

IHE Work Item Proposal (Detailed)

# Proposed Work Item: Request for Clinical Knowledge

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Domain: Patient Care Coordination

# The Problem

There are a great number of web resources available that support access of Clinical Knowledge on a specific disease, medical condition, set of symptoms or complaints, for both providers and patients. However, these resources have inconsistent representations of content, search APIs, and responses, making them difficult to integrate into Healthcare IT solutions.

One simple way to search for web resources that can answer specific questions is through the HL7 InfoButton standard. However, there are a number of different ways that InfoButton can be used, and there are a number of options in how a system can respond. We need a consistent set of rules for using InfoButton to query for information that is either patient or provider-oriented. We need a consistent way to address and report on errors in the responses. We need a consistent way to return results so that EHRs and PHRs can make these queries, process the results, and display them in a normalized form.

# Key Use Case

A provider using an EHR wants to locate patient oriented education materials on a given condition. How should the query be structured to obtain a selection of available materials? A patient wants to keep track of clinical trials for a specific condition. How should the query be structured to obtain a selection of appropriate clinical trials? More specific cases follow:

1. Accessing Patient oriented education information on a laboratory result, condition or diagnosis, or medication. This is a capability already supported in MedLine Plus as I understand it. Note: Access to Patient-specific education information is one of the menu-set objectives in Meaningful Use.
2. Accessing information about clinical trials relevant to a particular disease. Many patients with serious life-threatening or chronic illness would love to find out about clinical trials they might fit into. A suitable InfoButton query could be crafted to support access to an Atom or RSS Feed of clinical trials. That could go a long way towards encouraging enrollment in clinical trials.
3. Taking the next step in creating actionable public health alerts. In my current implementation we are getting a HTML page back. But, the content would be easier to handle if it were actually an Atom or RSS Feed in response to the query. This addresses multiple issues:
   1. It supports multiple responses to the query.
   2. It allows just the key metadata to be returned as a response, with subsequent retrieval of the detailed data when needed.
   3. It allows each alert seen to be given a unique resource ID that DOESN'T change even when the alert changes. This is critical, as it allows providers to keep track of what they saw, when they saw it, without having to keep a separate copy. When the alert changes, the link in the feed changes, rather than the content of the page. This is an important issue for medical records professionals.
   4. When a feed is used, the URL found is to the appropriate alert. That makes the detailed alert result cache-able. This is another important issue that can help address network latency issues. A simpler response can be returned that points to the potentially cached resource.

# Standards & Systems

Standards

* HL7 Context Aware Information Retrieval (Infobutton)
* HL7 InfoButton URL Implementation Guide
* ATOM
* RSS
* HTTP
* HTML
* HTML5
* XHTML

Systems

* EHR
* PHR
* Patient Portal
* HIE

# Technical Approach

## New Actors

**Clinical Knowledge Source**

A clinical knowledge source receives queries and subscriptions for clinical knowledge. It returns a list of relevant clinical knowledge resources based on the content of the query or subscription.

**Clinical Knowledge Requestor**

A Clinical Knowledge Requestor collects appropriate clinical context and uses it to generate a clinical knowledge request.

**Clinical Knowledge Subscriber**

A Clinical Knowledge Subscriber collects appropriate clinical context and uses it to generate a subscription for new clinical knowledge that can be periodically executed to obtain new information.

## Existing Actors

None

## New Transactions

**Request Clinical Knowledge**

The Request Clinical Knowledge transaction contains a query built from a clinical context. The receiver of this request responds with a list of matching resources that match the query.

**Subscribe to Clinical Knowledge**

The Subscribe to Clinical Knowledge transaction works similarly to the Request Clinical Knowledge transaction. It contains a query built from a clinical context. The receiver of this request responds with a list of new matching resources that match the query.

**Retrieve Clinical Knowledge**

The Retrieve Clinical Knowledge transaction allows a system to retrieve that clinical knowledge resource listed in the result of “Request Clinical Knowledge” or “Subscribe to Clinical Knowledge” transaction.

## Impact on Existing Profiles

None

## New Integration Profiles

RCK – Request for Clinical Knowledge

## Breakdown of Tasks

* Defining transactions
* Identifying how to express appropriate queries (e.g., public health alerts, clinical trials, general queries for disease/medication/lab specific knowledge), patient vs. provider level information.
* Content profiling for queries
* Content profiling for query response
* Content profiling for clinical knowledge resource (possibly out of scope)

# Risks

# Open Issues

Authentication – need to understand requirements around user authentication for the service. Some services may only be open to authorized users.

# Effort Estimates

A significant amount of effort has already gone into the transaction in QRPH, which is now orphaned. Additional efforts defining error conditions, return values, et cetera (about 9-10 pages) is already completed. Additional effort is needed to address “query subscription” (another 4-5 pages).