Contract Name: Develop Phase I EHR Query-Response Message Set

Summary:
Phase I EHR Query-Response Message Set

The initial stage of the Electronic Health Record Pilot project involves a working prototype to send and receive messages containing individual patient information without pre-negotiation on the part of participant systems. Subsequent stages will expand the working prototype both in depth and in scope.

The system components will be assembled from existing open source implementations, the initial components of which are:

- Transport/encryption/data integrity - candidate CDC PHIN-MS
- Phase I EHR Query-Response Message Set- developed within NLM project by modifying existing messages
- Data Persistence Model Database - (for storing the clinical data)

Phase I EHR Query-Response Message Set involves putting together and testing a set of standard HL7 messages to enable one EHR system to transfer existing information on a specific patient to another EHR system with variable semantic interoperability. The payload will contain, at a minimum, a human readable version of the information provided by the sender. Where available, sender may provide HL7-defined structures (e.g., V2 or V3 messages, CDA Release 1.0 with CDA entries, or simple CDA Release 2.0 documents – equivalent in function and complexity to Release 1.0, but updated to the new release.).

Note that this Phase I contract fits within the context of the overall project described in the HL7 EHR Interchange Standard-Overview.doc.

Task Deliverables:

1. explore the query-response capabilities of existing HL7 messages and interact with the chairs of the appropriate TCs and determine the best set of existing HL7 messages on which to base the messages needed for this project. (See list of V3 messages to be considered, below.)
2. use the HDF to design and/or constrain the required messages.
3. identify existing or design new CDA documents and a set of transforms from source to CDA. At a minimum, sources should include V2 and V3 lab result messages and non-CDA transcription documents.
4. document the implementation steps in an implementation guide.
5. verify that message set can be implemented from scratch using implementation guide.
6. produce a final report. Report to include existing message sets reviewed, rational for choice of final message set, functionality excluded for expediency but which should be included in future implementations, development tools used, description of all artifact files, test data set used and method of populating and parsing message. Work with project manager on format for report.
7. participate in weekly the HL7-NLM EHR Steering Committee Conference calls.

8. advise the HL7-NLM EHR Steering Committee on interactions with other modules such as the PHIN-MS transport mechanism and adapting existing XML transforms.

V3 messages to be considered:

Transport Specifications:

ebXML, Release 1 DSTU - Pending Board Approval
Webservices SOAP/WSDL Profile, Release 1 DSTU - Pending Board Approval
MLLP, Release 1 (Membership #1)

Common Domains: Shared Messages:

Act Status Topic
Act Reference Topic

Infrastructure Management: Transmission Infrastructure:

Generic Message Transmission
Polling Message Transmission

Infrastructure Management: Query Infrastructure:

Query Control Act Topic

Infrastructure Management: Master File/Registry Infrastructure:

Master File Registry Topic

Health and Clinical Management:

Clinical Document Architecture
Laboratory: Result Topic
Medical Records: Document Topic
Public Health Reporting: ICSR Topic
other, as desired (eg, Pharmacy, Blood Bank and so on)

Task Description

1. Define a set of HL7 Version 3 query-response transactions for available/requested types of patient data based on existing Version 3 transactions, or, where required, define new transactions using the Version 3 framework. Transactions will express the appropriate level of detail in query and response.
    a. Query 1 is a query from a requestor to a record holder asking what information they could provide on a specific patient within supplied parameters (which may default to ‘all’).
    b. Response 1 is a high level description or index of the information available for transmission on that specific patient. The message format(s) that the responder uses (ex:HL7 2.4) could be included in the response. As above, start with a very limited scope then expand as time and resources permit.

    c. Query 2 is a follow-up request for all or a specified subset (by type and date range, for example) of the specified patient's information and the format it should be sent in inside the 'meta' response described below).
    d. Response 2 is called the meta response because it can hold almost anything and has very minimal base format requirements. We envision a simplified but standard HL7 Version 3 CDA document retrieval message (consistent with work already done on claims attachment processing). The document retrieval message will have one or more CDA documents as payload. The CDA documents, in turn, will contain human-readable clinical records, as defined by CDA Release 1.0.
2. Determine the optimum method to provide for the inclusion of source data coded in HL7 formats. Options to be considered are a) source data encapsulated within the CDA document; b) source data in a discrete segment within the document retrieval message, with appropriate linkage to the human-readable CDA.
3. Create sample CDA documents from a range of sources: V2 and V3 result messages and non-CDA textual sources.

Required Skills: HL7 Version 2.x and Version 3 message design and tooling, CDA document design and implementation experience using the HDF.
Desired Skills: Implementation of HL7 query-response interactions between information systems.
Expected start: End of November 2004
Estimated Hours: 80
Expected Duration: 1 month

Tools, queries, programs, transforms, models and methods used will be explicitly documented. Intellectual property will enter the public domain under the ownership of HL7.

Payment will be dependent on approval of the deliverable and payment by NLM to HL7.