

WHITE PAPER

**HIE: A NEW MODEL THAT WORKS**  
**Sustainable Health Information Exchange That**  
**Promotes Patient-centric Care**

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## Executive Summary

With health information exchange (HIE) being touted as an important tool in the federal government's health care reform arsenal, the stakes for the success of individual HIEs could not be higher. Although existing HIEs—many of which are Regional Health Information Organizations (RHIOs)—have worked hard to advance the goal of improving the quality and delivery of patient care by sharing data, there is one obstacle that remains elusive: achieving HIE sustainability.

Part of the sustainability problem is that HIEs originated solely as clinical data exchange vehicles and were not designed according to traditional business models. As such, relatively few HIEs have achieved financial sustainability outside of major grant funding.<sup>1</sup>

Finding a business model that builds value, achieves savings, leverages existing network infrastructures and data repositories, and utilizes data analytics to drive answers at the point of care needs to happen as soon as possible. With a creative approach, the right technology tools and collaboration among stakeholders, sustainable HIEs can become a reality today.

### HIEs Continue to Gain Momentum and Expand Possibilities

During the past several years, HIEs have grown in number and are expected to have a positive impact on health care cost reduction and physician practice efficiency. In its annual survey on the state of HIEs, the eHealth Initiative (eHI) identified and collected information on 193 active HIEs and received responses from 67 new HIE initiatives that it had not heard from in the past.<sup>2</sup> From 2008 to 2009, the industry saw a nearly 40-percent increase in operational HIEs, which is a sign that the vision for HIEs as capable of transforming administrative, clinical and financial workflows is taking hold.<sup>3</sup>

The growth in the number of HIEs indicates both a renewed commitment to information exchange goals and the ability of the HIE industry to persevere, even in

the face of financial obstacles. The reasons behind that commitment are myriad.

According to the eHI survey, a majority of HIEs cited the following as the top drivers of HIE efforts: (1) improved quality of health care; (2) improved patient safety; (3) reduced inefficiencies experienced by providers who need information to support patient care; (4) increased attention on health information technology and HIE at the national level; (5) rising health care costs; and (6) public health monitoring needs.<sup>4</sup>

These drivers not only have spurred on the growth of HIEs, but also have led multiple stakeholders to derive substantive value from the HIEs' efforts. According to eHI, 40 operational initiatives reported cost savings from HIE, which were the outcome of reduced staff time spent on lab and radiology results, clerical administration and filing; decreased spending on redundant tests; decreased costs of care for chronic care patients; and reduced medical errors.<sup>5</sup>

Physicians utilizing HIE have become increasingly efficient for similar reasons, such as improved access to test results, improved quality of practice life (e.g., fewer hassles in tracking down information, getting home earlier, etc.), and reductions in staff time spent handling test results and administrative and clerical tasks.<sup>6</sup> It is clear that HIEs are increasing in number, provide value and represent a step in the right direction for both health care providers and patients.

To date, most HIEs and RHIOs are local, small in scope and focused on clinical data exchange. While this smaller network has worked to improve health outcomes on a community level, it is not a strong business model, because it is largely funded by government grants or donations. Diverse funding sources often have resulted in HIE efforts that lack uniformity, with the federal government moving in one direction and the states and regional communities moving in another.

An influx of new funding from the American Recovery

and Reinvestment Act of 2009 (ARRA), which directly designated \$300 million to support HIEs in 2009 and 2010 plus an additional \$564 million from the recently released Section 3013, State Grants to Promote Health Information Technology, has broadened the interest in and support for HIE efforts<sup>7</sup> and provided incentives for physicians to implement electronic health records, provided they demonstrate “meaningful use” of EHRs to improve patient care.<sup>8</sup>

The long-held goals of HIEs—to improve patient care, avoid duplicative testing and check dangerous drug interactions, decrease administrative costs and reduce tedious and redundant manual processes—closely match the intent of ARRA and ongoing health care reform efforts.

The government’s financial support for health care technology’s role in reducing inefficiencies, combined with growing demand from consumers, payers and providers for reliable information on health care cost and quality, will no doubt help to boost the long-term viability of HIEs, RHIOs and other exchanges that will be a part of the National Health Information Network.

However, even with a new source of funding and the national spotlight shining on HIE issues, with state budgets getting tighter and ARRA funds only temporary, it is time for the health care industry to devise a sustainable business model that does not rely on state or government funding. In other words, HIEs will be able to take advantage of these government funding options today but should not count on them continuing to be available in the future.

#### Today’s Networks: Simplification Is Far from Reality

It is worth noting that there have been some gains on the sustainability front. Sustainability dropped from the number one concern of HIEs to the third position in the recent eHI survey, behind privacy and confidentiality issues and defining HIE value.<sup>9</sup> State government grants and contracts as well as hospitals are cited by HIEs as the primary sources of start-up funding, with

funding also coming from the federal government and private payers.<sup>10</sup> Ongoing revenue sources for HIE operations remain unchanged from 2008 to 2009; the majority of that revenue comes from hospitals and physician practices.

In spite of minor fluctuations, the need for a simple, sustainable business model still remains. Partnering with other health care industry players—payers, clearinghouses and gateways, which have an existing network infrastructure and revenue base—may provide the HIE industry with answers regarding how to define, implement and deploy a sustainable model and take HIEs forward into a large-scale implementation.

“Administrative data exchanges through clearinghouses have very well-defined, sustainable models that deliver value to participants,” according to Keba Zubeldia, M.D., senior vice president, Interoperability Technologies, Ingenix. “Merging HIE and clearinghouse data into the same infrastructure would be extremely cost efficient and improve HIE value at the same time.”

Working with clearinghouses also may solve another problem: network congestion and complexity. Even those physicians, payers and patients who embrace the benefits technology brings to the health care system, are becoming overwhelmed by the parallel networks that are emerging to handle different types of data exchange. “There are multiple networks in play here: administrative, financial, e-prescriptions, lab testing and HIE,” said Art Glasgow, senior vice president and general manager at Ingenix. “The level of complexity for these five networks is daunting, and most of the solutions are at one end of the spectrum or another, not in the middle,” Glasgow explained.

This complexity will only increase as more HIEs join the fray and will result in:

- A fragmented system that fosters duplication and redundancy
- Missed opportunity to move beyond exchange of basic clinical data and to develop new HIE economic models

- Increased operational costs and administrative burdens, and
- Limited usability by patients and providers, who currently have to monitor and understand separate clinical and administrative systems.

Where to start and why collaboration among these stakeholders makes sense are questions that must be addressed. To begin, it is important to understand how clearinghouses and gateways work, what they would offer the HIE industry and why they might be willing to merge their operations with HIEs.

### **HIE/Clearinghouse Combination Plays to Entity Strengths**

By way of definition, clearinghouses connect providers, gateways and payers, aggregate data and charge all parties for the transport and exchange on either a transaction or service fee basis. Gateways typically are smaller entities that connect a community of providers and partner with clearinghouses to exchange administrative data with payers and provide additional incremental services that clearinghouses typically do not offer. Although together clearinghouses and gateways serve as the administrative backbone of the health care system—with an annual price tag of \$2 billion—no clearinghouse connects all providers and payers and no gateway provides all services or connections.

The clearinghouse industry—formed in the 1980s when a number of payers came together to form the National Electronic Information Corporation (NEIC)—has played a key role in establishing electronic data interchange by translating paper claims to electronic ones and disseminating claims electronically, among other functions, but it is considered a mature and commoditized industry that often is cited as a source of ballooning health care administrative costs. Today, because traditional clearinghouse functions largely are considered less vital and too costly as providers and payer shift toward direct connections and self-

management, clearinghouses are seeking a new business model as well, and could welcome collaboration with HIEs.

Clearinghouses and gateways can offer HIEs terabytes of data for billions of episodes of care—a rich repository of administrative health care data—and their extensive networks for handling administrative transactions. Both the clearinghouse industry data and its infrastructure clearly would benefit an HIE industry that needs to move its mission to enterprise-wide interoperability with next-generation analytics to deliver value, and must reduce network complexity “noise” to become a viable business.

### **Multiple Stakeholders Achieve Benefits under New HIE Model**

The benefits of a new HIE/clearinghouse collaboration model to HIEs is significant, but the model also helps other stakeholders as well. It could be argued that improving outcomes through HIEs reduces cost, which helps payers, but there also is a need to drive out administrative costs and medical costs out of each transaction, which benefits providers and patients as well.

Under the existing HIE model, payers often are out of the loop, and traditionally providers have perceived payers as adversaries and clearinghouses as third-party intermediaries that only introduce costs. “That disconnect is at the root of the HIE sustainability problem,” said, Kepa Zubeldia, M.D., senior vice president, Interoperability Technologies, Ingenix. “We need to resolve this disconnect and put payers, providers and HIEs on to a level playing field,” he continued. “Bringing clearinghouses, which connect payers to the other parties, into the equation will help bring payers into that circle of information. Payers manage the funds that pay for health care, so they need to have a place at the table.”

The new model also offers the various stakeholders

distinct advantages, such as improved care, reduced cost, increased efficiency and complete access. In terms of specific returns, the new model will:

- **Empower consumers.** Patients receive coordinated care, actionable information, and answers to make informed, value-based decisions based on comprehensive, standardized information.
- **Empower providers.** Streamlined administrative functions, comprehensive clinical insight and answers right at providers' desktops will allow more time for treating patients according to evidence-based medicine (EBM), in addition to eliminating duplication and reducing risk in treatment.
- **Enable state and federal governments.** Providing access to data will allow states and the federal government to better target underserved and at-risk populations with preventative measures, inform best practices, and provide public health and bioterrorism monitoring.
- **Engage payers.** Reduced costs, greater value, and decreased complexity will help payers better control administrative expense and improve operational efficiencies.
- **Provide opportunity for existing clearinghouses/gateways to realign in a changing market.** Although the new model redirects spend from current clearinghouses/gateways to HIEs, it also creates opportunity for the development of new services and innovations for companies that choose to pursue that path.

### The New HIE Model: Comprehensive Services and Sustainability

At present, neither the HIE data system nor the administrative clearinghouse data system meet all of the needs of varied health care stakeholders. The emerging HIE network is based on clinical data exchange and meets the needs of hospitals and physicians who require patient information to make diagnoses and define treatments. The existing clearinghouse/gateway network is based on

administrative data used to track, charge and pay for health care.

Under a new model proposed by Ingenix, the HIE would serve as the gateway, aggregating all physician data—both clinical and administrative—for its community, providing interoperability, intelligence, public health monitoring, and additional value-add services at the point of care. This new HIE model supports the mission of improving the quality of care and reducing costs while providing a scalable paradigm that meets the changing needs of the health care industry over time.

“Clearinghouse and gateway assets can be utilized in the HIE arena to provide multi-source, longitudinal aggregation and analytics, delivering actionable insight for health improvement, including evidence-based medicine (EBM), to define best practices, the cost- and quality-measurement of physicians and public health monitoring,” Glasgow asserted. “By connecting the clearinghouse/gateway network with the HIE network, stakeholders that have been operating as independent islands will have to work together to achieve efficiencies and make sensible business decisions,” he said. “Bringing the networks together in the middle provides a workable solution that can be implemented today.”

Indeed, the new Ingenix model would integrate HIEs into the current clearinghouse infrastructure and would assign them a vital role as the link to providers, which would have an immediate impact on efficiency. The new model also would place HIEs firmly in the business of intelligence while fulfilling core interoperability needs.

- **Clearinghouse/gateway services** for all provider data (clinical and administrative data). HIEs would aggregate provider data for payers, state and federal entities. *This can be done today and would provide an immediate funding increase for earlier sustainability.*
- **Advanced analytics and intelligence** derived from access to health care data available from multi-source data. *These services could be layered onto the clinical and administrative gateway services now and over the long-term.*

- **Actionable insight and answers delivered through EHRs** and derived from the advanced analytics in addition to exchange of clinical data about specific, de-identified patients. *Again, additional services and a funding stream could be layered onto the HIE model over the long-term.*
- **Public health monitoring services** for groups on a community, state or regional level, as well as bioterrorism monitoring. *These services could be layered onto the clinical and administrative gateway services now and over the long-term.*

Under a combined HIE/clearinghouse model, the natural friction that exists among these health care entities will be eased, a new source of HIE funding will be available and the system of two complex, parallel networks will be eliminated. This strategy also will advance HIE efforts and bring greater value to health care stakeholders.

For example, Glasgow explained, there is general agreement that disease management can drive costs out of the system. However, if the data used for disease management comes solely from an HIE, just a narrow slice of the population is represented and clinical data are the only data that can be mined and reviewed. Under the model proposed here by Ingenix, a much broader swath of data—both in type (clinical and administrative) and scope (delivery to multiple HIEs)—becomes available.

The best place to start exploring the new model is with states, according to Glasgow, because that is where the most change in the system can be affected. “Most state Medicaid departments already maintain very rich databases of some clinical and mostly claims administrative data. Working with states to evolve that into a gateway concept will allow them to deliver maximum value back to the HIEs in their states,” he said. “This scenario also will make the HIE that much more attractive for both government and commercial payers to participate with it.”

States will prove to be an effective launching pad for the

new model because they have “the political clout to affect change, will see the benefit to their constituents and can offer health care data that no one else can match,” Zubeldia noted.

### The Business Case for the HIE Gateway Model

In general, the new model combines the work already being done by HIEs—the interoperability of clinical data—with the work currently done by clearinghouses and gateways—the exchange of administrative claims data, and provides the means to add additional value as a service for the long-term. HIEs would remain provider-focused and enable provider-topayer connectivity through HIE gateways to clearinghouses, driving substantial medical cost and administrative savings through aggregated services and improved intelligence.

“HIEs may fear being displaced by a new wave of clearinghouses, but in reality Ingenix wants to help HIEs succeed by serving as a coordinating entity that works with both parties to integrate their goals without disrupting what they have achieved,” Zubeldia said.

Under the new model, a significant benefit can be derived from aggregated data from both clinical and administrative databases; analytics will transform this information to make the delivery of care more effective. The short-term funding mechanism for the new model would come from the elimination of the separate clearinghouse/gateway network system. Providers would redirect their current spend with a clearinghouse or gateway to the HIE.

There is a base case and an incremental case for the new model, according to Glasgow. “In many areas, providers pay or subsidize vendors, such as clearinghouse, e-prescription and lab exchanges, for a number of different services that help them to execute business. To participate in an HIE, providers would have to pay for a third or a fourth network. But what if the HIE was the single pipeline for all information from/to the provider?” he queried. “Connections should be built among these services so providers will get

more value from the redirection of their existing expenditures,” he said. “Then, the collective data can be used to power other services. With all data flowing through one place, there is incremental value that also can be delivered.”

Ingenix financial modeling shows that HIEs offering both clinical and administrative services to providers would generate revenue immediately from the administrative claims side to fund HIE activities, showing a surplus shortly after start-up. After clinical services demonstrate a measurable return, fees for the HIE services can be increased. Further, other savings could be anticipated from spending less time on administrative functions, improved health outcomes, early fraud detection, streamlined operations and clinical processes, and enhanced provider quality of life.

A key advantage of this new model is that there is no need to wait, Glasgow explained. The first step to delivering service and value is the base HIE platform engine capability: a supergateway at the administrative claims data level that is merged with clinical data exchanges. “By structuring our model in this manner and at a state level, we can start today and drive value into the system,” he said. “As the other pieces fall into place, HIEs will be able to provide even more value with advanced data analytics.”

### How Analytics Drive Value

Advanced analytics, combined with powerful end-user tools that identify trends and best practices, contribute to the business value that will be the foundation for HIE sustainability. In the Ingenix view, the future health care system will enable information to move in a frictionless manner to all people when they need it, where they need it and through whatever channel they choose to acquire it, in a private, secure and standardized manner.

Data analytics are the key to gleaning actionable intelligence from health data exchanges; actionable intelligence helps physicians, payers and health departments identify at-risk patient populations and

manage pre-visit, point of care and post-visit patient encounters.

Ingenix health care analytics are effective at identifying evidence-based care opportunities and providing longitudinal care records for individuals that represent all of the services an individual receives, derived from administrative claims for medical, pharmacy and lab procedures. This information, *when appropriately integrated in provider practice*, can improve health and reduce health care costs through better outcomes.

A reasonable array of value-added services that analytics offer includes:

- Physician, improvement, efficiency, and outcomes measurement
- Performance management
- Program integrity
- Fraud and Abuse Identification and Prevention
- Population monitoring and predictive profiling
- Care Gap Identification
- Care/Disease Management
- Population Health Analysis
- Public Health Monitoring
- Clinical Research

Two examples that illustrate the value of data analytics include the Wisconsin Health Information Organization (WHIO) and the State of Michigan.

WHIO serves as a case study of what a multi-stakeholder organization that unites payers and providers, purchasers and the state toward a common goal can accomplish. WHIO has created the WHIO Health Analytics Exchange, a statewide repository or “data mart” of payers’ health claims data and will report on the quality of care delivered in the state measured against evidence-based guidelines and other standardized benchmarks. **The Exchange** database includes 1.6 million members, 73 million claims, 72 thousand providers, and \$17 billion in billed charges, and the size is growing as additional insurers are being added.

Ingenix, which currently is working with WHIO on aggregating and reporting health claims intelligence, is helping WHIO to meet its goal of creating a source of measurement to be used broadly by all players in the Wisconsin health care market. Through **The Exchange**, payers and providers in the state can answer questions about quality, cost and relative performance based on facts, and Wisconsin citizens can get transparent and standardized information on price and quality to encourage value-based provider choices and encourage accountability for outcomes from all stakeholders.

The State of Michigan also has achieved dramatic results in improving health outcomes and reducing taxpayer costs through the broad adoption of information technology, including sophisticated data warehousing strategies and advanced analytics. The Michigan Department of Information Technology (MDIT) and the Michigan Department of Community Health (MDCH), in partnership with Ingenix, integrated data from 15 separate health-related program areas—41 different data sources—into a single, unified data warehouse environment.

With Ingenix support, the MDCH worked with the MDIT to apply advanced analytics to assess care and costs across multiple programs and examine statewide health issues. This broad analysis, through the use of information technology, enabled the MDCH, in spite of the worst economic downturn in decades, to make better-informed decisions that led to greater access to care and more targeted preventive care efforts in the state.

For example, Michigan was able to reduce the number of children with lead poisoning by 35 percent from 2003 to 2007 and identify 59,000 children on Medicaid at risk of flu complications during the 2006-07 flu season and prompt physicians to administer a flu shot to those patients as their medical records were accessed. Significantly, Michigan also eliminated approximately \$200 million in annual costs from the state's health care programs since 2005, based on efficiencies and improved health outcomes.

It is clear that making smart use of data technology leverages the power of information to improve the affordability, quality, usability and accessibility of health care for everyone. Combining the clearinghouse/gateway network with the HIE network would reduce the number of information pipelines and serve as a launching point for connecting other networks (e.g., State Medicare and Medicaid repositories, pharmacy networks, lab networks) as well. Uniting parties, perspectives and intelligent design plans that support the connectivity and exchange of data will be the hallmark of the successful—and sustainable—HIE.

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<sup>1</sup> Friedmann, Beth; Holmes, Jeffrey P.; Frech, Todd; MacDonald, Keith; Kolkman, Laura; "RHIO Evaluation and Sustainability," Chapter 3, *Guide to Establishing a Regional Health Information Organization*, Healthcare Information and Management Systems Society (2007).

report based on its 2009 *Sixth Annual Survey of Health Information Exchange* (July 22, 2009).

<sup>10</sup> *Id.*

<sup>2</sup> "Migrating Toward Meaningful Use: The State of Health Information Exchange," eHealth Initiative's report based on its 2009 *Sixth Annual Survey of Health Information Exchange* (July 22, 2009).

<sup>3</sup> *Id.*

<sup>4</sup> "Migrating Toward Meaningful Use: The State of Health Information Exchange," eHealth Initiative's report based on its 2009 *Sixth Annual Survey of Health Information Exchange* (July 22, 2009).

<sup>5</sup> *Id.*

<sup>6</sup> *Id.*

<sup>7</sup> The American Recovery and Reinvestment Act of 2009, H.R. 1, Title VIII – Departments of Labor, Health and Human Services, and Education, and Related Agencies. And The American Recovery and Reinvestment Act of 2009, Title XIII-Health Information Technology, Subtitle B—Incentives for the Use of Health Information Technology, Section 3013, State Grants to Promote Health Information Technology, Office of the National Coordinator for Health Information Technology, Department of Health and Human Services, 2009.

<sup>8</sup> Incentives range from \$42,500 to \$63,750 over a five-year period. "Meaningful use" will be defined by The Office of the National Coordinator for Health Information Technology by the end of 2009.

<sup>9</sup> "Migrating Toward Meaningful Use: The State of Health Information Exchange," eHealth Initiative's