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Health Information Exchange (HIE) Business Models

*The Path to Sustainable
Financial Success*

Produced by the
Deloitte Center for
Health Solutions

Audit • Tax • Consulting • Financial Advisory

The Promise and Challenge of Health Information Exchanges

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Health Information Exchanges (HIEs), multi-stakeholder organizations that enable the secure exchange and use of electronic health information, offer tremendous potential to improve health care quality, reduce medical errors, and lower costs by paving the way for increased interoperability and information-sharing among patients, providers, payors and other stakeholders. In fact, the state-based and regional HIEs already in operation are providing important user benefits such as more timely communication and secure patient data exchange, regional collaboration, and the elimination of inefficient and duplicate processes. In addition, HIEs are expected to play an important role as building blocks for a proposed National Health Information Network (NHIN) that promotes interconnectivity among users of various forms of health information technologies.

HIEs are taking root across the country, despite technical, governance, institutional and funding challenges. Currently, there are more than 150 HIE projects in varying stages of maturity and employing several types of business models. Unfortunately, many of these HIEs may not exist long enough to realize their full potential because their business model is not financially sustainable. The key to sustainability is working with stakeholders to define and develop a business model that addresses the near term needs of individual stakeholders, yet is flexible enough to accommodate the diversity and evolution of these needs.

There are many varieties of HIEs available today that are exchanging important health data ranging from comprehensive clinical information to e-prescribing transactions to lab data. Communities should select the type of HIE and business model(s) that best fulfills their stakeholders' needs and offers the greatest chance of early sustainability.

The Deloitte Center for Health Solutions (the "Center"), a part of Deloitte & Touche USA LLP, has developed the following point-of-view document that explores the organizational and operational challenges facing today's HIEs as they seek to identify and implement a sustainable business model. The paper also shares characteristics of a successful HIE model and provides suggested strategies for long-term success.

The spread of sustainable HIEs and other interoperable health information systems will enable the health care industry to take a major step forward in improving the quality, safety and efficiency of care. First, however, HIE stakeholders must embrace fiscal responsibility and viability to make sure that the promise of HIEs remains in lockstep with the economics.

A handwritten signature in black ink, appearing to read "John Glaser". The signature is fluid and cursive, written over a light gray background.

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Identifying a Sustainable HIE Model

Although the United States is the world leader in health care spending, the nation's clinicians lack access to comprehensive information about their patients at the point of care – information that can help them enhance safety, efficiency and cost-effectiveness. Health Information Exchanges (HIEs), which include Regional Health Information Organizations (RHIOs), could become a powerful vehicle for improving patient health and quality of care by enabling the secure exchange of patient data among all stakeholders.

A Health Information Exchange is a multi-stakeholder organization that enables or oversees the business and legal issues involved in the exchange and use of health information, in a secure manner, for the purpose of promoting the improvement of health quality, safety and efficiency.¹ Over the past few years, roughly 165 HIE initiatives have popped up in 49 states (45 are in the implementation stage and 26 are fully operational)², attracting millions in public and private funding. Unfortunately, a disproportionate number of these will not achieve long-term viability because they lack a sustainable business model. This paper, published by the Deloitte Center for Health Solutions (the “Center”), a part of Deloitte & Touche USA LLP, explores current and emerging Health Information Exchange (HIE) business models, reviews the elements of successful models, and examines current and future challenges as they relate to HIEs and sustainability.

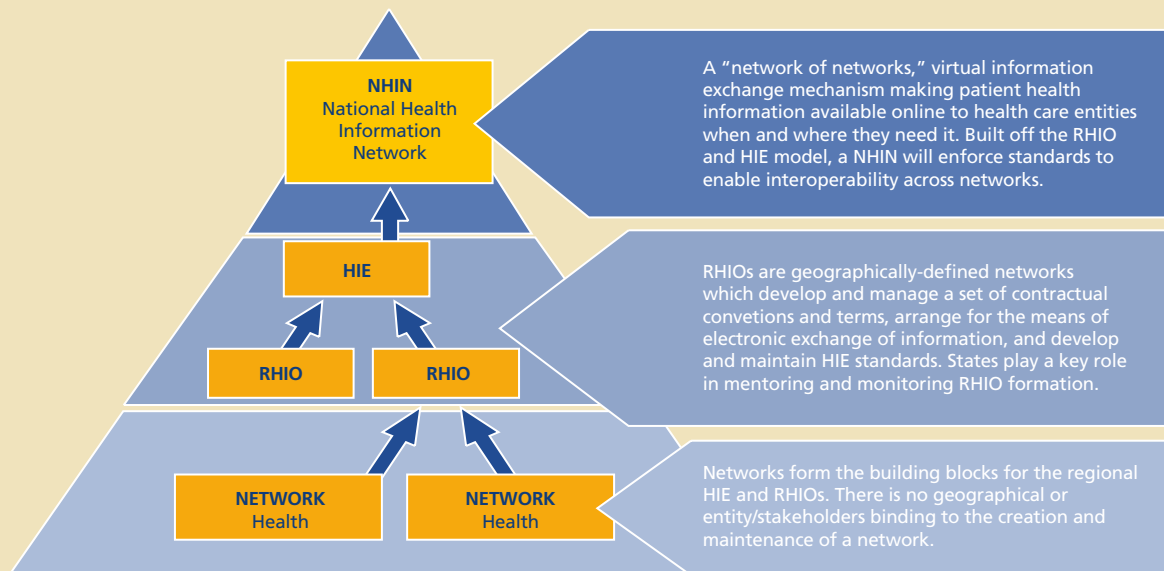


1 http://www.himss.org/asp/topics_FocusDynamic.asp?faid=143.

2 “Improving the Quality of Healthcare Through Health Information Exchange,” Selected Findings from eHealth Initiative’s Third Annual Survey of Health Information Exchange Activities at the State, Regional and Local Levels, September 25, 2006.

3 “Regional Health Information Organizations’ Modest Start: What’s Been Built, What’s Driving Progress, And When Will They Flourish?” by Eric G. Brown with Bradford J. Holmes and Will McEnroe, Forrester Market Overview, February 13, 2006.

Figure 1: Evolution of Health Information Exchanges



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HIE History and Potential

The health care industry's ability to enable information systems interconnectivity and interoperability through HIEs offers the potential to transform the health care marketplace through increased communication and collaboration, improved care quality, and reduced medical errors, operational inefficiencies and duplicate services.

To understand the future potential of HIEs, it is important to understand their history and challenges thus far. HIEs got their start in the early 1990s, when the health care industry set up community health information networks to share patient medical records among providers (Figure 1). However, these networks were encumbered by large central data warehouses and pre-Internet connectivity costs and did not live up to expectations.³ The next iteration of interconnected networks emerged about a decade later, in the form of today's HIEs. RHIOs are regional forms of HIEs and, in many cases, were created as an interim step. Officials from the U.S. Department of Health and Human Services (HHS) view HIEs as the building blocks for a National Health Information Network (NHIN). When complete, the NHIN's intention is to provide universal access to electronic health records across jurisdictions and hospital systems, with expected benefits of safer treatments, greater operational efficiencies, lower risk, and, eventually, lower costs. In 2004, the Bush administration took a giant step toward creating the NHIN by establishing the Office of the National Coordinator for Health Information Technology (ONC) to drive its completion by 2014.

From the beginning, ONC has said that the NHIN solution was going to come from – and be funded by – the health care community. While ONC has structured a national discussion around the network's architecture and has begun defining standards, it also has encouraged regional providers to collaborate to build connectivity among themselves at a rate and under a model that works for them (as long as they adhere to certain technical and architectural guidelines that allow regions to share information across a national network.)⁴

The regional HIEs are challenged to enable interoperability and secure information transfer among those electronic records already in existence, including:

- Personal Health Record (PHR) – a record that is patient-centric and patient-controlled, with clinically relevant information populated from administrative and claims system data.
- Electronic Health Record (EHR) – a digital record compiled from multiple disparate clinical systems, creating a longitudinal and aggregate display of those data for the patient.
- Electronic Medical Record (EMR) – a digital record found in a unique care setting (e.g., the physician office or the hospital) and containing data specific to that care setting.

⁴ Regional Health Information Organizations' Modest Start: What's Been Built, What's Driving Progress, And When Will They Flourish?" by Eric G. Brown with Bradford J. Holmes and Will McEnroe, Forrester Market Overview, February 13, 2006.

Additional challenges include overcoming competing stakeholder agendas/priorities and maintaining an interested and invested membership over the protracted time period required for an HIE to gain momentum and stability. HIE funding sources also are scarce, especially for the early development stage.

Despite the technical, governance, institutional, and funding challenges, HIEs are taking root across the country. Strides in data-sharing technology and capabilities are lowering the cost of integrating disparate systems. Additionally, various organizations – including the American Health Information Management Association (AHIMA), the American Health Information Community (AHIC), and eHealth Initiative – are working to identify best practices and successful business models that demonstrate HIE financial and business sustainability.

For the HIEs in varying stages of development, no business model has yet proven to offer a clear path to sustainability. Although financial start-up assistance from foundations and public-sector sources is increasing, alignment of incentives, ROI and regulatory issues (such as Stark and Anti-Kickback laws) have to be addressed if HIEs are to maintain financial viability once they are operational.

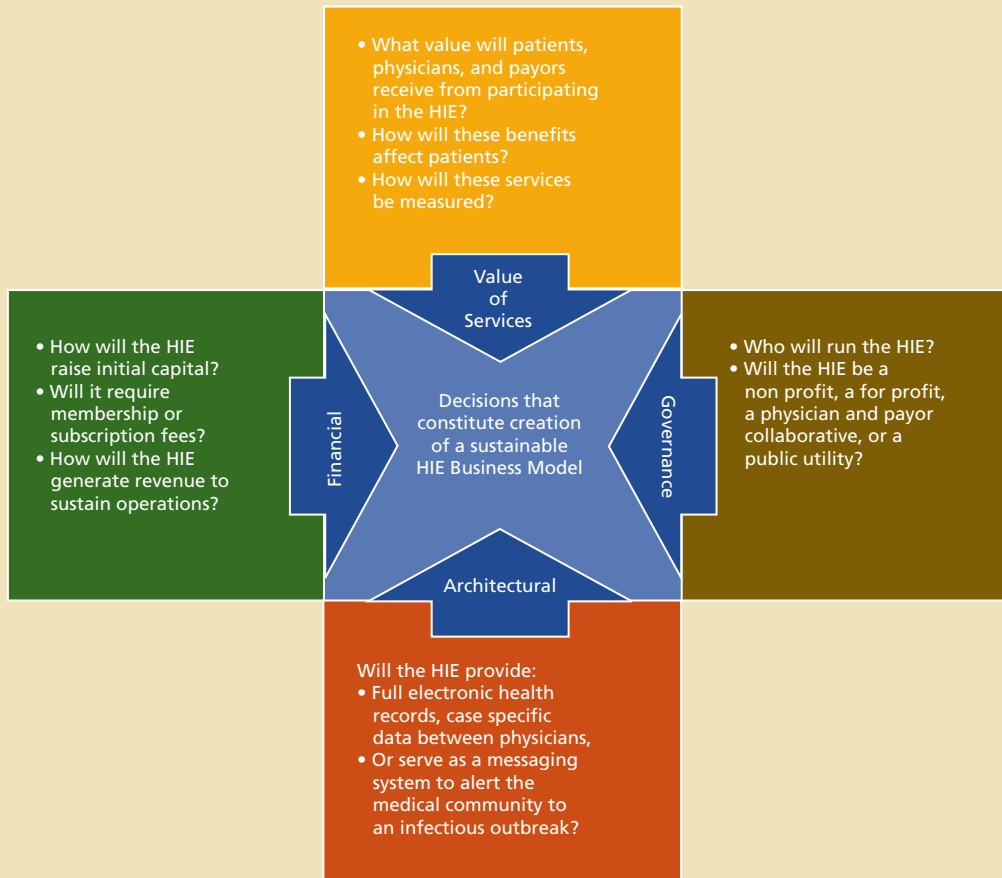
Current HIE Business Models

The HIEs currently in operation have been developed using a wide variety of business models, so it is difficult to identify a finite set of commonalities. Prevalent variables include tax status and incentives, governance and control factors (e.g., community representation versus more narrow groups of stakeholders), and whether the HIEs are largely coordinating groups or are engaged in solution development and/or infrastructure implementation. Some HIEs are exchanging clinical data (e.g., Record Locator service); others are focusing on e-prescribing, push services, or radiology images. It is expected that each community will explore the different types of HIE business models and pick the one(s) that offers them maximum benefit and return – especially the greatest chance of early sustainability. The following four general categories of emerging business models demand attention:

- **Not-for-Profit** – The not-for-profit HIEs are driven by their charter to help the patients and the community in which they provide services. Their tax-exempt status can help to reduce funding challenges and provide special tax credits/incentives.
- **Public Utility** – These HIEs are created and maintained with the assistance of federal/state funds and are provided direction by the federal/state government. The organizations' funding source is the primary differentiator for this category.
- **Physician and Payor Collaborative** – This type of HIE collaborative is created for/by certain physicians and payors within a geographical region. These collaboratives can be either for-profit or not-for-profit organizations; however, the key to this category is the collaboration between and mutual benefits for participating payors and physicians.
- **For-Profit** – For-profit HIEs are created with private funding and have firm ROI targets. These organizations look to reap financial benefits from their transactions and have solid start-up funding.



Figure 2: HIE Governance and Operational Characteristics



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Evaluating HIE Business Models

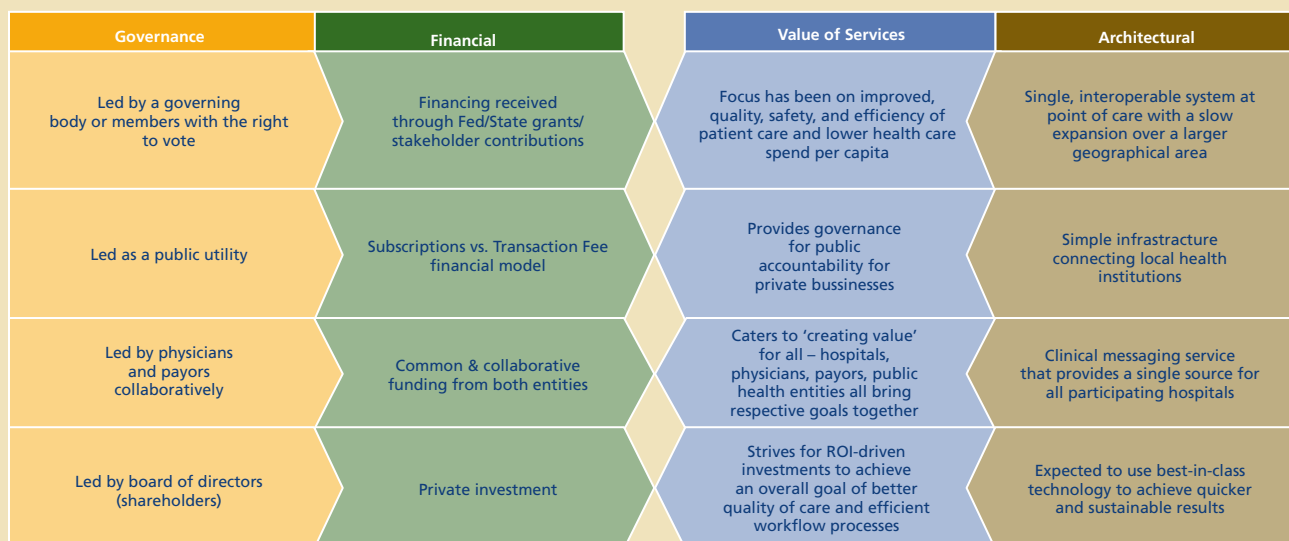
Understanding the governance and operational characteristics that drive creation of an HIE is an important first step to identifying a sustainable business model. As seen in Figure 2, the characteristics can be grouped into four categories:

- **Value of Services** – An HIE is motivated by the perceived value of the services that it anticipates providing to its consumers. All benefits may not be measurable; however, they will provide value.
- **Governance** – An HIE’s organizational and hierarchical composition sets governance and defines policies and processes.

- **Architectural** – An HIE is structured around the business and technical architecture that enables HIE operations, as well as the data that exists within the HIE.
- **Financial** – An HIE is driven by the financial agreements that generate its revenue stream and capital. This is crucial, as it can indicate the HIE’s potential sustainability.

Using these characteristics for assessing a successful HIE model, the next step is to evaluate the characteristics against the most prevalent HIE model categories. Figure 3 details characteristics that can be blended to create an HIE that matches the needs of its community.

Figure 3: Mapping Characteristics Against HIE Models



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Characteristics of a Successful HIE Model

Using the information in Figure 3 for guidance, the following analysis of existing HIEs points to characteristics that typify successful business models:

• Value of Services

- High-performing HIEs can bring together multiple stakeholders that interact and exchange data in a collaborative manner that improves quality of care, reduces errors, and provides better patient outcomes and value-added services. Successful HIEs have created solutions that meet the needs of various stakeholders. For example, Inland Northwest Health Services (INHS), a not-for-profit health exchange corporation serving hospitals and physician offices in Washington, Idaho, Montana, Oregon, and California⁵, in Spokane, Washington is a good example of how hospitals, clinics, and physicians can exchange health information to improve care for patients. This type of collaboration helps create standard treatment protocols and improved patient health outcomes.
- While financing and ROI issues often receive a disproportionate share of stakeholder attention, successful HIEs keep their purpose and mission at the forefront. This, in turn, helps the HIEs better meet operational milestones by keeping their target in sight. For example, the Indiana Health Information Exchange (IHIE), a non-profit venture backed by a unique collaboration of Indiana health care institutions, maintained its vision to use IT and shared clinical information for improving the quality, safety, and efficiency of health care in the state.
- Successful HIEs implement their vision and plan in several smaller phases, rather than all at once. This approach reduces risk and provides flexibility to address ambiguous constraints, and also enables better planning. The Utah Health Information Network (UHIN), for example, was created as a model for administrative data exchange and has slowly added features as it has grown over the last several years. Today, UHIN is looking into fee-based services such as credentialing, clinical data exchange and other services that can bring additional value to its members. Similarly, the Delaware Health Information Network (DHIN) recognizes that short-term activities related to electronic transactions among payors and providers will help provide the infrastructure necessary to carry out the HIE's long-term goals.
- Effective HIEs utilize physicians, payors and other stakeholders to bring best practices together to achieve a “wired” health care model. In the Indiana Health Information Exchange (IHIE), physicians understood what was needed at the point of care for their system to be successful. Payors and other stakeholders are happy with the related benefits from this model, which include easy set-up and quantifiable financial gains.
- Top HIEs strive to understand and provide incentives for all their stakeholders. These HIEs facilitate improved quality of care by providing physicians and other clinical staff with patients’ most accurate health information at the point of care. Health plans that are part of HIEs (as is the case with California’s HIE, CalRHIO) monitor and measure the quality of their claims information as well as the accuracy of the outcomes, which leads to better care for members.

5 “Improving the Quality of Healthcare Through Health Information Exchange,” Selected Findings from eHealth Initiatives’ Third-Annual Survey of Health Information Exchange Activities at the State, Regional and Local Levels,” September 25, 2006.

- **Governance**

- The vast majority of HIEs are in the process of applying for a 501(c)(3) tax-exempt status, which can reduce funding challenges and provide tax breaks. Others have issued bonds to raise capital, such as Rhode Island, where the governor has requested approval for a bond fund that could generate \$20 million for the state’s HIE. This initiative will allow the Rhode Island Quality Institute (RIQI) to sell tax-free bonds to fund the HIE’s implementation.
- Effective HIEs link public health organizations, the health care community, physicians and payors that bring together respective strengths and best practices to achieve shared benefits. In the interest of collaboration, Rhode Island’s State Department of Health created the Rhode Island Quality Institute (RIQI), which makes key decisions for the HIE. The RIQI board consists of multiple stakeholders who drive the HIE’s governance structure, policies and decision-making process. Successful HIEs also extend their reach and impact by collaborating with multiple stakeholders. This provides more resources to create and operate an end-to-end solution.

- **Architectural**

- Effective HIEs clearly define data standards for stakeholders and across industries. A huge amount of patient data will be exchanged through an HIE, and standards must be in place. Although each HIE may have a unique set of standards, the industry as a whole must conform to one set of rules for all HIEs as they move toward a NHIN. The federal agency Certification Committee for Health Information Technology (CCHIT), has started formalizing data standards for EHRs – a key HIE building block – and has, to date, certified 33 EHR systems.
- Best-practice HIEs use EHRs and, to a lesser extent, PHRs, to build a solid foundation for sharing data, to increase outreach and adoption rates, and to obtain tangible ROI in a short amount of time. Rhode Island, for example, is promoting EHR adoption in the state by creating partnerships and utilizing pay-for-performance programs.
- While long-time health care industry players have leveraged existing relationships to promote the development of HIEs, several new market entrants (i.e., Intuit with Quicken for Healthcare) are developing strategies to apply best practices and lessons learned from other industries to health care. Top HIEs keep abreast of industry changes and have plans for adapting to changing market dynamics. HIEs must build strategic partnerships with new entrants and capitalize on their best practices/lessons learned.
- High-performing HIEs leverage best-in-class technologies and customized, scalable, comprehensive solutions that meet stakeholder needs while effectively managing costs. This will allow stakeholders with systems of all sizes and maturity levels to participate in the network. Philosophically, HIEs are the building blocks to a NHIN. Therefore, successful HIEs use a common infrastructure that can be leveraged to provide long-term interoperability for the organization and move it toward a NHIN.

- Successful HIEs can achieve consistent and standard operational, data and technical workflows with a single, interoperable system. A shared framework will help achieve economies of scale for technology-related costs and assist in defining common rules, platform and workflows.

- **Financial**

- Successful HIEs have a clear plan for sustainability, as their initial funding source will eventually become depleted. The Utah Health Information Network (UHIN), formed as a 501(c)(6) membership association and currently the only example of a self-sustaining HIE, utilizes a “combined subscription/ transaction” approach in which providers pay a membership fee to join the HIE and can purchase a seat on the Board, while payors are charged fees based on the number of transactions. This type of structure has covered the HIE’s operational costs for its administrative data exchange. A similar approach is planned for its new enhancements/offerings, as well. Massachusetts Healthcare Continuum (MA-SHARE) is looking to use the subscription fees model for its clinical data exchange service and the Florida Health Information Network (FHIN) is considering the evaluation of different models, including transaction fees, member fees, and funding opportunities with Medicaid.⁶ Several HIEs are looking into this revenue stream to help cover operational and improvement costs.
- High-performing HIEs have implemented services gradually, starting with easier projects that deliver “quick hit” results. These smaller, successful milestones also help build a stronger case to secure additional funding. Florida Health Information Network (FHIN) and Delaware Health Information Network (DHIN) are two examples of HIEs that have delivered quick results and leveraged that momentum to further expand their HIE and gain adoption. FHIN worked with Florida Medicaid and built an e-prescribing program that distributes a PDA to physicians who are frequent prescribers. DHIN also adopted a similar approach to first provide quick-hit solutions and then implement system enhancements.
- A common operational model for many HIEs combines earned and contributed income. The earned income can be further invested in ongoing value-creation initiatives. Additionally, a successful HIE will seek contributed income from various stakeholders to support its financial needs and grow its capabilities.
- At best-practice HIEs, a strong initial investor is secured to provide funds for the first few years without expecting or requiring a monetary ROI. Setting realistic expectations is important, as there is no current data that indicates tangible ROI has been achieved by existing HIEs. Most of the returns – at least in the short-term – will be intangible ones around improving health care quality and processes. States are often good initial investors, as they are advocates of patient safety, quality, and community health. Additionally, payors can be a good investment source.

The Role of Payors in HIE Funding

Providing funds to help develop and operate HIEs has an immediate political benefit for payors. Physicians and hospitals already believe that these organizations should take a larger role in paying for such networks, given that the largest financial benefit accrues to them and payors stand to gain much more than good will. Lowering the costs of care by reducing duplicate tests and identifying diseases earlier can enable payors to invest in strategies that can engender long-term loyalty among plan providers and patients. Additionally, a fully functioning HIE can give payors an opportunity to create financial incentives for participating physicians and hospitals, including discounts on fees or other cost reductions.

Challenges and Suggested Strategies

As HIEs evolve and expand, their responsibilities, roles and influence within the health care industry will evolve. Similar to the flourishing credit card and ATMs industries, HIEs will be expected to adapt to changing market dynamics and to overcome new obstacles as they provide more and varied services to their customers. Following are a list of current and potential challenges, as well as suggested strategies for success:

- Align Incentives
 - To increase stakeholder participation, HIEs need to align incentives to the HIE's mission as well as stakeholders' ROI expectations. Each stakeholder has different reasons and expectations for joining/aligning with an HIE and they need to be taken into consideration.
 - Consider establishing a governance structure in which the HIE is steered by classes of stakeholders – possibly with differentiated voting rights – designated by their level of involvement and/or investment.
- Secure Funding
 - While a few HIEs have made the transition to self-sustaining organizations, that concept is still maturing and the current business models have yet to stand the test of time. To survive, an HIE must secure both start-up funding and a sustainable plan for meeting ongoing operating costs.
 - Existing HIEs have shown ingenuity in obtaining seed money to spur initial development of their regional networks. Sources to consider include federal and state grants or pay-as-you-go strategies for HIE participants in which each will pay fees to access data from the network. Early in 2006, the governor of New York provided 26 regional health care networks \$52.9 million in grants as part of the state's Health Information Technology (HIT) initiative.⁷
- For many HIEs, the membership/subscription model, enhanced by transaction fees, appears to be the most effective means to achieve sustainability. Other innovative sources of income can be tapped by various HIE initiatives; examples include fees for online training programs, transcription services, implementation, project management, providing benchmarking data, and per-line charges for clinical messaging.
- Boost Adoption Rates
 - Current HIE adoption rates are low and most users are localized. If HIEs are to prosper, their user numbers and geographic reach must grow. HIEs can encourage and support this growth by facilitating portability of patient information, such as providing an EHR to any location a patient may travel.
 - HIEs must clearly communicate the benefits of participating in the HIE. Currently, there seems to be more incentives for payors to join HIEs, as there is higher potential for ROI (both tangible and intangible); however, incentives for other stakeholders need to be identified and shared, as well.
- Accommodate Scalability
 - As the number of HIE capabilities and users increases, network traffic will grow exponentially. HIEs must fashion a technical infrastructure that supports scalability. This corresponds with the best practice of leveraging interoperability when updating the HIE infrastructure.
 - HIE design and workflow processes must be scalable and provide adequate response rates and continued benefits for users. With the introduction of HIE, stakeholders' design and workflow process will also be impacted and the process of delivering health care, capturing health data, and administering claims could be streamlined.
- Define Data Standards
 - As there are numerous HIEs, the data being transferred varies. There should be a clear definition or understanding of data standards among all stakeholders. States and other stakeholders can assist in establishing national standards and driving interoperability requirements. While the CCHIT has started this process with credentialing-approved versions of EHRs, there needs to be more refining of data standards.

One major challenge for HIEs is to keep moving toward the formation of the NHIN. States are key links for the formation of the NHIN and must guide, endorse, and push forward the process for HIE integration within the NHIN. Currently, each HIE has its own standards for data, architecture, and goals. States must drive to a common set of standards, link the HIEs with a common goal, and establish a regulatory environment in which the NHIN can flourish.

⁷ <http://www.ny.gov/governor/press/06/0524062.html>.

When Will Stakeholders See a Return on Their HIE Investment?

Although momentum is growing for the creation of Health Information Exchanges, the return on investment for such entities is unclear, for several reasons. First, there is no one-size-fits-all approach to creating an ROI-based business model for data exchange. Secondly, it is simply too early in most HIE life cycles to expect any clear statistics on ROI.

As demonstrated by the HIEs currently in operation, ROI does not seem to be a critical factor in the participation decision. Most HIE stakeholders do not expect any substantial, near-term return on their initial investments and those paying some kind of fee appear to expect a return on their recurring expenses sometime in the future, rather than immediately. In general, HIE participants seem to be focusing their participation decision on qualitative or intangible benefits – at least for the short-term. The most important ROI factors among different stakeholders are:

Providers:

- Improved quality of patient care
- Improved competitive market position
- Improved reimbursement rates
- Improved customer service/patient loyalty.

Payors, Patients, and Government:

- Improved regional health quality
- Reduced expense in delivering care
- Improved quality in care delivery
- Availability of data for various purposes.

The current lack of definable HIE return on investment is a key reason why potential investors should prepare a thorough business case prior to determining their participation.

Conclusion

Health Information Exchanges offer tremendous potential to improve the quality and lower the cost of U.S. health care. Patients, providers, and payors will benefit from increased, timely communication and secure patient data exchange, regional collaboration, and the elimination of inefficiencies and duplicate services. This will result in meeting an overarching goal – improved quality of care, reduced medical errors, and better outcomes for patients. Certainly, HIE evolution faces technical, financial and operational challenges; however, public and private support for the movement will assist in HIE development and adoption.

Sustainability is the major challenge for HIEs and there are some best practices around this concept. However, HIEs need to continuously work at self-improvement. HIEs such as UHIN are evolving, growing and providing more services for their stakeholders. UHIN is an example of an HIE that is adapting to meet the data needs of its customers and could serve as a model for the health care industry.

The use of telemedicine and remote patient management is expected to accelerate alongside the maturation of HIEs, especially as broadband technology enables integration of streaming video interactions between physicians and patients and among physicians into EHRs. The vision of such interoperability is to craft a broad network of real-time, life-critical data that will transform health care delivery.

HIE stakeholders need to develop and operate under a business model that enables long-term financial self-sufficiency. Once this sustainability is achieved, the future of HIEs as a key link in an interconnected U.S. health care system looks bright.

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