FOCUS CASE STUDIES IN MEANINGFUL USE

ED Information Systems

How They Help Hospitals Show Meaningful Use

By Jackie Lucas, FACHE; Roger Neal; and Wally Boyd

ABSTRACT

The number of visits to emergency departments (ED) is rising,[1] and it is expected to grow even faster as the population ages and healthcare reform expands insurance coverage.[2] To handle this additional volume and to help hospitals show meaningful use of their electronic health records, a growing number of EDs are installing ED information systems (EDIS). It is anticipated that the EDIS market will grow by 30 percent in 2011.[3]

EDs have been quicker than inpatient units to implement EHRs.[4-5] This is especially true in the area of computerized provider order entry (CPOE), which is easier to introduce in the ED than in the inpatient setting. As a result, many hospitals are leaning on their EDIS to help them meet the Stage 1 meaningful use measures.

This article provides insights into the strategies that three hospitals are using to harness an EDIS to show meaningful use. It supplies details on the operational and technical strategies that they are employing in integrating the EDIS with their inpatient hospital information systems and ambulatory care EHRs, as well as in providing clinical summaries to patients and referring physicians.

KEYWORDS

Emergency department, meaningful use, electronic health records, Stage 1, ED information systems, computerized provider order entry.

THERE WERE 124 million visits to EDs in 2008, the latest year for which we have national data.[6] That number has risen steadily over the past 15 years, and it will continue to grow for two reasons. First, the graying of America and the wave of baby boomers reaching Medicare age in the next decade will increase the demand for care. Second, healthcare reform will expand coverage to an estimated 32 million people. Contrary to the popular myth that the uninsured are the leading users of emergency care, most ED visitors have insurance and are referred to the ED by their primary care doctors.[7] So as more people gain coverage, ED volume will also grow. Already, a prominent researcher notes many ED visits are made because people can't get in to see their primary care physicians when they want to be seen.[8]

To handle this rising demand more efficiently, while improving the quality of care and helping hospitals show Meaningful Use, many EDs have acquired an EDIS. According to a 2010 study based on 2005-06 data, 17 percent of EDs had a basic EDIS capable of meeting meaningful use criteria, and 21 percent had some form of CPOE system.[9] By comparison, a 2009 study indicates that only 7.6 percent of hospitals had a basic inpatient EHR, and an inpatient CPOE system had been installed in only 17 percent of hospitals.[10] These percentages

TO DEMONSTRATE the CPOE meaningful use threshold requirement, hospitals must enter medication orders electronically for at least 30 percent of their patients.

are expected to climb rapidly because of the desire of many hospitals to show Meaningful Use and obtain government incentives.[11] One study estimates that 30 percent of EDs will have EHRs capable of showing meaningful use by the end of 2011.[12]

In its final regulations, the Department of Health & Human Services allowed ED patients to be included in the denominator of the meaningful use metrics. Hospitals can use either of two methods to calculate this number: They can use the "observation method," which includes only ED patients admitted to the hospital or an observation unit; or they can include all ED visits.[13]

In 2005, EDs accounted for 45 percent of inpatient admissions and 70 percent of general medicine, pulmonary and gastrointestinal medical patients.[14] Keeping those statistics in mind, the ED can make a significant contribution to helping hospitals achieve meaningful use sooner than they otherwise would, whether they count all ED visits or only those that lead to admissions. And, because the ED is the front door to the hospital, the EHR begun in the ED can serve as the foundation or the key transition point for a record that follows the patient across care settings, improving the continuity of care.

What follows is an examination of how three healthcare organizations are using an EDIS to show meaningful use. The healthcare systems represented are of various sizes and are in different areas of the country. All three are using T-System's EDIS, T SystemEV®, in the ED.

PROVIDER PROFILES

Baptist Healthcare System—Louisville, Ky. Baptist Healthcare System, one of the largest not-for-profit healthcare organizations in Kentucky, includes five acute-care hospitals that treated 802,400 patients in 2010. The Baptist facilities had a combined 188,300 ED visits last year.

Three Baptist hospitals have been using paper templates from its EDIS vendor for several years. The organization began rolling out the EDIS in April 2011 and will go live at a rate of one hospital a month, and it expects to complete implementation before year's end.

Meanwhile, Baptist installed CPOE in the inpatient units of three of its hospitals, and it plans to implement CPOE in its other facilities after receiving an upgrade from its inpatient HIS vendor. Baptist has chosen to count CPOE orders from those EDs for the patients who are admitted to the hospital or observation units in its meaningful use statistics. Forty-two percent of its more than 84,000 inpatients were admitted from the ED in 2010.

Duncan Regional Healthcare System—Duncan, Okla. Duncan Regional Hospital is a 167-bed hospital in southwestern Oklahoma. The ED has had an EDIS since 2003, and it was using paper templates before that. Duncan recently served as a beta test site for the latest EDIS version, which has been certified for meaningful use.

On the inpatient side, Duncan recently went live on CPOE. Duncan is focusing now on developing closer integration between its inpatient and ED information systems. Among other things, the facility is in the process of integrating ED and inpatient data for quality reporting to show meaningful use.

Sayre Memorial Hospital—Sayre, Okla. Sayre Memorial Hospital is a 46-bed rural community hospital, also in southwestern Oklahoma. Having used paper-based documentation templates from its EDIS vendor since 2008, Sayre's ED expects a smooth implementation of the EDIS. The installation began in April and was scheduled for completion by June 30, 2011.

Sayre is installing the EDIS to improve quality of care, enhance clinical and revenue performance, and show meaningful use. While the EDIS alone will be sufficient to meet some meaningful use criteria, Sayre is also implementing inpatient CPOE to contribute to the threshold requirement.

EDIS' IMPACT ON MEANINGFUL USE

All three organizations expect their EDIS to help them show meaningful use in areas like patient demographics, medication lists, problem lists, allergies, vital signs, clinical decision support and drug interaction checks. In addition, it will provide significant leverage in the areas of CPOE, medication reconciliation, lab reporting, quality reporting, discharge instructions, patient education and clinical summaries for patients and providers.

To demonstrate the CPOE meaningful use threshold requirement, hospitals must enter medication orders electronically for at least 30 percent of their patients. At

Baptist's largest hospital, the percentage of admissions from the ED exceeds 30 percent. So at that facility, the EDIS alone could meet the CPOE requirement. Baptist's other hospitals will use a combination of CPOE in the ED and inpatient units.

On average, 20 percent of Duncan Regional's admissions come from the ED, and in some months, it's even higher. So even without an inpatient CPOE system, Duncan could meet most of the CPOE requirement from the EDIS alone. Between the hospital's inpatient CPOE system and its EDIS, about 90 percent of its medication orders are now being entered electronically.

Optional meaningful use measures include capturing lab results: 40 percent of lab results must be incorporated in the EHR as structured data. All of our hospitals will have interfaces that permit the return of lab and radiology results to the EDIS.

MEDICATION RECONCILIATION

For both meaningful use and quality reasons, it is essential to have an interface that allows completed ED notes to go directly into the hospital record when patients are admitted from the ED. This increases efficiency and allows hospital staff to quickly review the key information about the patient.

At Baptist Healthcare, this interface will speed up the clinical process and save a lot of time and labor. Currently, the ED staff copies records and sends them to the hospital with the patient, where they become part of the inpatient paper record. After discharge, the ED records are scanned into the hospital EHR.

The ability to have completed ED notes sent online to the hospital repository can help with medication reconciliation—another optional meaningful use measure. For example, when patients come into the ED, they're asked about their home medications. To reconcile those prescription drugs with the ones that are prescribed to them in the ED and the hospital, the home medications must become part of the hospital record.

Baptist will use the EDIS to reconcile a patient's home medications with their discharge medications if the patient is discharged from the ED. If the patient is admitted, the information will be available in the inpatient systems. At Duncan Regional, likewise, the home medications show up in the inpatient HIS as part of the ED notes that enter the record upon a patient's admission.

Sayre Memorial Hospital believes that the immediate online availability of ED reports in its inpatient record will expedite admissions while aiding medication reconciliation. Not only will there be less likelihood of information lost or misplaced, but the ED data will be more comprehensive than it is today.

DISCHARGE SUMMARIES AND EDUCATIONAL MATERIALS

The meaningful use regulations require hospitals to provide an electronic copy of discharge instructions to at least 50 percent of patients discharged from the hospital or the ED who request them. This can be in the form of electronic media such as a thumb drive or CD, or it can be posted on a patient web portal. Hospitals can use printed educational materials to satisfy the optional-menu requirement that they provide such materials to at least 10 percent of discharged patients. But it is much more efficient to generate these materials electronically, and the EDIS can help meet that criterion, as well.

The EDIS will also be critical in meeting the requirement for electronic discharge instructions. The big challenge is how to provide this information as efficiently and securely as possible. Discharge instructions and educational materials generated by the EDIS can be downloaded to electronic media as PDF documents, but that requires staff work. Automatically sending the instructions from the EDIS to a patient portal is a much better option for hospitals.

At Duncan Regional, ED discharge instructions go over to the inpatient EHR and show up on the patient portal of the HIS. Patients can also choose to receive the instructions in printouts or on thumb drives, but Duncan Regional prefers to have patients sign up and have information sent via the patient portal.

Baptist Healthcare is implementing a health information exchange (HIE) product that includes a patient portal. Baptist plans to make ED discharge instructions available to patients in that portal. Baptist will also provide electronic media if a patient requests it, but prefers to use the portal. Sayre, which lacks a portal, will give the information to patients on a CD.

CLINICAL SUMMARIES

Among the meaningful use options for hospitals is to provide clinical summaries for more than 50 percent of patients who are referred to another provider or moved to a different care setting. While admissions from the ED aren't included in this metric, ED handoffs during transitions of care are. Therefore, the EDIS can help hospitals satisfy this requirement by generating clinical summaries at discharge and transmitting them to other providers electronically. This summary can also be faxed or sent by courier. If it is going to be sent online, the EDIS can create a Continuity of Care Document (CCD), which has become the preferred format for clinical summaries.

Baptist Healthcare plans to make the CCD from its EDIS available to its patients' personal physicians. Not only will that help with meaningful use, but it will also improve continuity of care. When a patient shows up in a doctor's office, he or she will know that their patient was seen in the ED and what care was received.

Baptist plans to make the ED clinical summary available in three ways: It will make the CCD available to the physician portal for the medical staffs of its hospitals. Baptist also plans to send the summary to the external HIE so that non-staff referring doctors who are on that system can view it. Down the line, after Baptist's employed physician group finishes implementing an EHR and an ED interface is created, Baptist will send the summary online from the EDIS to the ambulatory-care EHR.

Duncan Regional employs 14 ambulatory-care providers who use an EHR from another company . Eventually, Duncan plans to interface the EDIS and ambulatory care records.

Meanwhile, Duncan will meet the eligible professional meaningful use requirement of providing summaries of ambula-

tory-care visits to 50 percent of patients by sending the ED data to the patient portal of the inpatient system. This will help the employed physicians on staff show meaningful use. Duncan is also working with Google Health to give patients online personal health records in the form of CCDs generated by the EDIS.

Duncan is holding discussions with nearby hospitals about creating a regional HIE. Between them, Duncan and three other hospitals in southwestern Oklahoma serve about 80 percent of the population, and they want to share information on patients who present at multiple facilities. From a meaningful use perspective, this kind of data exchange will become more important in Stages 2 and 3 of the program.

QUALITY REPORTING

Hospitals must report clinical quality information to CMS or the states, depending on whether they're applying for Medicare or Medicaid incentives. Of the 14 quality measures, two are ED-only, 10 are inpatient-only, and two combine ED and inpatient data. So hospitals must find a way to combine the two databases seamlessly and automatically.

Duncan Regional is ahead of the curve in this respect. First, it's using a new web-based dashboard from its EDIS vendor that allows it to view and analyze various kinds of aggregate data in its EDIS. Second, it is taking advantage of the fact that its EDIS and inpatient HIS systems both use Sequel databases. By using an "overlay" application from a middleware vendor, it plans to combine the quality data in the two databases and do calculations for both meaningful use and CMS core measures. The quality management staff at Duncan will also use this system to track quality indicators of patients as they move through the ED and the hospital.

CONCLUSION

The EDIS is a critical component of our respective efforts to show meaningful use. There will be challenges along the way, to be sure: but we're confident of surmounting these barriers and showing meaningful use—not only in Stage 1, but also in the later stages—to receive the maximum government incentives for health I.T.

This effort is integral to industry and hospital driven quality and safety initiatives. The centralized data will be collected uniformly, regardless of the care setting in which it originates, and will be given to the providers who need it when and where it matters the most throughout the continuum of care. The data will also be shared with patients to encourage more engagement in their own self care. This is the intent of the meaningful use regulations, and by meeting those goals to get us there, we'll be able to improve the outcomes of our patients. **JHIM**

Jackie Lucas, FACHE, is Vice President and Chief Information Officer of Baptist Healthcare System.

Roger Neal is Chief Information Officer of Duncan Regional Hospital.

Wally Boyd is Chief Executive Officer of Sayre Memorial Hospital.

REFERENCES

1. CDC/NCHS, National Ambulatory Medical Care Survey and National Hospital Ambulatory Medical Care Survey, as reported in Health, United States, 2010.
2. Peter J. Cunningham, Center for Studying Health System Change, Senate testimony, May 11, 2011, accessed at http://www.hschange.org/CONTENT/1204/.
3. Nicole Lewis, "Emergency Departments to Invest 30 Percent More in IT," Information Week, Dec. 10, 2010
4. Geisler BP, Schuur JD, Pallin DJ (2010) Estimates of Electronic Medical Records in U.S. Emergency Departments. PLoS ONE 5(2): e9274. oi:10.1371/journal.pone.0009274
5. Jha AK, DesRoches CM, Campbell EG, Donelan K, Rao SR, Ferris TG, Shields A, Rosenbaum S, Blumenthal D. Use of electronic health records in U.S. hospitals. N Engl J Med 2009;360: 1628-1638.
6. CDC/NHS, op. cit.
7. CMIO, "ER visits on the rise despite healthcare system changes," May 1, 2011, accessed at http://www.cmio.net/index.php?option=com_articles&article=27517.
8. Cunningham, Senate testimony.
9. Geisler, Schuur, op. cit.
10. Jha, DesRoches, op. cit.
11. John Commins, "CHIME: CIOs' Hopes Sag for Early EHR Funding," HealthLeaders Media, April 14, 2011, accessed at http://www.healthleadersmedia.com/content/TEC-264937/CHIME-CIOs-Hopes-Sag-for-EHR-Early-Funding#%23.
12. Lewis, op. cit.
13. Centers for Medicare and Medicaid Services, FAQs, "Which Emergency Department patients should be included in the denominators of Meaningful Use measures?" accessed at https://questions.cms.hhs.gov/app/answers/detail/a_id/10126/~/%5Behr-incentive-program%5D-which-emergency-department-patients-should-be-included.
14. "The Emergency Room as Admission Source," Healthcare Financial Management, Nov. 1, 2007, accessed at http://www.allbusiness.com/health-care/medical-practice-orthopedics/5504499-1.html.