A lean growth curve

CPOE is slow to be adopted at hospitals, but there have been some gains

BY JOSEPH CONN

Despite six years of private-sector pressure on U.S. hospitals to install computerized physician order-entry systems, the number using such systems remains a small fraction of nonfederal hospitals, according to the latest readings from several key information-technology barometers.

While some growth may have occurred in the penetration rates of CPOE systems, there also is a growing realization among information technology boosters that these costly and complex systems are very near the pinnacle of clinical computing, making universal adoption of CPOE far more a vision than a realistic expectation anytime soon. In contrast, the Veterans Affairs Department with 157 hospitals and the Defense Department with 70 hospitals have had electronic medical-records systems with computerized physician order-entry for at least a decade.

CPOE systems enable physicians to electronically order laboratory tests, scans, medications and other elements of patient care. The more advanced systems also incorporate artificial intelligence to alert physicians at the point of care to conflicting medications, potential allergic reactions and guidance on treatment protocols and advice using evidence-based medicine.

Over the past decade, more than a dozen scholarly articles have been published in support of the hypothesis that CPOE systems can reduce medical errors, a belief echoed by the Institute of Medicine in its seminal 1999 report, *To Err is Human*. Recently, however, several studies have been published suggesting that CPOE is a bullet not of pure silver; it has some potential for causing problems as well as solving them, including the possible introduction of medical errors. Recently, researchers in Pennsylvania found that infant mortality rates rose after a CPOE system was deployed at the Children’s Hospital of Pittsburgh. Those studies were assailed over their methodology and practically deemed outright heretical according to IT orthodoxy.

CPOE systems have been implemented in only 5.7% of nongovernment U.S. hospitals in 2005, up from 4.1% a year earlier, according to the fourth annual market survey by information-technology market watcher KLAS Enterprises, which released its report last month at the annual Healthcare Information and Management Systems Society annual conference and exhibition in San Diego.

But only 3.2% of hospitals have CPOE systems in which 50% or more of the orders are placed via the system, up from 2.5% a year ago.

“After all these years, after all this talk and all the press that’s out there, the growth is incremental,” says Jason Hess, director of business development for KLAS. The total number of U.S. nongovernment hospitals with the sophisticated IT systems was 377 in 2005. “That shows a steady increase,” says Hess. “There are 104 more hospitals doing it than there were last year. That’s significant.”

CPOE systems have been touted by various patient-safety authorities as being useful in preventing medical errors, particularly in patient medications. But the KLAS study found that CPOE alone won’t solve the problem, since a complete, “closed loop” system—in which the medications are ordered by a physician, filled by a hospital pharmacy and tracked to the patient through a bar coding or other form of IT system—remains even more rare than CPOE, the study shows.

Of the hospitals with CPOE systems, 26% still require employees to re-enter medication orders into a separate pharmacy system because the CPOE and the pharmacy systems are not fully integrated.

“The good thing is that’s going down,” Hess says. In 2004, 31% of hospitals with CPOE systems reported they had to re-enter pharmacy orders, he says. In addition, “Only 13% of those 337 (CPOE hospitals) are doing bar

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no plans to within the next year (See
those who don’t, 61.9% say they have
operation or implementation, and of
they don’t have a CPOE system in
601 respondents to the survey say
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Healthcare
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stuff is to do.”
Hess says. “That just shows how complex this
process toward a fully paperless facility in which
CPOE is but the fourth stage. Michael Davis,
executive vice president of HIMSS Analytics, says
IT,” he adds.
Suzanne Delbanco, chief executive
officer of the Leapfrog Group—the
business coalition that more than five
years ago targeted hospital adoption of
CPOE systems as one of its first
“leaps” to improve healthcare quality—
describes the slow pace of CPOE adop-
tion thus far as “dismal,” but refused
to concede it was a leap too far.
Before Leapfrog got started, the
healthcare industry had known for
10 years that CPOE systems were a factor in
reducing medical errors, Delbanco says. Leapfrog
focuses on 31 regions where its employer mem-
ers have business interests. Because those
employers are so large, the healthcare organiza-
tions that their workers use provide care to an
estimated 55% of Americans, Delbanco says.
About 2% of participating Leapfrog hospitals had
CPOE in the beginning of the program and just
7% do now.
“I think there is some discouragement, but in
every market where we’ve concentrated our
efforts, there is at least one good story,” she
says. “We’re somewhat encouraged by the
progress some folks have made in adopting
other healthcare information technologies,”
Delbanco says. “We do know there are many
other pieces to put in place before you get to
CPOE. We knew it would require hospitals to do
other things first that are also important.”
Mark Crockett, M.D., a practicing ER physician
at Morris (Ill.) Hospital & Healthcare Centers,
doubles as president of the emergency-care divi-
sion of software maker Picis. The company devel-
ops clinical IT systems, including physician order
entry, exclusively for high-risk departments such
as emergency, intensive-care, surgical and post-
anesthesia units. The extremely com-
plicated and diverse needs of physicians
across the healthcare setting remain
formidable barriers to IT adoption,
Crockett says.
“The small (IT development) organiza-
tions are feeling the pressure that they
can’t develop the kinds of things they
need to develop, and the large organi-
izations are finding it hard to be experts
in everything,” he says.
According to Crockett, the adoption
of effective CPOE systems across the
hospital “is going to be completely
dependent on the delivery of stan-
dards. If there is some sort of certification
process (verifying) that your application can
communicate with some sort of standard, then you’ll
have accelerated adoption.” The efforts of the
Office of the National Coordinator for Health
Information Technology to coordinate IT communi-
cations standards development and certify ven-

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Dors’ products “are absolutely on the right track,” Crockett says. The tiny Citizens Memorial Hospital in Bolivar, Mo., is already well on its way. The system won a 2005 Nicholas E. Davies Award for IT excellence from HIMSS for deploying a clinical IT system that includes CPOE. The 74-bed hospital is owned by a public hospital district; its five nursing homes with 476 beds are scattered across three southwestern Missouri counties and are owned by a not-for-profit corporation. All operate in a service area with only 80,000 people, says Denni McColm, chief information officer.

Planning for a clinical IT system to link the facilities began in 2000; implementation started in October 2002, with labs and pharmacies going live that December. Physicians and nurses started using the system in the fall of 2003, with order entry beginning that December. Only the ER is still partially using paper.

The goal was not to launch CPOE or any other IT system, McColm says. “We did not say we were going to an electronic medical record or CPOE; we said the patient would have access to all their information across the health-care system,” she says.

But of all the IT components, “The centerpiece really is the EMR that crosses the continuum of care,” she says. “Each patient has only one record. When they (patients) come to the emergency department from one of the long-term-care facilities, the doctors can have access to everything about them, and when they go back (to long-term care), the nurses can see what the doctors are doing. It’s been a big help.”

McColm says the hospital spent $6 million, including hardware, software, staffing, training and travel, for the system by Meditech, and the system is maintained by an IT budget that’s 2.2% of Citizens’ total expenses. At Citizens, McColm says, laughing, expenses and revenue are pretty much the same number. But money wasn’t everything, she says.

“The thing that I think has made us successful is we’ve had visionary leadership here with the board, the CEO (Donald Babb) and the medical staff,” she says. “We didn’t try to sneak this in. We were very upfront. ... We were out soliciting how can we make this better and made an effort to solve problems proactively,” an approach McColm advises other hospitals considering CPOE installations to adopt.