Comagine Health

The Value and Future of Health Information Exchanges

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About the Author

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He received a Bachelor of Science in biology from Stanford University and earned a medical degree from Case Western Reserve University. Dr. Gibson has a PhD in medical informatics from the University of Utah and holds a Master of Business Administration from the Wharton School at the University of Pennsylvania.

About Comagine Health

Comagine Health is a national, nonprofit health care consulting firm. We work collaboratively with patients, providers, payers and other stakeholders to reimagine, redesign and implement sustainable improvements in the health care system.

As a trusted, neutral party, we work in our communities to address key, complex health and health care delivery problems. In all our engagements and initiatives, we draw upon our expertise in quality improvement, care management, health information technology, analytics and research.

We invite our partners and communities to work with us to improve health and redesign the health care delivery system.

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Introduction

Health information exchanges (HIEs) can be defined as organizations that collect and exchange clinical information found in electronic health records (EHRs) of hospitals and individual clinicians, hereafter referred to as providers.

In this paper, I discuss the value of HIEs in four important arenas:

- Patient care — by displaying more complete information at the point of care
- Patient and family engagement in care
- Population health and value-based care — by identifying patients with gaps in care and by assisting care managers coordinating care
- Public health — by assisting in the detection and management of new infections and environmental exposures

To realize the value of HIEs, we must:

- Bring more provider offices onto HIEs
- Support oral health, behavioral health and post-acute care providers in acquiring EHRs that send data to and receive data from HIEs
- Get all public health agencies to contribute data to HIEs

Value of HIEs

At the Point of Care

Few providers will argue about the value of organized, pertinent patient data at the point of care. When patients arrive at emergency departments unable to provide a good history, HIE data can help clinicians provide care safely. The value of an HIE increases as more providers exchange data bidirectionally — meaning they send patient data from their office EHR to the HIE as well as view or download patient data from the HIE. HIEs that filter, sort and standardize the data presentation are more valuable than those that deliver large amounts of unindexed documents. Practicing with more complete data can decrease emergency department visits,[1] hospital admissions,[1] redundant lab[2] and diagnostic imaging,[3] and medication errors[4] as well as their attendant costs.

HIEs are an ideal platform for listing all vaccinations, both routine and pandemic, so that every provider knows the patient's vaccination status when they see the patient.

To Patients and Families

When visiting a new provider with comprehensive HIE access, patients would no longer have to recall their past medical and surgical history and fill out another clipboard form. EHR patient portal access by patients has been relatively low, but it is slowly increasing. The 21st Century Cures Act now requires providers, payers and HIEs to send patients their data upon request. One relatively easy way of meeting that requirement is to offer an HIE patient portal. Provider EHRs have been doing so for years and some payers have started. HIEs need to get ready.

It is not only patients that can benefit from an HIE patient portal — family members and caregivers will also appreciate HIE portal access. All of us have had the experience of or known others caring for a child or

parent. Taking the family member to multiple office and outpatient visits is time-consuming enough without having to ask for records from each provider and shuttle them to the next provider. Imagine knowing that the important details from each visit are already collecting in the HIE and that every provider can access that central information store at the point of care.

For Population Health

Value-based payments increasingly hold providers responsible for the cost and quality of care. Access to patient data is a significant need for accountable care organizations (ACOs). HIEs can provide the platform for care management crucial for superior patient outcomes and ACO success. They can aggregate social determinants of health (SDOH) data collected by other providers and agencies that can suggest health-related social services to improve patients' health and avoid expensive downstream health care utilization. When combined with claims data, HIE clinical and SDOH data provide a population view of health status and the degree to which people are receiving indicated care.

Post-acute care facilities could benefit from access to HIE data, probably mostly at the time of transfer from the hospital. Thorough records from the hospital beyond the discharge summary are useful but many hospitals may not provide such records. In such cases, HIEs may be the best source of comprehensive data.

HIEs can increase their value by encouraging community-based organizations (CBOs) to join, making referrals from health care providers to social services agencies easier. CBOs can see previous services rendered to their clients, which agencies and providers were involved, and whether recommended visits occurred to close referral loops. With patient and client consent, race, ethnicity, language, disability, sexual orientation and gender identity data can be shared among providers and social service agencies.

Oregon and other states are implementing health care cost growth targets. Oregon's principal lever to lower costs is value-based payment (VBP), which rewards providers for better quality care and reduced costs. The biggest impediment for providers engaging in VBP is that each major payer has a different VBP program. For example, for an office of ten primary care providers, there may be six different payers, each with its own patient-provider attribution model, quality indicators, cost methodology and monthly meeting. Sophisticated HIEs with cooperative payers and their claims could offer one patient-provider attribution model, one set of quality indicators and one cost methodology for all primary care practices. As a bonus, statistical inferences of high-quality and low-cost providers would be stronger and more stable when based on all patients in the HIE rather than a subset of patients with each payer.

Research, with its growing need for real-world data, can benefit from HIEs. Finding clinical trial candidates is a perennial challenge, but dense data can increase the likelihood of identifying those candidates. With patient consent, a sophisticated HIE could run a researcher-supplied query against their HIE data and suggest a candidate list for further examination.

For Public Health

COVID has shown us the value of HIEs in syndromic surveillance. We witnessed the importance of being able to quantify the number of people infected, their geographic location, the severity of their symptoms and their vaccination status. The local HIE is the single best place for public health to go when assessing the breadth and severity of an outbreak, to follow up on a given patient or to conduct contact tracing. HIEs can produce geographic heat maps that show where illnesses and injuries are occurring, which helps in writing policy, siting

new clinics and distributing services. In the case of power outages and fires, standard HIE queries developed in advance can quickly identify patients that need urgent attention, for example, those with dialysis equipment and oxygen concentrators. We need highly functioning HIEs with bidirectional connections to public health to manage the next public health threat.

State and federal agencies and legislatures benefit from population health analysis and research afforded by deep and broad HIE data. Better health care and social services policies are enabled by more complete data. Population-wide studies are more likely to detect inequitable outcomes among groups disadvantaged by race, ethnicity, language, disability, age, gender identity, sexual orientation and social class.

Barriers to Adoption of HIEs and Strategies to Overcome Those Barriers

Inadequate Uptake of HIEs by Providers

Although 65% of hospitals engage in health information exchange networks,[5] only 38% of ambulatory providers share data electronically,[6] and only 14% do so with providers outside of their practice or hospital group.[7] For providers whose patients receive all their care from a multispecialty physician group or health system on a single EHR, connection to a local HIE may offer less value. Those providers already enjoy a rich patient information context because so much of the patient's record is already within the group's EHR. HIEs can improve their value proposition to all providers by signing up more laboratories, imaging centers, surgery centers, public health agencies and CBOs.

Beyond use of a certified EHR, convenient use of HIE data may engender a costly additional EHR module, perhaps a paid subscription to the local HIE, and likely some expensive technical support. Smaller provider offices and safety net clinics can benefit greatly from HIE data but are less likely to be able to afford it. Providers that wish to access HIE records on their patients may be required to upload their own office records to the HIE, and that generates additional technical cost. Subsidization of providers connecting to HIEs could address this concern.

Some providers may be reluctant to access HIE data because they take on medicolegal responsibility and burden for reviewing that outside patient information. Sophisticated HIEs could lessen that burden by processing incoming patient data into an organized, coherent, problem-oriented health record where providers could visualize patients' entire medical history or quickly find an important single data element.

HIEs routinely collect radiology reports, and diagnostic images are one of the most common expensive tests that can be avoided if providers have access to previously performed studies. Often radiology reports are adequate, but sometimes providers need to see actual images. Most HIEs do not store images. However, they might assist in the future by storing a pointer to a dedicated image storage site. Providing image access could convince reluctant providers to join HIEs.

Providers in some regions face multiple HIEs with different and competing data repositories and associated costs. HIEs in those regions need to coalesce so that there is but one source of collected patient data.
For any information tool to be used by clinicians, it must fit into their workflow and use of their EHR. At a minimum, that means single sign on where the login to the HIE occurs simultaneously with the EHR login, and where the patient called up in the HIE is synchronized with the active patient in the EHR. Sophisticated HIEs support parsing the clinical data to the correct section within the EHR such as lab results and medications.

Providing technical expertise and funding would improve such convenience, and there is economy of scale configuring all EHRs in a region to connect to a single HIE.

Financially, hospitals have more to lose from HIE data than they stand to gain. With commercially insured patients, avoided lab tests, imaging studies and procedures mean a loss of income for hospitals. In addition, it is widely held that hospitals fear losing patients to competitors if patient information from their facility is available to "outside" providers. Hospitals need to keep to their mission to do the right thing for patients, including surrounding clinicians with as much of patients' organized information as possible. Also, as for providers, hospital membership in ACOs incentivizes more data at the point of care.

Insufficient Patient Awareness and Trust

It is crucial that patients trust HIEs with their data. Currently, most patients are unaware that their data is held in an HIE. But as more patients sign on to their providers' EHR patient portals, more patients will become aware of who else is holding their data. HIEs can promote patient trust by offering their own patient portal. Patients can then become familiar with what data the HIE holds on them. Further, HIEs can display an audit log of who has accessed the patient's data. If the patient sees a list of providers that they have seen in the office, then they are more likely to trust the HIE. Knowing that patients will see an access audit log, would-be snoopers may pause before looking up patients with whom they have no relationship.

Lack of HIE Adoption by Oral health, Behavioral Health and Post-Acute Providers

The HITECH Act of 2009 subsidized providers acquiring EHRs. We need similar funding for oral health, behavioral health, tribal health, rural health, critical access hospitals, school health, post-acute care, home health, long-term care and corrections organizations. Some of these organizations have electronic records, but they are incapable of sending and receiving data from HIEs. Funding and technical assistance are needed to get them new electronic record systems or upgraded versions capable of employing national standards for exchanging patient data with HIEs.

Lack of Connections Between HIEs and Community-Based Organizations

CBOs are already financially limited in providing services to existing clients. We need more public funding of CBOs, both for direct services and for acquiring information systems that can bidirectionally connect to HIEs. The Gravity Project[8] is developing the technical standards that allow CBOs to exchange SDOH data in a vendor-agnostic manner.

Most HIEs are contracted as business associates of HIPAA covered entities (hospitals, providers and payers). Covered entities and business associates can view patient data without patient consent for purposes of payment, treatment and operations. CBOs are neither type and therefore are not permitted to exchange client data without specific client consent. CBOs need information systems that interact with clients to obtain their consent, and the industry needs technical standards for sharing consent with providers and HIEs in a way that does not constrain CBOs or HIEs to use a particular information technology (IT) vendor. Further, CBOs need to be represented at the HIE governance table to promote trust and confidence.

Lack of Bidirectional Data Exchange Between HIEs and Public Health Agencies

Public health agencies have been beneficiaries of HIE lookup but do not contribute much data to HIEs in some states. More uploading of public health data to HIEs is needed, including lab data, screening data, environmental data, physical and psychosocial assessment data, and immunization data. Advance directive registries, hospital

capacity and critical care equipment availability reporting would also be enormously valuable. Like CBOs, public health agencies need better funding for routine services as well as additional funding to acquire IT to obtain and exchange patient consent and SDOH data.

Financial Sustainability

As we have discussed, patients, payers, providers and society more generally benefit from HIEs. Most HIEs rely on a subscription model subsidized by payers, hospitals and providers. As the 30-year-old Indiana HIE has demonstrated, hospitals can save money by having the HIE distribute their test results and encounter documents instead of connecting each provider office separately.[9] But that opportunity window has probably closed.

If one links value derived from HIEs with funding of HIEs, payers are already on both sides of the equation. Further revenue could be raised from payers by offering additional services, for example, finding patients eligible for initiation and engagement of treatment for alcohol and other substance use disorders, a Healthcare Effectiveness Data and Information Set (HEDIS) measure. ACOs may also increasingly find it financially advantageous to support HIEs as a means of assuring comprehensive population data that assures the viability of value-based contracts.

Value to patients and society at large justifies direct public support of HIEs but this is uncommon. Public dollars could underwrite HIEs by paying HIEs to provide public health agencies with data that support disease reporting, syndromic surveillance, Medicaid care coordination, and other public health services.

The Future of Health Information Exchanges

HIEs have demonstrated value for clinical care, patients and families, population health, and public health. Greater value to more parties will come from augmenting the clinical data in HIEs with claims data, public health data and community-based organization data describing health-related social needs and supporting client referrals to social services. A virtual cycle will result with more aggregated and organized data attracting more providers and agencies to engage. As public health and CBO data come into HIEs, greater trust will be required and the HIE governance table will need to enlarge to seat multiple stakeholders.

In the future, an important additional data source will be patients themselves. HIEs effectively display patients' blood pressures and hemoglobin A1Cs, but what consumers, providers and society really want to know is: To what degree are their lives better in the long-term after receiving care? To what degree is health improved by addressing health-related social needs? Patients reporting their own outcomes will add valuable information beyond what is collected in visits to offices and hospitals. With appropriate patient consent and trust, HIEs are an ideal place to store and analyze such data. Increasingly, HIEs will offer patient portals and involve patients in governance and consent aspects.

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