



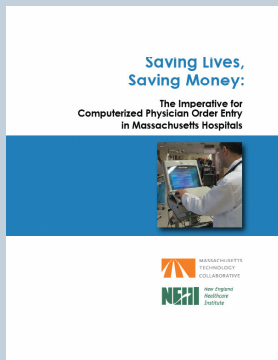
New England Healthcare Institute

Saving Lives, Saving Money

The Imperative for Computerized Physician Order Entry in Massachusetts Hospitals

Study in Brief:

Saving Lives, Saving Money, a report published by The Massachusetts Technology Collaborative (MTC) in partnership with the New England Healthcare Institute (NEHI), examines the clinical and financial impact of Computerized Physician Order Entry systems in Massachusetts community hospitals. It fills a void in research on CPOE implementation, and demonstrates that there are distinct advantages to CPOE adoption in community hospitals.



To read the full report, visit www.nehi.net or www.masstech.org.

PROBLEM: MEDICATION ERRORS

The quality of health care in the United States suffers from a high rate of medical errors. Every year, an estimated one million medication errors occur and between 50,000 and 100,000 people die from preventable medical errors. Many of these errors and deaths could be prevented with the Computerized Physician Order Entry system, known as CPOE, a revolutionary computer application designed to intercept errors where they usually occur — at the time medications and diagnostic tests are ordered. Not only does CPOE automate the order-writing function, it also incorporates clinical decision support during the order-entry process. When used to its full potential, CPOE can save lives and save money.

BARRIERS TO CPOE ADOPTION

Of the 73 hospitals in Massachusetts, only 10 have a fully implemented CPOE system in place. The barriers to implementation include the high start-up cost and the major modifications required to each hospital's work processes and work flows. Additionally, there were no data on either the health or economic benefits of CPOE implementation in community hospitals. The MTC-NEHI study has filled this void.

THE CLINICAL BASELINE AND FINANCIAL IMPACT STUDY

The MTC-NEHI study was conducted by Dr. David Bates of Brigham and Women's Hospital with financial analysis by PricewaterhouseCoopers. Dr. Bates's team reviewed over 4,200 patient charts at six Massachusetts community hospitals in order to determine the average rate of five specific problems that CPOE addresses:

- Adverse drug events (ADEs)
- Renal dosing errors
- Inappropriate use of expensive drugs
- Use of IV drugs when use of oral medication is possible
- Redundant laboratory tests

Pricewaterhouse Coopers conducted a financial analysis of the impact of the same five events. The study involved data from January 2005 to August 2006.

TABLE 2.8: MINIMAL EXPECTED RATES OF IMPROVEMENT WITH CPOE

Aims	Year 1	Year 2	Year 3
1. ADEs	15%	50%	70%
2. Expensive Drugs	20%	60%	80%
3. Renal Dosing	15%	60%	93%
4. I.V. to Oral	50%	75%	82%
5. Redundant Labs	50%	75%	85%

About NEHI

The New England Healthcare Institute (NEHI) is an independent, not-for-profit research and health policy organization dedicated to transforming health care for the benefit of patients and their families. Together with its membership of committed health care leaders, NEHI brings an objective, collaborative, and fresh voice to health policy. Visit www.nehi.net.



About MTC

The Massachusetts Technology Collaborative is the state's development agency for the innovation economy and clean energy. It works to stimulate economic activity by bringing together leaders from industry, academia, and government to advance technology-based solutions that lead to economic growth, improved care and reduced costs in the health care system, and a cleaner environment.



THE RESULTS

Clinical Study:

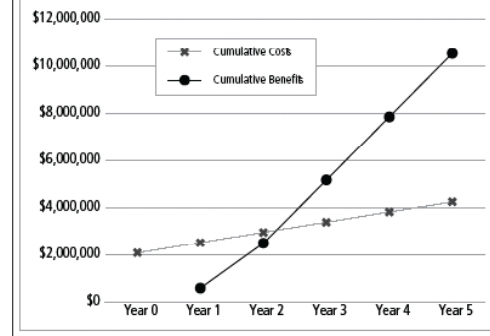
The study found that 1 in every 10 patients admitted to a Massachusetts community hospital suffered a preventable adverse drug event (ADE). Each ADE can result in an average 4.6 days of additional hospitalization. Only 19% of ADEs would not be preventable by the adoption of a robust CPOE program.

Financial Study:

The average one-time cost for buying and installing a CPOE system is \$2.1 million and the annual operating costs amount to \$435,914. However, the average hospital could receive payback on the cost of installing a CPOE system in 26 months. With a fully implemented CPOE system,

the average community hospital could reduce annual operating costs by \$2.7 million with an annual net payer benefit of \$900,000.

FIGURE 3.1: ESTIMATED PAYBACK PERIOD: FIVE YEAR ESTIMATE



Massachusetts hospitals could prevent 55,000 adverse drug events per year and save \$170 million annually if they all had fully implemented CPOE systems.

STUDY RECOMMENDATIONS

- All Massachusetts hospitals should complete full implementation of CPOE systems, including comprehensive clinical decision support by 2011.
- The Massachusetts CPOE Initiative should work with stakeholders to develop performance standards for CPOE systems.
- Payers and regulators should adopt robust incentives to encourage hospitals to implement CPOE in that timeframe.
- The Massachusetts Hospital CPOE Initiative should continue to provide comprehensive, on-going implementation support to Massachusetts hospitals.

“More than one million preventable medication errors occur in the U.S. every year. CPOE can change that.”

-Wendy Everett, ScD, President, New England Healthcare Institute