Avoiding errors in the lab

By David Novis, MD

The topic that seems to occupy the minds of just about everybody involved in providing healthcare services is that of avoiding medical errors. The thought of making mistakes that will harm patients keeps us up at night. How can we minimize medical error? From all that has been written on this subject there emerge two obvious strategies: things we can do to prevent making errors in the first place and, when that fails, things we can do to prevent them from damaging patients.

Preventing errors from occurring in the first place

There are four basic strategies that work to prevent errors: education, standardization, mistake-proofing, and streamlining.

Healthcare workers must be properly educated to do the jobs they are paid to do. Blood culture contamination rates are lower in hospitals where laboratory personnel rather than non-laboratory personnel are responsible for collecting these specimens.[1] Presumably, this is because laboratory workers have been thoroughly educated in the importance of this critical procedure. But training is not enough. Making workers more aware does not guarantee better results.

There must also be written policies and protocols detailing responsibilities and providing contingencies when those responsibilities are not met. Standardized protocols prevent idiosyncratic improvisation, which is a procedural landmine waiting to be stepped on. For instance, errors of order entry and patient identification are less frequent in hospitals that have written policies requiring healthcare workers to verify and confirm those orders than they are in hospitals without such policies.[2,3,4,5,6]

Procedures need to be mistake-proofed. Protocols must be constructed in ways that ensure that jobs can be done in one way and one way only. Think about assembling that gas grill you brought home from Walmart's. The initial terror you felt when you read "Some Assembly Required" dissipated when you discovered that no matter how hard you tried to shove square parts into round ones, they would fit together in only one position. Laboratory procedures should be no different. Reagent packs should fit into instruments in one exclusive position only.

Using checklists is one way to achieve mistake-proofing, especially when the lists are designed in a way that makes it impossible to advance from one step to the next without confirming that the last step has been performed properly. Fewer errors are made in administering blood transfusions when blood bank technologists and transfusion nurses check off each procedure they perform on a standardized list.[7]

Finally, we must avoid inadvertantly luring our healthcare providers into catastrophe. Every step in a long procedure is an opportunity for something to go wrong. We must eliminate every unnecessary bend and turn. Fewer errors in transfusing blood products occur both when blood bank personnel convey blood products from blood banks to patient bedsides without making local stops and when there are no handoffs—when no more than one person handles the products.[7]

Preventing errors from hurting patients

No matter how carefully we try to follow standard procedures, and eliminate needless steps…we will still make mistakes. We need safety nets to catch errors before they cause inaccuracy in the collection or communication of lab test results.Those safety nets consist of building redundancy into our systems.

In addition to standardizing procedures, checklists provide redundancy, especially when they are administered by more than one person. The likelihood that error-reducing transfusion protocols are followed is greater when one transfusionist performs functions dictated from a checklist by another.[7] Fewer errors in patient and specimen identification occur when the accuracy of this data is verified prior to releasing patient results.[8] The frequency with which surgical pathology reports must be reissued to correct diagnostic errors is reduced when the one pathologist reviews the reports of another before rather than after those reports are released.[9,10]

Eliminating errors requires vigilance. We can never be complacent. Even when we think they are perfect, we must review every protocol, every checklist, and every redundancy. We must anticipate a disaster—to minimize as much as possible the need to react to one! □

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