An Analysis of Quality Measures in Diagnostic Radiology with Suggestions for Future Advancement

SA-CME

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Abstract

Radiology in the United States of America is evolving from a fee-for-service to a value-based, "pay-for-performance" system. Such a system requires objective measures, termed metrics, to grade performance. Current grading systems in health care, not designed with the unique nature of radiology in mind, often emphasize patient outcomes; this can be a challenge for measuring and grading performance in radiology, which is often several steps removed from patient outcome. At the present, while there are hundreds of individual radiology-specific metrics, there is no widely accepted overall standard for quality or value in diagnostic radiology services. This article analyzes the current system of radiology metrics and suggests a new direction for performance-based reimbursement in diagnostic radiology, focusing on a limited number of reasonably measurable outcomes-related factors that are specific to radiology.

Key Words: Quality, value, metrics, PQRS, value equation, outcomes

J Am Coll Radiol 2016;13:1182-1187.

INTRODUCTION

Radiology in the United States is in a state of evolution, from a fee-for-service to a value-based system, with a focus on "pay-for-performance." As a result, there has been an increasing emphasis on documenting performance by quantifying quality and value. The ACR's Imaging 3.0® program has underscored the need for radiology departments and practices to transition to systems that better understand this evolution as well as serve the missions of population health—namely, improving patient outcomes, more impactful spending of health care dollars, and, ultimately, a healthier population.

The federal government has made value-based payment a reality. The Medicare Access and CHIP Reauthorization Act of 2015 (MACRA) created incentives for practices to work as part of an Alternative Payment Model (APM). APMs, by their nature, rely on diagnostic testing, including medical imaging, to help them achieve their population health goals. For example, imaging-based screening programs, such as for lung cancer, can save lives while simultaneously avoiding higher downstream costs [1]. Additionally, under MACRA, the Medicare Part B fee-for-service payments will utilize a Merit-Based Incentive Payment System (MIPS), partially basing reimbursement on various quality measures. Most of these governmental value-based payment measures are not radiology specific, and often the specific metrics even differ from private payer requirements. The government itself has acknowledged that a uniform system of quality measures is necessary, and is partnering with private health plans to create a single system. As stated on the CMS website [2]:

> *There is a great demand today for accurate, useful information on health care quality that can inform the decisions of consumers, employers, physicians and other clinicians, and policymakers. This is increasingly important as the health care system moves towards value-based reimbursement models.*
>
> *It is difficult to have actionable and useful information because physicians and other clinicians must currently report multiple quality measures to different entities. Measure requirements are often not aligned among payers, which has resulted in confusion and complexity for reporting providers.*

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The author has no conflicts of interest related to the material discussed in this article.

1546-1440/16/$36.00 ■ http://dx.doi.org/10.1016/j.jacr.2016.05.024

This program, the Core Quality Measures Collaborative, does not directly involve radiology, though the underlying need for uniformity in measurement and reporting exists there. Similarly, a recent study, which also was not focused on radiology, emphasized the confusing and inefficient nature of the current value-based payment system and indicated that work related to compliance with quality measures costs the system billions of dollars annually [3]. Perhaps related to the complexity of the current system, less than 1% of group practices in the United States received a 2016 bonus from the federal government's value-based modifier program [4].

Current grading systems in health care often emphasize patient outcome, though this can be a challenge for measuring and grading performance in radiology, which is often several steps removed from patient outcome. At present, though there are hundreds of individual radiology metrics, there is no widely accepted standard for quality or value in diagnostic radiology services. This article reviews and analyzes the current system of metrics and suggests new directions for evaluating and quantifying success in diagnostic radiology.

CLASSICAL THEORY OF METRICS AND CURRENT MEASUREMENT SYSTEMS

To document meaningful improvement in any system, it is necessary to develop and track relevant measures of performance, termed metrics [5]. This is particularly important in an era of value-based payment, where reimbursement is linked to the ability to document and quantify value.

With the goal of better understanding and defining how quality in health care could be assessed, Dr Avedis Donabedian developed a now-classic system for classifying metrics [6]. In this system, metrics are placed into one of three groups: structural, process, and outcome. Structural metrics relate to the setting in which care and services are provided. An example in radiology is the presence (or absence) of ACR certification of CT units in the department. Process metrics measure the activities related to providing care. In terms of radiology, the most well-known process metric is report turnaround time (TAT, which may be defined in different ways, including time from the imaging exam being made available to the radiologist for dictation to report finalization). Finally, outcome metrics evaluate the end result of the episode of care. How did the patient ultimately do? In terms of radiology, this type of metric is often interpreted as report accuracy, typically determined by a peer review or quality assurance system. Outcome metrics were originally described by Dr Donabedian to imply the patient or population outcome, and measuring the accuracy of a radiology report is not in fact a patient or population outcome. In diagnostic radiology, there are limited true outcome metrics. Outpatient radiology satisfaction scores, at least to some degree, measure an outcome (namely, the patient's feelings about the care he or she received in the outpatient radiology department), though it is not what is traditionally thought of as the ultimate outcome, which is instead the health and well-being of the patient.

Using the Donabedian classification system, a review of available radiology metrics has been compiled based on a literature review as well as a survey of radiology benefit management companies [7]. This article provides a list of many available metrics, with the goal of using these measures to gauge quality levels and then assess for progress. The difficulty, of course, has been determining what metrics from the list are most meaningful.

Additionally, there are several national health care metric reporting groups. For example, there is the National Quality Forum (NQF), a nonprofit organization. There is also Healthcare Effectiveness Data and Information Set (HEDIS), used by many health plans. The federal government, via CMS, has its Physician Quality Reporting System (PQRS) program. These PQRS metrics will form part of the core of MIPS when the Medicare payment program transitions to this system in 2019. The majority of these health care-related metrics are not specific to, or often even relevant to, radiology.

There are significant limitations with the current system. It is unclear that the current system, including PQRS, or the upcoming MIPS scoring system are reasonably comparable between providers or that they will correlate with improved outcomes. Because departments can pick and choose how they wish to comply, direct comparison of practices is challenging. Additionally, these programs were not developed with radiology and its unique characteristics in mind. An ideal system for radiology would include a focused list of metrics that can impact patient care and that allow a department or practice to evaluate its own performance and benchmark it against others and set improvement goals that can be realistically verified.

THE VALUE EQUATION OF HEALTH CARE

Much has been written about outcome as the most meaningful type of Donabedian metric, based in large