CALIFORNIA ACADEMY OF FAMILY PHYSICIANS
STRONG MEDICINE FOR CALIFORNIA

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Health Information Technology Toolkit for Family Physicians

Why Implement an Electronic Health Record?

Introduction

Health informatics is almost as old as computers. The Agency for Healthcare Research and Quality (AHRQ) funded its first medical informatics research project in 1969.[1] Given the exponential growth and development in technology during the past 20 years, the role of technology in health care continues to evolve. In 2001, the Institute of Medicine (IOM) named health information technology (HIT) as one of the key factors necessary for improving the quality of health care.[2]

Eight years later, the American Recovery and Reinvestment Act of 2009 (ARRA) appropriated approximately $19.2 billion for health information technology, including $17.2 billion to encourage health care providers to adopt and use electronic health record (EHR) systems. This effort to provide incentives for technology in health care is less about the technology itself than it is about transforming the delivery of medical care.

EHR adoption

Physicians in the United States have been relatively slow to adopt health information technology, relative to those practicing in other countries. While recent studies show a sharp increase in adoption of the technology, few physicians are fully integrating HIT into their practices, and few are incorporating all of the components and capabilities of the systems.[3] The most recent and most comprehensive national survey of physicians' adoption of HIT found that only 4 percent of physicians practicing in the outpatient setting had fully functional EHR systems (using all the components fluidly) and 13 percent had a basic system encompassing some combination of functionalities. Financial barriers are consistently the primary concern among physicians considering adopting HIT systems, while a belief that EHR has the potential to improve quality and efficiency of care is the primary impetus for adoption.[4]

The business case for EHR

Implementing an EHR has significant up-front costs, but studies show that cost savings start accruing almost immediately, allowing providers to recoup the initial investment relatively quickly.[5] [6] One survey study of solo and small-group practices documented up-front costs of $44,000 on average, with ongoing annual costs of approximately $8,500 per provider.[5] Other studies estimate up-front costs ranging between $50,000 – $70,000 for a small group practice to $10,000 – $20,000 per provider for a larger practice.[7]

Documented cost savings from EHR adoption are primarily due to reduced utilization, improved workflow efficiency, and improved billing efficiency.[7] Utilization reductions include reduced drug costs (including reducing medication errors, adverse events, and overutilization), as well as reduced duplicative laboratory and radiology tests. Decreased billing errors and improved capture of accurate information for billing purposes lead to increased revenue.[5] One survey of primary care physicians estimates a net benefit of $86,000 per provider over a five-year period.[6]

At a national level, a recent cost-benefit model estimated a savings of $77.8 billion (5 percent of total health expenditures) annually if a fully operational, standardized national health information exchange were implemented.[8]

Quality of care and patient safety

Data about the impact of HIT on quality outcomes is less clear than data about its effect on costs and process of care. As adoption of EHR increases, however, more studies are available to document the association between HIT, quality of care, and patient safety.[9] A recent, large-scale systematic review describes the current evidence.[10]

The primary benefit of EHR on quality of care is in improvements in clinician adherence to clinical guidelines or protocols. The use of decision-support tools, in particular, appears to improve awareness of and compliance with current guidelines. In addition, automating this component of care increases the actual delivery of preventive care and, in some limited cases, improves patient outcomes. Improvements are also seen in the reporting of public health surveillance data. Additionally, the use of decision support tools and computerized physician order entry (CPOE) are associated with reduced utilization of care, especially laboratory testing and radiology.

EHR implementation also appears to reduce medication errors and adverse medication events. Medication errors are associated with increased costs and poor patient outcomes and have been the focus of quality improvement efforts during the past 10 to 15 years.

Data on the effects of EHR on physician time are mixed. Some studies show a slight increase at initial implementation, followed by decreases as clinicians and staff become accustomed to the system. No long-term studies have yet been conducted to assess this reliably, however.

The patient-centered medical home

It is difficult to separate the concepts of health information technology and the patient-centered medical home, as both involve significant practice redesign with coordination, integration, and improved communication as primary goals.[11]

Seattle's Group Health Cooperative is a non-profit integrated insurance plan and health care delivery group. In 2006, Group Health redesigned its practice model to create a patient-centered medical home model that relies on EHR. A recent study evaluated the first two years of the project to study the effects of a combined medical home and EHR-based practice redesign.[12]

The results from the Group Health experience mirror those found in systematic reviews of EHR systems. Practices participating in the redesign showed improvements in patient experience, reductions in staff

burnout, and improvements in HEDIS measures at both the one-year and two-year follow-up points. In addition, the intervention practices saw a reduction in office visits (but an increase in overall electronic and phone communication), reductions in utilization of specialty and emergency department visits, and a reduction in hospitalizations.

A systematic review of the small number of studies related to medical homes and the use of EHR echoes the results seen in the Group Health study.[13] In general, implementation of the medical home using EHR is associated with reduced utilization, some improved quality measures, and improved coordination of care and follow-up.

Conclusions

While widespread adoption of EHR in the United States is still in progress, early studies seem to indicate a promising role for HIT in improving care coordination, patient safety, and quality of care (especially preventive care), and in reducing costs. Physicians are already taking advantage of opportunities such as those created by ARRA to implement and upgrade EHR systems. The extent to which this will result in near-universal adoption of the technology is unclear. The proportion of practices with fully functional EHR systems is likely to increase significantly, however, providing a platform for widespread practice redesign, including the creation of patient-centered medical homes.

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