Health Information Exchange—Obvious Choice or Pipe Dream?

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Electronic health information exchange allows physicians and hospitals to access and share clinical data for individual patients with other health care personnel when and where these data are needed and across organizational and geographic boundaries. The timely exchange of electronic information, such as clinical summaries, laboratory results, radiology reports, and medication lists, may improve patient safety and outcomes, increase the efficiency of care, and prevent the unnecessary duplication of tests. The delivery and payment reform engendered in Medicare and Medicaid by the Affordable Care Act are incentives for the coordination of care across diverse locations, which also benefits from the efficient exchange of health information.

In recent years, billions of dollars have been invested in developing technical standards for health information exchanges, providing incentives for their adoption, creating a national infrastructure for them, and supporting the organizations that operate them. Nonetheless, the meaningful and widespread exchange of health information is frequently viewed as a pipe dream. Despite the intuitive appeal of health information exchanges and the substantial investments already made in them, their future is at best unsure. It remains uncertain whether the theoretical benefits of health information exchanges can actually be achieved. The concerns about their viability include the business sustainability of organizations that operate exchanges, the lack of interoperability of electronic health record (EHR) systems, difficulties in physicians' adoption of such systems, data security, and the perception among hospitals that their participation in an exchange may pose the risk of their losing their patient market share to competitors.

The Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009 provided the financial incentives for the adoption of EHR systems that enable the exchange of electronic health information. Through the Medicare and Medicaid EHR Incentive Programs for the meaningful use of certified EHR technology, and a $600 million investment in organizations that operate exchanges, HITECH provided incentives for the exchange of health information but did not specify how it should occur.[1] Moreover, the initial criteria for meaningful use limited its focus to e-prescribing, electronic exchange of laboratory results, and electronic transmission of summary-of-care documents for at least 10% of transitions of patient care from one setting to another. The result has been a proliferation of exchange efforts that range from minimally meeting meaningful use requirements to broader and more ambitious exchanges of clinical information to achieve larger sets of objectives. National survey data from 2014 indicate that 76% of hospitals report exchanging health information with

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ambulatory care clinics and facilities and with other hospitals outside their own organizations, constituting an increase from 41% in 2008.[2] About two-thirds of these hospitals reported exchanging laboratory results, clinical care summaries, and radiology reports with outside physicians and facilities.[2]

Although these self-reported hospital survey data are encouraging, a business rationale for a health information exchange requires a demonstration of its effects on clinical care as well as its improvement of patient outcomes and efficiencies of care. Two recent systemic reviews provide some clues, but mainly highlight the limitations of the literature with regard to these objectives.[3,4] Most studies of the association of health information exchange initiatives with outcomes have found modest to moderate reductions in repeated diagnostic and imaging tests and associated costs. These findings were predominantly for emergency departments, but represented low-quality evidence because of study design and being based only on about 10 exchanges.[3] Among 21 studies examining the use of health information exchanges by physicians and other care providers, use was very low, ranging from 2% to 10% of total patient encounters.[3]

Most studies of health information exchanges have been done when exchanges were still in their infancy and having limited numbers of local hospitals and clinics that shared key data, thereby diminishing the overall value of these exchanges to prospective physician users. Contextual and implementation factors related to the initiation and promotion of health information exchanges have not been fully accounted for.[3] Clear understanding by hospital and medical group executives of the value-proposition for a health information exchange, its acceptance by physician staff leaders, and the training of physicians in how to incorporate it into their workflows affect the adoption and effectiveness of such exchanges. In addition, the literature has focused on first-generation technologies, such as direct messaging and query-based exchange, in which physicians must find and request information about a patient, usually from a web-based portal that is not a part of their EHRs system. The functionality of an advanced health information exchange permits active data integration and the incorporation of user-subscribed notifications. With active integration, a physician can easily pull data about a specific patient from an exchange database into an EHR system and readily access and view these data as part of the usual information workflow about the patient. With user-subscribed notifications, physicians can receive email alerts triggered in real time when their patients visit the emergency department or are admitted to the hospital. Such notifications facilitate and promote the use of

a health information exchange. More important, when such exchanges are aligned with payment incentives and promoted as specific tools for increasing savings under risk-sharing payment arrangements, they strengthen a viable business case for a health information exchange.

Bundled payments, accountable care programs, and other alternative payment models designed to promote value provide a strong incentive for physicians, hospitals, and health plans to participate in health information exchanges. With the Centers for Medicare & Medicaid Services' goal of increasing the proportion of all Medicare reimbursement made through alternative payment models to 50% by 2018,[5] physician groups and hospitals are increasingly acknowledging the importance of knowing in real time how patients use health care beyond their own networks. Health care executives are in turn focusing on developing data-sharing and data-use agreements and models for the governance of health information exchanges. These agreements and governance structures address concerns about data security and protect the participating organizations against losing market share to competitors.[1] In addition, the US government and the major vendors of health information technologies are making progress in establishing data security standards and addressing obstacles to the interoperability of systems for data transmission.[6,7] Although health information exchanges are forming in geographical areas and care networks, and around specific technology vendors, more work is needed to make the exchange of information more seamless, interoperable, user-friendly, and national in scope.[7] Instead of being vendor- or network-centered, a health information exchange should be patient-centered, ensuring that information follows a patient electronically across any and all care-delivery settings.

Medicaid managed care is another potentially important focus for health information exchange. In Los Angeles County, almost 3 million people are enrolled in Medicaid managed care. A forthcoming health information exchange initiative, that I help lead, includes Medicaid managed care plans and safety-net clinics and hospitals. The initiative will use user-subscribed notifications as a key tool for care coordination and the integration of care among ambulatory care clinics and hospitals. Primary care physicians and their care teams will subscribe to receive real-time alerts on the use by their assigned Medicaid patients of emergency departments and other health services, as well as the automated electronic delivery of key documents, such as inpatient discharge summaries and specialty consultation notes. Some states with statewide health information exchanges (eg, Arizona) are requiring Medicaid managed care plans to join them, and some (eg, Louisiana) are requiring hospital networks to contribute their data to permit the coordination of care.[1]

Advancing technology for health information exchange and evolving models of value-based payment offer a blueprint for the design of exchange initiatives and the services that exchanges should provide. As health information exchange matures in its core objectives of improving care and care coordination, new functionalities, such as establishing consumer-accessible longitudinal personal health records and making clinical data available for public health surveillance and intervention, should become important goals of such exchange. For example, real-time clinical data on preventable admissions for asthma could help public health officials identify locations with poor access to primary care and local sites of environmental causes of exacerbations.[8] Although it is still in its early stages, health information exchange is on a promising path toward success.

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