Tracking HIE's Ever Evolving Operational Models: Emerging health information exchange market still sorting out its business and governance models

By Kathy Callan, MA, RHIA; Jan Fuller, RHIA, CPHIMSS, FAHIMA; Lou Galterio, MBA, FHIMSS, CHIME, CP; Beth Just, MBA, RHIA, FAHIMA; Kimberly Reich, MBA, MJ, PBCI, RHIA, CPHQ, FAHIMA; Christine Steigerwald, MBA, RHIA; Mary Lou Turner-Combs, RHIA; Sheldon H. Wolf; Julie Dooling, RHIA, CHDA; Annessa Kirby; and Harry Rhodes, MBA, RHIA, CHPS, CDIP, CPHIMS, FAHIMA

Editor's note: This article is part one of a two-part series analyzing the current state of health information exchange organizations and their operational models.

Health information exchange (HIE) continues to be an embryonic domain—a swirling array of various public, private, and robust electronic health record (EHR) models. Commenting on the state of contemporary HIE organizations (HIOs), Irene Koch, executive director of the Brooklyn Health Information Exchange (BHIX), observed that "evolution is still happening with all the systems and the standards."

Part of the difficulty in tracking the HIE realm results from the variability of the HIE models and the HIE definitions deployed in healthcare. As the number of operational HIEs continues to grow, industry experts concur that eventual consolidation is certain, as a combination of HIE governance models will need to be put into position to assist an industry struggling with working interoperability and information governance. The goal will be to implement specifications in a variety of operational frameworks that are repeatable, comprehensive, and preserve the shared meaning.[1]

The Agency for Healthcare Research and Quality (AHRQ) reported that currently there are over 280 health information exchange organizations in operation and that over 50 percent of the nation's hospitals are actively participating in HIOs. Included among the ongoing initiatives are efforts to refine healthcare operations, improve healthcare quality and outcome metrics, enhance public health reporting, and advance research.[2]

Many HIE experts realize the need for parallel development of both internal and external exchange. Robust internal exchange is paramount to linking together an entity's physicians. But to achieve accountable care organization (ACO) goals, meet requirements of the federal government's "meaningful use" EHR Incentive Program, and ultimately serve the patient where they choose to receive care, external exchange will also be critical.

The 2013 AHIMA Health Information Exchange Practice Council recognized the evolutionary expansion of HIE models and the strategic importance of developing HIE models, and chose to charter a subgroup to review the emerging landscape and provide perspective on the future state of HIE. Their research highlighted key differences in subscription-based versus transaction-based HIE exchange models and the importance of information and data governance for sustainability.

Five Critical Success Factors for Private, Public HIOs

The 2012 eHealth Initiative Special Report titled "The Rise of the Private Health Information Exchange and the Changing Role of Public Health Information Exchange" identified five critical success factors for a private HIO. While the HIE Practice Council concurred with the importance of these five critical success factors and their importance to the success and sustainability of private HIOs, they worked to expand upon and add to the factors.

They contend that these factors of sustainability and success are not solely limited to only private HIOs but could and should be applied to all HIOs regardless of governance model.

The six factors to HIO success, according to the Practice Council, are:[3]

1. Shared vision
2. Sustainable funding
3. Broad stakeholders
4. Physician engagement
5. Infrastructure
6. Information and data governance

The Practice Council believed that the eHealth Initiative's five critical success factors for HIE were incomplete without the inclusion of information and data governance, and therefore added it to this list. Information and data governance allows entities to manage and control information by supporting enterprise endeavors and promoting compliance with its obligations. It also strengthens the organization-wide framework for directing the creation and use of information critical to sustaining the organization's strategy, operations, regulatory, legal, risk, and environmental commitments.

Observed Traits of Transaction and Subscription-Based HIOs

	Transaction-Based	Subscription-Based
Non-Profit		Yes
For-Profit	Yes	
EHR-to-EHR, Direct	Yes	
EHR via HIE		Yes

Economics of HIE

The following overview is a comparison of HIOs that follow a subscription-based exchange model and a transaction-based exchange model. As HIE organizations mature they must transition away from public funding dependence, which until recently was the majority of HIOs' primary funding source thanks to federal and state grants aimed at kick-starting HIOs across the country. However, that funding is starting to dry up.

As this transition occurs, HIOs are looking to hospitals as an important source of revenue. However, for long-term financial sustainability HIOs must seek revenue sources from emerging interoperable, value-based collaborative care delivery models and the successful governance, analysis, and use of HIE data.

Transaction-Based HIE

This model is normally found in a private market exchange, though this is not a hard and fast rule. If there is a governance organization controlling the HIE, it is usually a "for profit" vendor or entity that makes money over the cost of operations. In the transaction model, cost and the operations of the "exchange activity" is charged or "passed on" to the purchasers of the HIO service or the owners of the EHR product, if there is one. Transactions fees could be charged per patient, per search, per visit, or per result. A subscription fee can also be charged and based on overall revenue or profit margin.

Also, in a transaction-based model of health information exchange, an EHR-to-EHR exchange tends to be used more often than an EHR-to-HIE exchange, where in the subscription-based model the output of the HIE is pushed or sent out to another EHR or to the screen of an HIE portal user.

Participants may be charged for such items as the telecommunications medium; the software that makes exchange occur; carrier charges; software maintenance to keep the EHR product capable and certified; and overhead to pay for the operations of the organization that enables exchange which, in this model, many times is passed on to consumers implicitly by the EHR vendors themselves. Another software cost that exists when an exchange is transaction-based is for the development and maintenance of various software interfaces that ensure traffic flows among other HIOs or EHRs.

There may also be a margin built in for profit, but this is determined by the larger business model. In more rare cases, an intermediary that supports numerous EHR products such as a regional health information organization (RHIO) may be utilized. This role may become more common due to the new guidance issued by the Office of the National Coordinator for Health IT (ONC) and the Centers for Medicare and Medicaid Services (CMS) regarding the modularity of certified EHRs and the friendlier business atmosphere for these solutions that now exists.

If there were a central organization that supported this model, it typically has been found to be a "for profit" organization and survives on profit margins. These profits could be distributed to investors at some agreed upon financial target or attainment of a clear and stated goal determined by investors or purchasers.

These financial targets can be immediate, per year, or after a certain anticipated start up period where the entity shows ever diminishing loss as profitability increases.

In the planning stage, this revenue model is usually determined in financial projection balance sheets and income statements in what are known as pro forma statements. These are prepared previous to the birth of the organization and are part of the business plan.[4]

Subscription-Based HIE

As noted earlier, the for-profit HIO costs may very well exist in the EHR purchase price and ongoing costs but can be hidden from obvious view in the vendor's product line. Costs may be dependent on the interchange agreement of the various EHR vendors or be built into the software's capability to be compatible with other systems based on published government standards. In a "for profit" model, HIE activity is a very real cost built into the price of the EHR. In a "non-profit" subscription-based model, the costs are explicit. The HIO or EHR vendors must build in and pass on this cost to the consumers. Therefore, the more expensive EHRs will have a higher probability of including HIE functionality whereas the lower cost EHRs might be more suited to using a subscription-based model.

The Practice Council observed that the economics of subscription-based HIOs are closely tied to non-profit governance organizations. HIOs are typically affiliated with non-profits. These health information organizations are usually made up of community stakeholders. Even though a for-profit governance entity can be called an HIO, it usually is formally not. A for-profit runs with a board managed through a corporation, or it could simply be a part of another vendor organization whose mission, at least in part, is to turn a profit for stakeholders.

No matter how it is viewed, a true tax-exempt non-profit's costs are always paid for in some way by the taxpaying public, whether it be a grant, some form of direct or indirect tax, or some "break even" type of membership arrangement where the organization, in order to keep its legal tax status, must collect membership dues in order to stay afloat.

The public expects government to work and expects the taxes they pay to ensure that any government function taken on also works. HIE is another level of sustaining the public good that is funded by taxes, and should therefore work.

With private investment in a for-profit HIE, functionality is clearly purchased and it is expected to work from that private funding. The consumer knows what they are buying; money comes out of their pocket and into the investment either as a purchase or as an expected return on utility with the expectation that the return will be higher than what was put in originally.

In the subscription non-profit model, HIE is typically thought of as a "noun." In this noun, there is an implied repository (central or networked) that stores the data and subscribers go to that repository to get the data. The repository is expected to have data that are current and correct. Users may go to the repository to get data in what is known as a "pull" model, or the repository itself may have some software or networking mechanism built into it to "push" the data to the users. The "push" model typically pushes data to the EHRs of the subscribers.

Best Model Yet to Be Seen

The HIE as a repository, or noun, stays funded as a result of public investment related to taxation as described above, and/or subscription fees. Everyone who pays taxes supports the public "non-profit" HIOs, although not everyone receives direct benefit.

One can make the case that everyone benefits from publicly-funded HIE as it is the entire and intersecting working network of the public and private markets that makes the concept function and that the points of intersection could not exist without both models. In this case, one can view the model in degrees of direct utility for subscribers versus indirect beneficiaries who are not subscribers. In transaction-based models, HIE is viewed as a "verb." From this perspective, HIE is not seen as an entity. Data are updated and moves between EHRs but is not kept or stored in one place.

It is too early to tell which HIE model is best for the improvement of healthcare, and which will survive the rigors of real-life testing. For now, to get off the ground, HIE will need a variety of models to be able to scale up sharing among physicians, hospitals, and patients and across care settings.

In the second installment of this two-part article series, the authors will address whether HIEs are ready to support the information needs of the new value-based, patient-centric, and outcomes-measured health system.

Notes

1. Enrado, Patty. "HIE Industry is Still Evolving" HIEWatch. February 13, 2013. http://www.hiewatch.com/perspective/hie-industry-still-evolving.
2. Overhage, J. Marc. "Trends in Health Information Exchanges." Agency for Healthcare Research and Quality. March 26, 2014. http://www.innovations.ahrq.gov/content.aspx?id=3944.
3. eHealth Initiative. "The Rise of the Private Health Information Exchange and the Changing Role of Public Health Information Exchange." 2012. http://www.ehidc.org/component/dms/view_document/257-white-paper-optum-the-rise-of-the-private-health-information-exchange-and-changing-role-of-public-exchanges-data-exchange.
4. Baldwin, Gary. "Which Way for Data Exchanges?" Health Data Management 20, no. 3 (March 2012): 26. www.healthdatamanagement.com/issues/20_3/Which-Way-for-Data-Exchanges-44120-1.html.

Kathy Callan (kmcalla1@gundersenhealth.org) is director, HIM/clinical systems, information systems at Gundersen Lutheran. Jan Fuller (fuller@latech.edu) is associate professor at Louisiana Tech University. Lou Galterio (lgalterio@ieee.org) is president of SunCoast RHIO, Inc. Beth Just (bjust@justassociates.com) is CEO/president of Just Associates, Inc. Kimberly Reich (KBStried@aol.com) is privacy and compliance officer at Lake County Physicians' Association. Christine Steigerwald (Christine.Steigerwald@bannerhealth,com) is senior director of HIMS operations at Banner Health. Mary Lou Turner-Combs (MaryLou.Turner@ky.gov) is enterprise MPI project manager at the Kentucky Governor's Office of Electronic Health Information, Cabinet for Health and Family Services. Sheldon H. Wolf (shwolf@nd.gov) is the North Dakota Health Information Technology Director. Julie Dooling (Julie.Dooling@ahima.org) is a director of HIM Practice Excellence at AHIMA. Annessa Kirby (annessa.kirby@ahima.org) is a practice council manager at AHIMA. Harry Rhodes (harry.rhodes@ahima.org) is a director of HIM practice excellence at AHIMA.

Article citation:
Callan, Kathy; Fuller, Jan C.; Galterio, Louis; Just, Beth Haenke; Reich, Kimberly A. Baldwin-Stried ; Steigerwald, Christine; Turner-Combs, Mary Lou; Wolf, Sheldon H; Dooling, Julie A; Kirby, Annessa; Rhodes, Harry B.. "Tracking HIE's Ever Evolving Operational Models: Emerging health information exchange market still sorting out its business and governance models" *Journal of AHIMA* 85, no.10 (October 2014): 36-40.