SNOMED CT Content Development – A Country Perspective

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Thanks to: Shapoor Shayegani
Agenda

• About Canada Health Infoway
• Request For Change (RFC) Metrics
• Challenges with processing RFCs
• Infoway’s RFC tool
• Workflow model
• Consultations with experts
• Suggested future directions
Canada Health Infoway

• Created in 2001
• $2.1 billion in federal funding
• Independent, not-for-profit corporation
• Accountable to 14 federal/provincial/territorial governments

**Mission:**
Fostering and accelerating the development and adoption of electronic health information systems with compatible standards and communications technologies on a pan-Canadian basis with tangible benefits to Canadians. *Infoway* will build on existing initiatives and pursue collaborative relationships in pursuit of its mission.
Infoway’s vision

• Healthier Canadians through innovative e-health solutions.
SNOMED CT Content Development Projects

• Microorganism content
  – A provincial initiative in collaboration with Infoway to use SNOMED CT for the reporting of lab results, to use the potentials of SNOMED CT and to reduce the local maintenance burden
  – ~1800 RFCs

• DI content
  – This project developed a SNOMED CT common DI terminology to support the implementation of DI Common Services for all of Ontario.
  – ~900 RFCs

• Vaccine content
  – A provincial initiative in collaboration with Infoway that lead to the development of 7 SNOMED CT refsets to support immunization functionality. The subsets enable the consistent capture of immunization data using standardized terminology
  – ~300 RFCs

• Overall, ~4000 RFCs in the past 2 years
Challenges with processing RFCs

• Volume

• Required turnaround time
  – E.g. approximately 45 mins/RFC was needed on average

• Tooling
  – Up to this summer no tooling solution beyond Excel was available
  – Lots of manual work
  – Prone to error

• Modeling challenges
  – Uncertainties in international direction
Introduction to InfoRMS

• Infoway Request Management System
• Replaced the previous RFC Process for SNOMED CT with a more efficient and streamlined process
• Scalable – supports multiple projects (HL7, pCLOCD)
• Supports integration in the end-to-end terminology solution
Benefits

• Reduction in errors (stronger data validation, checks for missing information, no reliance on copy-and-paste)

• Better tracking of the requests in a centralized database

• Better communication provided by the tool (manual email communication is no longer required)

• Increased productivity

• Reduced turnaround time for requests from Canadian implementers
Implementation project

- Project planning phase began in November, 2012
- Agile implementation – four sprints and a stabilization phase
- Operational since July 2013
JIRA-based tool

- JIRA is a commercial change/issue tracking system developed by Atlassian

- One of the best solutions for tracking changes in the world, adopted by high-profile companies (BMW, Facebook, Cisco, Nike, eBay, etc.)

- Highly customizable (request types, fields, workflow, etc.)

- Plugin-based architecture allows extending the functionality through:
  - Installation of third-party plugins
  - In-house development of custom plugins

- Allows hosting multiple “projects” with distinct actors and access controls;
Before - After

<table>
<thead>
<tr>
<th>Before</th>
<th>After</th>
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<tbody>
<tr>
<td>• Requestor downloads the template from InfoCentral</td>
<td>• Requestor downloads the template from the tool</td>
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<tr>
<td>• Requestor completes the template and emails to SC</td>
<td>• Requestor completes the template and uploads via the tool</td>
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<tr>
<td>• Communication between SC and requestors done through different</td>
<td>• All communication done within the tool and stored in the tool</td>
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<tr>
<td>methods (emails, phone calls, etc.)</td>
<td>• Requestors can not only see the status of their requests but they</td>
</tr>
<tr>
<td>• No easy way to document all communication</td>
<td>can also monitor other requests that are of interest to them</td>
</tr>
<tr>
<td>• No way for requestors to know the status of their requests other</td>
<td>• All requests are up to date in the tool</td>
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<tr>
<td>than asking SC</td>
<td></td>
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<tr>
<td>• Log of previous requests out of date</td>
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Integrated workflow
• Adding a new RFC
• RFCs can be entered individually or in a batch
• RFCs can be of 6 types as shown in the picture
• A “batch” template can be downloaded in English or French
• The template is an Excel file that needs to be completed and uploaded
• Search options
• Several search options are developed
• More search criteria can be entered by users; JIRA supports SQL
• Workflow options within the tool support transitioning the request between states.
Consultations with experts

• Several consultations were made on issues such as:
  – Validity of RFCs
  – Modeling issues
  – Naming issues

• Consultations were done with:
  – Internal resources
  – Canadian experts (e.g. Winnipeg public health lab)
  – International experts (e.g. Jim Case)
  – IHTSDO (e.g. Chief Terminologist)
  – CAP
  – IHTSDO content project were reviewed
Communication with requestors

• Close communication was maintained with the requestors
• Experts at the requesting organizations were involved to ensure the intent of the RFCs are clear and to agree upon a solution
• Name changes were proposed and discussed
• RFCs were generally not rejected without involvement and understanding of the requestor
Uncertainties at the international level

- Some content projects at the IHTSDO make modeling/naming guidelines a moving target.
- When consultation channels were exhausted, we had to make decisions.
Example of approach taken - Micro

- **RFC pattern:**
  - X species (organism). For example: Shigella species (organism)

- **Problems:**
  - They fall under Genus and become siblings to other species of the same Genus
  - It is like a catch-all concept, or similar to ‘unknown’, ‘not otherwise classified’, etc. that classification systems have and a terminology such as SNOMED would not allow
  - What it really means is that the lab has found an organism and is down to the level of Genus but is not sure which species it belongs to

- **Consultation:**
  - Consulted with Kent Spackman and James Case.

- **Solution:**
  - Create these as “observation result” instead of organism. Since observation result has not been added as a semantic tag yet, we are creating them as finding for now. The created concepts are “X species unspecified (finding)"
Suggestions

• Integration between SIRS and national RFC tools should be considered
  – E.g. through APIs
Suggestions (2)

• Decisions and context leading up to decisions should be transparent and accessible to NRCs working on Content Development
• Consultations with experts have been a very successful approach
  – It would be great if there was a cross-NRC/IHTSDO sharing of expertise and decision
  – Working in isolation is not a good practice
  – Involving stakeholders ensures
    • Efforts are not duplicated
    • A consistent international approach is taken
    • Others can benefit from the same work
• Tighter communications with requestors makes the process more transparent and more satisfactory at the end
Thank you