Electronic health record alone may have limited ability to improve quality, costs of care

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The implementation of electronic health record systems may not be enough to significantly improve health quality and reduce costs. In the April 2010 issue of *Health Affairs*, researchers from the Mongan Institute for Health Policy at Massachusetts General Hospital (MGH) report finding that currently implemented systems have little effect on measures such as patient mortality, surgical complications, length of stay and costs. The authors note that greater attention may need to be paid to how systems are being implemented and used, with the goal of identifying best practices.

"We are still in the early days of electronic health record adoption, and there's little evidence for how best to implement the technology to make the greatest gains," says Catherine DesRoches, DrPh, of the Mongan Institute, who led the study. "Hospitals may not see the benefit of these systems until they are fully implemented, or it may take many years for benefits to become apparent."

In recent years several initiatives have been taken to encourage adoption of electronic health records. The 2009 American Recovery and Reinvestment Act authorized approximately $30 billion in grants and incentives to support electronic health record implementation. But while several earlier studies suggested that specific aspects of an electronic health record - particular computerized physician order entry - could improve the quality and efficiency of care, those studies analyzed data

from hospitals with customized systems and dedicated quality improvement staff. The current study is the first to examine the effects of electronic systems in a nationally representative group of hospitals.

The researchers analyzed data collected in a 2008 survey sent to the chief operating officers of acute care hospitals belonging to the American Hospital Association. Completed surveys were returned from almost 3,000 hospitals in the 50 states and District of Columbia. Respondents were asked whether and to what extent their institutions had implemented computerized systems for 32 functions - including medication orders, lab reports, specimen tracking and discharge summaries. Also included in the analysis was general information about the hospitals and the populations they serve; standard measurements of quality related to the care of heart attack, congestive heart failure and pneumonia, as reported in the 2009 Hospital Quality Alliance database; and measures of efficiency from the 2006 Medicare Provider Analysis and Review File.

Results for hospitals with comprehensive electronic health record systems - defined as having 24 functions available in all clinical units - were compared with those of institutions with basic systems - 10 functions in at least on major unit - and those with none. While a few functions were associated with modest improvements in areas like length of stay and surgical infection prevention, the differences were small and none were broadly associated with significant levels of improvement.

"Our findings suggest that hospitals need to pay special attention to how they implement these systems. Simply having the technology available is probably not going to be enough," says DesRoches, an assistant professor of Medicine at Harvard Medical School. "Hospitals will need to effectively integrate new systems into their current practices. Studying institutions that have been successful will provide important lessons for everyone."

"This study has important implications for the government's efforts to define 'meaningful use,' the federal standard for receiving financial incentives," say Ashish K. Jha, MD, MPH, of the Harvard School of Public Health, senior author of the study. "Ensuring that hospitals use these systems in a robust way will be critical to obtaining value from the large investment that the nation is making in health information technology," he adds.

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