Patient-specific Narrative Interpretations of Complex Clinical Laboratory Evaluations: Who Is Competent to Provide Them?

The report To Err Is Human, by the Institute of Medicine (1), has sparked much interest in establishing clinical error rates. The data in the report are focused primarily on medication errors, anesthesia errors, and other procedural errors. Errors associated with establishing the diagnosis, however, received little consideration. One reason is that diagnoses are often established by laboratory test results, and it is difficult to identify errors in test selection and misinterpretation of test results. There is now a spoken need for a change in the current system to provide physicians with assistance in selection of the correct assays and to provide patient-specific interpretations of complex test results to make a clinical decision (2–4).

The report by Lim et al. (5) in this issue of the Journal describes a quality assessment of interpretive commenting in clinical chemistry. Previous reports have described the interpretive process and noted the value of the service (6–8), but this study evaluates the performance of potential interpreters for the service process. The interpretations in the study by Lim et al. (5) were generated by pathologists or senior scientists and “any other interested laboratory personnel”. The data in this report demonstrate the need for highly knowledgeable individuals, most likely within individual subspecialties of clinical chemistry (e.g., toxicology, endocrinology, and tumor markers), to interpret complex clinical laboratory evaluations. The authors found (as judged by a panel of experts) that interpretation errors in many of their test cases occurred as often as or more often than correct answers. It is likely that a significant number of misdiagnoses would have been rendered if this incorrect information had been included in the interpretations of actual cases. No clinical service can survive and flourish for any period of time with the high rate of errors in interpretations found in this study. Imagine the longevity of a surgical service or an anatomic pathology service that makes errors in up to 50% of its cases.

The need for advice on laboratory test selection and result interpretation is being driven by three major issues. One is the need to provide an improvement in the quality of care. In a study by St. Peter et al. (9), approximately one in four primary care physicians indicated in a survey that the scope of the care they are expected to provide is beyond their knowledge base. In addition, 38% of specialists who responded to the survey felt that primary care physicians cannot maintain adequate expertise to deal with the overload of new clinical information. There is an increasingly articulated need from physicians ordering laboratory tests for an automatically provided, patient-specific narrative interpretation from the clinical laboratory that includes information about other laboratory tests results and relevant clinical details.

A second major driver for advice on clinical laboratory test selection and interpretation is the need to reduce medical error. The Institute of Medicine report (1), indicating that as many 98 000 people die annually as a result of hospital medical errors, has driven hospitals to consider implementation of systems that consistently and permanently reduce medical error. Patient-specific narrative interpretations by experts of complex clinical laboratory evaluations represent such a system.

A third major driver for narrative interpretations of clinical laboratory test results is the need to reduce the cost of care. It has been stated that although laboratory services comprise 3–5% of a hospital’s budget, 60–70% of the most important decisions on admissions, discharges, and medications are based on laboratory test results (10). Reports by clinical laboratory experts similar to those prepared by radiologists and anatomic pathologists can shorten time to diagnosis and length of stay as well as reduce the overall cost of healthcare.

We have recently investigated the clinical impact of patient-specific, pathologist-generated interpretations of complex laboratory testing panels (ME Laposata, M Laposata, EM Van Cott, DS Buchner, MS Kashalo, and AS Dighe, unpublished observations). In our institution, clinicians responding to a survey on the value of our narrative interpretations indicated that they saved time in the analysis of their cases and increased the accuracy of their diagnosis in 70–80% of their cases. In addition, the narrative interpretation also improved the ability of physicians to target the needed tests for a specific clinical situation. After nearly 10 years in our institution of generating narrative interpretations in coagulation and other clinical areas of laboratory medicine, our own clinicians have made it clear that there is a need for innovative information delivery approaches to provide diagnostic information to the clinician about laboratory test results in real time.

We have come to learn that there are several barriers to the wide implementation of a program to generate narrative interpretations in the clinical laboratory. The largest barrier is the lack of sufficient specialists in one clinical laboratory to provide interpretations. The report by Lim et al. (5), as noted earlier, shows the negative consequences of using nonexpert interpreters. As a result of poor reimbursement for professional activities within the clinical laboratory and a major focus by practicing pathologists on anatomic pathology, which has long been reimbursed by insurers, the current field of true experts with high subspecialty expertise in clinical pathology is limited. Therefore, most current pathologists and scientists in laboratory medicine cannot provide clinically valuable interpretations in areas such coagulation, autoimmunity, and other particularly complex areas of laboratory medicine, where they are most needed. As a second barrier for implementing interpretations, many laboratory directors are fearful of a subspecialist response that would be perceived as an invasion of “clinical turf”. A third barrier
is a lack of expectation for payment for the interpretation. Sadly, there is currently no reimbursement for narrative interpretations provided by qualified PhD clinical scientists. For MD clinical scientists, the payment for a clinical laboratory interpretation may be modest compared with payment for an anatomic pathology interpretation, but payment can effectively be obtained in the US when there is an understanding of the requirements of the payor (7). Administrators can also present barriers to the development of an interpretive service. The savings to the budget with improved test selection and interpretation do not come from one or two highly quantifiable cost centers and therefore may not be recognized by hospital administrators.

With these barriers in mind, pathologists are often complacent with prepared “canned” comments about the results of laboratory tests. No one would consider taking a page from an anatomic pathology textbook about breast cancer and attaching it as an interpretation, but the use of prepared comments in laboratory medicine is widely perceived to be acceptable, although it is woefully inadequate compared with a patient-specific report from an expert in the field. In the academic setting, where there may be enough experts on staff to cover all areas of laboratory medicine, there is often a lack of interest because of a major competing need by potential interpreters to obtain research funding and gain academic promotion.

At this time, there is a growing consensus that the need for patient-specific clinical laboratory narrative interpretations exists, but the mechanism by which such interpretations can be provided remains undefined. This report by Lim et al. (5) clearly shows that unless those with extensive knowledge in a clinical area provide the interpretations, there will be too many mistakes in what is said, and this will surely doom an important, value-added service to failure.

Dr. Laposata is a founding stockholder of American Medical Diagnostics, which plans to provide narrative interpretations of complex clinical laboratory evaluations through the internet. He also may provide interpretations for which his institution would receive compensation.

References

Michael Laposata
Massachusetts General Hospital
Harvard Medical School
Boston, MA 02114
Fax 617-726-3256
E-mail mlaposata@partners.org

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