To Err Is Human, to Correct Divine: The Emergence of Technology-Based Communication Systems

R. James Brenner, MD, JD[a1]

An increasing emphasis has been placed on the importance of timely communication of imaging results, especially to the extent that clinical management decisions are modified by the information. Various methods of transmitting results have been proposed and developing technology can now be applied to helping to ensure the timely receipt of such results in a busy clinical environment. Stratifying levels of urgency, ensuring redundancy of potential recipients of such information, and the ability to assess desired benchmarks are objectives that involve many stakeholders, including radiologists, treating physicians, and institutions. An enterprise approach to this challenge, including commercially available systems, offers a potentially cost-effective solution that addresses both risk management and quality improvement goals.

Key Words: Communication, safety, liability, error, automated

J Am Coll Radiol 2006;3:340-345.

INTRODUCTION

In January 2004, the Joint Commission on Accreditation of Healthcare Organizations, as part of its National Patient Safety Goals, directed affected parties to institute programs that would reduce or eliminate communication errors and delays. It reaffirmed these notions in 2005 [1]. Five years earlier, the Institute of Medicine [2] published its report *To Err Is Human*, drawing attention to these as well as other health-care-related problems. The emphasis on communication errors reflects both a long-standing directive for the medical community as well as perhaps an increasing recognition that delays, failures, and errors in the transmittal of important test results can and do threaten patient safety.

Many types of issues are involved in communication, including substantive aspects of reporting as well as timeliness and insurance of the receipt of results. This article focuses on the timely receipt of interpretative reports. However, the substantive aspects of reporting are also important and have been the subject of prior commentaries [3-5]. In this respect, it should be noted that interpersonal and communication skills are considered a basic requirement of the general competencies outlined by the American Board of Medical Specialties [6]. Structured reporting and personal approaches often govern the style in which interpretative reports are issued, with few objective requirements imposed on clinical practice. An exception is the Mammography Quality Standards Reauthorization Act of 1998, which specified final limited conclusions that must be stated in interpretive reports [7]. Of note is that the current, fourth edition of the ACR's Breast Imaging Reporting and Data System® (BI-RADS®) lexicon permits a small exception to this statutory requirement that can invite unnecessary legal redress [8].[1]

The Physician Insurers Association of America, in a 1997 claims review study, noted that communication errors involved the untimely issuance of a report, a report not sent to the correct physician or patient, and the failure of a radiologist to directly contact a referring physician with an urgent or unexpected finding. About 1 in 5 radiology departments had no formal policies and proce-

[a]University of California, San Francisco, Mt. Zion Medical Center, San Francisco, Calif.

Corresponding author and reprints: R. James Brenner, MD, JD, University of California, San Francisco, Mt. Zion Medical Center, Department of Radiology H2804, 1600 Divisadero Street, San Francisco, CA 94115-1667; e-mail: james.brenner@radiology.ucsf.edu.

Dr Brenner is a consultant for and is a shareholder in Vocada, Inc.

[1] The current BI-RADS® lexicon permits a "final" diagnostic category: "0: Indeterminate, recommend additional studies." The accompanying advisory for this impression suggests that it not be used frequently, but in cases in which, for example, old films would resolve an issue, the category permits such an assessment. Some have also used it, though perhaps it is unintended for such use, to await the results of studies such as magnetic resonance imaging, which may themselves be interpreted by other physicians. There is no "indeterminate" category specified for final assessment by the Mammography Quality Standards Reauthorization Act. Thus, if an addendum is not subsequently issued to change the final assessment of 0, and a delay in the diagnosis of cancer occurs, the radiologist issuing a BI-RADS® 0 final assessment has communicated a result that is not permissible by federal statute.

0091-2182/06/$32.00 • DOI 10.1016/j.jacr.2006.01.021

dures regarding communication [9]. A more deliberate study was conducted last year by Brenner and Bartholomew [10], who analyzed indemnity payment data regarding delays in the diagnosis of breast cancer, demonstrating that ineffective communication resulted in awards twice as high as when effective communication was used and were 15 times as high as a percentage of total indemnity payments to plaintiffs.

The type and timeliness of communication have been the subjects of consideration by both professional societies and courts of law. The current ACR communication guideline, effective October 2005, reflects a laudable effort by a task force and the ACR Council to develop a cohesive policy regarding this matter [11]. The basis for the report relied on personal commentaries and self-reported trial decisions, as well as nonbinding legal opinions [12]. Consensus was reached that such communications required compatibility with the Health Insurance Portability and Accountability Act and that there was an affirmative duty on the part of radiologists to ensure that clinicians reviewed relevant findings. Although such a perspective may not sufficiently account for the duty of ordering physicians to seek results, it does alert radiologists that the duty to report findings is neither static nor avoidable and sometimes requires direct communication beyond the simple issuance of an interpretative report.

Four situations were identified that indicated the need for direct communication: (1) findings that suggest the need for immediate medical intervention, (2) conclusions that differ in substance from prior interpretations, (3) findings that suggest a condition that is likely to worsen over time if not promptly addressed, and (4) findings that are unclear and require follow-up. The impact of professional society guidelines has been variably recognized by different jurisdictions.

Appellate court decisions have also addressed the issue of direct communication. Perhaps the most important of these was issued by an Ohio court in a decision that has been cited more than 60 times by other appellate courts across the country. The court stated that "the communication of the diagnosis so that it may be beneficially utilized may be altogether as important as the diagnosis itself" [13].

A number of responses to the problems involved in communication have been suggested. For example, the Pennsylvania Patient Safety Authority [14] was established as a state legislative remedy aimed at an improved monitoring and reporting system. From a professional society perspective, the ACR developed a task force on patient safety that recommended guidelines that need to be implemented in clinical care. A more local approach intended to serve as a template for other organizations was proposed by the Massachusetts Coalition for the Prevention of Medical Errors [15]. This report attempted to stratify the kinds of communication dilemmas that might occur in daily practice and assign different prioritized goals attendant to each situation. Indeed, the coalition has advanced the notion that different levels of clinical urgency invite different targeted goals for information transfer.

When results are not received, the consequences vary. The old adage "no harm, no foul" is relevant to both medical and legal concepts of proper conduct. The misfiling of a normal laboratory value, although not endorsed, is unlikely to harm a patient. In a like manner, legal notions of negligence, under which most medical malpractice actions are filed, incorporate the concept of actual legal harm for an action to be heard by a court of law.

NEW APPROACHES TO AUTOMATED COMMUNICATION

Although both the ACR guidelines and appellate court decisions offer guidance as to the need for direct communication to ensure the receipt of information (eg, immediately calling the results of a tension pneumothorax to the treating health care provider), many situations may require verified communication on a less urgent basis. Technology-based systems have been developed to incorporate both the urgent and less urgent findings that warrant communication beyond a simple interpretive report. The trail of communication between a radiologist and a treating health care provider as well as that between a health care provider and a patient is a recurrent theme in such initiatives.

VETERANS HEALTH ADMINISTRATION

The Office of Inspector General for the Veterans Health Administration (VHA) undertook an assessment program between April and October 2001 among 16 facilities to determine communication policies and potential problems in the system [16]. With respect to radiology, a total of 134 x-ray findings of possible malignancies or major abnormal findings were subject to review. All but 1 facility had radiologists directly communicating any urgent findings, although 7 of 15 (47%) required no documentation of this effort. Three of 15 (20%) communicated unexpected findings that were not urgent. Only 3 of 16 treating physicians communicated results immediately to patients.

The VHA system adopted a systematic approach to the transference of abnormal results called View Alert, whereby electronic messages or reminders were printed in computerized medical records and used to notify treating physicians. A lead transcriptionist was also employed to help notify physicians of significant results. Using this system, 93 of 134 (69%) of cases had evidence that con-