

Quality—A Radiology Imperative: Report of the 2006 Intersociety Conference

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Recent publications by the Institute of Medicine have pointed out the many medical errors that occur and the adverse effect of those errors on patient outcomes. These errors are often the result of problems within our health care systems. In an effort to improve patient care outcomes, many health care providers have developed improved policies and practices. Third-party payers are encouraging participation in quality efforts through a variety of mechanisms, including pay for performance, pay for participation, and the creation of centers of excellence. If the quality of health care is to be improved and monitored, appropriate metrics must be developed. Such metrics must be within the control of providers, measurable, and likely to improve patient outcomes. The participants of the 2006 Intersociety Conference developed 49 metrics, which are offered for adoption by health care networks, payers, and regulation agencies.

Key Words: Quality, quality metrics, pay for performance, medical errors

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The Intersociety Conference was established in 1979 to promote collegiality within radiology, foster communication among national radiology societies, and make recommendations on areas of concern. The topic of each conference is selected by its executive committee approximately 6 months before the meeting. The 53 professional radiology societies that participate in the Intersociety Conference include both diagnostic and interventional radiology, radiation oncology, and radiologic physics.

The Intersociety Conference met July 21 to 23, 2006, in Banff, Canada, to discuss quality in radiology and develop metrics to assess and improve the quality of practice. Eighty-seven members and executive directors participated.

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QUALITY IMPERATIVE

In November 1999, the Institute of Medicine published the landmark report *To Err Is Human: Building a Safe Health System* [1]. This report and subsequent publications [2,3] highlighted the magnitude of the problem of safety in medical care in the United States. As many as 98,000 patients die each year from preventable medical errors—making medical errors the eighth leading cause of death [4]. More Americans die from medical errors than from motor vehicle accidents or breast cancer.

In radiology departments, a number of significant problems can occur. The size and complexity of our departments make communication difficult. The drive for increased efficiency and cost reduction adds stress to the system. Radiologists, nurses, and technologists seldom have primary responsibility for their patients and see them only in the context of the specific procedures being performed. Thus, we perform a large number of complex procedures every day on patients with whom we are relatively unfamiliar. We use a large number of drugs (including contrast media), needles, catheters, and other devices, as well as ionizing radiation, that can cause injury. If the flow of information about patients is not optimal, serious errors may occur.

Safety concerns spread across many small steps in the process of radiologic care, from patient registration to the delivery of the final report. To draw attention to the spectrum of potential problems, the acronym PERFECT

AIMS was developed (R. L. Arenson, personal communication):

- Patient: patient misidentification
- Equipment: equipment failures
- Reading: misinterpretation of findings
- Fall: patient falls
- Environment: environmental factors such as patient accident after sedation
- Communication: miscommunication with referring provider
- Test: performing the wrong procedure or procedural complications
- Allergy: allergic reaction
- Injection: wrong material or dose injected
- Metal: ferromagnetic metal in a magnetic resonance system
- Side: performing procedure on wrong side

An inaccurate or incomplete patient history contributes to misdiagnosis or the performance of an inappropriate procedure. False-positive interpretations may lead to additional testing, more invasive examinations, or treatments, with all of the associated costs and risks. False-negative results are likely to misdirect a patient's evaluation and delay appropriate therapy. Changes from preliminary interpretations can be a significant problem if clinical action has been taken already. Confusing the right and left sides and the use of negative modifiers that may not be transcribed properly are more examples of interpretation and transcription errors.

Miscommunication between radiologists and referring physicians or other health care providers has a number of ramifications. Even if an interpretation is accurate, poorly constructed reports may lead to miscommunications or misunderstandings between a radiologist and a referring physician and result in serious errors. Preliminary interpretations and "curbside" consultations are often associated with miscommunication. Curbside consultations are particularly dangerous because there is no verified written statement to which to refer [5,6].

The timely communication of all reports is the responsibility of the radiologist, who may have little control over a report once it is signed. This is often the case at large medical centers that rely on electronic medical records. Yet, radiologists are expected to communicate immediately any urgent or unexpected finding to referring physicians [7]. However, it is often quite difficult to reach a responsible member of a patient's health care team when these urgent findings are discovered. Confusion over which physician is the attending physician of record and an inability to reach the responsible physician, especially after hours, contribute to treatment delays or even a failure to act on the diag-

nostic information, even though it was contained in the radiology report [8,9].

In the current fee-for-service health care system, we are reimbursed for the performance of imaging tests regardless of the quality with which those tests were performed [10]. However, few reimbursement requirements demonstrate service quality, accuracy, safety, or patient satisfaction. (One exception is the Mammography Quality Standards Act [11].) The Centers for Medicare and Medicaid Services and others are beginning to provide incentives for quality through "pay-for-performance" (P4P) mechanisms [12]. Until now, most payers have focused only on the quantity of services provided, not on the quality of those services. Medicare has never adjusted payments on the basis of experience, quality, or credentials beyond basic medical licensure and training [13,14]. Medicine, unlike most other professions, has been reduced to a commodity business. Anyone who has finished training can bill and be reimbursed the same amount as the most experienced and expert provider.

Despite the high cost of health care in the United States, the quality of that health care is low compared with that available in many other countries [15]. And those costs continue to escalate. In 2004, the most recent year for which data are available, 16% of the gross domestic product of the United States was spent on health care, up from 15.4% in 2002 and 13.8% in 2000 [16]. Medicare and other insurers face growing pressures to reduce the cost of health care and find ways to improve quality at the same time. Because of the high cost of modern imaging and the many opportunities for medical errors in radiology, we are clearly in the crosshairs in the quality and safety debate. The radiology community must take the lead in developing solutions and do so quickly.

QUALITY DEFINED

There are many definitions of quality, and we each hold our own views depending on our experience and values. According to the Institute of Medicine, "Quality care is patient-centered, timely, efficient, effective, safe, and equitable." It is also coordinated, compassionate, and innovative [17]. This latter aspect of the definition of quality is not measured and is at risk for being ignored.

The proliferation of computerized networks in health care has created an enormous and sometimes bewildering amount of data. With this information overload, how do we select the best quality metrics? Some metrics would be easy for us to select but may not be meaningful or result in quality improvement. For example, work relative value units are a ubiquitous measurement, but they do not measure quality or safety. Other important quality metrics, such as interpretation accuracy, patient outcomes,

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