

Partnering With Your Health System to Select and Implement Clinical Decision Support for Imaging

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Abstract

Recent legislation mandates the documentation of appropriateness criteria consultation when ordering advanced imaging for Medicare patients to remain eligible for reimbursement. Implementation of imaging clinical decision support (CDS) is a solution adopted by many systems to automate compliance with the new requirements. This article is intended to help radiologists who are employed by, contracted with, or otherwise affiliated with systems planning to implement CDS in the near future and ensure that they are able to understand and contribute to the process wherever possible. It includes an in-depth discussion of the legislation, evidence for and against the efficacy of imaging CDS, considerations for selecting a CDS vendor, tips for configuring CDS in a fashion consistent with departmental goals, and pointers for implementation and change management.

Key Words: Radiology, decision support, appropriateness criteria, utilization

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INTRODUCTION

Over the past decade, the percentage of health care providers using electronic health records (EHRs) has continued to grow, while the sheer volume of information from consensus recommendations, evidence-based guidelines, and other forms of clinical best practice has also proliferated exponentially. In parallel, the move to value-based care and the requirements for stage 3 meaningful use have created a scenario in which it is increasingly attractive for providers to leverage their EHR assets to create workflows that optimize the safety, efficiency, and value of care delivery. As a result, there is growing interest throughout the medical community in promoting the use of computerized clinical decision support (CDS) to ensure the medical appropriateness of physician orders.

As we have so many times in our history, radiology will be at the forefront of this revolutionary advancement in IT. Thanks to visionary leadership within the radiology community, there is now a legislative mandate and a well-developed set of tools that will encourage many health systems to move imaging CDS to the front of the EHR implementation queue. This article is intended to help radiologists who are employed by, contracted with, or otherwise affiliated with systems planning to implement CDS in the near future. It includes an in-depth discussion of the evidence for and against the efficacy of imaging CDS, considerations for selecting a CDS vendor, tips for configuring CDS in a fashion consistent with departmental goals, and pointers for implementation and change management. Although we acknowledge that decisions regarding CDS strategy and implementation are often driven by system-level IT leadership and other stakeholders, this guide is intended to ensure that radiologists are able to understand and contribute to the process whenever possible.

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BACKGROUND

CDS is a broad term that refers to any form of automated real-time feedback in response to data entered by a clinician. The process is intended to enhance

health-related decisions and actions with pertinent, organized clinical knowledge and patient information, intelligently filtered or presented at appropriate times with the end goal of selecting the best course of action for a specific clinical scenario. With regard to imaging order entry, the purpose of CDS is to assist a referring physician in selecting the most appropriate imaging study [1].

EVIDENCE SUGGESTS THAT CDS EFFECTIVELY CONTROLS IMAGING UTILIZATION

A number of studies have demonstrated a reduction in imaging utilization growth [2-5] and improved appropriateness of advanced imaging requests [6] after the implementation of imaging CDS. Although some of these studies do not account for the decrease in the national growth rate of advanced diagnostic imaging over the past 5 to 10 years [7,8], others have demonstrated a reduction in utilization beyond contemporary imaging trends [9,10]. The effects of imaging CDS have been most dramatic when focused on specific studies and indications, yielding utilization decreases of advanced imaging up to 25% in some cases [9].

Given the number of potential imaging tests to order, the voluminous nature of evidence-based guidelines (eg, the ACR Appropriateness Criteria), and the general lack of familiarity referring physicians have with either, CDS is an intuitively logical solution to the growing problem of inappropriate ordering behavior. Nevertheless, data on the efficacy of imaging CDS in practice have been decidedly mixed. In the largest scale examination of imaging CDS to date, the Medicare Imaging Demonstration Project, funded by CMS from October 2011 to October 2013, targeted 11 common, high-cost, advanced imaging examinations ordered for Medicare beneficiaries. Although the detailed results are beyond the scope of this article, in its summary analysis, the RAND Corporation reported an inconclusive impact on imaging request appropriateness and a “very small” decrease in utilization (one of the five participating institutions demonstrated 1% to 2% fewer diagnostic procedures) that was not significantly affected by feedback on inappropriate orders [11].

Perhaps more important, the RAND report highlights a number of limitations and potentially avoidable pitfalls. Participating clinicians placed, on average, less than one order per month. This may represent poor compliance or low percentages of patient panels covered by the demonstration. Either scenario reflects a lack of true integration

into the existing physician workflow. Sixty-five percent of the orders could not be analyzed because they were “not covered by guidelines.” Over half of the participating clinicians felt that the appropriateness criteria (AC) were not informative or useful to their practice. Average ordering time increased from 3.9 to 7.2 min.

The results of the Medicare Imaging Demonstration Project should be interpreted in the appropriate context. The AC were integrated into existing electronic order entry platforms, but feedback was provided only as a link to a static algorithm, rather than real-time, tailored feedback to suit the clinical context or suggestions for alternative options. Furthermore, ordering providers found the appropriateness scoring system confusing, unsure of whether studies deemed “uncertain” indicated a lack of applicable clinical guidelines, conflicting evidence, or inappropriate imaging examination choice. Physicians expressed particular frustration after spending time entering an order only to learn that no algorithm applied to the given clinical scenario. Guidelines were not customizable, and many providers felt that the recommendations were in direct opposition to the local standard of care.

The impact of imaging CDS on utilization, therefore, varies widely depending on the details of implementation. It is clear that without careful coordination, the deployment of CDS will lead to increasing physician frustration without achieving the intended purpose of optimizing imaging appropriateness. Conversely, there is also sound evidence to suggest that with meticulous planning and strategic implementation tailored to the individual needs of a health care delivery system, imaging CDS can serve as an effective tool for both patients and members of the health system.

POLICY CHANGES ARE MANDATING CDS IMPLEMENTATION

The Protecting Access to Medicare Act of 2014 (PAMA) was the penultimate sustainable growth rate “patch” bill to prevent extreme cuts to the Medicare Physician Fee Schedule (MPFS) that had been legislated more than a decade earlier (the sustainable growth rate was permanently repealed the following year) [12]. One nuance of PAMA that has to date received relatively little notice outside the radiology community is section 218, which mandates the use of AC when ordering advanced imaging for fee-for-service Medicare patients in certain clinical settings.

The details of PAMA merit closer examination. The bill requires ordering clinicians to consult, but not necessarily

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