Integrating the Healthcare Enterprise

IHE PCC Technical Committee White Paper 2008-2009

Medical Home Identification

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1 Introduction - Medical Home Identification

Chronic disease care delivery requires continuous coordination of the activities of multiple healthcare providers in multiple settings. A patient may see multiple specialist doctors and other clinicians on a recurrent basis along with a Primary Care Provider (PCP). Many patients have more than one chronic problem in additional to acute episodes. In the current, fragmented health care delivery system, each of a patient's providers may be unaware of other providers that are treating the patient. Testing and therapies are often duplicated, resulting in unnecessary costs and risks to the health of the patient. Lack of coordination can also result in failure to follow-up on the delivery of ordered services, again adding risk to the patient's health. In some cases, multiple providers receive copies of reports of services performed, such as laboratory tests, but this can cause confusion among providers over who is primarily responsible for addressing the results.

An emerging approach to coordination of health care delivery is intended to address these problems as well as providing additional benefits to the entire system. This approach is commonly called the Patient-Centered Medical Home (PCMH). In this approach, the patient selects a provider who serves as the patient's medical home. This provider is responsible for keeping track of all of the care a patient is receiving from all of the clinicians with which the patient deals. This model is the very kernel of the activities which the IHE Patient Care Coordination Domain aspires to facilitate.

The generally accepted definition of PCMH includes this discussion of care coordination: Care is coordinated and/or integrated across all elements of health care system (e.g., subspecialty care, hospitals, home health agencies, nursing homes) and the patient's community (e.g., family, public and private community-based services). Care is facilitated by registries, information technology, health information exchange and to assure that patients get care when and where they need and want it in a culturally and linguistically appropriate manner. "The Patient-Centered Medical Home Defined" - ACP, AAFP, AAP, AOA Joint Principles – April 2007. #References

Successful coordination of a patient's health care can not be accomplished without IT support for the key workflow steps involved. The patient's medical home will need the capability to track all of the patient's providers and all of their care activities. The medical home will also have to serve as a communications hub among all of the patient's providers, ensuring that each is aware of relevant actions by others. Finally, each provider of care to the patient will need the capability of automatically informing the medical home of actions involving the patient.

Care coordination principally involves collaboration among care providers. This distinguishes these activities from other common care workflows:

- Transfer of care – responsibility shifts
- Referral – temporary transfer

- Consultation – one-time or limited time
- Collaboration – on-going co-management

The interoperability requirements of patient care workflow can be thought of as support for a conversation between two or more clinicians at each step. What is needed is a simple nomenclature for the workflow steps, to serve as triggers, and specification of the payloads and communication methods that are appropriate for the steps. It is assumed that, for most steps, copying and forwarding of existing messages and documents, with appropriate "covers" will be sufficient. The workflow for exchange of information between providers needs to address:

- Ordering
- Scheduling
- Communications between Providers
- Task Lists
- Reporting

2 Stakeholders

- Patients
- Primary care clinicians
- Specialists
- Other providers of care (e.g., hospitals, home care agencies, long term care facilities)
- The patient's community (e.g., family, public and private community-based services)
- Quality measurement organizations
- Payers/employers

3 Use Cases

3.1 Current environment

1. Patient visits his Primary Care Provider (PCP) for a health issue. (Note: It is conceivable that patient comes in for a preventive visit and a reason for consultation is discovered.)
2. PCP evaluates the health issue, and makes a determination that the patient needs to be referred to a specialist.
3. Patient and PCP decide on a specialist based upon their preferences, insurance restrictions, etc.
4. PCP writes an order, or creates a referral letter to give to the specialist. (Note: There may be standardized referral forms from the payer or state (i.e., Maryland has a Universal Referral Form); in some cases, the referral is given to the patient, in others faxed to the specialist; if the patient schedules the visit, then he/she would need the referral)
5. Patient contacts the specialist for an appointment. (Note: Again, could be patient, office, physician (especially for an urgent/emergent referral))
6. Patient visits specialist, fills out form indicating problems, meds, allergies, reason for visit, insurance information, et cetera.
7. Front desk enters information into Specialist EHR.
8. Specialist reviews patient details, and interviews patient.
9. Specialist contacts PCP for more detail.
10. PCP faxes copy of details to specialist. (Note: Some of this information can be transmitted verbally; other information might come from lab or hospital…)
11. Specialist orders follow-up treatment with another healthcare provider.
12. Patient contacts the follow-up provider for an appointment.
13. Patient visits follow-up provider, fills out form indicating problems, meds, allergies, reason for visit, insurance information, et cetera.
14. Front desk enters information into follow-up provider EHR.
15. Patient receives treatment from follow-up provider.
16. At next visit to primary care provider, PCP asks patient for an update on referral.

3.2 Future Scenario

"I am ordering something that I can't do myself, and I what to know what happens . . ."

1. Primary Care Provider (PCP) sends order for consult and summary report to Specialist 1.
2. Specialist 1 requests additional information from PCP.
3. PCP responds with additional information.
4. Specialist 1 orders tests.
5. Specialist 1 receives results and forwards them to PCP with update note.
6. Specialist 1 sends order for consult and summary report to Specialist 2.
7. Specialist 1 sends summary report and note to PCP.
8. Specialist 2 requests additional information from Specialist 1.
9. Specialist 1 responds with additional information.
10. Specialist 2 sends report to Specialist 1.
11. Specialist 1 sends copy of report and note to PCP.

3.3 Goals

1. Every provider of care to a patient should have:
2. Access to all relevant up-to-date information about that patient.
3. Access to all other providers of care to that patient.
4. The ability to set alerts for relevant changes to patient information.
5. The ability to provide relevant summaries about the care delivered to to the patient to a shared repository accessible to other providers.
6. The repository for each patient should contain a current and comprehensive list of problems, medications and allergies.
7. Critical to the success of care coordination is the unambiguous identification of patients, provider organizations, and individual clinicians.

3.4 Information Home

One key focus of the patient-centered medical home is the coordination of all of the healthcare activities provided to each patient. This requires that the PCMH be aware of all of the actions taken by all providers of care to the patient. While the patient's physical medical home will be a particular medical practice, care coordination requires that the patient also have a virtual information home. This information home will not contain anything approaching a full longitudinal healthcare history of the patient. Collecting and managing a full history would be inefficient and unnecessary for effective care

coordination. A more appropriate model for the information home would be a collection of summaries of encounters along with significant test results. Of course, on occasion it will be necessary to locate additional information about a patient, but this will always be true no matter how comprehensive the information home's collection is.

The patient's information home serves at several purposes. First, in ensures that the provider who is responsible for the coordination of the care of the patient has an up to date overview of all of the care that the patient is receiving from all healthcare sources. Second, the arrival of a new encounter summary or test result in the information home can trigger an alert to the coordinator to review the latest activity. Third, the information home can be a resource to all other providers of care to the patient. The specialists can easily determine who else is providing care and what care they are providing. The specialist can, for example, look to see of there is a recent result for a test being considered or if there is a possible interaction with a drug being considered.

The key question for this paper is how this information home could be constructed. The reason this paper exists is that there is not an easy and straightforward approach available. It seems that XDS.b would be the appropriate method for managing the content of the information home. A major question is how will providers locate and interact with a patient's information home. Another question is how will the patient's information home be managed.

Let's take a worst-case use case for how the providers that care for a patient might be organized. It is quite likely that not all of the providers will participate in a common domain. It is likely that some, of not most, of a patient's providers will have no shared business or technical relationships beyond the exchange of referrals using the mail and telephone systems. While at some future date, it is likely that local, regional, and/or national HIEs will exist to facilitate data exchange among disconnected providers, they are not generally available now nor are they likely to be so for a while. In addition, even assuming fully functional HIEs connecting all of the providers of care to a patient, who will manage the patient's information home and how will it be managed? Most of the likely candidates for care coordinator are primary care practitioners who work in small or even solo practices. These providers are not capable of operating a registry and repository for all of their patients without significant help. Will this be a service offered by HIEs? Most HIEs in the US at least, do not consider the operation of such services to be part of their scope. Many independent providers will have a relationship with a local acute care provider that could provide such a service, but such services do not exist at the moment. Many providers will be likely to be uncomfortable with such an arrangement anyway.

One scheme that has been suggested is that the patient's PHR repository could also serve as an information home for the patient. There are significant drawbacks with this proposal. For one, it could be quite inefficient if a PCMH provider had to interact with multiple proprietary services to coordinate the care of different patients. For another, the slow market acceptance of PHRs thus far suggests that this will not be a reasonable approach for some time and would never be an approach that would encompass all patients.

3.5 Operating Requirements

3.5.1 Addressing

It seems likely that every patient will need a unique locator for his or her PCMH repository. Should this be a URL or an OID? One concern is that patients are likely to changes their medical homes to different providers over time. When the provider organization changes, will the locator have to change? How will other caregivers be notified? Should the patient's locator be discoverable or should this identifier only be exchanged out-of-band? While there are common HIE use cases dedicated to querying across systems for data about a patient, there is no mention of multiple providers querying for a patient's information home. A patient's locator could be just another data element that would be routinely exchanged in a referral request. Is there a need for anyone other than such providers who are recipients of referral requests to need to know a patient's information home locator?

3.5.2 Authentication

In normal practice, the bulk of referrals will be among well-known entities. Even so, a cardiologist, for example, may take multiple referrals from dozens of primary care providers. How will a specialist, with no connection to the patient's information home domain, be authenticated for transactions such as posting or querying documents? What service will perform the initial authentication of the specialist, and how will that authentication be asserted to the information home service?

3.6 Actor Definitions

Medical Home Provider

Maintains the registry/repository of summaries and results concerning medical home patients, and queries for documents

Specialist

Provides document sets to patient's information home, and queries for documents.

Patient's Information Home

Registry/repository of patient's summary clinical documents and test results.

Security services

Provide cross community access, authorization, and identity asserrtion services required to facilitate participation by independent care providers.

3.7 Requirements

3.7.1 Services

Care coordination involves a number of services. All of these services must operate beyond institutional boundaries. It is likely that most of the providers of care to a patient will exist within a community, but this cannot be assumed to apply to all situations. Therefore, each service must operate across multiple communities.

- Identification and access authorization of providers which may include doctors, nurses, physical therapists, and other providers of care to whom a patient might be referred.
- Identification of the patient and the patient's information home and/or PHR.
- User identity assertion
- Notification of availability of documents. This might be addressed by something like cross-community NAV or publish and subscribe.
- Document digital signatures.
- Cross community document sharing including submission sets. All participants will need the ability to provide and register document sets, retrieve document sets, and run stored queries.
- Query for Existing Data may allow providers to find specific information they need without resorting to phone calls or emails.
- Management of referrals including requests for referrals and the management of supporting materials and follow-up activities.

3.8 Content

The types of clinical content to be exchanged is likely to be broad. For ease of management and ease of location of desired content, it is initially assumed that clinical documents will form the bulk of content exchanged and stored. The following document types may be suitable for certain purposes, however modifications may be needed to meet new requirements.

- The Medical Summary (XDS-MS) should be the most common document type used.
- The Emergency Department Encounter Summary (EDES), especially the ED Physician Note, offers sections which seem especially suited to documenting an encounter. This may be closer to what specialists will need to report on the care they have delivered.
- The Functional Status Assessment may be useful as an attachment to a referral request.
- Exchanging Personal Health Record Content (XPHR) could be used to exchange care information between the patient's medical home and PHR.

4 Transaction Issues

- XDS.b Transactions – All existing XDS.b transactions must be supported to achieve the required functionality.
- XUA transactions will be needed to support some providers.
- XCA transactions could support some providers; however XCA does not support ITI-15 – Provide and Register Document Set, which is required by the use case. Also, XUA does not support XCA, so both will have to co-exist.
- Existing transactions may have to be enhanced to support an agreed-upon addressing/identification scheme needed to locate the patient's information home.
- There is a requirement to provide notifications in some form when new documents arrive. The medical home provider will need an adjustable alerting capability, and other providers may also be interested in being informed about new submissions possibly restricted to specific providers or document types, for example.

5 Recommended Approaches

The proposed approach is to build on XDS.b and other existing IHE artifacts, and to rely on the sharing of a very short list of CDA document types to exchange the required clinical content. The key to this scheme is industry agreement on the semantics of addressing/identification. This is probably outside the scope of IHE or any SDO. It could be addressed by national authorities such as HITSP in the US. Another requirement is a simple mechanism to manage cross community identity assertion for independent providers. Is this a service that HIEs might provide? There probably would still be need for other independent service providers.

6 Risks

The sudden availability of possibly large volumes of new clinical information about their patients could create new medico-legal risks for providers.

310 Medical home providers will have a new obligation to maintain 24/7 accessibility of their patients' information homes.

Will medical home providers have an obligation to review all information in the information home for errors and correct possible errors?

7 References

1. Joint Principles of the Patient Centered Medical Home [1]
2. NCQA Physician Practice Connections - Patient Centered Medical Home [2]