Matchmaking: an Interview with John Halamka on Linking Patient Records Regionally

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by Gina Rollins

John Halamka has a history of matching patient records in a large health system. How can that be done in regional networks of unaffiliated organizations?

John Halamka, MD, is chief information officer at CareGroup Healthcare System, a Boston-based integrated delivery system with six hospitals and approximately 100 care sites throughout eastern Massachusetts. Halamka, who is responsible for information technology, health information management, libraries, and media services for the system, oversaw development and implementation of CareGroup's master patient index and accompanying method of matching and connecting patient records, a system that has been in place since 1999 and links records for about nine million patients. Recently he served on the Connecting for Health working group on accurately linking data. As interest in regional health data networks intensifies, Halamka discussed the challenges and opportunities involved in linking patient records across unaffiliated organizations and disparate information systems.

JAHIMA: What challenges did you encounter in setting up the master patient index and data exchange architecture at CareGroup?

JH: The challenges are not technical. They never are. We had to deal with issues involving privacy and organizational process. For example, we had to change our consent forms so that if a patient signed one at Beth Israel Deaconess Medical Center in Boston the records could be transferred to Mount Auburn Hospital in Cambridge if needed. We also had to develop an appropriate audit trail so that there was a mechanism for patients to know who looked up their records. Another issue was ensuring that physicians were appropriately credentialed in the system, so that if they were in bad standing or had left the area they wouldn't have access to records. Initially we also had to overcome some resistance from our medical staff. There were some concerns that sharing records would cause a physician to lose a patient to the person receiving the information.
a thoughtful project plan that involves all stakeholders and keeps everyone's eyes on the prize: better patient care.

JAHIMA: The Connecting for Health working group calls for the use of regional record locator services as the conduits to match patient records among unaffiliated healthcare organizations (see example below). Why did the group recommend a regional rather than national model?

JH: Because regional networks are doable. It's unlikely we'll ever see a national record locator service because there'll probably never be a national health identification number and because ultimately healthcare is local. No one knows better than the local providers what the challenges are in their region. I don't have a clue about the infrastructure and resource needs in Alabama, but the providers there do.

JAHIMA: How will record locator services protect patient privacy?

JH: One of the key issues in patient privacy is having local control that is based on patient wishes and treatment circumstances. For example, the default at a general hospital might be to exchange information with the record locator service unless the patient says no. But the default at a psychiatric facility might be to not exchange data unless the patient consents. If you're admitted to the Betty Ford Center it necessarily means you've been treated for substance abuse.

Technologically, the issue of false positive record selection [selecting a record that appears to—but does not—belong to the patient in question] will be no more challenging than it is today for any large hospital system. At CareGroup we have 99.99

percent accurate identification by a combination of name, gender, date of birth, Social Security number, mother's maiden name, and zip code.

JAHIMA: What types of organizations do you see hosting the record locator services?

JH: CareGroup because of our size and as an integrated delivery network has one, our master patient index. From there, regional health information organizations (RHIOs) would be natural hosts for the record locator services, and they would function as equalizers for the region because they could work with independent physician offices to help them with connectivity.

In Massachusetts two pilot initiatives are under way that will lead to RHIOs in parts of the state and eventually a statewide network. MA-SHARE, a program of the Massachusetts Health Data Consortium, is piloting a patient safety initiative to automate the transmission and communication of medication history to emergency departments [www.mahealthdata.org]. The Massachusetts eHealth Collaborative is launching community-wide electronic health information networks in three demonstration communities [www.maehc.org]. A similar initiative is under way in Indiana [Indiana Health Information Exchange, www.ihie.org].

JAHIMA: How soon do you think RHIOs will be in place across the country?

JH: By the end of 2005 the Massachusetts eHealth Collaborative should have its first set of interoperability components up and running. We've agreed to make everything fully available in the public domain, including our source code and data specifications. My guess is that building on efforts like ours, regional networks will spread throughout the US within five to 10 years.

JAHIMA: What key activities will spur development of RHIOs and regional data exchange networks?

JH: On a national level, relaxing some of the Stark [anti-kickback] laws so that hospitals like CareGroup can help private physicians with implementation. We also need HIPAA-like mandated standards, and we need an appropriate state-level regulatory environment.

JAHIMA: What should HIM professionals be doing now to prepare for future data exchange initiatives?

JH: They need to ensure their data is in an electronic format to begin with. Massachusetts is the most wired state in the country, and only about 15 percent of providers have electronic medical records. Beth Israel Deaconess Hospital has been named a most-wired hospital for five years, and we're still only about 40 percent electronified because we haven't made consent forms and progress notes electronic. So they need to have a thoughtful plan to get the medical record in electronic format with participation of both HIM and information technology.

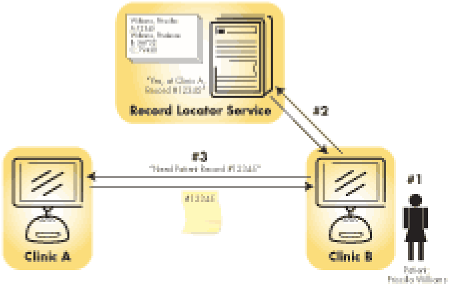
They also need to have good data integrity. As you build a master patient index, it's only as good as the underlying data. For example, we've found that 3 percent of the time the patient's gender is mistyped and 10 percent of the time the Social Security number is wrong. How can you match records when the underlying data is wrong?

How a Regional Record Linking System Might Work

Matching records among unaffiliated organizations will require a central hub that coordinates the location and linking of patient data. The hub need not hold data; in fact, there are compelling privacy and technical reasons why data should remain in the control of the providers who deliver the care. Rather than deliver data, the hub would locate it within the network and point the requesting facility to its holder.

The Connecting for Health Working Group on Accurately Linking Information for Health Care Quality and Safety provides the following example of how such a regional record locator might work.

Example: Priscilla Switches Doctors



A patient, Priscilla Williams, moves and wants her new primary care physician at clinic B to have the results of her most recent Pap smear, currently held at clinic A. If her new physician can't get the results, she will have to take the test again, resulting in additional expense, difficulty, and delay.

Clinic A, a participant in the system, has provided the record locator service (RLS) with an updated list of patients it holds records on. This is a background process, where clinic A communicates directly with the RLS at regular intervals, rather than part of the individual search transaction.

Once the staff of clinic B has taken Priscilla's identifying details (transaction 1), they will authenticate themselves to the RLS to allow for auditing. After they are authenticated, they will make a request for the location of any of Priscilla's other records.

The request from clinic B to the RLS will travel over secure transport such as secure socket layers (SSL). Upon receiving it, the RLS will compare Pricilla's information with its database. There are three possible outcomes: the RLS finds records with such a high probability match that they can be identified as Priscilla's; it finds no records that match; or it finds records that might match and asks clinic B for more identifying information. (This third option would require staff allocated to handling such requests; some system designs may simply treat such ambiguous pairs as nonmatches, to minimize human input, even at the expense of additional false negatives.)

Assuming there is a match, the RLS will return pointers to the institutions; in this instance, that clinic A hold Priscilla's records (transaction 2). Clinic B will then make a request for Priscilla's records directly to clinic A, also via a secure Internet connection, again providing authorization credentials to show that it is allowed to do so (transaction 3).

Some of the resulting records may be returned from clinic A to clinic B directly over the Internet, using standardized interfaces for secure transport. The content of the messages may also be represented in a standardized format for direct and automatic import into clinic B's database, while other records may be sent by secure e-mail, or even simple fax. Once clinic B has the results of Priscilla's earlier Pap smear (as well as any other records held by clinic A), the staff of clinic B can then add them to Priscilla's file.

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