



Four Principles for Better Test-Result Tracking

Brandi White

Lost or misfiled test results can delay needed care. Here's how to prevent this common error in office-based practice.

Medical errors are a lot like people: It's the quiet ones you have to look out for. While some medical errors are overt, dramatic and immediately harmful, such as wrong-limb amputations, the vast majority of medical errors are more subtle. Though seemingly innocuous, these errors can have a "trickle effect," leading to a cascade of error in other parts of the health care system, according to research from the Robert Graham Center for Policy Studies in Family Practice and Primary Care. Paul James, MD, describes how these errors so easily transpire: "We forget, lose, misplace or simply do not prioritize some piece of information that, in

retrospect, should have changed our approach to a patient problem."¹

The mismanagement of patients' test results is a subtle but potentially harmful error common to primary care. In a survey of 161 attending physicians and 101 residents practicing at a large urban teaching hospital and 21 suburban primary care practices, Boohaker et al found that virtually all respondents believed it was important to notify patients of abnormal results, yet 36 percent said they do not always do so. Seventy-two percent said they do not notify patients of normal results. And approximately 77 percent of respondents said they had no method or no reliable method for tracking whether patients with abnormal test results had received the recommended follow-up care.²

When the results of diagnostic tests are allowed to "fall through the cracks," harmful delays in treatment or diagnosis can occur. And as the demands on primary care offices continue to grow, mishandled test results could become an increasing occupational hazard.

Boohaker and colleagues outlined the four basic steps for managing patients' test results: tracking tests until the results have been received; notifying patients of the results; documenting that the notification occurred; and making sure that patients with abnormal results receive the recommended follow-up

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KEY POINTS

- To reduce errors in managing patients' test results, you must redesign your system. Simply trying harder at your old system won't work.
- Although computers offer great promise for improving test-result tracking, technology applied on top of a poorly functioning system will only exacerbate the problem.
- Adopting a "no news is *not* good news" policy for test results gets patients involved as yet another safeguard.



Even subtle medical errors, such as misfiled test results, can cause great harm to patients.



In one survey, 36 percent of physicians said they do not always notify patients of abnormal test results.



To improve your management of test results, you must focus on changing your system versus changing the people in your practice.



Adopting one standard process for carrying out a complex task will reduce your staff members' reliance on memory.

care.² However, Mold et al concluded after conducting a literature search on the subject that “no one has identified and published a unified method that accomplishes each of the four steps effectively and efficiently.”³

Given the lack of a definitive solution, what are physicians to do? How can you prevent test-result tracking errors in your practice? Perhaps the best

approach is to understand a few simple but widely accepted error-reduction principles preached by safety gurus in health care and other industries, and then apply those principles to the problem of test-result tracking.

1. Redesign your system

The first principle of error reduction has been well articulated by Don Berwick, MD, MPP, president and CEO of the Institute for Healthcare Improvement and a member of the Institute of Medicine committee that wrote the 1999 *To Err Is Human* report. He said, “Every system is perfectly designed to get the results it produces.” In other words, a system that breeds lost, misfiled or miscommunicated test results has been set up to do just that. To change the outcome, you must redesign the system. Trying harder at your old system will never work.

While the ideal tracking system will vary from group to group, based on local needs and resources, error-reduction theories suggest that any good system should have the following properties:

Standardization. Adopting one standard process for carrying out a complex task reduces reliance on memory and helps newcomers understand the process and use it safely. Standardization is aided by the use of checklists, templates, flow sheets and other simple tools.

The problem in many practices is that there is no clearly defined, uniform system for managing test results. In the Mold et al study, 92 percent of physician respondents reported that each physician in the group used a different method for reporting lab results, and 61 percent used different procedures for different types of tests.³

Two Boston-area physician groups associated with Massachusetts General Hospital (MGH Beacon Hill Primary Care and MGH Downtown) have applied standardization to

their test-result tracking system with great success. In their offices, all tests ordered are logged into a computer system and checked off as the results come in. If they do not come

back after the designated time period, the ordering doctor is notified. To notify patients of their results, the groups use letter templates (e.g., a cholesterol template, a bone-density template, among

others, all of which are available on the system) and simply fill in the appropriate values and add comments. At the time the letter is generated, the physician plans the appropriate follow-up and can put a reminder into the system to check on the outcome.

While their system has been effective, says Richard Winickoff, MD, medical director of the two groups, further automation is in the works. “We plan to eventually have a system that starts with the doctor ordering the test online and then automatically checks for completion of the test and appropriate action.”

Simplification. By reducing the complexity of a process, including the number of steps involved and the number of handoffs required, you can make the system easier to follow. Simplification also minimizes the problem solving required by staff, resulting in fewer opportunities to make mistakes. Marcia Sheeter, RN, BSN, MS, team leader of patient care services at Bellin Medical Group in the Green Bay, Wisc., area, describes a relatively simple but effective test-result tracking system used by her group: “At the end of the day, the medical assistant or nurse reviews the encounter forms from the day and records all patient names and phone numbers and all diagnostic tests ordered into a notebook. As the results come back, the medical assistant or nurse checks them off in the notebook and gives them to the doctor for review and initialing. The doctor may make additional orders on review and then returns the slip to the nurse to carry out the orders and contact the patient, unless the physician has elected to contact the patient. The final step is to mark the patient’s name with a yellow highlighter to indicate that the patient has been contacted. One glance at the book and you can tell whether a test has been ordered, whether it has been completed and whether the patient has been notified. One of our quality

A system that breeds lost, misfiled or miscommunicated test results has been set up to do just that.

improvement processes is to review the log books quarterly to monitor results and ensure all components are followed up on.”

Constraints and forcing functions.

Although somewhat difficult to apply to test-result tracking systems, constraints and forcing functions are worth mentioning because of their effectiveness in preventing errors. Constraints and forcing functions are elements that guide the user to the next appropriate action or decision and make mistakes difficult to make. Lucian Leape, MD, of the Harvard School of Public Health and also a member of the IOM committee, provides an example related to inpatient care: “The way to prevent tragic deaths from accidental intravenous injection of concentrated KCl is excruciatingly simple – organizations must take it off the floor stock of all units. It is one of the best examples I know of a ‘forcing function’ – a procedure that makes a certain type of error impossible.”⁴ Identifying similar procedures that can be applied to the problem of test-result tracking is a challenging but worthy endeavor for family physicians.

2. Make technology your friend

While paper tracking systems can be effective, they can also be labor-intensive. Computer systems can help you manage your test-result data more easily, for example, by alerting you when a test result is due or when a patient should return for follow-up care. Although relatively few practices employ fully computerized systems at present, many believe that computers will be the ultimate solution, as the human mind and paper systems are far more limited in their ability to manage data.

“One of the strongest arguments in favor of an electronic medical record is that it ‘closes the loop’ on data. Any test-result tracking system should be able to direct results to a queue, in box or other record-keeping system, but only an electronic system can perform this efficiently and reliably,” says Jonathan Levis, MD, chief medical informatics officer and a practicing primary care physician at the New York City Health and Hospitals Corporation (NYC HHC). NYC HHC, the nation’s largest municipal hospital system, uses an electronic medical record (EMR) system that

‘To err is human, but to really screw up you need a computer.’

allows physicians to order all of their tests via the EMR and receive results in electronic review queues. “Paper trails are unreliable in any sizable practice or clinic, and the staffing overhead to maintain the record trail with follow-ups is burdensome. With outpatient clinics that provide from 60,000 to 200,000 ambulatory visits per year, our centers could not effectively follow test results manually. But with the EMR, INRs for patients taking Coumadin, culture results, and all other test results are reliably returned to any physician who ordered them electronically, as soon as the tests are completed.”

Practices that aren’t ready for a completely paperless system can still use technology to manage parts of their tracking system. For example, using basic word-processing software, a group could create a central, computerized log of patient tests ordered, making it easy to search and organize the data as needed and preparing the way for greater use of technology down the road.

Of course, technology applied to a poorly designed system will not solve a practice’s problems, and computers can provide challenges. “There is a saying that ‘to err is human, but to really screw up you need a computer,’” says Gregg Meyer, MD, director of the Center for Quality Improvement and Patient Safety at the Agency for Healthcare Research and Quality (read his article on page 47). “Informatics is a wonderful solution, but we have to make sure we implement these systems thoughtfully and carefully.”

3. Involve your patients

No news is *not* good news when it comes to patient test results, says Ed Sobel, DO, of Family Practice Associates in Wilmington, Del. He argues that, while it may be costly and time-consuming to notify every patient of every test result, notifying only those patients with abnormal results can be problematic. “In the past, we ran into problems when lab tests, X-rays, etc., were not returned to our office but either got lost somewhere along the way, got sent to the wrong doc, etc. Using a ‘no news is good news’ routine, the patient assumed the studies were normal – but they weren’t always,” he says.

“Now, we instruct the patient that ‘You will hear from us, regardless of the results, in X

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Safe systems need not be complex. To simplify a process, reduce the number of steps involved and the number of handoffs required.



Constraints and forcing functions guide the user to the next appropriate action in a process, making mistakes difficult to make.



Technology is the ultimate solution in large systems, as the human mind and paper systems are more limited in their data-management capabilities.



Patients should not be instructed that “no news is good news” when it comes to their test results.



Instructing patients to call your office if they do not receive their test results adds yet another safeguard to your system.



In one study, 79 percent of patients said they wanted to be notified of all of their test results, whether normal or abnormal.



In some groups, patients simply phone in to a test-result hotline, punch in their PIN and hear a recorded message of their results.



Creating a culture of safety in your practice involves giving staff members the freedom and the responsibility to report errors and to propose solutions.

number of days after you have the test done. If you don't hear from us, call and find out where your results are.' While not perfect, it puts one more layer of protection on the system, with patient responsibility," says Sobel.

In fact, patients say they want this responsibility. The Boohaker et al study found that 79 percent of patients wanted to be notified of all test results, whether normal or abnormal.² Some groups even advocate giving patients their actual test values, as it encourages them to be informed, empowered members of the health care team. In the Mold et al survey, only 17 percent of physicians provided patients with their numerical test results.³

Another way to involve patients is to empower them to access their own test-result data. At the Sutter Medical Group in Sacramento, patients can do just that via a special telephone hotline. (The group uses a service called LabTalk. Similar products, such as PhoneTree, used by Sheeter and colleagues at Bellin Medical Group, are also on the market.) Cecilia Hernandez, MD, explains how it works: "When labs or imaging tests are ordered, the patient is given a card with the phone number to access LabTalk. The patient's PIN is his or her medical record number. The patient is advised to call the system for his or her lab results within a certain time frame."

When test results are received by the practice, the doctor notes the findings and makes comments on the report, then the medical assistant simply records a message in the LabTalk system for the patient to hear. Hernandez points out that this system has multiple benefits: "It is easy (the medical assistant would much rather record a message on the system than mail out a letter), it involves the patient (they love having that level of control), it actually decreases the number of calls to the office for results, and it is confidential (only the patient can access the results with the PIN)."

In addition, a telephone-in system may actually increase a practice's odds of reaching patients with their test results. One study of follow-up care after an abnormal Pap smear result found that practices were not able to make telephone contact with 45 percent of eligible patients. Sixteen percent to 20 per-

cent of patients' telephone and address data were inaccurate.⁵

4. Create a new culture

If your practice is anything like the average practice, chances are good that you are currently using a suboptimal test-result tracking system. Chances are also good that everyone in your practice knows the system is suboptimal. Why, then, does the suboptimal system continue to exist? Leape, Berwick and colleagues have argued that the problem is

a cultural one. Error-laden systems will continue to exist until the leadership in your practice empowers individuals with both

the freedom and the responsibility to report errors and to propose solutions.

The IOM's *To Err Is Human* report offers several suggestions for changing your practice's culture:

- Encourage your staff to report errors and hazardous conditions,
- Ensure your staff that there will be no reprisals for reporting of errors,
- Strive for open communication among all members of your practice, regardless of the hierarchy,
- Implement mechanisms of feedback and learning from error.

According to the IOM, typically only a small percentage of known errors are reported. When punishment is eliminated, error reporting soars. And when reporting soars, errors can finally be addressed head on. **FPM**

Send comments to fpm@afp.org.

No news is not good news when it comes to patient test results.

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