

Health Information Exchange: An Overview

As the Affordable Care Act expands health care benefits to millions of uninsured and underinsured people, lowering costs of care—while improving health outcomes—has become a pressing issue. One approach to this problem is to reduce duplicative laboratory tests and prevent medication errors by exchanging health information across different care settings, regardless of organizational affiliations or geographic boundaries. This Short Subject defines major terminologies associated with health information technology (HIT) and discusses federal efforts to encourage the adoption of electronic health record systems.

HEALTH RECORDS

A traditional health record is written by care providers and maintained in paper form. When stored electronically, it is called an electronic medical record (EMR). This digital version of a health record may include patient demographics, laboratory tests, medication lists, digitized images, and physician notes.

While EMRs stay within a single clinical setting, an electronic health record (EHR) is meant to be shared with other health care providers and hospitals. To facilitate the sharing of various types of clinical information, EHRs need to conform to standards that enable health data to be accurately collected, securely exchanged, and effectively used via interoperable electronic health record systems.

The underlying concept of EHRs is patient-centered health care, where clinical information follows patients—not the other way around—to ensure that health care providers have a more complete view of relevant health information on a patient. A physician can review a patient's clinical information provided by another physician in a different care setting. This approach is to help providers be more aware of a patient's health history—reducing duplicative laboratory testing, reacting quickly to emergency situations, and coordinating care with other providers.

A personal health record (PHR) is a patient-managed electronic health record. Compared to EHRs, where data is managed by authorized care providers, PHRs are under the direct control of patients. Depending on the system, patients may enter personal notes on health history; monitor medications, diagnoses, and laboratory results received; and e-mail medical providers to make follow-up appointments. PHRs are meant to empower patients to engage in their own care.

HEALTH INFORMATION EXCHANGE

While EMRs, EHRs, and PHRs are key building blocks of a full-fledged HIT infrastructure, a health information exchange (HIE) is a network concept that ties them together. Dual interpretations of HIE exist, as both a movement and an organization: (1) HIE is the electronic movement of health care information to ensure that clinical, administrative, financial, and other health-related information are exchanged across health care entities; and (2) HIE indicates an organization or entity that oversees and governs the exchange according to standards and protocols. To eliminate confusion, a new term, health information organization (HIO), has been proposed for the latter.¹

An HIO brings health care stakeholders—providers, hospitals, public health department, and insurers—together within a defined geographic area to build HIE infrastructure where health information is exchanged and promoted across organizations. Sometimes it is called a regional health information organization (RHIO).

HITECH ACT

President George W. Bush and Governor Arnold Schwarzenegger issued Executive Orders—in 2004² and 2007,³ respectively—encouraging the development of electronic health records for the benefit of individuals within ten years. In 2009, Congress and the Obama administration enacted the Health Information Technology for Economic and Clinical Health (HITECH) Act⁴ as part of the American

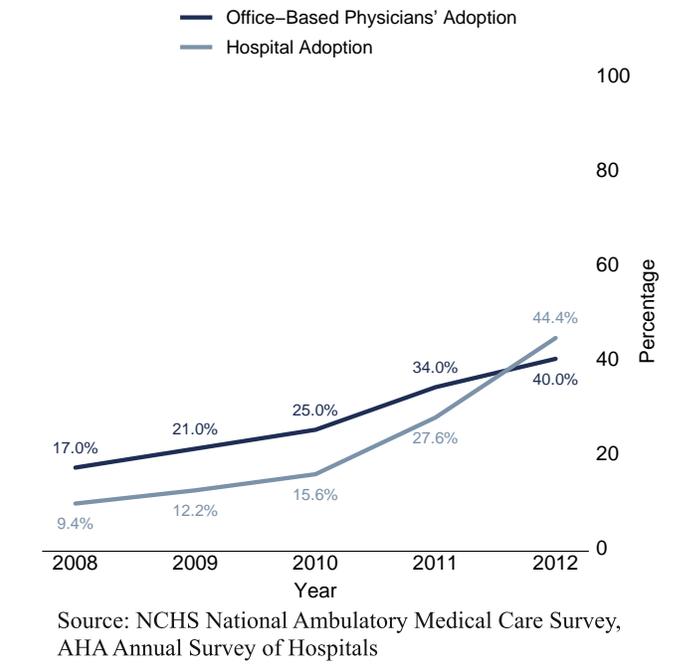
Recovery and Reinvestment Act.

The HITECH Act established the Office of the National Coordinator for Health Information Technology (ONC) within the Department of Health and Human Services to develop nationwide health information technology infrastructure. The Act also authorized the Centers for Medicare & Medicaid Services (CMS) to provide financial incentives to eligible professionals and hospitals that adopt and “meaningfully” use certified EHR technology. CMS established three stages of meaningful use requirements that must be met in order to receive an incentive payment: (1) Stage 1 (2011-2012), data capturing and sharing; (2) Stage 2 (2014), advanced clinical processes; and (3) Stage 3 (2016), improved outcomes. In addition to Medicare and Medicaid EHR incentive programs, the Act supports regional extension centers, state grants for HIE, workforce development, and health IT standard and certification.⁵

Since the passage of the HITECH Act, EHR adoption among physicians and hospitals has increased. However, the adoption rates tend to vary since surveys have different criteria, measures, and survey groups. One of the surveys that is nationally representative is the National Ambulatory Medical Care Survey—Electronic Medical Records Supplement, conducted by the Centers for Disease Control and Prevention's National Center for Health Statistics (NCHS). Another is the Annual Survey of Hospitals—Information Technology Supplement, conducted by the American Hospital Association (AHA).

Figure 1 shows the progress on electronic health record (EHR) adoption among office-based physicians and non-federal acute care hospitals. The data is based on NCHS and AHA surveys from 2008 to 2012. The percentages of physicians and hospitals who have adopted a basic EHR system are steadily growing. According to ONC, a basic EHR system includes "specific functionalities in the following areas of health care and administrative data: patient demographics, patient problem lists, electronic lists of medication taken by patients, clinical notes, orders for prescriptions, laboratory results viewing, and imaging results viewing."⁶ The survey data was retrieved from ONC website.^{5,7}

Figure 1. Percent of Physicians and Hospitals with Adoption of Basic Electronic Health Record Systems



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Jaemin Lee and Pamela Martin, authors of this Short Subject, can be reached at jaemin.lee@library.ca.gov, and pamela.martin@library.ca.gov, respectively.