Interoperability. To achieve electronic health records’ full potential, providers must be able to exchange information easily, accurately, and securely.

What’s the Issue?
While the sharing of information electronically (or health information exchange) plays a critical role in improving the cost, quality, and patient experience of health care, there is very little electronic information sharing among clinicians, hospitals, and other providers, despite considerable investments in health information technology (IT) over the past five years.

The Health Information Technology for Economic and Clinical Health (HITECH) Act was signed into law on February 17, 2009, bringing with it significant investments in health IT. To date, more than $26 billion in investments have been made, a majority of which has taken the form of incentive payments to hospitals and eligible professionals who “meaningfully use” electronic health records (EHRs).

Since 2009 the adoption of EHRs has increased considerably. According to the National Center for Health Statistics, the percentage of physicians who have adopted at least a basic EHR increased from 21.8 percent in 2009 to 48.1 percent in 2013. A survey of hospitals, published in Health Affairs, indicates that 44 percent of hospitals have adopted at least a basic EHR, up from 12.2 percent in 2009. While there is widespread adoption of EHRs, the level of electronic information sharing across such systems has not kept pace.

What’s the Background?
Much of the information about a patient’s health and health care resides in the many settings in which care and services are delivered, including the offices of primary care physicians and specialists, hospitals, laboratories, pharmacies, and health plans—and even with patients themselves.

Health information exchange brings information about the patient—regardless of where care or services have been delivered—to the clinician and the care team to enable well-informed, coordinated, patient-centered care. Supported by information from other care settings, clinicians can avoid duplicative tests, identify and address gaps in care, and avoid medication and other errors—all of which drive higher-quality and more cost-effective care.

Health information exchange is also a necessary component of rapidly emerging delivery system and payment reforms. To address uneven quality and rising health care costs—which now approach 20 percent of gross domestic product—public- and private-sector leaders agree that new models of care delivery and payment that promote better outcomes and value, rather than volume, are needed. As a result, billions of dollars are now being invested by federal, state, and private-sector organizations in new delivery system and
payment arrangements that reward better outcomes in both cost and quality.

These new models of care require both EHRs and electronic information sharing—and, therefore, interoperable systems—to be effective. For example, to be successful in an outcomes-based financial arrangement, providers must be able to access and use a broad range of both administrative and clinical data to identify opportunities for improvement, match resources to patient needs, track and improve performance, and administer new methods of payment. These new models also require clinicians and all members of the care team to have easy access to information about the patient from the multiple settings in which care and services are delivered, as well as clinical decision support to promote higher-quality, more cost-effective, better-coordinated care.

A recent survey of clinicians indicates that a majority believe that the electronic exchange of health information across care settings will have a positive impact on the quality of patient care, the ability to coordinate care, and the ability to reduce costs. A majority of clinicians believe that health information exchange will help them meet the demands of new care models—such as the patient-centered medical home and those related to accountable care—and also participate in third-party reporting and incentive programs.

Health information exchange also plays a critical role in many other strategies designed to improve the health of populations, including clinical research, assessing the effectiveness of various treatments, monitoring the safety of medical products, and detecting and responding to health threats.

Despite considerable advancements in the level of EHR adoption, the level of electronic information sharing is still modest. According to a recent study published in Health Affairs, only 14 percent of physicians surveyed in 2013 were electronically sharing data with providers outside of their organizations. (See Exhibit 1.) A 2012 study published in Health Affairs indicates that 51 percent of hospitals surveyed were sharing information with ambulatory care providers outside of their organizations, while 36 percent were sharing information with other hospitals outside of their organizations.

Another study reveals that only 10 percent of ambulatory practices and 30 percent of hospitals were found to be participating in operational health information exchange efforts. Primary barriers include the lack of a business case for information sharing, the cost associated with exchange, and the lack of standards adoption and interoperability of systems, which are explored in more detail below.

WHAT’S IN THE LAW?

With support from the HITECH Act, more than $26 billion has been invested to date by the federal government in health IT. A majority of the investments have been in the form of incentive payments through the Centers for Medicare and Medicaid Services’ (CMS’s) EHR incentive programs (informally referred to as meaningful-use programs) to hospitals.
and eligible professionals who meaningfully use certified EHR technology to improve the quality, safety, and cost-effectiveness of care.

According to the CMS website, as of May 31, 2014, $24.4 billion in incentive payments had been made to nearly 4,600 hospitals and nearly 400,000 eligible professionals who attested to meaningfully using EHRs. Another $2 billion was invested in a combination of programs led by the Office of the National Coordinator for Health Information Technology (ONC) within the Department of Health and Human Services (HHS), including those related to standards for interoperability and EHR certification, health information exchange–related activities including those related to states, EHR implementation assistance, and workforce development programs.

The ONC provided more than $547 million to state efforts to build capacity for exchanging health information across the health system both within and across states. The ONC also oversees two federal advisory committees, the purpose of which is to make recommendations to the national coordinator on a policy framework for the development and adoption of a nationwide health information infrastructure as well as the standards, implementation specifications, and certification criteria for the electronic exchange and use of health information.

In order to achieve electronic information sharing, EHRs and other clinical software must be “interoperable” or have the capability to exchange information using agreed-upon standards, and those providing care and services must be willing to share information.

Requirements for both interoperability and electronic information sharing under HITECH to date have been fairly limited. In order to meet meaningful-use requirements, providers must use EHR technology that has been certified to comply with federally adopted standards and certification criteria through a program administered by the ONC. The initial 2011 Edition of Standards, Implementation Specifications, and Certification Requirements, which pertains to stage 1 of the meaningful-use program, requires that certified EHR technology be able to electronically receive, display, create, and transmit a summary record that contains five types of data, including diagnostic test results, medications, and procedures. Requirements for the 2014 edition are more robust, requiring the ability to exchange 23 data types. Notably, for the first time, the 2014 edition specifies standards for the transport of data.

Requirements for providers associated with actual electronic information sharing were also very limited in stage 1 of meaningful use. Stage 1 made it optional for providers transferring a patient to the care of another provider to furnish that provider with a summary of care record 50 percent of the time, and noted that such information need not be transmitted electronically. In stage 2, when transferring a patient, hospitals and eligible professionals are required to electronically transmit a summary of care record for more than 10 percent of transitions of care and referrals.

Notably, stage 2 includes requirements related to patients being able to download and electronically transmit their own health information contained in their health record to a third party, creating another alternative means for information sharing.

In order to meet meaningful-use requirements, providers had to begin using 2014 edition–certified EHR technology in 2014. Responding to concerns about delays in the availability of 2014 edition–certified EHR technology and the time associated with its implementation, on May 20, 2014, HHS published a proposed rule offering more flexibility to providers, enabling them to use either 2011 or 2014 edition–certified EHR technology for meaningful use in 2014. The proposed rule also extends by one year, to the end of 2016, the timeline for providers to qualify for meaningful-use incentives using stage 2 requirements.

These changes were made in response to challenges cited by providers and technology companies; both groups were experiencing difficulty in achieving the more robust requirements within stage 2. But the consequence of these changes is the delay in both interoperability of systems and electronic information sharing among providers.

Stage 3 of meaningful use represents a significant opportunity to advance the interoperability of EHR technology and electronic information sharing among providers.

Legislation has also been introduced to address gaps in interoperability and health information exchange. In February 2014 bipartisan, bicameral, tri-committee legislation was introduced to replace the Medicare Sustainable Growth Rate formula with an
improved physician payment system that rewards quality, efficiency, and innovation. This legislation establishes a date by which there should be “widespread exchange of health information through interoperable certified EHR technology nationwide” and requires actions, which could include adjustments in incentive payments and criteria for decertifying EHR technology products, if such goals are not achieved.

In addition, the legislation contains provisions to prevent the blocking of information sharing, requiring providers to attest that they have not knowingly and willfully taken any action to limit or restrict the compatibility or interoperability of certified EHR technology. Information-blocking provisions were also included in the Senate Appropriations Committee report accompanying the Labor-HHS 2015 spending bill released on July 24, 2014. Creating transparency around and taking other actions that will help prevent the blocking of health information sharing among both providers and EHR technology companies can help advance electronic information sharing.

**WHAT’S THE POLICY?**

As noted previously, there are a number of barriers to health information exchange. The primary barrier to electronic information sharing is the lack of a “business case.” Because most payment in the US health care system today is volume based versus outcomes or value based, there is little financial incentive to share information across settings to reduce costs or improve the quality of care. The significant increase in adoption of new models of delivery and payment across the United States as well as penalties for hospital readmissions implemented by CMS are expected to expand the business case for interoperability and information sharing. However, so far these new models of care have relied upon old models of information sharing, including the use of phone, fax, or mail, or siloed information-sharing networks.

Other barriers include the cost of infrastructure associated with exchange, the lack of standards adoption and interoperability of systems, some continued concerns about privacy and security, and concerns about liability.

In March 2013 HHS sought input on other ways to promote interoperability and electronic information sharing by issuing a Request for Information on Advancing Interoperability and Health Information Exchange. Through this, the agency solicited input on potential policy and program changes that could be implemented using existing authorities and programmatic changes to accelerate electronic health information exchange across providers and advance interoperability across systems.

Policy and program options identified by the request for information included leveraging the federal contribution toward Medicaid, known as the Federal Medical Assistance Percentages (FMAP), at the 90/10 matching level to support health information exchange activities; adding new requirements within CMS’s conditions of participation or coverage for a wide range of health care organizations; and including requirements for accountable care organizations under the Medicare Shared Savings Program and those participating in the Center for Medicare and Medicaid Innovation pilot programs, including those associated with bundled payments, primary care, and other accountable care arrangements.

To date, HHS has implemented very few of these program changes. Those implemented include encouragement of the use of FMAP matching to support health information exchange and inclusion of funding and incentives for interoperability and information sharing through the State Innovation Model Initiative.

Moving forward with some of these suggestions, including CMS adding requirements to operating or pilot programs that will promote electronic exchange of information to support patient admissions, discharge, and transfers, as well as care coordination, will help create the business case for health information exchange. Private-sector payers can also follow suit.

**WHAT’S NEW?**

On June 5, 2014 the ONC released a “10-year vision to achieve an interoperable health IT infrastructure,” describing how an interoperable health IT ecosystem could work for individuals, care providers, communities, and researchers. The vision document offers a set of principles and building blocks for achieving a nationwide interoperable health information infrastructure.

New also is the increasing amount of data emerging from other sources beyond clinical systems, such as medical and personal devices, genomics, and even patients themselves. This offers new challenges associated with
interoperability and electronic information sharing.

Responding to concerns about the lack of interoperability, in April 2014, JASON—a group of scientific advisers—working through the Agency for Healthcare Research and Quality, released a report containing recommendations for an overarching software architecture for a health data infrastructure and requirements for EHR software vendors to develop, publish, and certify application programming interfaces to facilitate exchange. On May 29, 2014, the President’s Council of Advisors on Science and Technology (PCAST) issued a report on systems engineering in healthcare that reiterated 2010 PCAST recommendations also calling for the creation of a health information infrastructure and the development of “universal exchange language” that enables data to be shared.

The US health care system is undergoing significant change in response to concerns about rising health care costs and uneven quality. Innovative strategies associated with care delivery, payment, and engagement of individuals are rapidly emerging to address these challenges, but such strategies must rely on information sharing across the health care system to be successful.

While considerable investments in health IT have been made, advancement of interoperability and electronic information sharing across systems has been slow.

Additional action is needed to provide the information foundation necessary for high-quality, more cost-effective, patient-centered care in the United States.

RESOURCES


