



# HIE for a New Generation

Center for Health  
Transformation



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## *Health Information Exchange — the Future is Now*

The last two decades of rapid advancements in information technology, the Internet and telecommunications have helped cultivate an ambitious vision: a transparent and interoperable healthcare ecosystem where secure and reliable health information exchange transforms the delivery of care to an optimized level of efficiency and quality. It is, to some minds, the holy grail of healthcare.

Health information exchange holds the promise of facilitating administrative efficiencies, clinical innovation and payment reform, and this paper explores how that vision is beginning to be realized today. Payers, providers and even employers are beginning to see not only improvements in the quality and efficiency of care delivery, but the development of consumer-directed programs and services that are beginning to transform the way people think about their healthcare. Initial iterations cobbled together disparate systems in lego-like fashion for simple exchange of data. Today health information exchange is evolving to a sophisticated model more resembling the modular and scalable characteristics of the tinker toy, enabling additional services that change aggregate data into information that can be used to transform health plans, delivery protocols and lifestyles.

Health information exchange is still in its infancy with only 38 percent of the entities across the country operational today.<sup>1</sup> Nevertheless, that is a 40 percent increase from 2008.<sup>2</sup> Edward Barthell, M.D. and director of business development with Microsoft's Health Solutions Group, sees four converging axes contributing to this growing momentum: "It's easier and less expensive to put in place robust health information technology. The cost of healthcare has increased to more of a crisis level...consumers are more accepting of the idea of information exchange on the Internet, and government officials have come a long way toward accepting this as important."

In fact, almost \$1 billion dollars were included in the American Recovery and Reinvestment Act of 2009 to various projects over the next several years to build and strengthen information technology infrastructure and exchange capabilities. It seems the future is now for health information exchange. This paper will explore the need for robust infrastructure; the role of information gleaned from interconnected technology; and how using incentives designed around information gathered can be a transformative foundation on which to improve our health system.

**"It's easier and less expensive to put in place robust health information technology,"**

**- Edward Barthell, MD, Microsoft Health Solutions Group**

<sup>1</sup> "Migrating Toward Meaningful Use: The State of Health Information Exchange," 4.

<sup>2</sup> Ibid.

## Infrastructure – Is the Information Highway Paved?

Figure 1



The end goal is an interoperable national health information network requiring standards-based data exchanges of health data that are both secure and reliable. This is often compared to the creation of the U.S. interstate highway system (figure 1). This national super highway of electronic information is being built out through local and regional initiatives that are intended to eventually converge into a national system.

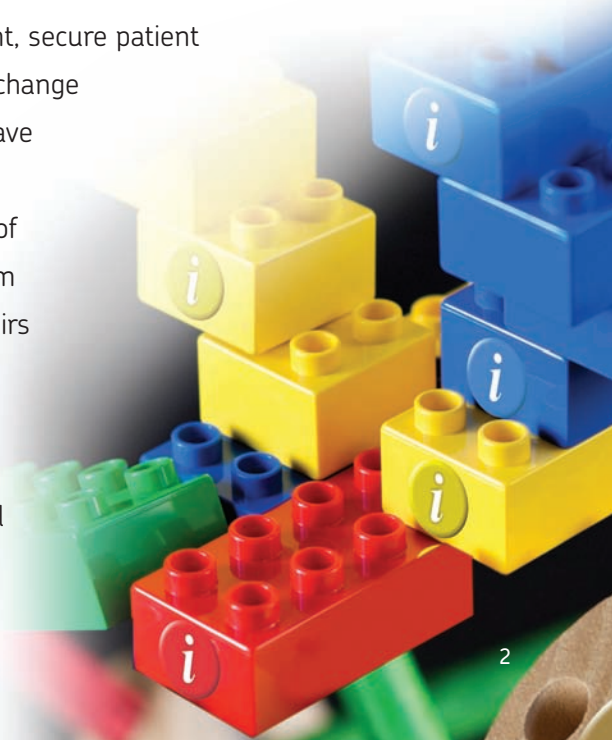
A health information exchange (HIE) has no national or industry standard definition. In fact most exchanges to

date have been physical networks that connect isolated islands of information between hospitals or providers. Organizations and state governments are moving forward with various models that address pressing, local healthcare needs, which makes sense given that most healthcare is delivered locally. Some HIEs focus on state immunization tracking, some on access to Medicaid patient information in hospital emergency departments, while others seek to build out centralized health record banks. These are just some examples of the 193 active HIEs around the country.<sup>3</sup> Is this lack of a standard definition a barrier to broader adoption? Many would say not, arguing that systems interoperability is the greater facilitator of broader adoption.

Some industry experts argue that health information exchange has existed for years with an infrastructure built and paid for by the private sector that can be leveraged relatively easily. Additionally, the Internet can serve as a crucial component to the foundation necessary for an effective HIE. Healthcare intermediaries such as Emdeon, Availity and RelayHealth have been exchanging federally compliant, secure patient data between providers and payers via the trusted, existing HIPAA data exchange mechanism for over a decade. "Emdeon and others in the private sector have created a highly leverageable infrastructure that is a fully self-sustaining marketplace upon which healthcare stakeholders can layer different types of health information technology and data exchange services," explains Miriam Paramore, senior vice president of corporate strategy and government affairs for Emdeon.

Emdeon supports four private HIEs operated by integrated delivery systems in Florida, Illinois and California that routinely exchange clinical as well as administrative data. Using the interstate analogy, adding the clinical

<sup>3</sup> "Migrating Toward Meaningful Use: The State of Health Information Exchange," <sup>4</sup>



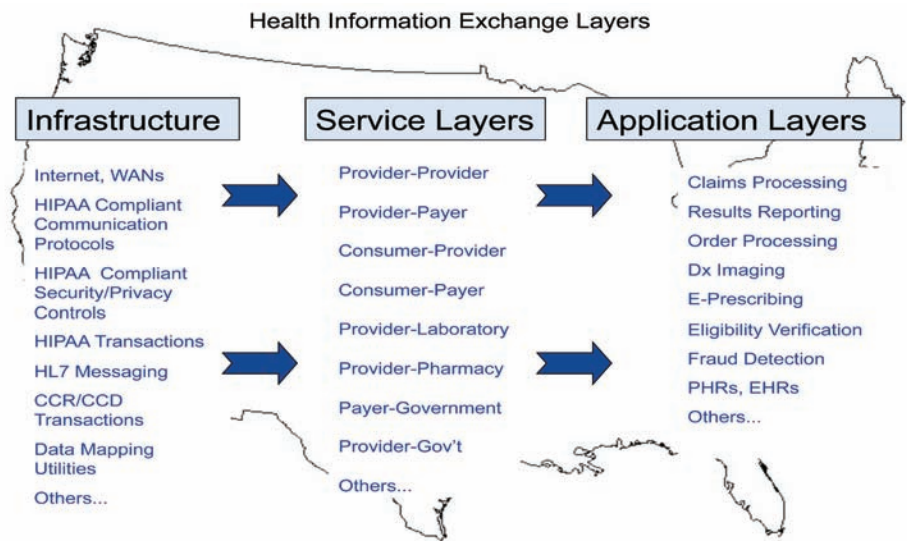
data to the information highway is no different to Paramore than driving a motorcycle instead of a car to work; “You have to design and build the motorcycle, but you don’t need a new interstate,” she argues.

Julie Klapstein, chief executive officer of Availity, agrees. “We start by connecting everyone and then layering on the different services,” she says. Availity rolled out an HIE in November 2009 that connects eight Ohio health plans and all physician offices, some of which do not have practice management systems. Application-level services include realtime e-prescribing, patient cost estimators, health history and lab results in addition to more traditional eligibility and claims processing services. Technology business partners develop additional service layers as the market demands. “We open up our system to all our vendor partners to offer a wide variety of options,” Klapstein explains.

Viewed this way, local HIE priorities and initiatives can be met through the development of service layers that are added to the infrastructure and applications that are then built around the service layers to add value to the connectivity. Using the interstate highway analogy, service layers are like the interchanges that need to be built to connect the highway to secondary

roads. Connectivity between and among providers, payers and laboratories are all examples. Value added services at the application level include things like real-time claims fraud detection, clinical results reporting, e-prescribing, provider order entry and personal health records. Once the service layers are established, there are myriad potential applications (figure2).

Figure 2

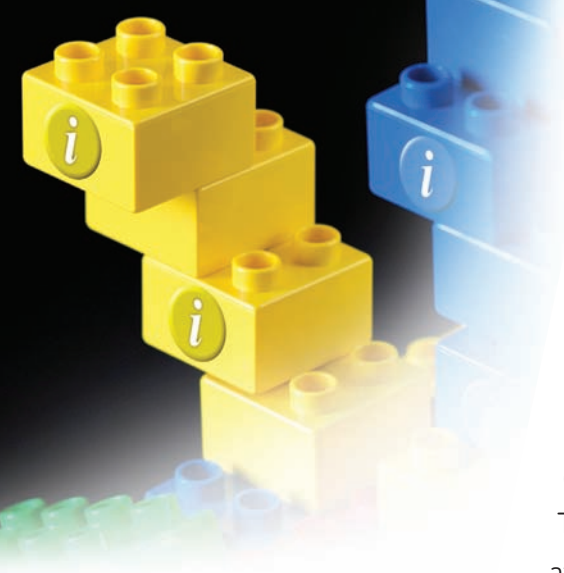


This service oriented architecture (SOA) is not new. It has been around since the 1990s and is being used in various industries to improve business operations. Pfizer uses an SOA infrastructure in all its software development; insurance giant AFLAC has been able to bring services online faster and better manage existing services to its customers, shareholders and employees; the Centers for Disease Control and Prevention manages travel costs for its scientists by using SOA to integrate its travel management system with the cross-agency E-Gov Travel services; and Coca Cola saves \$3 million a year on travel and phone charges through the use of service-oriented mobile links.<sup>4,5</sup>

Additional infrastructure components exist within the private sector that can help expedite health information exchange. CAQH has led the development of the Committee on Operating Rules for Information Exchange<sup>®</sup> (CORE), which has developed technology agnostic operating rules that simplify the exchange of administrative data between stakeholders, and today over 170 million Americans are covered by over 100 organizations that are CORE certified. The plug-and-play nature of CORE operating rules as part of the infrastructure enables rapid compliance

<sup>4</sup> Joe McKendrick, "Ten Examples of SOA at Work, Circa 2009 (Part 1)".

<sup>5</sup> Ibid., (Part 2)."



with anticipated meaningful use requirements and is aligned with federal technical specifications for connectivity and security.

Another component of available infrastructure is the Amalga Unified Intelligence System from Microsoft that enables the integration of data that does not follow a common standards set. The lack of industry consensus regarding data standards has been problematic for health information exchange. Amalga helps mitigate the issue by using parsing structures that cut data into data atoms and stores them with extensive metadata tagging. The data atoms can then be re-aggregated into any subset of those data atoms and then into whatever views are needed for the end users. “Standards make the job easier,” explains Dr. Barthell, “but we also have the ability to bring

data in from all sorts of systems that are not capable of standards-based messaging. We can deal with all kinds of data types and look at them in new ways.” For example, Microsoft has used the Amalga engine to take data from the National Weather database and do a cross-correlation between weather patterns and health trends. It can help public health agencies answer such questions as whether a corresponding rise in rainfall and gastrointestinal illness might indicate problems with an aging city sewer system.

Amalga can be coupled with other services that can become part of an HIE, such as commercially developed personal health records or even business intelligence solutions provided by companies like VitalSpring Technologies that support large self-insured employers and government agencies.

## **Information Driving Change**

The focus of most HIE entities, at least initially, is building an infrastructure to support the coordination of care between multiple providers by making patient-specific health information easily accessible. This is key, given that most healthcare delivery occurs in the physician’s office and the typical primary care physician works with 229 other physicians in 117 different practices on care coordination issues.<sup>6</sup>

### **Improving Coordination of Care**

Ted Kremer, executive director of the Greater Rochester Regional Health Information Organization (RHIO) in the New York Finger Lakes region echoes Jones’ view. “Our initial efforts have been around making information available,” Kremer explains. “Once you’ve gotten to that it becomes the framework for clinical quality improvement.” Lab results, digital images, medications, history and physicals, discharge summaries and other transcribed reports comprise the majority of clinical information in the exchange.

Operational since 2006, the Rochester RHIO, which covers nine mostly rural counties, was slow to catch on. It was not until the exchange had 30 data sources and one million transactions regularly flowing through it that adoption began to take off. Physician adoption nearly quadrupled in 2009 to 1700 active participants, and

<sup>6</sup> Hoangmai H. Pham, MD, MPH; Ann S. O’Malley, MD, MPH; Peter B. Bach, MD, MAPP; Cynthia Saiontz-Martinez, ScM; and Deborah Schrag, MD, MPH, “Primary Care Physicians’ Links to Other Physicians Through Medicare Patients: The Scope of Care Coordination.”

today the exchange adds 1.4 million transactions every month. Kremer expects to see both the adoption rate and transaction volumes to continue this pace through 2010.

Providers find value in the information and report that it not only improves workflow in terms of easier access to the patient's information, but "from a basic care perspective they are telling us that the information has allowed them to change their treatment modalities, especially in emergency departments," Kremer reports. Next steps include tighter coupling of workflow with clinical alerts at the point of care, a personal health record portal for consumers, electronic signature capture for patient consent and integration of mobile technology into decision support efforts.

## Improving Care Management

In addition to information exchange services, the Rochester RHIO is also part of New York's HITEC research consortium that includes Columbia University, University of Rochester, Cornell University and SUNY Albany. This consortium conducts qualitative and quantitative research using patient-protected, de-identified clinical information and claims data that flow through the exchange. A study of the effects of e-prescribing alerts on physician prescription behavior is due out in early 2010. Additional studies are looking at the changes to clinical workflow efficiency and quality outcomes in standalone versus interoperating EMRs in the RHIO, and the effect of patient information exchange on ordering patterns and quality outcomes.

The ability to aggregate health data and conduct analytics that can provide clinical and business intelligence for utilization management is what many believe will ultimately drive down cost and improve quality. Privately held companies and research organizations already can provide this service layer to an HIE, similarly to the way the HITEC consortium serves the Rochester RHIO. They can analyze aggregated clinical data from EMRs and/or claims data to create predictive models, best practices or improved care management strategies.

Verisk Health, a subsidiary of Verisk Analytics, provides clinical and financial intelligence to health plans, third party administrators, disease management companies, independent practice associations, employers and healthcare providers. It aggregates and analyzes medical and pharmacy claims data for its customers. Although some experts argue that claims data lack clinical value, Nathan Gunn, M.D. and chief medical officer of Verisk Health, argues that there is a high degree of clinical value in claims data because, "They provide a 360-degree view centered around the patient," he says. While EMR data are clinically very deep, claims data provide a more comprehensive view of the patient because it easily reveals, for example, that a person is a diabetic, that they are non-compliant with their medications, that they were admitted to the ER for low blood sugar, etc. "Getting that information to the point of care, to where doctors are taking care of patients, is one of our strategic priorities," Dr. Gunn explains.

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**- Ted Kremer, Greater Rochester RHIO**

By combining medical and pharmacy claims data with analytics, predictive modeling and care management

strategies, organizations have demonstrated lower costs and improved health outcomes. According to Gunn, First Service Administrators, Inc., (FSAI) a third-party health and benefits administrator, is one example. FSAI was able to predict that reduced co-payments for its members with chronic illnesses would increase compliance with follow-up visits and tests. In fact, the change reduced ER visits and lowered inpatient admissions for these patients by 10 percent.

In another example, CoreSource, a leading administrator of self-funded employee benefit plans, incorporated data from 25 pharmacy benefit management systems and six claims shops to report previously unavailable financial and clinical information. Using the data, CoreSource designed a suite of new total health population management programs centered on member stratification and risk management for members with specific clinical needs. As a result, CoreSource saw an increase in compliance with recommended treatment guidelines, and nearly 50 percent of its members with chronic conditions closed at least one gap in care. This in turn resulted in a five percent drop in ER visits and a 15 percent decrease in hospital admissions across five chronic conditions of diabetes, coronary artery disease, congestive heart failure, asthma and chronic obstructive pulmonary disease.

**Analytics applied to claims data helped reduce ER visits and lowered hospitalizations by 10 percent for patients with chronic disease.**

The American Medical Group Association (AMGA) conducts comparative analysis and benchmarking of best practices through its Anceta collaborative data warehouse. While not an HIE in and of itself, it is an example of a service layer that can add value to an HIE. “What we are trying to do,” explains John Cuddeback, M.D. and chief medical informatics officer at Anceta, “is understand exactly how medical groups can improve their process of care – the work flow and people that are available and dedicated to the different parts of the patient care process – to improve outcomes and lower costs.” Anceta and its partner Humedica acquire and integrate detailed clinical and administrative data from participating AMGA member medical groups via HIPAA - compliant secure Internet protocols and transactions (HL7 and X12). Collaborators are able to look at converged health data from insurance claims, appointment scheduling systems, patient registries, labs, electronic prescriptions, electronic medical records and other sources. Data are integrated to form a comprehensive picture of the process of care across the continuum, reflecting not just billable encounters but whether patients are keeping appointments, outreach contacts under a disease management program, orders and results, prescribed medications, etc. This insight into workflow is what makes Anceta unique in its approach to clinical innovation research.



The results of the work AMGA is able to do and then share back with its members is helping providers transform clinical processes into more efficient models as well as negotiate payment models that more equitably reward high quality patient care. This is transformational, given that most payment models, including those

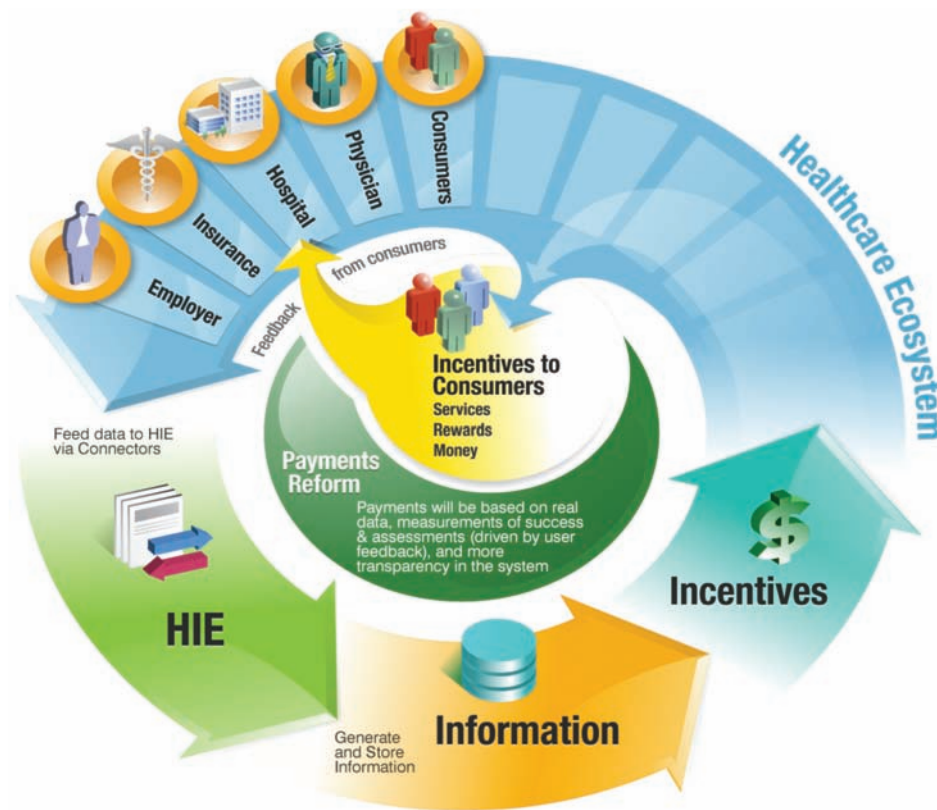
from the federal government, still reward the volume of service rather than quality. Virginia Mason Medical Center (VMMC) in Seattle, Washington, for example, was approached by several employers looking for ways to reduce the occurrence of low back pain among their employees. VMMC used analytics from AMGA and LEAN process improvement techniques to reduce the incidence of low back pain and in the process was able to reduce the cost of care by 50 percent by

**VMMC reduced costs 50 percent by eliminating unnecessary MRIs.**

eliminating unnecessary MRIs. The benefit accrued immediately to the patients and payers but significantly reduced revenues for VMMC. Armed with the analytics, however, VMMC was able to re-negotiate a more favorable payment

policy that enabled them to share in these cost savings as well. “When a medical group has the information at its disposal and they sit down with a payer, they can add lot more clarity to the process ... and they can end up negotiating a better relationship,” says Don Fisher, Ph.D., president and chief executive officer of AMGA.

Figure 3



Source: VitalSpring Technologies

## Transforming Behaviors

An interoperable healthcare ecosystem is clearly the path forward, accruing benefits to all the stakeholders at an increasing rate (figure 3). Employers and payers are leveraging the ever-growing infrastructure and creating

information to design incentive programs as a way to keep workers and members healthy and thus lower health costs.

## Engaging Employees in Their Health

Employers have increasingly turned to health information exchange as a source of information to help their employees take more control of their health and become better consumers. “We want employees to think about their health before they become patients so that hopefully they don’t become patients,” says Michael Aldrich, director of compensation and benefits for Pactiv Corporation, a leader in the consumer-based food service and food packaging markets.

Aldrich looks at health information exchange as a way to make information more transparent to Pactiv

employees, which in turn helps them become more engaged in their own healthcare and more informed about the consumer choices they have. While there is a push toward consumer-driven healthcare, the challenge is the lack of information on cost and quality that consumers need in order to make their choices. Aldrich argues that by the time most people need access to healthcare services they are already behind the curve. “You just found out yesterday that you need to be treated for something you’ve never heard of...it’s not like going to check the latest *Consumer Reports* to pick out the best refrigerator and plan your purchase. It’s all moving too quickly,” he explains. To that end, Pactiv has teamed with other local employers including McDonald’s and Sara Lee to develop the Chicago Health Hub. This project will work with providers and payers to develop quality ratings, cost estimators and other consumer-based tools that will give employees the type of transparent information that is not available to them today but that they need in order to make more informed decisions. “Our objective is to raise awareness and give employees a place to go where they can understand the resources available to them so they can make good utilization decisions,” Aldrich says.

Pactiv has taken an initial step toward the Chicago Health Hub by providing employees access to their own information through the Affynity Network developed by VitalSpring Technologies. An employee is able to easily access all prescriptions, medical and dental claims, year-to-date out of pocket expenditures, medical glossaries and other medical resources from one place with one sign-on. Future plans include integrating a personal health record as well as the comparative data that is required for real consumer-driven healthcare. The Affynity Network combined with the Microsoft HealthVault or Google Health platforms enables the first flow of information on a single platform starting with the employer, ending with the doctor and including everything in between. The challenge for many consumers has been to connect the multiple dots of information thrown at them which Affynity solves by creating a central hub for everyone in the exchange. Employers, payers, doctors and hospitals

are then able to get a complete view of the consumer as to the programs and services consumers are engaging in, to test ways of modifying this to increase consumer engagement, and to measure the impact of these approaches against outcomes, which is often never done.

**“We’ve got to figure out a way to get employees engaged in their health in a meaningful way and we need to structure plan design in such a way that it is easy for an employee to understand what they should do,”**

**- Jake Flaitz, Paychex, Inc**

## **Employee Incentives**

In New York state it was Eastman Kodak, Wegmans, Xerox, Rochester Institute of Technology and Bausch & Lomb that provided the seed money for the Greater Rochester RHIO. Paychex, Inc., a payroll processing and human resource outsourcing firm headquartered in Rochester, sits on the operating committee of the RHIO board.

Like Aldrich, Jake Flaitz, director of benefits and human capital at Paychex, views health information exchange as vital to maintaining a healthy workforce and believes it is incumbent on employers to help workers navigate the healthcare system. “We’ve got to figure out a way to get employees engaged in their health in a meaningful way and we need to structure plan design in such a way that it is easy for an employee to understand what they should do,” says Flaitz. Paychex has integrated a health and wellness approach into its medical benefits program by creating incentives for employees to become more engaged in their health. Flaitz and his team looked at various

studies on the effectiveness of health incentive programs that led him to develop a design consistent with the behavioral economic concept of “loss aversion” within the medical benefit plan offered by Paychex. “The studies we looked at show people are two to three times more likely to act in order to keep something they currently have than they are to act to obtain something they don’t have,” he explained.

The core of the program is the Active Health plans, Paychex’ historical low cost-sharing medical options and a new plan, the Cost Awareness plan, that has a marginally higher deductible, co-insurance and out-of-pocket maximum. To keep the Active Health plan options an employee has to do three things:

1. complete a health questionnaire every 12 months; and,
2. go through a biometric health screening every 24 months; and,
3. be tobacco free or actively participate in an approved smoker cessation program.

Employees that choose not to complete all three criteria are only eligible for the Cost Awareness plan. In addition to the plan choices, employees that complete the three Active Health criteria, whether they enroll in the Paychex medical plan or not, are also eligible for an awards program that earns points for exhibiting certain behaviors or participating in certain health-based activities. Once an enrollee reaches the minimum threshold of 100 points, he or she starts getting cash rewards that can net up to \$300 a year. Enrollees can earn 10-25 points for things like dental cleanings, flu shots, participating in a 5K walk and attending approved health education. Enrollees who work with a health coach earn 50 points. “A lot of what has to happen in regard to health requires changes in lifestyle...Going it alone is really tough, so we give extra points for working with a coach,” explains Flaitz. In the future, the reward program can be used to encourage opting-in to the Rochester RHIO.

The program uses process-oriented metrics instead of outcome-oriented metrics. The idea is to reward employees for doing the right things that are under their control, rather than measure them against a clinical result that they may not have total control over. While the program is

relatively new, it appears to be working (figure 4). Flaitz reports that 93 percent of employees that get their medical benefits through Paychex completed all three Active Health requirements. This resulted in over 10,000 employees completing the Health Questionnaire, four times as many that did when a \$90 cash incentive was offered. Almost 25 percent of employees reached the 100-point threshold in 2008. Over 1,200 employees enrolled in the tobacco cessation program. Of those that enrolled in the new plan, 49.5 percent quit smoking and were still smoke-free after six months from their quit date. While Flaitz expects some recidivism over time, he is encouraged by the results so far, especially in light of the fact that many of the participants were long time smokers of two decades or more.

A robust HIE can facilitate the successful implementation of such a program. Individuals can update and track their progress toward health or financial goals and rewards can be administered through a secure website. Tracking can be done in ways that take advantage of group dynamics in employer settings by helping to engage employees

Figure 4

<b>Paychex Incentive Program Results</b> (Percent of Employees)
<b>93% became eligible for Active Health Plan</b>
<b>400% increase in health questionnaire compliance over previous program</b>
<b>25% reached reward threshold in 2008</b>
<b>49.5% quit rate among smokers</b>

by providing them with updates about not only their own progress but about other members of their team or other teams. Information about the appropriate utilization of health or screening programs can be updated automatically by clinical/health educator personnel. The platform can be used to tie information about health incentives to other health information that is of interest to employees such as customized clinical content or information about their benefits.

Health plans, like employers, are also looking for ways to manage the rising cost of healthcare services without reducing member benefits or adversely affecting the quality of care. From consumer-directed health plans directed at employees to pay-for-performance programs for providers, health plans are constantly innovating.

Independent Health, a regional health plan in metropolitan Buffalo covering 360,000 lives, is an innovator that was one of the first health plans in the nation to develop quality incentives for physicians. For the past two years it has been involved in one of the largest medical home pilots involving 140 physicians, 22 offices and 50,000 members.

Like Paychex, Independent Health has developed benefit plans that reward healthy behaviors and focus on process-driven metrics. “We’ve seen a willingness on the part of employees to engage in doing certain activities that give them a reduction in their premiums even if it is by a modest amount,” says Thomas Foels, M.D. and chief medical officer. New York is one of the most highly regulated states for health insurance, so there are limits to what can be done. However, Independent Health has developed a product where everyone is enrolled at a certain rate that can be reduced on an individual basis if a person meets certain criteria, similar to those outlined in the Paychex Active Health plan. On the back end employees can earn rewards such as \$10 gift cards for getting certain screenings.

## Provider Incentives

Physician incentive programs have had an even greater impact. “Hospitals and doctors want to provide evidence-based care, but in order to do that you have to measure what they are doing and then compare it to best practice guidelines,” explains Dr. Foels. Preventive medicine and certain chronic conditions lend themselves well to incentive programs because the care guidelines are clear and widely accepted. In what Foels calls first generation performance reporting, claims data was used to identify participation rates for things like breast cancer and colorectal cancer screenings. Bonuses were paid to physicians who met fixed performance thresholds. A physician with a 65 percent participation rate in mammograms, for example, would start getting a payout at 70 percent.

**Within two years colorectal cancer screenings doubled at Independent Health**

Colorectal cancer screenings were a relatively new area for doctors. The health plan’s average participation rate was 25 percent, with some physicians actually having zero participation because they were not familiar with the guideline. Dr. Foels found that in this case the data alone and not the bonus were the driving factor in increased participation. “Physicians were less interested in the incentive,” he explains, “they took action because they weren’t satisfied at only 25 percent of their patients getting needed care.” Within two years colorectal

screenings doubled.

Second generation performance reporting requires clinical information and enables a more thorough analysis of practice patterns. Independent Health established an incentive program for diabetes care that required physicians to manually report 10 performance measures for random samples of their diabetes patients. Incentive payments were initially made strictly on participation, not on performance. The data showed wide variations in care, but looked at individually, each of the 10 measures showed compliance levels in the double digits. What Foels and his team did next was develop a composite score that added all 10 data points for each patient with each data element assigned one point: 10 points for perfect care, meaning all 10 measures were met, and zero points for no measures met. The result was “a humbling revelation,” recalled Dr. Foels. The study revealed that less than two percent of the diabetic patients within the health plan were receiving all ten measures of best practice care consistently.

This was a tremendous wake-up call. The study team conducted a test cycle every six months for two years and saw dramatic improvement as physicians began to take action because of the information the data revealed.

**Independent Health went from a 25-percent HEDIS ranking to a 95-percent ranking on many diabetic measures**

The health plan’s improved HEDIS rankings validated the outcomes. The health plan went from a ranking in the 25th percentile to a ranking in the 95th percentile on many diabetic measures. Foels credits the improvement in HEDIS scores back to the incentive program because it was the only significantly changing component of disease

management at the health plan. Today the program has progressed to an incentive initiative that is paid half on participation and half on performance. Similar programs have been built around asthma, cardiovascular risk, emphysema and chronic obstructive pulmonary disease. Next steps include beginning to measure specialty care.

The third generation reporting capability that will enable payers like Independent Health to electronically acquire the clinical data needed for studies like the diabetes program is part of the overall health information exchange strategy in Western New York. In the meantime, Independent Health is collaborating with the other regional payers to aggregate patient-protected claims data that will be analyzed and reported out by an independent third party as a community-based performance report card. Physicians will be able to access their data via a secure portal and health plans will discontinue issuing individual health plan specific reports. Although some providers have been able to renegotiate payment terms based on quality outcomes, broader payment reform is still needed that will move away from the current fee-for-service system that incents unit of service, to payment that rewards quality and efficiency.

## ***Where Do We Go From Here?***

Health information exchange holds much promise, and early results such as those described indicate that the vision of an interoperable healthcare system is inching closer to a sustainable reality. Availity’s Julie Klapstein argues that healthcare reform, regardless of how it eventually shakes out, will put increased pressures on providers as

their margins are squeezed and on payers who will need to further reduce their medical loss ratios. “The need for electronic transactions and tools to manage financial risk is more important than ever,” she says.

## Barriers

**“The need for electronic transactions and tools to manage financial risk is more important than ever,”**

*– Julie Klapstein, Availity*

But barriers remain. GE’s Earl Jones argues “The most important thing we can do is really get behind standards and standards adoption.” He points to DICOM standards for imaging transactions as an example of how standards can open the door for interoperability. Lab results, one of the most crucial elements to meaningful health information exchange, are not governed by a national standard for exchanging lab data.

P.J. Maddox, Ph.D., RN and professor chair of health administration and policy at George Mason University notes that medical terminology itself adds to the complexity of data and information management in health IT systems. “As standards proliferate, there is a need to harmonize vocabularies, enable interoperability and certify those that are tested,” she says. Recognizing the broad value that health information exchange brings to coordination of care and improved efficiencies, she nevertheless maintains the research value of the clinical data is limited. “Our nomenclature and lack of standard classifications are still a barrier to identifying discreet variables for analysis... Based upon how the information is used by clinical and administrative systems, the same terms may have different meanings in use and represent more than a single variable,” she explains.

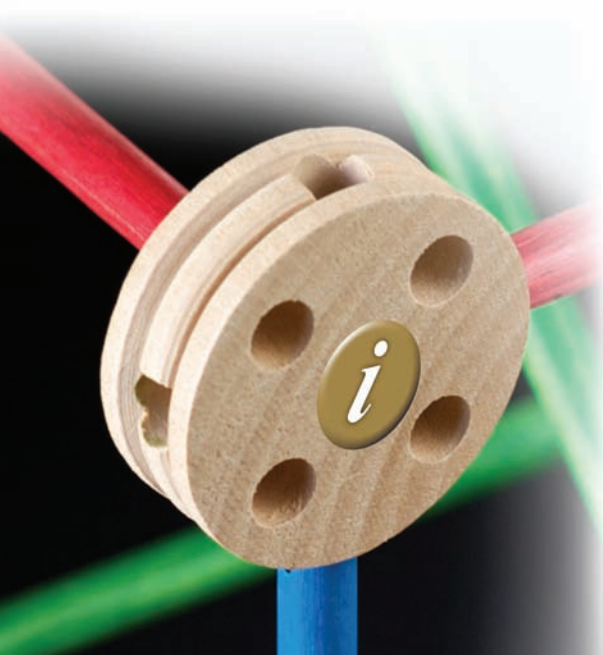
Legal and regulatory barriers also need to be addressed, especially surrounding privacy and security. “Interpretations vary among healthcare institutions about the requirements for implementing HIPAA compliant information systems...they have an obligation to safe guard security and the individual’s privacy. Because of the obligations, healthcare facilities are loath to trust interoperable systems they do not control themselves,” says Maddox. Another reason that hospitals have been reluctant to fully embrace health information exchange is the concern over how expanded transparency of selected administrative system information might impact the discoverability of that data in legal cases. For example, hospital collection of risk management and quality

improvement project data is not currently discoverable. Some providers believe the transparency resulting from health information exchange may cause that data to become discoverable, thereby increasing the risk of lawsuits.

## HIE Funding

Others point to the need for a sustainable financial model. More than half of the operational HIEs are at least partially dependent on government funding, with 60 percent saying their most pressing

<sup>7</sup> “Migrating Toward Meaningful Use: The State of Health Information Exchange,” 5.



challenge is a sustainable business model.<sup>7</sup> Private sector companies like Availity have found there is a sustainable market for health information exchange as long as providers and payers are getting value-added services from the exchange. Dr. Barthell of Microsoft believes the most successful core business model is payer financed since the

Figure 5

<b>Most Common HIE Revenue Sources</b>	
<b>Membership fees</b>	<b>Tiered payments for shared services based on population or volume of use</b>
<b>Transaction fees</b>	<b>\$ per clinical result delivered \$ per member per month \$ per month for license to use web-based software</b>
<b>Program and Service Fees</b>	<b>Per participation in or outcomes from broader-scope program activities undertaken by the HIE</b>

financial benefit accrues mostly to them. Many payers are funding HIEs, such as the initiatives rolling out through Availity, but as the industry gains more experience and other stakeholders begin to accrue benefits, some payers footing the bill may begin to push for more of a cost-sharing model. A 2005 study by the Center for Information Technology Leadership estimates that health information exchange, once financially positive, will accrue 43 percent of the savings to providers and about 28 percent to payers with the rest divided between pharmacies, labs and radiology groups.<sup>8</sup>

Funding the initial startup of an HIE has come from a variety of sources, including federal and state grants, private foundation funding and capital investment from private sector healthcare stakeholders. A variety of methods are used to finance HIE initiatives once they are up and running (figure 5). The revenue models for health information exchange vary, but the most common include membership fees, transaction fees and program and service fees that are often used in combination.<sup>9</sup>

Other funding models being explored include value-added program or service fees such as those discussed earlier by companies like Emdeon and Availity, and some state-run initiatives are assessing taxes on the insurers. The state of Vermont, for example charges each payer .199 percent on all medical claims. The revenue goes into an HIT fund that is expected to support its statewide HIE efforts.<sup>10</sup>

So where do we go from here? David McCallie, M.D., vice president of medical informatics at Cerner Corporation, who also sits on the National Health Information Technology Standards committee, favors an incremental approach that HIEs could take by starting with step one, the easy, non-controversial data exchange associated with secure messaging around treatment, planning and operations that HIPAA permits for consented care. He is working with the committee to propose national standards to improve interoperability at this level. Step two is to have the HIEs move into data exchange that is also regulated under HIPAA under “other permitted uses” that fall outside of healthcare operations. These data exchanges include quality reporting, law enforcement,

<sup>8</sup> Jan Walker, Eric Pan, Douglas Johnston, Julia Adler-Milstein, David W. Bates, and Blackford Middleton, “The Value of Health Information Exchange and Interoperability,” w5-15.

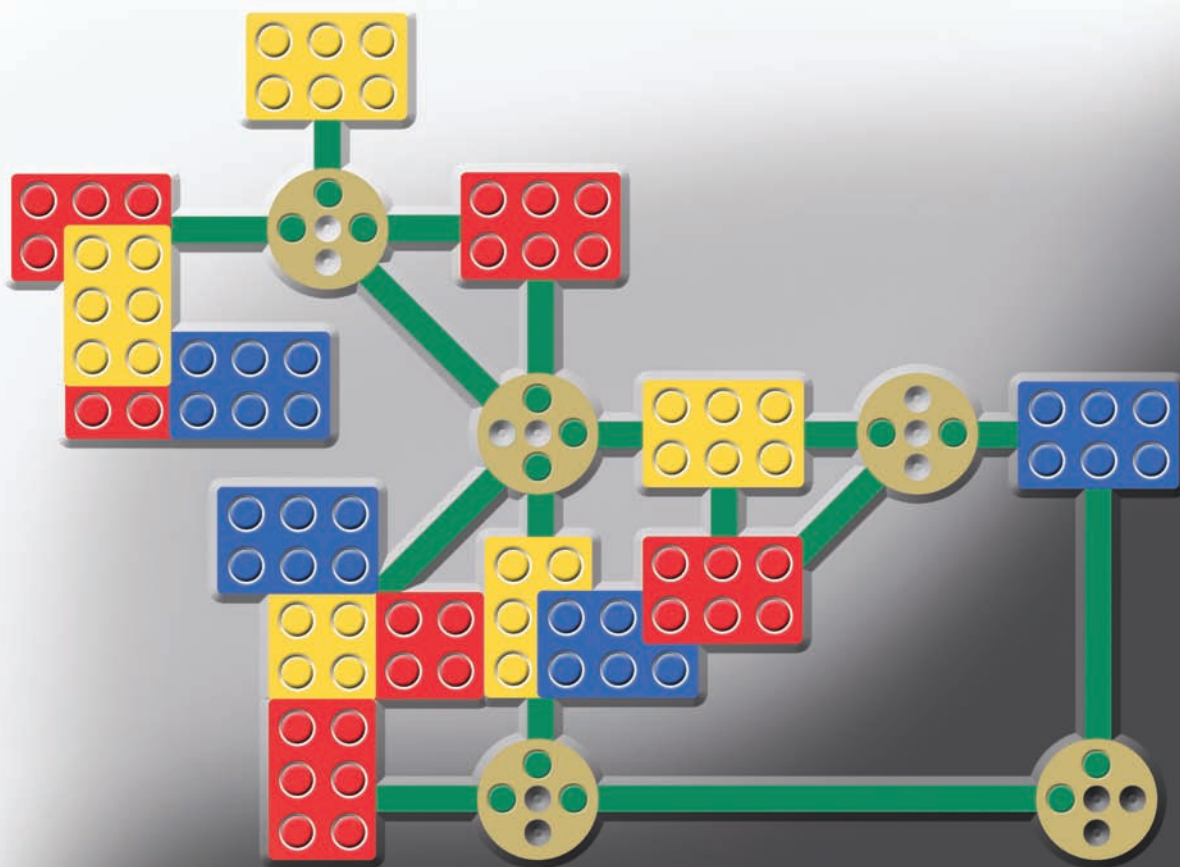
<sup>9</sup> “Report to the State Alliance for e-Health: Public Governance Models for a Sustainable Health Information Exchange Industry,” 23.

<sup>10</sup> Ibid, 24.

public health, etc. Some HIEs such as the Rochester RHIO have moved to this level. Step three is where the controversy begins because, Dr. McCallie says, “Anytime you aggregate patient data for the purposes of some future unconsented care, that’s when things get tricky because it’s not clear who has a right to access that data.” He believes additional federal guidance or even regulatory action will be required to fully address the ownership, privacy and other issues at this level of exchange.

## Conclusion

Whether or not health information exchange is the holy grail the healthcare industry has been looking for, it is a key strategic component of healthcare reform. Existing health information exchange infrastructure can be leveraged relatively easily to increase the level of data exchange services needed in the industry. The clinical and administrative information that flows between stakeholders is already being harnessed for research and analytics that are having a positive impact on overall care management, service utilization and cost containment. As the information becomes more transparent, it provides the business intelligence employers and payers need to design incentives and programs that minimize medical and financial risk, resulting in cost effective approaches to maintaining healthier populations. Barriers remain but no longer appear to be insurmountable as the federal government takes an increasingly active role in the industry’s evolution toward an interoperable healthcare ecosystem. Health information exchange, long in infancy, appears ready to grow up.



## About the Center for Health Transformation

The Center for Health Transformation, founded and led by former Speaker Newt Gingrich, is a collaboration of leaders dedicated to the creation of a 21st Century Intelligent Health System that saves lives and saves money for all Americans. Members and organizations contributing to this report include: Emdeon, Availity, GE Health, Microsoft, Pactiv Corporation, the American Medical Group Association, the Greater Rochester Regional Health Information Organization, Paychex, Inc., Independent Health Association, the Council For Affordable Quality Healthcare, Verisk Health, George Mason University and Cerner Corporation. For more information on The Center, please visit [www.healthtransformation.net](http://www.healthtransformation.net).

## About VitalSpring Technologies

Special thanks goes to VitalSpring Technologies for providing an educational grant in support of this paper. VitalSpring Technologies is the first enterprise technology platform to integrate data from the employer to the doctor and everything in between enabling services and transactions throughout the healthcare industry. Among Company recognitions are a coveted DM Review "World Class Solutions Award" and two consecutive product of the year awards by Human Resource Executive Magazine. For more information, visit [www.vitalspring.com](http://www.vitalspring.com).

## About Chaddsford Planning Associates

We would like to thank Nancy Bucceri of Chaddsford Planning Associates, LLC, for her assistance with this report. Chaddsford Planning provides marketing communications and business development services specializing in the electronic payment and healthcare industries. For more information, please visit [www.chaddsfordplanning.com](http://www.chaddsfordplanning.com).

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