

## Can CPOE Systems Decrease Use of Laboratory Studies and Control Costs?

ROBERT DACHS, MD, FAAFP, *Ellis Hospital Family Medicine Residency Program, Schenectady, New York*

JILL ENDRES, MD, MS, and MARK A. GRABER, MD, FACEP, *University of Iowa Carver College of Medicine, Iowa City, Iowa*

### **Purpose**

In *AFP Journal Club*, three presenters review an interesting journal article in a conversational manner. These articles involve hot topics that affect family physicians or "bust" commonly held medical myths. The presenters give their opinions about the clinical value of the individual study discussed. The opinions reflect the views of the presenters, not those of *AFP* or the *AAFP*.

### **Article**

Feldman LS, Shihab HM, Thiemann D. Impact of providing fee data on laboratory test ordering: a controlled clinical trial. *JAMA Intern Med.* 2013;173(10):903-908.

For more information on evidence-based medicine (EBM) terms, see the EBM Toolkit at <http://www.aafp.org/afp/ebmtoolkit>.

A collection of *AFP Journal Club* published in *AFP* is available at <http://www.aafp.org/afp/jc>.

### **What does this article say?**

*Bob:* Anyone practicing medicine in the United States today has likely come to the following realizations: (1) we must "bend the curve" of health care costs to survive economically, and (2) electronic health records and computerized physician order entry (CPOE) systems are here to stay. Ideally, this technology will assist us in meeting our economic goals. However, there has been little evidence describing how and if this will occur. Will these systems indiscriminately slash testing and treatment, or will they carefully carve away needless and costly diagnostic tests and guide us to appropriate care? This article demonstrates a simple (and for clinicians, a relatively painless) intervention that could save millions of dollars in diagnostic testing fees.

The study included common and expensive hospital laboratory tests; 30 tests were randomly assigned to the active arm (Medicare allowable fee associated with the test was displayed in the CPOE), and 31 other tests were assigned to the control arm (no fee displayed). During a six-month baseline period, no fees were displayed. At the same time the following year, the fees were displayed for the tests in the active arm.

Authors collected data on the number of tests ordered, how often they were ordered, and the total charges for both groups.

In the active arm, 458,297 orders were placed during the baseline period, and 416,805 orders were placed during the intervention period (a 9.1% reduction from baseline). This seemingly small decrease in the number of tests ordered translated into a savings of \$489,383. Conversely, in the control arm, there was a 5.1% increase in the number of tests ordered compared with baseline.

### **Should we believe this study?**

*Mark:* This study is straightforward when it comes to statistics and design. However, some nuances should be mentioned. First, although the authors randomized the 61 tests to a study group, the active arm included the most common types of tests (in fact, three times more commonly ordered than those in the control group). This obviously inflated the "bottom-line" savings.

*Jill:* In addition, this study was performed in an academic medical center. Would the same gains be seen in a community hospital? Another factor missing here is the impact on the quality of care delivered. We want to make sure that we aren't compromising outcomes by cutting costs.

*Bob:* This study provides us an excellent opportunity to discuss the larger issue of excessive laboratory testing. Physician-directed medical diagnoses account for about 10% of all medical costs and are projected to total \$750 billion in 2015.<sup>1</sup> It is also clear that physicians have no idea how much the diagnostic studies they order for their patients cost.<sup>2-6</sup>

*Mark:* And really, how often does that daily complete blood count or electrolyte panel lead to a change in care? A 2006 study revealed that 67.9% of inpatient laboratory tests ordered did not contribute to patient care.<sup>7</sup> The Choosing Wisely campaign advises clinicians to not order regular (e.g., daily) diagnostic tests when prior laboratory results have been stable.<sup>8</sup>

*Jill:* It is amazing that just a small decrease in the ordering of laboratory tests, which are often viewed as small-ticket items, can result in such huge savings. In this study, only 30 tests with fees displayed for six months resulted in nearly \$500,000 in savings. If this intervention has true durability, imagine the millions of dollars in potential savings. However, we might question the durability factor. That is, does this intervention (displaying the fees) produce long-term change in ordering behavior? All too often we see in studies (and in our daily practice) that an intervention produces results initially, but the effect wanes over time and providers return to their original practice pattern.

*Bob:* There have been many previous attempts to control excessive or inappropriate ordering of laboratory tests, including educational programs, clinical guidelines, computer-based ordering feedback and audits, physician incentives, formulary and laboratory ordering restrictions, multidisciplinary rounding, and peer management through resource utilization committees.<sup>9-13</sup> Although these interventions may have provided some temporary improvement on a local level, no intervention has yet to curb our global overreliance on laboratory testing. Perhaps information technology solutions, such as providing fees and practical clinical decision support systems, will help guide us to appropriate cost-conscious use of our limited resources.

### What should the family physician do?

*Bob:* Although this study does not offer evidence that providing fees in our CPOE systems will produce durable, long-term savings, it suggests that clinicians and administrators should work closely with their information technology systems to find unobtrusive and innovative approaches to cost savings.

*Mark:* Although some clinicians use the excuse of defensive medicine as a reason for excessive ordering of laboratory tests, it is clear that they are not aware of the fees they expose their patients to when they start “checking the boxes.”

*Jill:* And, for those of us who teach residents and medical students, we need to keep in mind that it is inappropriate

### Main points

- Displaying the fees associated with hospital laboratory tests in CPOEs may result in significant cost savings.
- Numerous previous studies have shown that physicians do not know the fees associated with common diagnostic tests.

### EBM Points

- An intervention's durability (i.e., the ability to provide sustained results) is an important concept when considering implementing the intervention based on a study's results.

to promote academic “inquisitiveness” by means of ordering more no- or low-yield tests.

If you would like to suggest an article for discussion, e-mail [afpjournals@aafp.org](mailto:afpjournals@aafp.org) with “AFP Journal Club” in the subject line.

Address correspondence to Robert Dachs, MD, FAAFP, at [dachsmd@aol.com](mailto:dachsmd@aol.com). Reprints are not available from the authors.

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