



## Monthly Topic Series - May 2009

### What is a Health Information Exchange?

*Broadly defined, a Health Information Exchange (HIE) exists whenever two or more organizations share healthcare related information electronically. Exchanging healthcare information between organizations improves patient care and reduces costs by fostering collaborative care and reducing administrative burden.*

HIEs are created for a variety of reasons and in a variety of ways. A **public HIE** exists when non-affiliated organizations use a third party to act as a healthcare information clearing house, a kind of “Federal Express” for healthcare information. A **private HIE** is created when affiliated organizations share information. A **domain specific HIE** shares information that is limited to a specific aspect of healthcare. The technical infrastructure that supports each of these types of HIEs falls into one of three categories **Federated, Centralized** and **Blended**.

A Regional Health Information Organization (RHIO, usually pronounced Ree’Oh) is a frequently referenced type of public HIE. RHIOs support the exchange of healthcare information between organizations in a specific geographic region. These regions are usually metropolitan areas and can be as large as a whole state. The National Health Information Network (NHIN), a nationwide HIE, proposed by the Office of the National Coordinator for Health Information Technology (ONCHIT), uses HIE concepts to connect RHIOs and to begin the creation of a national network for the exchange of healthcare information. The biggest challenge facing RHIOs today is developing a sustainable business model. Most RHIOs are financially supported by grants or public funding. A similar effort in the early 1990’s, called Community Health Information Networks (CHIN), eventually failed because of problems in developing a sustainable business model.

Some organizations have created private HIEs to support provider affinity programs and improve referrals. Laboratories, in some cases unknowingly, create private HIEs that provide electronic access to laboratory results for clinicians. In many cases this takes the form of an internet based provider portal where clinicians can place orders and access lab results through the Internet. This highlights a distinction between traditional results delivery and a HIE. To most professionals, a HIE must support a bidirectional (request-response) process in addition to the traditional unidirectional (one- way) distribution of results. In other words, sending results to Electronic Health Record systems, on its own, does not create a HIE.

Domain specific HIEs share information related to a specific aspect of healthcare. An internet provider portal that only provides access to lab results is an example of a domain specific HIE. In most cases it is also an example of a private HIE because it provides services for the customers of only one Laboratory organization. Insurance verification, preauthorization, and

billing clearing houses are considered domain specific administrative HIEs by some professionals. Many of these administrative HIEs are beginning to expand their product offerings by including access to clinical information. This is an interesting development that may lead to a more sustainable business model for future HIEs.

Technically, HIEs are classified into three categories Federated, Centralized and Blended. In a **Federated HIE** each participating organization retains control of their healthcare information and responds to queries when information is requested. A **Centralized HIE** collects information from participating organizations and stores the information in a centralized place to provide access. A **Blended HIE** stores some information centrally and accesses other information by sending queries to participating organizations. In practice, all HIEs use a blended model of some kind, those that are mostly federated are called Federated, those that are mostly centralized are called Centralized, and those that fit in-between are called Blended. For example, a Federated HIE must maintain a **Record Locator Service (RLS)** that is an index of what information is held by participating organizations so that it does not waste time and resources querying for information that does not exist. This index, in itself, is a form of centralized storage. At a minimum, the RLS maintains a list of patients and which participating organizations have provided services for each patient in the index.

Many states are currently working on development of HIEs and are in various stages of adoption. A survey of HIEs conducted in March 2009 by the Health Information Management Systems Society (HIMSS)<sup>1</sup> reported responses from 21 organizations in 16 states. Over half of the HIE respondents use a federated model and a third use a centralized architecture. Over 90% require internet access and 71% purchased a HIE system from a vendor. The types of data most often cited as being exchanged are laboratory results and prescriptions. The majority of HIEs are not-for-profit. Most all of the participating HIEs currently support the data standards of ICD-9, CPT-4, LOINC-1 and NDC, and 90% support HL7 messaging transactions standards. Interoperability appears to be a major concern of the HIE respondents, and 85% considered interoperability with other HIE organizations at the state or federal level.

The ARRA (economic stimulus) bill invests \$34 billion dollars in promoting the use of interoperable Electronic Health Record (EHR) systems. These EHR systems are dependant on a robust HIE infrastructure to realize the true value of interoperability, improved collaboration.

1. [http://www.himss.org/content/files/RHIO/HIE\\_CommonPracticesWhitePaper20090330.pdf](http://www.himss.org/content/files/RHIO/HIE_CommonPracticesWhitePaper20090330.pdf)  
*More information about HIEs can be found be at the following internet addresses*  
[http://en.wikipedia.org/wiki/Health\\_information\\_exchange](http://en.wikipedia.org/wiki/Health_information_exchange)  
[http://www.himss.org/ASP/topics\\_rhio.asp](http://www.himss.org/ASP/topics_rhio.asp)

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