PRACTICE RESOURCE

Establishing and Communicating Critical Laboratory Values: The Mayo Clinic Approach

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Zehe: Critical Laboratory Values

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Introduction

As science and healthcare continue to expand and evolve, so does laboratory testing. Many individuals may think of laboratory tests as only diagnosing disease. They may not realize laboratory tests also can assess risk that an individual may develop a disease (e.g., Huntington’s disease), or assist in properly dosing medications (e.g., warfarin).

Mayo Clinic’s laboratory, the Department of Laboratory Medicine and Pathology, has a test menu exceeding 3,000 different assays. Its test menu continually evolves as researchers, scientists, and clinicians work together to connect laboratory values to patient health and struggle with the following questions or situations:

• What is the value of all that information?
• What happens when a healthcare provider does not act on a test result with critical information about a patient’s health that could require immediate medical intervention?
• Would the impact be lessened if a patient has direct access to his or her laboratory results?
• Would direct access help get critical information to the patient, or instead, would it confuse a patient or cause unnecessary worry about the results’ meaning?

This Practice Resource surveys the landscape of legal and practical risks pertaining to laboratory results, beginning with an overview of what regulations apply and what accreditation requirements exist in the section entitled, Licensing and Accreditation Requirements. An exploration of the Practical Meaning of Results follows, including a discussion of the Standard of Care. This Practice Resource will provide direction on identifying best practices. One possible solution for communicating laboratory results is set forth in a detailed description of the Mayo Clinic’s Critical Results/Semi-Urgent Results Program. As this discussion will demonstrate, many times the answer does not lie within the law—it lies within what is best for patient care.
Licensing and Accreditation Requirements

As outlined further below, the federal regulations offer basic direction in defining the expectations surrounding critical results. In addition, direction can be found in accreditation requirements and guidelines. However, these do not offer a clear picture of compliance for laboratories, leaving healthcare organizations to their own discretion and interpretation.

Clinical Laboratory Improvements Amendments of 1988

All laboratories performing human diagnostic testing are required to comply with federal regulations known as the Clinical Laboratory Improvements Amendments of 1988 (CLIA).\(^1\) These regulations set the minimum level of requirements for laboratory quality and consistency to ensure patient safety.

Under the CLIA regulations, laboratories must “. . . immediately alert the individual or entity requesting the test and, if applicable, the individual responsible for using the test results when any test result indicates an imminently life-threatening condition, or panic or alert values.”\(^2\) Although this requirement sets a minimum standard, it provides only some guidance to laboratories on critical results and touches only the tip of the issue. It does not define what tests are considered “life-threatening.” It does not define what time frame is acceptable except to say “immediately.” Finally, it does not specify who “the individual” may be for purposes of notification.

Joint Commission National Patient Safety Goals

The CLIA regulations set the minimum standards for laboratory quality. In addition, each laboratory must comply with requirements set by different accrediting organizations. The Centers for Medicare

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1 42 C.F.R. § 493.
2 42 C.F.R. § 493.1291(g).
Licensing and Accreditation Requirements

& Medicaid Services (CMS) chooses which accrediting organizations have the authority to inspect and accredit laboratories. Some examples of the most common laboratory accrediting organizations include The Joint Commission (TJC), the College of American Pathologists (CAP), and state health departments.

TJC and CAP have tried to address the challenges for laboratories and healthcare providers in effectively using critical results. As a starting point, TJC set one of its 2012 National Patient Safety Goals (NPSG) as, “Report critical results of tests and diagnostic procedures on a timely basis.”³ Although it does not offer additional guidance on what specific tests are considered critical, TJC provides a slightly different overall definition from the CLIA regulations in its rationale for the patient safety goal: “Critical results of tests and diagnostic procedures fall significantly outside the normal range and may indicate a life-threatening situation.” The rationale is further clarified: “The objective is to provide the responsible licensed caregiver these results within an established time frame so that the patient can be promptly treated.”⁴

Rather than “immediate” notification as used in CLIA, TJC only states that notification be “timely.” Rather than list specific requirements, TJC states the goal for patient safety. This implies that the time frame for notification of potential life-saving test results can be any time that would allow proper patient treatment. This allows healthcare providers and laboratories discretion to establish the appropriate time frame. Although such discretion can be beneficial in that it allows a care provider to understand a patient’s condition, it also can work against laboratories attempting to establish effective notification processes for varying levels of patient conditions.

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⁴ Id.
In NPSG’s Elements of Performance, TJC offers additional guidance to laboratories and healthcare providers about what an effective critical results notification program may include:\(^5\)

- Collaborate with organization leaders to develop written procedures for managing the critical results of tests and diagnostic procedures that address the following:
  - The definition of critical results of tests and diagnostic procedures
  - By whom and to whom critical results [] are reported
  - The acceptable length of time between the availability and reporting of critical results [].
- Implement the procedures for managing the critical results [].
- Evaluate the timeliness of reporting the critical results [].

Even though this may seem a natural process for healthcare providers wishing to establish an appropriate critical test result policy and procedure, oftentimes it is difficult for experts to agree on all the nuances of test results and health conditions, reporting procedures, and follow-up activities. An explanation of how Mayo Clinic has created its program encompassing the factors above will be outlined later in this Practice Resource.

**College of American Pathologists**

CAP, the leading organization of board-certified pathologists dedicated to quality in pathology and laboratory medicine, publishes checklists each year to measure laboratories’ quality systems. The checklists are available to CAP member laboratories to assist in ensur-

\(^5\) Id.
Licensing and Accreditation Requirements

Currently, there are two checklist items, Critical Result Notification and Critical Result Read-Back, relative to critical results in the CAP All Common Checklist. The Critical Result Notification states:

The laboratory has procedures for immediate notification of a physician (or other clinical personnel responsible for the patient’s care) when results of designated tests exceed established “alert” or “critical” values that are important for prompt patient management decisions.

NOTE: Alert or critical results are those results that may require rapid clinical attention to avert significant patient morbidity or mortality. The laboratory may establish different critical results for specific patient subpopulations (for example, dialysis clinic patients). Critical results should be defined by the laboratory director, in consultation with the clinicians served.

Allowing clinicians to “opt out” of receiving critical results is strongly discouraged.

Records must be maintained showing prompt notification of the appropriate clinical individual after obtaining results in the critical range. These records should include: date, time, responsible laboratory individual, person notified (the person’s first name alone is not adequate documentation), and test results. Any problem encountered in accomplishing this task should be investigated to prevent recurrence.

Reference laboratories may report critical results directly to clinical personnel, or to the referring laboratory. The reference laboratory should have a written agreement with the referring laboratory that indicates to whom the reference laboratory reports critical results.

6 COM.30000 CRITICAL RESULTS NOTIFICATION (2011).
Second, the Critical Result Read-Back\(^7\) states:

When critical results are communicated verbally or by phone, there is a policy that laboratory personnel ask for a verification “read-back” of the results.

**NOTE:** Laboratory personnel should document the read-back.

*Transmission of critical results by electronic means (FAX or computer) is acceptable. If critical results are transmitted electronically, the laboratory should confirm receipt of the result by the intended recipient (e.g., by a phone call); however, no read-back is necessary.*

Similar to TJC, CAP does not define what tests are considered critical, nor does it provide a reporting timeline other than “immediate notification” when the results exceed an alert or critical value.

How should an organization determine how to comply when the regulations are not clear and accreditation requirements do not add significant clarification? Thankfully, discretion works to the organization’s benefit, as the answer may vary depending on many factors discussed in the following sections.

**Asking clinicians**

The practical answer involves working with clinicians—the individuals who use the results in treating patients. Although this may seem easy, challenges will arise as patients have different needs. Clinicians may not always agree on what tests are important and what value would trigger a concern for their patients.

**Benchmarking**

Another way an organization can determine best practices for critical values is to benchmark with other organizations and accrediting agencies, e.g., certain tests, such as a glucose level, always will be on a critical value list when a value is significantly outside the range; however, other tests may not be so obvious.

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\(^7\) COM.30100 **Critical Results Read-Back** (2011).
Patient demographics

Another consideration for setting critical values is reviewing patient demographics. If a hospital is in a rural setting where outpatients are not easily brought back into the hospital for urgent needs, organizations should consider setting a value that is not as critical as that of a hospital where demographics indicate less travel time is needed. Additionally, specialty care centers that work with patients already diagnosed with a condition, such as renal failure, may have different critical values because an abnormal result is expected in their patients.

Practical Meaning of Critical Results

Although many laboratories have similar lists of critical tests and values,\(^8\) setting critical values that will have meaning to all care providers is not possible. For example, when a patient is being treated for a disease, a critical result may be expected. Therefore, the critical value is not abnormal. Calling the physician with the critical value does not add value to the patient’s care because the physician is already aware of the condition and treating the patient appropriately.

Similarly, many results can be critical to a particular patient but otherwise would not be considered outside the normal range. For example, hemoglobin tests generally are not considered a critical value. For a trauma victim, however, a sharp drop in a hemoglobin value may signal internal bleeding and becomes critical to that patient. In a one-size-fits-all approach, neither the result nor the significant drop would be called to the physician.

Even the point at which a value may be critical can differ depending on patient demographics. The point may be different for a hospital inpatient where the physician or other individual provider only has to walk down the hall for follow-up than it is for a rural patient, where

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the responsible provider has to locate the patient and ask him or her to return to the hospital or clinic. The critical threshold for a rural patient’s value may occur sooner than for the inpatient.

Finally, most healthcare providers do not have pathology or radiology results on a critical value notification list. This seems unusual as many life-threatening conditions are diagnosed using such images or slides. Is the difference that these images require a specialist individual provider to interpret the image or slide and do not fit easily into an electronic solution? Is it the specialists’ expectation to call the treating providers when he or she sees something critical?

As these practical challenges with setting and critical values illustrate, it is difficult for any healthcare provider or laboratory to design a policy that will address them adequately. Laboratory information systems and electronic medical records are not able to distinguish patient demographics when alerting physicians to critical values. If every situation and patient scenario were mapped out to address the potential for a critical situation, the list of critical values would be endless.

**Duty to Act/Standard of Care**

What is the care provider’s obligation to act when a critical value result is received? That answer can vary a great deal depending on the patient, the test, and the possibility of harm resulting from a failure to act. Medical negligence arises when a provider owes a patient a duty, the provider breaches that duty, and harm to a patient arises as a direct result of that breach, resulting in damages. The provider’s duty of care can be defined from a variety of sources, including how other providers respond in similar circumstances, how the provider’s policies and procedures define expected behavior, and how the law or courts have defined expected behavior.

In the laboratory setting, like in many medical malpractice cases, a care provider’s obligations are not clear because laboratory results offer only a limited view of a patient’s health condition. For example,
in *Santos v. IL Kim, et al.*, a plaintiff sued a health system’s laboratory for failing to notify her obstetrician of her Rh titer negative results, resulting in the brain injury and death of her child.\(^9\) In Ms. Santos’ case, Rh negative results were critical in the care of her fetus. An Rh titer assay is not normally listed on a laboratory’s critical results list, however. What made this plaintiff’s Rh negative results critical was the impact to her fetus. The absence of an Rh titer assay on the health system’s critical results list did not defeat her claim, because the standard of care was more important to the court than an abstract list of tests. What would be a noncritical test for most non-pregnant women became a critical result for this patient because of the potential impact to her baby.

Thus, the standard of care in the *Santos* case was not defined by the health system’s critical values list. Rather, it was defined by two experts who testified via affidavit that “any lab running serial Rh titers for an obstetrician should have in place procedural guidelines to insure that such information gets to the physician in an appropriate manner.”\(^10\) The second expert went so far as to say the laboratory “. . . failed to meet the proper standard of good laboratory practices placing [the plaintiff’s] fetus at greater risk of death. . . .”\(^11\)

The *Santos* case, however, does not render the critical values list meaningless to a laboratory. Instead, it demonstrates that many laboratory results may not fit into the definition of critical value, yet still can be critical to a particular patient. All healthcare providers should understand that a critical results program is only the starting point in patient care; it should never replace the individual healthcare provider’s expertise and attention.

This case also demonstrates that care providers need to review their programs to understand their commitments to their patients. If an


\(^{10}\) *Id.* at 663.

\(^{11}\) *Id.*.
organization defines which tests are critical and need immediate attention, it should develop a program to ensure notification. If a result is not communicated to the care provider according to a healthcare organization’s policies and procedures and the patient is harmed as a result of the failure to notify his or her care provider, the evidence already weighs in favor of the patient.

**Mayo Clinic’s Critical Results/Semi-Urgent Results Program**

To assist organizations in addressing these issues, it may be helpful to review what Mayo Clinic has established in its programs to help respond to these challenges. Although Mayo Clinic has established what it considers a gold standard approach to notifying individual healthcare providers of critical values or semi-urgent values (explained in detail below), the reality is that the Mayo Clinic physicians, specialists, and laboratory directors understand that critical value and semi-urgent value policies and procedures do not replace the direct care providers’ expertise.

Healthcare providers reviewing Mayo Clinic’s program also should consider the unique patient population at Mayo. Many patients travel to Mayo Clinic because they have been diagnosed with a rare or difficult disease. Mayo has taken these challenges into consideration as it sets its critical values. Therefore, although Mayo Clinic’s program is robust and created with the best patient care outcomes in mind, the approach may not fit all provider settings.

Mayo Clinic has developed a two-tiered approach to critical and semi-urgent values. The intent behind this two-tiered system was to identify laboratory results needing immediate attention for patient care, yet also fit into an electronic solution that would allow an easy flow of information. While pathology and radiology remain important diagnostic tools, they have not been included yet in the formal programs.
Mayo Clinic defines a critical result as “a value that represents a pathophysiological state at such variance with normal (expected values) as to be life-threatening unless something is done promptly and for which some corrective action could be taken.”\textsuperscript{12} This definition is yet another variation of the regulatory definitions shared above, but captures what the care teams believe is the essence of these values’ importance.

A semi-urgent result is one that does not pose the same immediate health threat as would a critical value, but has near-term severe consequences if not acknowledged and/or treated. Mayo Clinic created this definition to address the concern that many test results were not getting necessary attention because they were not significant enough to qualify as critical, yet warranted more timely attention than other laboratory results.

An established team of laboratorians, clinicians, and regulatory advisors reviews the critical and semi-urgent tests at least annually. Using medical and scientific expertise, the group reviews existing tests to determine whether they should remain on the list and whether each test’s value has changed.

Once the team reviews and approves the list of tests and values, the list goes through a rigorous approval process. To ensure a variety of experts in laboratory testing and patient care select key results, set critical values in various settings, and provide methodologies for timely reporting from the laboratory, three formal committees within Mayo Clinic review and approve the list before implementation.

**Time between collection and testing**

An area that typically receives little attention in the healthcare setting is the time between the specimen’s collection and the time the laboratory knows the result. Although the federal regulations focus on the time in

which an individual provider should receive a critical result notification, no regulations address the time between the collection and the test.

A CAP study released in 2007 showed critical test results were communicated to individual providers a median of four minutes after the result was known in the laboratory.\(^\text{13}\) However, the results actually were called 56 minutes after the specimen was collected.\(^\text{14}\) Considering the time the patient may have had the condition or symptoms, seeking treatment changes the picture even more.

At Mayo Clinic, for example, every effort is undertaken to reduce the time between collections and testing. The campus contains several draw stations for patient convenience, and multiple testing locations. All specimens are tracked from the time of the draw through the point of results, allowing an analysis of where time is most spent. If laboratory staff or clinicians identify issues, Mayo Clinic uses process engineers to review where time is spent and whether efficiencies can be implemented or wasted time reduced. In addition, most laboratories function around the clock to ensure there is no delay in getting a critical result to an individual provider.

Although most organizations do not have such an elaborate tracking system or engineering department, these concepts can be incorporated into most organizations. Many quality healthcare systems’ tools can be used to identify waste and create efficiencies.

**Mayo Clinic’s notification process**

Mayo Clinic uses an internal call center approach to notify ordering providers of critical results. The call center, known as the Mayo Lab Inquiry (MLI), handles calls to both internal Mayo providers and

external clients for Mayo Medical Laboratories (MML). The process followed by MLI includes a process as outlined in the CAP checklist identified earlier.

First, Mayo Clinic’s laboratory reporting software sends a notice to an MLI client services representative, who is expected to begin calling the ordering provider as soon as possible, with an expectation that the provider receives results in no less than sixty minutes from the time the critical value is available. In addition, the laboratory reporting software sends the results through to the patient’s medical record, or in the case of MML clients, through the interface to the ordering hospital or via fax for non-interfaced clients. Second, once a responsible care provider is reached, the physician or responsible designee is required to read-back the patient name, the patient’s clinic number or other unique identifier, and the critical test result. This ensures the information has been communicated accurately. Finally, once the result is relayed, the communication is documented in the laboratory’s tracking system in the event a question arises regarding the timing of communication.

**Non-patient results**

What happens when the care providers are not part of the same health system as the laboratory? Although it may seem easy for a provider the size of Mayo Clinic to have multiple draw stations and multiple laboratories, Mayo also operates MML, a for-profit subsidiary providing reference testing to more than 4,000 hospitals, clinics, and laboratories serving customers in more than 130 countries. Reporting critical results presents additional challenges when the care provider is across the country or across the globe, including language barriers, time zone differences, or even lack of provider information.

To address many of these challenges, MML uses the same process Mayo Clinic has established for its patients—to get the results to the provider within sixty minutes. This may be difficult when the care provider is half-across the world, or the ordering provider is listed only
with a facility name. Therefore, in addition to calling the healthcare provider, MML also faxes or sends results electronically via a secure interface to the provider. Although not meant to replace a direct notification of the result, many times following the normal process for releasing results can get the result to the right provider sooner.

**Who Should Receive Results?**

A topic of debate is who should receive the critical results from the laboratories. The CLIA regulations state the individual or entity requesting the test should receive the call. The CAP accreditation checklist states it should be a physician or other clinical personnel responsible for the patient’s care. TJC states it should be the responsible licensed caregiver. All of these seem relatively straightforward but in practice can be complicated by normal activities such as shift changes and the fast-paced energy of an emergency room.

As an example, in large hospital settings or in academic medical centers, many caregivers are assigned to one patient. The medical resident may be the provider ordering the test, but the result may be called to the supervising physician instead of the resident. The supervising physician may not immediately understand the situation or may need to discuss the patient’s current state before acting on the result. In another scenario, who should be responsible to receive critical results that a physician in the emergency room ordered and whose shift is now over? It is important to identify those responsible to receive those results to ensure continuity of care.

Smaller practice settings pose different questions for consideration. Who should receive results when there may be only one or two physicians? Can a clinical assistant receive those results to pass along to the physician when he or she is again available? Is there harm in communicating a critical result to a person who is not a trained, licensed provider?
Who Should Receive Results?

Healthcare providers need to review these challenges with the goal to relay test results to someone who can act on them to ensure the patient gets the necessary treatment. Although these questions cannot be answered with a one-size-fits-all approach, the answer always should be to get the results to an individual provider who has the knowledge to understand the results’ importance and the authority and understanding to take immediate action.

The Mayo Clinic has limited the types of individuals appropriate to receive critical results. It has defined a provider as physicians, nurses, physician assistants, and nurse practitioners. It does not view clinical assistants, medical secretaries, or administrative assistants as appropriate individuals to receive critical results, as these individuals may not understand the impact of the critical value on the patient’s well-being.

CLIA/HIPAA—current state

Many laboratories face an issue of what to do when patients call and want access to their laboratory results. Although it may seem obvious that patients are entitled to their health information in light of the Health Insurance Portability and Accountability Act of 1996 (HIPAA), laboratories should understand they function differently from their healthcare provider counterparts. “Test results must be released only to authorized persons and, if applicable, the individual responsible for using the test results and the laboratory that initially requested the test.”\(^{15}\) CLIA also defines an authorized individual as “... an individual authorized under State law to order tests or receive test results, or both.”\(^{16}\) If a state does not provide individual access for patients to receive their results, patients can receive their results only through their care providers. Table 1, Existing Laws in States/Territories Pertaining to Test Reports, outlines which states allow patients to receive results directly.

\(^{15}\) 42 C.F.R. § 493.1291(f).
\(^{16}\) Id. § 493.2.
HIPAA includes a specific exemption from the patient access to information requirement for CLIA-licensed laboratories:

(a) Standard: Access to protected health information.

(1) Right of access. Except as otherwise provided in paragraph (a)(2) or (a)(3) of this section, an individual has a right of access to inspect and obtain a copy of protected health information about the individual in a designated record set, for as long as the protected health information is maintained in the designated record set, except for:

. . . (iii) Protected health information maintained by a covered entity that is:

(A) Subject to the Clinical Laboratory Improvements Amendments of 1988, 42 U.S.C. 263a, to the extent the provision of access to the individual would be prohibited by law; or

(B) Exempt from the Clinical Laboratory Improvements Amendments of 1988, pursuant to 42 CFR 493.3(a)(2).\(^{17}\)

**CLIA/HIPAA—proposed regulations**

In September 2011, CMS issued the Proposed Rule to amend both CLIA regulations and HIPAA regulations to allow patients to access their results directly from the laboratory.\(^{18}\) Under these proposed regulations, CLIA would be amended to allow the laboratory to release the results, provided it could verify through its authentication process that the results belonged to the requesting patient. HIPAA would be amended to remove 45 C.F.R. § 164.524(a)(1)(iii)(A) and (B). Laboratories that are also covered entities would have the same obligations

\(^{17}\) 45 C.F.R. §§ 164.524(a)(i)–(iii).

### Table 1. Existing Laws in States/Territories Pertaining to Test Reports

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<th>HIPAA will preempt state law</th>
<th>Compatible with state law</th>
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<td>Allows test reports only to provider</td>
<td>Allows test reports to patient with provider approval</td>
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<td>Allows test reports to patient</td>
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Georgia
Hawaii
Illinois
Kansas
Maine
Missouri
Pennsylvania
Rhode Island
Tennessee
Washington
Wisconsin
Wyoming

California
Connecticut
Florida
Massachusetts
Michigan
New York
Virginia

Delaware
District of Columbia
Maryland
New Hampshire
New Jersey
Nevada
Oregon
Puerto Rico
West Virginia

Alabama
Alaska
Arizona
Colorado
Guam
Idaho
Indiana
Iowa
Kentucky
Louisiana
Minnesota
Mississippi
Montana
Nebraska
New Mexico
North Carolina
North Dakota
N. Mariana Islands
Ohio
Oklahoma
South Carolina
South Dakota
Texas
Utah
Vermont
Virgin Islands

to provide patient access to protected health information as any other healthcare provider under HIPAA. The changes to HIPAA would preempt any state law with a restriction to the contrary under the HIPAA preemption provision in 45 C.F.R. § 160.203. While the comment period closed in November of 2011, a final rule has not been issued. CMS included a state-by-state impact in its Notice of Proposed Rulemaking, included here as Table 1.

Underlying these proposed regulatory changes, there is much debate about the value of allowing patients to access their results. Although patient advocates see access as every patient’s right, others see the potential for unnecessary concern when a patient does not understand what a result means. A good example of such a risk involves prenatal screening. Many pregnant women choose to have chromosome testing performed on their unborn fetuses to identify problems early on in pregnancy. Seeing a normal chromosome test result may give false comfort to the mother, even in light of an ultrasound result showing a problem, as she may not understand a laboratory test is only one piece of a complicated puzzle.

For other patients, a genetic mutation of unknown significance may be identified. This may cause undue worry to a layperson, because he or she will not necessarily understand genetic mutations may mean nothing more than a difference that has not been understood yet by science.

Mitigating the Risks

To prevent any confusion about what a result means, healthcare providers may consider building in a delay before making laboratory results available to patients. This delay allows the physician to communicate with the patient about the meaning of results, or ensure a patient has support when receiving negative information. For example, when considering the incurable nature of Huntington’s disease, the diagnostic test carries a significant impact to the patient. Physicians
must appreciate the significance of the message and ensure patients are adequately supported on receiving results.

If a delay is not built in, an anxious patient may check his or her results frequently while waiting for information. If a patient sees a result before the physician, does that result in panic or concern on the part of the patient? If the risk for needless anxiety or confusion is high, a delay may allow the physician to thoroughly explain a result prior to the patient seeing it. The physician can ease a patient’s mind by providing treatment options or arranging appropriate counseling for a patient who may be anxious about a diagnosis.

Will the system require physician approval prior to transferring information to a portal? This process would allow sensitive results to be held until communication to the patient is complete. Or, will the system automatically push the results to the portal, with education to the physician about when information will be available to the patient in case early intervention is necessary? Will the physician get a notice through his or her e-mail that results have been transmitted to ensure the physician contacts the patient timely with diagnosis information or treatment options?

**Mayo Clinic Patient Portal**

Despite these risks, Mayo Clinic made the decision to give patients immediate access to laboratory results through its patient portal. Through the portal, patients can access portions of their medical records, refill prescriptions, review clinical notes, and make appointments with their healthcare providers. Patients are able to review their laboratory results as soon as the laboratory releases them. The laboratory results system automatically pushes results into the patient portal without intervention from the patient or the ordering provider.
The portal’s goal is to ensure timely access to patient health information and to provide third-party providers such as the Mayo Clinic Health Manager an easy way to download the medical information.¹⁹

The process itself is simple: patients sign into a secure portal with a username and password. Upon logging in, patients can choose the time frame (up to 36 months) of results they wish to view. Each test is listed by name, followed by testing date, the patient’s result, a historical chart for previous results, a listing of the normal reference range, and any comments made by the provider.

**Mayo’s decision**

When Mayo Clinic reviewed the risks of making laboratory results available immediately, it recognized the risks of giving a patient a result he or she may not immediately understand. However, as patient empowerment becomes the norm in healthcare, the decision was made that even though patients may worry about a result they do not understand, the value of patients having immediate access to their results outweighed that worry. Patients can call if they are confused about a result. They can transfer the result to a local care provider if they are not actively being treated at Mayo. This allows flexibility and ease of access to information—something that is invaluable in patient care.

The only exceptions to this general rule of immediate access include radiology and pathology results, which were believed to require more complex interpretation than general laboratory tests. While these results are not available through the portal currently, Mayo is working to allow review, but only after a patient’s physician is able to review

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¹⁹ Mayo Clinic Health Manager is a free online application developed by Mayo Clinic and Microsoft.
the results. Mayo’s portal team is building a 36-hour delay between when results are posted to the patient’s medical record and when those results are pushed to the patient portal. The philosophy behind the delay was to give providers a chance to review results, discuss with the specialist when necessary, and communicate meaning to the patient prior to results being made available through the portal.

**Conclusion**

Laboratory results are an ever-evolving and significant part of patient care. Watching new test development or the growth of genetic testing and its implications has been an amazing growth experience. The law still is trying to catch up not only to the practical issues, but also to the ethical issues surrounding testing. While critical results are only a piece of this big picture, they represent patients’ most emergent health conditions. Through effective communication policies and practices, healthcare providers can have ease of mind concerning their patients’ well being.