

Evidence-Based Care

Lessons Learned

Performance Challenge

A lack of clinician adherence to evidence-based guidelines exposes patients to costly and unnecessary testing, which can result in patient harm and excess health care spending.

Practice Solution

Use Choosing Wisely recommendations and medical society evidence-based guidelines to identify potential areas to improve ordering of imaging exams and other tests.

Quality improvement projects often can support fulfillment of maintenance of certification, PI-CME, and MIPS requirements and could be advantageous in value-based payment models.

Change Steps

Incorporate Choosing Wisely recommendations into the ordering of imaging exams:

- Identify opportunities to use data sources to improve adherence to evidence-based guidelines.
- Measure ordering performance across peers to show improvement potential.
- Access evidence-based guidelines and adopt those that best fit the practice philosophy and local customs.
- Use educational resources to promote evidence-based guidelines, e.g., webinars, podcasts, image-ordering simulations.
- Employ clinical decision support tools for access to evidence-based guidelines in the clinical workflow.
- Make guideline materials available for patients in the exam room and key areas where tests and procedures are ordered to facilitate shared decision-making.

Adhering to evidence-based guidelines results in cost-savings and improved patient outcomes.

Practice Spotlight

Main Line Emergency Medicine Associates, home to 45 physicians, collaborated with Radiology Associates of the Main Line, a practice of physicians, to reduce avoidable imaging in the emergency department (ED). The practices are affiliated with Main Line Health and the physicians leading the collaboration chose to carry out the project at Riddle Hospital, a medium-sized Main Line Health hospital in suburban Philadelphia. The physicians leading the effort focused on the ordering of CT angiography (CTA) imaging exams for patients who arrive in the ED with chest pain or shortness of breath that could be indicative of a pulmonary embolism (PE).

The Challenge: CTA for suspected PE is an exam that is sometimes ordered unnecessarily. The project goal was to evaluate the emergency physicians' ordering patterns of CTA for suspected PE exams at Riddle Hospital and to improve ordering, if indicated. Reducing avoidable imaging saves: the risk of unnecessary radiation; kidney injury; further testing of indolent, incidental findings; and the high cost of imaging and further testing of inconsequential incidental findings.

The Baseline Project Results: The physician project leads identified 84 cases for which emergency physicians ordered a CTA exam for suspected PE over a three-month period. They used a free clinical decision support tool to access the relative value of the exams ordered based upon a validated clinical prediction rule for the likelihood of a PE and the exams' adherence to the ACR's Appropriateness Criteria (AC)—evidence-based guidelines that assist referring clinicians in making the most appropriate imaging decision for a specific clinical condition. Results were entered into the R-SCAN project database, and showed that 53 (63%) of the exams ordered may not have been optimal, or may have been unnecessary.

Promoting Change: The collaborators used educational resources available through large membership organizations (see the *Resources for Improving Evidence-Based Care* section) on the E-QUAL and R-SCAN platforms to carry out an educational intervention to improve image ordering for suspected PE. The intervention included use of the educational materials such as PowerPoint presentations, webinars, and the emergency physicians documenting that they consulted the ACR's AC to determine if a CTA exam would add value to patient care prior to ordering an exam.

Lessons Learned

Change Tactics

Successful practice transformation tactics fall under Person- and Family-Centered Care, Quality Improvement, and Sustainable Business Operations. Key elements include:

- *Organized evidence-based care:* Radiology and Emergency Medicine teams improved ordering of CT angiography for suspected PE.
- *Culture of quality and safety:* Fewer patients received imaging exams with minimal or no value for their care, which reduced unnecessary radiation exposure.
- *Analyze data to demonstrate value:* Performance data were used to target areas for improvement and documented success.
- *Transparent measurement & monitoring:* Performance data were reviewed before and after an educational intervention.

Resources

[E-QUAL \(ACEP\)](#) is a nine-month program of activities aligning with CMS Improvement Activities categories, with webinars/podcasts of initiatives and best practices in ED settings.

[High-Value Care \(HVC\) Initiative \(ACP\)](#) offers learning resources, clinical guidelines, best practice advice, case studies, and patient resources.

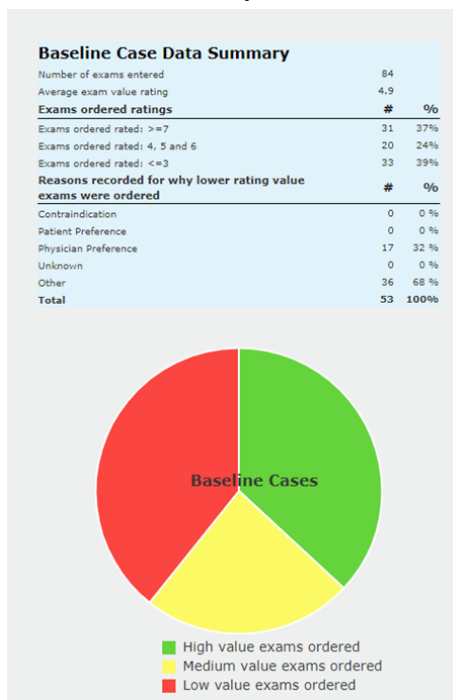
[R-SCAN \(ACR\)](#) is a quality improvement program to help radiologists and referring physicians collaborate on improved ordering of imaging exams based on national evidence-based guidelines, and promotes shared decision-making with patients.

[The Choosing Wisely Campaign website](#) is a resource for evaluating whether tests and procedures add value to patient care.

Practice Spotlight

Involving Patients: Part of the program involved sharing information with patients about why imaging was, or was not, recommended based upon their medical history. Specifically, patients were provided a handout that explained if their historical factors, physical examination findings, and a D-dimer blood test (if ordered) were negative for PE, evidence shows no advantage in obtaining information from a CT angiography.

Figure 1. Percentage Distribution of Baseline Cases on Exams Ordered, Riddle Hospital



Post-Education Results: Following the educational intervention, 90 cases of CTA exams for suspected PE were accessed over a four-month period. The post-educational intervention project results showed that 29 (32%) of the CTA exams ordered may not have been optimal or may have been unnecessary—a 31% improvement over baseline results.

Additionally, 25 patients were called after they were discharged from Riddle Hospital to collect feedback about the educational handout. A majority of the patients said that they found the handout “very useful” and “of high quality.” All respondents recommended that the CT information be shared with future ED patients.