

**Massachusetts Coalition**  
**for the**  
**Prevention of Medical Errors**

**Communicating Critical Test Results**  
**Safe Practice Recommendations**

The following Editorial: Doing Better with Critical Test Results was published in the February 2005 issue of the *Joint Commission Journal on Quality and Patient Safety*. The Journal has generously given us permission to post the PDF file on our webpage and it follows below.

The *Joint Commission Journal on Quality and Patient Safety* provides many helpful articles and specific applications for quality improvement and patient safety projects. The February 2005 issue includes several additional articles on Communicating Critical Test Results:

- Introduction: Communicating Critical Test Results
- Issues and Initiatives in the Testing Process in Primary Care Physician Offices
- Failure to Recognize and Act on Abnormal Test Results: The Case of Screening Bone Densitometry
- Diagnostic Errors in Medicine: A Case of Neglect

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## Communicating Critical Test Results

# Editorial:

## Doing Better with Critical Test Results

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During the last 50 years, medicine has made great strides in diagnosis, treatment, and the understanding of pathophysiology. However, data from a variety of studies demonstrate major shortcomings in actually carrying out treatment.<sup>1</sup> One area that particularly needs improvement is reliability in communicating critical test results.<sup>2</sup>

Inside the hospital, a number of studies have demonstrated that there are often substantial delays in responding to test results that are critically abnormal,<sup>3,4</sup> such as markedly abnormal electrolytes or glucose levels. In one study the presence of a severely elevated or lowered sodium, potassium, or glucose level was associated with a mortality rate of 13%.<sup>5</sup> When such an abnormality is identified, prompt treatment may literally be life-saving. Yet another study found that in 27% of patients, there was more than a five-hour delay before beginning therapy.<sup>4</sup> On the other hand, some organizations have made great improvements in more complicated process measures, such as “door-to-needle” time for initiating thrombolytic therapy in patients with myocardial infarction.<sup>6</sup>

Outside the hospital, the types of results that are critical are somewhat different and occur less frequently than in hospitalized patients. In this setting, the bigger issue is not urgency but reliability, that is, ensuring that test results such as an abnormal Pap smear or mammogram are not lost or the patient is not lost to follow-up. Data suggest that about a third of patients with abnormal Pap smears and a third of those with abnormal mammograms do not receive appropriate follow-up.<sup>7-10</sup>

By contrast, industries outside health care have achieved high levels of reliability for tracking in specific areas. For example, in overnight delivery of packages,

Federal Express has achieved a very high degree of reliability—99.6%—and offers a money-back guarantee for priority packages that are not delivered on time. The airline industry has achieved very high levels of safety, in part by standardizing many of the involved processes.

We believe that health care must achieve similar high levels of reliability for a number of processes, of which communication of critically abnormal results is clearly among the most important. The goals should be that no critical test result is lost and that all such results are managed with a speed appropriate to their urgency.

Actually achieving this benefit will require understanding the issues with current processes for dealing with critical results, which are numerous. Many of these issues are explored in this issue of the *Joint Commission Journal on Quality and Patient Safety*. Fundamentally, doing well with critical results has several dimensions, as follows:

1. Organizations must reach consensus about which results are considered critical.
2. The organization must have an effective process for communicating the results to the key clinicians involved.
3. The organization needs a fail-safe program to ensure that backup procedures are implemented if the initial communication efforts break down for any one of a number of reasons.
4. It is essential for the organization to have in place monitoring systems for it to know how it is doing with respect to the above dimensions.

Each of these issues has many implications. For example, knowing which physician is responsible for a given patient at a specific time turns out to be remarkably challenging, both inside and outside the hospital. There are many ways for systems to break down. The

clinician who ordered a test may well have signed out to another provider, and the laboratory or radiology may have trouble determining who is responsible for a specific patient. Achieving high reliability in this area requires a system that links every patient to a responsible clinician at all times.

Some early data suggest that considerable improvement in this area is possible. For example, Kuperman et al. found that directly paging the responsible physician for inpatients resulted in a 38% shorter median time to the appropriate treatment being ordered and that there was a trend toward a lower time until the alerting condition resolved.<sup>5</sup>

Other areas that need attention include better definition of which results to treat as critical and evaluation of alternative methods for communicating results. Interventions might include innovative software technology to identify who is in charge, tools for helping differentiate between important and unimportant data (such as algorithms that identify a critical change in chronically abnormal laboratory tests), and methods to get important data to key individuals in ways that result in the most rapid action. This research will require ongoing federal support from the Agency for Healthcare Research and Quality, which has sponsored most research to date on patient safety.

The recent decision by the Joint Commission for the Accreditation of Healthcare Organizations to require hospitals to have effective and reliable methods for communicating critical test results provides a strong incentive for all institutions to examine and strengthen their systems. Achieving this improvement will not only require organizations to invest in systems such as better tools for associating clinicians and patients but will also require physicians, nurses, and laboratory personnel to change their traditional patterns of communication.

We believe that the result will be dramatic improvement in levels of performance, not just in this important domain, but in communication in general. Because delivering high-quality, safe medical care depends ultimately on excellent communication, the net result will be measurable improvements in safety overall. **J**

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