Patient safety: Find the error behind the error

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Lately, everybody seems to be talking about reducing testing errors and improving patient safety. But where do you begin?

The answer may be to look beyond the error itself and instead focus on what is causing it. Michael Astion, Associate Professor, Director of the University of Washington's Reference Laboratory Services and editor of the Laboratory Errors & Patient Safety newsletter explains.

acutecaretesting.org: **If laboratory errors rarely become adverse events, why is patient safety such a hot topic right now?**

Michael Astion: Because some of them do become adverse events. Even though the total percentage is low, the total number of errors that result in injury is still quite high. If you did four million tests a year in a big laboratory system, and 1 % were errors, that would give you 40,000 errors.

If 6 % of them led to inappropriate care, that would give you 2,400 significant harmful events a year and several a day to investigate. So the absolute number of errors is significant.

acutecaretesting.org: **How far have we come since the publication of the report "*To Err is Human*" in 1999?**

Michael Astion: We have come far in the sense that people are tuned in to learning different ways of applying quality systems and methods to their labs – anything from Six Sigma, Lean and Root Cause analysis.

Where we haven't come very far is in creating a patient safety culture where people feel they can report honest human errors without being punished. The other thing we haven't come very far with is in regards to interventions. Especially in the hospital industry, most of the interventions people choose are still within the realm of low-level interventions: warning labels, memos, a change in the policy and procedure.

The problem is that these interventions do not last in the long run.

acutecaretesting.org: **What would be an example of a high-level intervention?**

Michael Astion: A high-level intervention would be changing your architectural and physical plant to improve workflow. Another example would be implementing a computerized physician order entry (CPOE) to eliminate handwriting and communication problems or automated paging of critical values directly from the LIS to the physician and the nurse taking care of the patient.

The reason why we do not see enough high-level interventions is that they are harder to implement. For example, if you try to implement CPOE and do not do it properly, you will actually have more errors than you had to begin with. High-level interventions come with high-level risks.

acutecaretesting.org: **So even though the technology is available, people are not willing to take the risk?**

Michael Astion: It's a lot easier to just go for the low-level intervention like training or enhanced vigilance, especially if resources are scarce. Let me give you an example: For a postanalytical data entry error, what you might normally see is that the technologist in question will be counseled and asked to show more vigilance when doing his work.

He may even be disciplined. But what this laboratory really needs is an interface between the instrument and the LIS, so there is as little manual data entry as possible. But this may require money, or developing an interface for the instrument you have, or even getting a completely new instrument.

acutecaretesting.org: **What are the main obstacles to developing a patient safety culture in hospitals?**

Michael Astion: One obstacle is the tendency to look at the active errors, for example the person who is entering the data incorrectly, or mislabeling the specimen but not at the latent error, which is the error behind the error.

If you take your best employee and put her in a system which is understaffed and then make her multitask by answering phones, doing a lot of paper work, and tell her that she can't work overtime...well, that employee will make errors.

The more you make people multitask, the more they will make errors. And then to attack them afterwards is ridiculous. Instead, we should be looking at the workflow and other latent errors and determining how they may be contributing to errors.

acutecaretesting.org: **How can hospitals overcome these obstacles?**

Michael Astion: It's a tough process, but I can tell you what we do in our institution. First, we provide formal training for our residents in pathology and laboratory medicine. I teach a three-hour workshop with cases and principles on patient safety when they start.

Then, we give them about a dozen real-life cases to work up every year. As for the staff, we are a very large lab, so we do not have every division participating in patient safety projects.

However, our biggest division - chemistry - has regular in-services, probably twice a year, where we review cases and principles and results of patient safety quality improvement projects.

We have also done some in-services in microbiology.

The second thing is to have at least some quality improvement projects that focus on patient safety. Not just error-reduction projects. Error-reduction projects are really good, but we go one step beyond that by collecting patient outcome data.

Patient outcome data is very helpful in creating a culture of patient safety. Technologists, for example, are one step removed from patient care. But when they see what happens to the patients – whether they are inconvenienced or actually harmed – it really gives a type of urgency to quality improvement that you would not usually see in a straight error-reduction project.

Patient outcome data is also important when you are competing for resources in a hospital.

It's far more effective to say to your hospital administrator 'a dozen patients were significantly harmed by mislabeling events last year in the hospital, we would like to get that down to two' than to say 'we would like to get our mislabeling rate down from 0.2 % to 0.0 2 %'.

The third element is giving feedback about the results of these quality improvement projects. The last thing is competency assessment in patient safety. This is still in its infancy.

In January 2004, we introduced a new patient safety competency assessment area on the University of Washington-based www.medtraining.org. This new addition has proven to be surprisingly popular, and it's already been used by 120 facilities and a 1,000 people in the US. Competency assessment is important.

Training is great; but you have to monitor whether people have actually learned something.

These are some of the things we are doing in an attempt to create a patient safety culture in our hospital. It takes a long time to reduce errors and create a patient safety culture, but it can be done.

acutecaretesting.org: **Do errors that may endanger patient safety occur in all testing phases?**

Michael Astion: There are significant errors in every phase of testing, and errors in each of the steps of the total testing process have been associated with actual harm to patients.

For example, patients have been harmed by suboptimal specimens, mislabeled specimens, specimens delayed in transports, specimens that had analytic errors, and by results that were miscommunicated orally or because of communication errors between the LIS and the electronic medical record.

acutecaretesting.org: **Are these issues aggravated when testing occurs at the point of care?**

Michael Astion: To my knowledge, there is little evidence that point-of-care testing is more prone to errors. But there are some worrisome issues regarding point of care. One is the number of operators of the equipment and how well they can operate it.

Some hospitals have hundreds of operators performing tests, and the training they have will quite often vary. There is also a fair amount of data entry errors at the point of care and a lack of standardization when it comes to instrumentation.

Lack of standardization worries me – also in terms of training and competency testing. Let me give you an example of the problems with training and competency assessment. You are a nurse and I train you on how to operate a blood gas analyzer.

You go out there and over time you develop some shortcuts. You carry two or three specimens to the instrument at the same time, or your labeling does not follow the right policy and procedure, or you may do your data entry in batches.

In other words, you have developed some risky behaviors.

If I'm not periodically and randomly monitoring you, your risky behavior will become your policy and procedure and over time you will put patients at risk. If you knew I'd occasionally be randomly monitoring you, you'd probably stick to the original policies and procedures you were taught.

My point is that doing competencies once a year is not enough. If errors at the point of care are to be reduced, you need combine training with periodic random monitoring.

acutecaretesting.org: **Can automation help reduce errors in all phases of testing?**

Michael Astion: Yes. Automation alone cannot do it, but it certainly can help reduce errors in all phases of testing. If you can take a 100-step process and get it down to 80 steps, and the 20 steps you remove are error-prone, you will be in better shape than you were before.

Automation can help you remove some error-prone steps, for example front-end automation reduces the number of times a person has to intervene to transport a sample from one stage of the testing process to the next.

Certainly, the earliest great successes of automation are the interfaces between high-volume instruments and the laboratory information system. This has eliminated more than 95 % of data entry errors associated with high volume tests.

But when doing automation – like automated processing, automated storage and retrieval systems, CPOE, or interfaces between the LIS and the electronic medical record – you have to be serious about it.

These are big projects, requiring a lot of preparation and sometimes even cultural changes in the institutions.

Automation is easier now than it was ten years ago, but it is still not trivial.

acutecaretesting.org: **What are the future trends within patient safety?**

Michael Astion: More hospitals implementing front end automation in the laboratory, test consolidation onto large automated platforms, CPOE, automated systems that integrate patient identification with the proper collection procedure, continued expansion of interfaces between instruments and the LIS, and better integration between the LIS and the hospital's electronic medical record system.

acutecaretesting.org: **You are currently chairing the newly established AACC Patient Safety Taskforce. How will the group contribute to the patient safety movement in clinical laboratories?**

Michael Astion: We are very interested in pushing forward patient safety issues by participating and sponsoring as many relevant events as possible.

The Laboratory Errors & Patient Safety newsletter (www.laboratoryerrors.org) is a collaboration of a number of institutions including University of Washington, Mayo Clinic, and ARUP and it discusses best practices related to patient safety.

This newsletter has just been made an AACC member benefit and it will help bring our message to a larger number of people. We are hoping all of these activities will get people to think about patient safety issues and inspire them to develop a 'just culture' of patient safety, where staff is encouraged – and not punished – for errors which all of us could make.

acutecaretesting.org: **What is your single piece of advice to hospitals that are beginning to look into patient safety?**

Michael Astion: Start by thinking about the error behind the error – you can get quite far with just that. If you tell people that to accomplish any error reduction, they have to be Six Sigma black belts, people will just stick to training, warning labels, enhanced vigilance and employee counseling and other weak interventions because the alternative just sounds too impossible.

But if you just start by asking a couple of why-questions, you will be impressed with how far the answers will bring you.

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