Real-World RHIO: a Regional Health Information Organization Blazes a Trail in Upstate New York

by Dianne Koval, RHIA

By distributing costs and benefits among providers and payers, a regional physician association is creating a data exchange network with an ambitious goal: interoperable EHR systems in every physician's office.

Mark Foster, MD, of Hudson Valley Primary Care in Wappingers Falls, NY, is a busy pediatric physician who would like to spend more time with patients, not paperwork. It's been a struggle. Since graduating from medical school, the volume of Foster's paperwork has more than doubled. But he may have found a solution.

Foster is one of nearly 350 physicians participating in the Taconic Health Information Network and Community (THINC), a regional healthcare collaborative in New York's Hudson Valley region. THINC's efforts in networking community and healthcare providers, payers, and organizations will greatly reduce the amount of time Foster spends reviewing paperwork. Area hospitals and laboratories offer information and applications that allow him to quickly handle hundreds of pieces of information that might otherwise pile up on his desk.

THINC is one of the country's leading regional efforts working to improve healthcare by networking a community. The future of HIM may look a lot like THINC.

THINC Participants

- Benedictine Hospital, a 222-bed community hospital
- Kingston Hospital, a 160-bed community hospital
- St. Francis Hospital, a 296-bed acute care facility
- Vassar Brothers Medical Center, a 315-bed acute care facility
- LabCorp, a national clinical reference laboratory
- Taconic IPA, an independent practice association comprised of 2,300 physicians
- A training and support company providing change management within physician offices to increase technology adoption
- A vendor providing technology infrastructure

Physicians at the Fore

According to David Brailer, MD, PhD, national coordinator for health information technology, one of three strategies for achieving the goal of interconnecting care is fostering regional collaboration.[1] Regional collaborations, termed regional health information organizations (RHIOs), are multistakeholder organizations working together to connect healthcare communities with the goal of improving quality of care, safety, and efficiency.

Unique to THINC is the lead organization, Taconic IPA, a physician association representing 2,300 community physicians (comprising approximately 500 practices) in eight counties of New York State. A change of leadership in the Taconic IPA in 2001 caused it to expand its focus to improving patient care by addressing physician adoption of technology. The strong leadership of the CEO and board were critical to THINC's creation.

IPA leadership believed the best way to improve quality and efficiency of care was to employ comprehensive information technology at the point of care. The ultimate vision was interoperable, comprehensive electronic health records (EHRs) in every community physician office. The IPA set out to break down the organization-centric mentality of stakeholders, create a model whereby community physicians would adopt comprehensive EHRs through an incremental approach, provide local support and training to ensure adoption, and align incentives appropriately so community physicians could purchase comprehensive EHRs. The IPA set as its objectives:

- Developing a community-wide health information exchange
- Creating a healthcare portal with interoperable applications
- Creating a training and support infrastructure to ensure adoption of the applications
- Engaging payers in programs that align incentives appropriately

Incremental Approach

In 2001 Taconic IPA began a pilot project to connect community physicians to hospitals, health insurers, and laboratories to deliver demographic, administrative, insurance, and clinical data electronically. Fifty physician practices, two hospitals, one payer, and one reference laboratory took part in the pilot. The IPA funded high-speed Internet access for one year for each office and contracted with a company to provide all technology training and support. The hospitals, laboratory, and health payer funded the delivery of their data into the system for access by physician offices.

The pilot project was not without obstacles. One of the most difficult was, and continues to be, overcoming the organization-centric mentality of the leaders of stakeholder organizations. Hospitals and reference laboratories often find it difficult to see any value in participating in community initiatives by offering access to their own information system, especially when they must pay to support the network's information infrastructure. However, physicians and their offices strongly prefer a single point for accessing patient data—they do not want to visit multiple Web sites, maintain multiple user accounts, and learn different applications. In addition, it is impossible to create a true continuity of care record when healthcare systems remain independent. After the two hospitals in the pilot program began delivering results to physicians electronically, the physicians pushed nonparticipating hospitals to join the community initiative.

The pilot project also encountered delays because high-speed Internet access wasn't available in some areas where pilot physician offices were located. Cable service in the area started to offer Internet access three months into the pilot. Delays in delivering clinical information were experienced as community hospitals struggled to extract information from legacy information systems not built to share data beyond their own facilities. Resistance to change within the physician offices was another hurdle. In one instance, an office was so resistant to even seeing a demo that staff scheduled the demo at 7 p.m. and went home at 6 p.m., leaving the trainer faced with a locked door.

However, all these obstacles were overcome, and data began flowing to physician offices within the first year. The success of the pilot then expanded to other hospitals in the region. As more hospitals became involved, more physicians and their offices wanted to become part of the project. As more physicians became engaged, the community started to become a focus of national attention. The cooperation of competing hospitals and competing independent community physicians in one system was a noteworthy achievement.

The Connecting Communities for Better Health initiative awarded the project a grant to help fund the costs for additional hospitals to join the project. At the time of the grant, the health data exchange had reached more than 1,400 end users, including physicians, clinical staff, and administrative staff. Approximately 350 of those end users were physicians who received clinical results electronically, and more than 150 were physicians who managed their results electronically on a regular basis (e.g., annotating results, forwarding to other physicians, and instructing staff on tasks). There was enough critical mass to attract the attention of the federal government.

The Agency for Healthcare Research and Quality awarded an implementation grant to the Taconic IPA to further the project. The funding allowed the community to upgrade the technology infrastructure in January 2005 to a true portal, with the addition of support for electronic prescribing, creation of a clinical data repository, and interoperable EHR vendors.

The Technology behind THINC

The THINC infrastructure is Internet-based, an application service provider model that allows members to access data from all sources through a single portal. To participate, physicians require a PC and high-speed Internet access. This single point of access eliminates the need for physician offices to manage multiple user accounts in different provider systems and makes it easier to maintain roles-based access to patient data. The system supports authentication, roles-based access management, and audit logging to ensure compliance with state and HIPAA regulations. Databases contributing to the network are integrated to support consistent reporting and management of data from multiple data sources and applications.

The THINC system supports standardization of data and vocabularies, which are critical in fostering interoperability and exchange of data among the various systems. In addition, by codifying the incoming data, results are integrated for a complete clinical record that can be graphed and trended over time. Data quality is maintained by transferring data from source organizations, not interpreting it. Test plans prior to activating a feed include ensuring every field in the data transmission is valid and displays correctly in the portal. Testing is performed until files transfer into the system reaches 100-percent error-free transmission. Post-live feeds are continually monitored for changes in source system data (e.g., new codes or new IDs). For example, a physician ID number that is not listed in a physician user file would trigger further investigation.

Organizations participating in the data exchange maintain their unique hospital medical record numbers and physician IDs. As medical record numbers pass through to the translator, the organization's ID is hard-coded into the transferred file. When return files, such as signed transcriptions, pass back through the translator, the organization's ID is returned to ensure the proper routing back to the originating organization. Physician IDs for each organization, including multiple IDs for each physician, are stored in the physician's user file on the translator.

The system features many security safeguards, including secured access by authenticated users only, authorization access to the system with fine-grained permissions, audit logs tracking all activity, automated alarms in the event of attempted security breaches, automatic termination of abandoned sessions (time-outs), and strong encryption based on secure sockets layer. A chief information officer is responsible for all security officer duties under HIPAA.

Local Training and Support

Critical to the program's success was adoption of the technology by physician offices. Taconic IPA believed the only way to achieve full adoption would be to provide trainers to go into physician offices and work one on one with the staff. It was deemed critical that a knowledgeable person walk users through the applications and how to incorporate them into the office's daily work.

Taconic IPA contracted with a healthcare technology training and support company that in turn hired a project manager with RHIA credentials. The project manager had previous experience in the hospital setting, including converting a hospital to a new information system and interfacing information systems to transcription and coding software systems. She also had experience working with physicians in adopting technology. The project manager's RHIA and background as a director of HIM proved especially helpful in engaging physicians.

So that all physician offices in the pilot had access to THINC's clinical applications, the project manager was first responsible for ensuring that all offices were connected to the Internet. Connecting physician offices was an essential first step to wiring the community. Secondly, the project manager had to coordinate the delivery of standard Health Level Seven (HL7) transactions for data feeds from the hospitals and labs to the application vendor. The adoption of HL7 standards ensured interoperability between different information systems. Standardizing the data also allows for comparison. Generating HL7 transactions from hospital legacy systems proved especially difficult, because many of the systems were not built to exchange information with external systems. Finally, the project manager was responsible for coordinating a training and support plan for the physician offices. This included creation of a help desk.

Training specialists worked with each physician office to introduce technology at a pace the office could handle, including redesigning workflow to accommodate the adoption of the new technology. The specialists possessed an understanding of physician office operations, basic clinical knowledge, and expertise in the applications. In addition, trainers demonstrated their ability to work with all levels of staff from clerical to physicians. The training and support company serves as first-line, local ongoing support for the physician offices. Training specialists work closely with the office managers and each individual physician to ensure the offices receive the maximum benefit of all applications as they are available and fully adopt them.

Aligning the Incentives

Since payers benefit from EHRs in many ways—reductions in adverse drug events, generic substitutions, and reduction in duplication of tests, for example—Taconic IPA has also sought participation from the payer community, encouraging payers to offer incentives to physicians who use healthcare information technology. MVP Healthcare, a regional health plan, was the first payer to commit funding through a pay-for-performance bonus.

Incentive programs must include uniform matrices and uncomplicated structures so that physicians understand how to achieve the rewards. In addition, there must be a phased approach to incentive alignment; in other words, incentives must be gradually introduced in small, achievable ways.

There are three phases to achieve complete alignment of the incentives in the Taconic IPA model. The first phase is for physicians to interact with a computer to review clinical results and reports. Physicians using the portal technology on a regular basis, defined as logging activity on at least one out of every two days, receive a technology bonus of 40¢ per member per month, based on the members of the specific insurance company offering the incentive. A solo practitioner who has 1,000 patients in a participating insurance company's panel would receive $400 per month. As more insurance companies participate, the number of eligible patients in the panel increases, increasing the bonus amount to the physicians.

The second phase, beginning in the second quarter of 2005, is a pay-for-performance technology bonus for use of the portal's e-prescribing module. The experience of other payers in funding e-prescribing has demonstrated tremendous savings just on generic substitution of medications.[2] The pay-for-performance program has been expanded to include other interested payers and self-insured employers such as IBM. Since no one payer, other than perhaps Medicare, has the market to influence the adoption of technology, a community initiative must include multiple payers.[3]

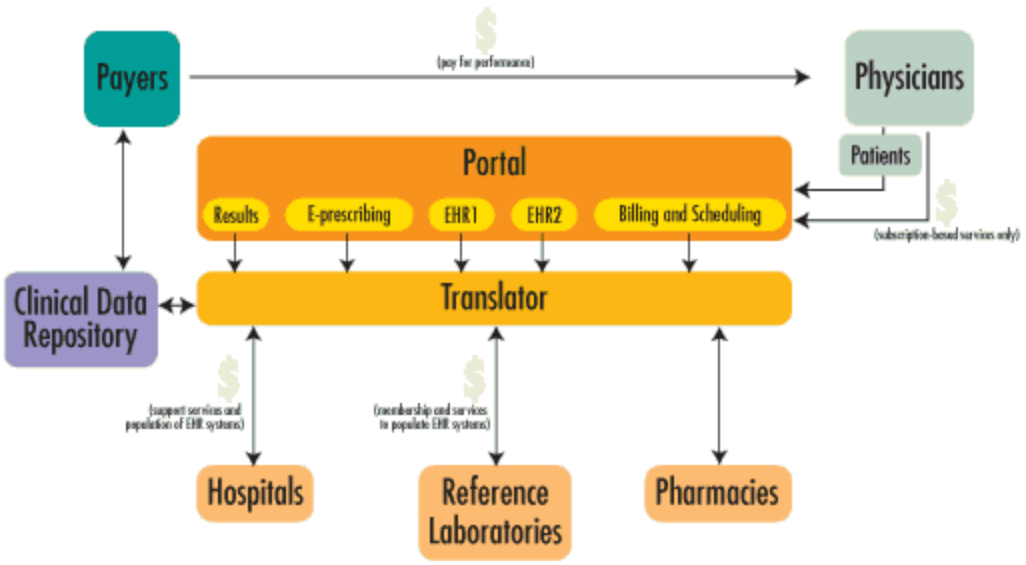
The third phase of alignment of incentives, expected in 2006, involves comprehensive interoperable EHRs in physician offices. The Taconic IPA model recognizes that there will be significant savings realized to the payer as well as access to real-time provider and patient data. Payers have input into the EHR design to ensure physicians follow pay-for-performance guidelines for evidence-based medicine. The Taconic IPA vendors must meet extensive functionality requirements including decision support at the point of care. Taconic IPA is very aware of overloading physicians with alerts and reminders to the point of work interference and is working with health plans to start with basic quality matrices components, such as reviewing the patient medication lists to ensure patients receive beta blockers after acute myocardial infarction.

Comprehensive EHRs in physician offices will also populate a clinical data repository (CDR). Payers will have access to their individual "vaults" of administrative and clinical data on their members. Typically, payers spend a significant amount of money on information technology that processes claims and pharmacy data coupled with manual chart reviews by utilization management staff to obtain data on the care their physicians provide their members. In the Taconic IPA model, more valuable, accurate, real-time data is contained in the CDR vault.

Payer incentives will offset the costs of the EHRs for physicians. Taconic IPA has defined an application service provider (ASP) EHR model whereby physicians pay a monthly fee for their EHR systems. In addition, an expert on physician office EHRs will negotiate contracts with the EHR vendors. Few physician offices have the expertise to negotiate such contracts to their advantage.

Community physicians simply cannot afford comprehensive EHR technology, and comprehensive EHRs are the only systems that have the ability to improve care with knowledge databases and clinical decision support at the point of care. The ASP model, combined with technology incentives from payers, reduces the cost barrier physicians face when purchasing EHRs. For their part, with minimal investment, payers receive a majority of the benefits that accrue when physicians use comprehensive EHRs.

THINC's success to date is due largely in part to getting competing stakeholders to work together, paying close attention to physician needs in technology adoption, and aligning incentives within the healthcare system. The vision of this initiative will mean physicians like Mark Foster will be able to take better care of patients and spend less time with paperwork.



How the Data (and the Financing) Flows

The THINC network incorporates a diversity of organizations and funding mechanisms to attempt a sustainable business and financial model. Although not all components shown in the illustration above are currently in place, it is expected that by the end of 2005 THINC will have successfully completed the model. Interoperability of the EHR systems and the development of the clinical data repository (CDR) are the final components to complete.

At the center of the model is the translator, which serves as the system's communication hub. Information from the hospitals—including admission, discharge, and transfer notices; textual radiology reports; textual pathology reports; laboratory results; and transcription reports—is sent in real time to the translator. The applications hosted through the Web-based portal access the information at the translator. The translator also sends all appropriate application data (e.g., continuity of care fields) to and from the CDR.

Outpatient reference laboratories also transmit laboratory results including cytology, pathology, and microbiology reports through the translator to the applications on the portal. The applications generate and transmit electronic orders from the portal to the designated reference laboratory.

Physicians and designated clinical staff have the ability to print, fax, and transmit prescriptions electronically from the portal to pharmacies. The advanced e-prescribing system pulls patient data from the CDR to automatically fill in the demographic and insurance information fields of the prescription.

The translator is also where the community master patient index resides. The translator contains logic to determine appropriate patient matching; rules define the logic behind the patient matching process.

In the second quarter of 2005, THINC will roll out the first of two EHR systems on the portal. Information from the CDR will be exchanged between the systems. It is important to note these

systems are expected to be interoperable. Practice management systems, either as part of the EHR system or as a stand-alone system, are also included in the model.

The CDR houses all administrative, clinical, and financial data within the system. It stores data until one of the portal applications needs to access, update, or store it. The CDR also serves as a vault in which the payers and large self-insured plans can access data on their physicians and members.

Physicians have access to all applications on the portal. Certain applications are available to Taconic IPA physicians at no charge, and others are available on a monthly subscription basis. Patients have access to reports as determined by their physicians. Hospitals and reference laboratories pay to participate and to have their data automatically populate the EHR systems (rather than interfacing to each individual physician office EHR). Payers fund a pay-for-performance program that provides incentives to physicians who use the system, and this helps offset the costs of the EHR systems. In return, payers receive access to CDR data on their physicians and members.

Notes

1. Thompson, Tommy G., and David J. Brailer. “The Decade of Health Information Technology: Delivering Consumer-centric and Information-rich Health Care: Framework for Strategic Action.” United States Department of Health and Human Services, (July 21, 2004), p. 1. Available online at www.hhs.gov/onchit/framework/hitframework.pdf.
2. Taffel, Bruce H. Presentation to Taconic IPA and employer group. November 17, 2004.
3. Carter, Beau. Conversation with author. October 14, 2004.

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