift leads to high error rate as staff rush to complete the high volume of work before the shift ends.</li> </ul>
IT	<ul style="list-style-type: none"> <li>Lack of instrument interface with LIS leads to many active data entry errors</li> <li>Poor formatting of lab results in electronic medical record leads to the frequent misinterpretation of lab results by physicians.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>Old error-prone analyzers held together by duct tape and covered in post-it notes.</li> <li>Main chemistry analyzer is overloaded and has no backup leading to long delays when the instrument is down.</li> </ul>
Work Environment	<ul style="list-style-type: none"> <li>Culture of multitasking leads to error-prone environment as technologists try to answer phones and analyze specimens at the same time.</li> <li>Long term remodeling project leads to excessive noise that distracts technologists.</li> <li>Convolutd physical layout of lab creates an environment where specimens are more likely to be misplaced.</li> <li>Disconnection of lab staff from the patient experience tends to decrease motivation to improve quality.</li> </ul>
Policy and Procedures	<ul style="list-style-type: none"> <li>Policy allowing relabeling of mislabeled or unlabeled blood specimens by ordering physician increases the chance of mislabeled specimen.</li> <li>Multiple lab requisitions with different styles and designs leads to error-prone environment in test ordering and specimen log in.</li> </ul>
Teamwork Factors	<ul style="list-style-type: none"> <li>Poor communication at shift change about problem specimens that remain unresolved.</li> <li>Large clinical lab is organized with many vertical, analytic divisions (chemistry, hematology, virology) that do not share their best practices for quality improvement.</li> </ul>
Management /Organization	<ul style="list-style-type: none"> <li>Lab medical director who is financially incentivized to do fee-for-service anatomic pathology rather than participate significantly in lab quality improvement.</li> <li>Management that tends to focus on financial concerns and employee satisfaction while giving lip service to patient safety.</li> <li>Management that emphasizes incident reporting and de-emphasizes analysis of incident reports and interventions based on that analysis.</li> </ul>

A common management blunder is to identify and attack active errors rather than finding and eliminating latent errors. Why? It is relatively easy to identify active errors and propose quick fixes for them, but it is painful, risky, and sometimes expensive to identify latent errors and resolve them. For example, even an inexperienced manager can easily identify the active error of incorrectly entering lab results into a computer, and then counsel the offending tech to “slow down” because “there is a patient affected by that error.” However, it is much harder to initiate a project that seeks to reduce or eliminate manual data entry by automating the lab and interfacing all the automated instruments to the laboratory information system.

One of the least discussed, but most significant, latent errors in lab medicine is the disconnection of lab staff from patients. With the exception of phlebotomists, lab staff, including clinical pathologists, are usually one step removed from patient care. Lab work affects patient care and lab errors sometimes physically harm patients. But in general, lab staff at all levels receive little positive feedback regarding positive patient outcomes associated with lab work, and little negative feedback from patients, or even care providers, about lab errors.

In most cases, physicians and nurses inadvertently shield lab staff from the consequences of errors resulting from lab-related shortcomings. They normally handle any apologies directly with patients. This situation not only creates a disconnect for lab staff, but also represents an important latent problem. The motivation to improve quality ends up being strongly reduced because lab workers are disconnected from the effect of the error. In fact, it is easy to delay or even cancel important quality improvement projects if patient suffering is underestimated.

#### **Four Ways to Increase Connection Between Lab Staff and the Patient Experience**

- Enhance communication between lab staff and providers directly caring for patients
- Quality improvement projects involving patient outcomes data and feedback of these data to lab staff
- Participation of lab staff in apologies to patients in cases where lab errors cause harm
- Formal patient safety training, including discussion of disconnection

In lectures, when I have expressed my viewpoints about disconnection, the majority of laboratorians have been in agreement. But there are always a few who feel that my take on the situation is unprofessional and perhaps even demeaning to lab workers. According to their reasoning, lab workers are healthcare professionals who care deeply and unquestionably about quality improvement. I then pose the following two scenarios. If a person were suffering in front of me, I would do something about it as quickly as possible. But if that same person were suffering a continent away, I would not move as fast. I contend that this reaction is simply human nature. We are more motivated to improve quality when we feel deeply connected to the patient healing and suffering that occurs every day in our workplace. We are more motivated to improve quality when we feel deeply connected to the patient healing and suffering that occurs every day in our workplace (2).

However, solutions to the disconnect problem are not easy to implement. They include: formal patient safety training for staff; quality improvement projects that include patient outcomes data; feedback to staff regarding the implications of both high- and low-quality work; enhanced communication between lab staff and direct care providers; and communication between lab staff and patients, especially in situations that involve apologizing directly to patients for serious errors.

The accompanying interview with Dr. Stephen Raab, who has been a leader in promoting patient safety in pathology services, gives some more insight into the disconnect problem and some more possible solutions.

## **REFERENCES**

AHRQ PSNet (Patient Safety Net). <http://psnet.ahrq.gov/glossary.aspx#L>. Accessed February 9, 2009.

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