



## IHTSDO Working Groups – 6 Month Update

Working Group Information	
Name of Working Group Event, Condition and Episode Project Group	
Name of Working Group Chair Edward Cheetham	Date 24 <sup>th</sup> April 2009
Which Committee(s) does this Working Group report to? Please tick applicable box(es) below.	
<input checked="" type="checkbox"/> Content Committee	<input type="checkbox"/> Research & Innovation Committee
<input type="checkbox"/> Technical Committee	<input type="checkbox"/> Quality Assurance Committee
Current Status	
What were the Working Group's most significant accomplishments in the last six months?	
<ul style="list-style-type: none"> <li>Continued progress with attempts to modularize the multiple aspects of the project. See attached summary document for details.</li> <li>Growing amounts of test data.</li> </ul>	
Is the Working Group presenting deliverables and/or making recommendations for consideration by the Standing Committee at the upcoming meeting?	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
(If yes, please attach relevant briefing materials. As a reminder, this briefings must be available for circulation 3 weeks in advance of the Committee meeting so that Members have an opportunity to appropriately consider your suggestions and consult with colleagues.)	
What areas do you expect to focus on in the next 6 months?	
<ul style="list-style-type: none"> <li>Merging existing project approach with formal ontological approach.</li> </ul>	
Please list any deliverables/recommendations that you expect to bring forward for consideration by the Standing Committee in the next 6 months.	
<ul style="list-style-type: none"> <li>Intention to agree, test and recommend approach for allocation of relevant content as 'findings, events, disorders, diseases or situations' by April 2010.</li> </ul>	
Is the Working Group making recommendations for consideration by the Standing Committee at the upcoming meeting?	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
(If yes, please attach relevant briefing materials.)	
# Telephone conferences last 6 months 5	# face-to-face meetings in the last 6 months 0
Office Use: IHTSDO Confirmation of Report Received	
Date	Forwarded to relevant Committee(s) <input type="checkbox"/>

Thank you for taking the time to keep your colleagues up-to-date on the progress of your Working Group. Please send completed update templates to [info@ihtsdo.org](mailto:info@ihtsdo.org). Extracts from this report may be posted on the Collaborative Space and/or IHTSDO website to provide updates for the Community of Practice as a whole.

# Event condition and episode project update

Notes by Ed Cheetham  
Project lead  
September 2009

## ***Introduction and outline***

This document is intended to summarise the progress of the IHTSDO Event, Condition and Episode' project in advance of the October 2009 Working Group Meetings in Bethesda. It is hoped that it will provide a faithful summary of the work that has been done to date, explain the current complexity of issues that currently appear to be in scope, and describe to current and prospective project members the planned next steps.

## ***Project background***

SNOMED CT-related project description documents relevant to this project date back to at least October 2004. A 2007 reframing for consideration by the newly-formed transition helped give the project group its current name<sup>1</sup>, and characterised the problems that the project attempted to address thus:

- *“...Neither SNOMED modelers nor SNOMED users consistently understand the difference between, say, headache (SCTID 25064002) and headache disorder (SCTID 230461009). It’s unclear whether a SNOMED disease represents a necessarily abnormal finding or a condition that persists over time.*
- *Neither SNOMED modelers nor SNOMED users consistently understand the difference between, say, dog bite (event) (SCTID 217697000) and deep dog bite (clinical finding) (SCTID 262571007). It’s unclear whether a SNOMED Clinical Finding represents a discrete event vs. a persisting condition.*
- *Users of the VA/KP SNOMED Problem List Subset have expressed confusion when trying to select the right SNOMED concept for use in a package insert.*
- *Modelers working on the SNOMED allergy hierarchy have expressed confusion when trying to differentiate allergic reactions vs. allergic conditions.*
- *Mapping SNOMED to ICD9 or ICD10 E-codes isn’t possible until these semantics are worked out...”*

The same proposals suggest the following desirable activities and deliverables in response:

- *“...Establish guidelines for differentiating discrete events from persisting conditions.*

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<sup>1</sup> Given current scope, ‘Event, Condition and Episode’ is no longer perhaps the ideal project name, but we plan to keep it for now!

- *Establish guidelines for differentiating concepts in the Clinical Findings hierarchy, the Disease (SCTID 64572001) subhierarchy within Clinical Findings, and the Events hierarchy.*
- *Clean up existing content to be consistent with established guidelines...*
- *Produce:*
  - *Definition and model for “event”*
  - *Definition and model for “persisting condition” or “disease”*
  - *Definition and model for “episodic condition” or finding.*
  - *Guidance on the use of these elements with the context model (situation with explicit context).*
- *Major re-modelling of the clinical findings hierarchy, moving:*
  - *All “situations” currently under “clinical finding” to “situation”*
  - *All “events” currently under “clinical finding” to “event”*
  - *All “persisting conditions” or “diseases” under a common sub-hierarchy*

In the 2 years or so that have passed since this snapshot position, the project has made variable progress in producing the suggested deliverables.

In some form or other, several of the topics currently under consideration by the project have been debated in the context of SNOMED CT since its initial publication in 2002 (and probably prior to this in the context of predecessor terminologies). A number of materials that indicate prior attempts to address similar issues have also been collated/recovered, in particular PowerPoint slide sets addressing issues such as ‘X with and without Y’, ‘combined disorders and their definitions’ and ‘Events, episodicity and findings’ (2005).

In addition, since the project commenced within the IHTSDO, a growing suspicion/recognition of the value of applying formal ontological principles has emerged. Such an approach has been cautiously explored/incorporated, but the group as a whole have not been confident that their application of such principles has been ‘correct’.

### ***Project components and related assets***

As suggested above, the project, rather than focussing down its scope, has expanded – either by acquiring new areas of interest/relevance or by identified these by exploring more deeply into existing in-scope work. In order to make sense of these different aspects, and to try and partition the efforts of the (small group), a number of subsidiary aspects of the project have been identified, along with any ‘assets’ (documents, data) that accompany them. It is fair to say that this decomposition creates the impression of order whilst the project itself has not produced corresponding tangible deliverables, however it is felt that this ordering may assist in making better progress in limited project areas. What follows is a summary of these components and any corresponding assets.

## 'Exclusion from SNOMED'

Originating from the example data provided in EventsConditionsproblematic\_classes.doc (example requests from Kaiser Permanente that are currently awaiting resolution as submissions to the International SNOMED CT data), it is likely that some requests may simply be 'out of scope' for SNOMED CT. For example, some stalled requests such as "HYPEREMESIS, MILD, STARTING BEFORE END OF 22ND WEEK GESTATION, NOT DELIVERED" might be deemed too grounded in particular classification exercise to be suitable content.

Whilst the decision as to whether a particular request, concept or utterance is out of scope for SNOMED CT, it is important to recognise that we may encounter some patterns where the optimal solution is to say 'no' rather than wrestle with increasingly complex criteria for deciding 'how'.

### **Assets:**

*Parts of the following – both a list of actual examples (the xls) and then an evolving attempt to categorise them:*

EventsConditionsexamples.xls

EventsConditionsproblematic\_classes.doc

EventsConditionsproblematic\_classes 20090629.doc

EventsConditionsproblematic\_classes 20090629-ks.doc

## 'One code or more' and 'Inter-relationship modeling'

Perhaps the most mature and 'talked-about' parts of the project so far, these two project aspects cover the original should we be adding an 'event', a 'condition' or both, and if both, how should they be related.

### **'One code or more'**

Canonically characterised by "is 'dog bite' a disorder, an event ('bitten by dog') or both?". A lot of time spent on such discussion so far, but still struggling to ground out to a reproducible approach.

### **Assets:**

Event condition Project Group June30th 2008 Minutes.doc

Event condition Helsingor notes.ppt

Event condition Project Group November 1st 2008 Minutes.doc

Event condition discrim questions 20090819.xls

Event condition discrim questions 20090708.xls

State\_Event\_Ident\_FlowChart\_20090819.jpg

State\_Event\_Ident\_FlowChart\_20090819.vsd

### **'Inter-relationship modelling'**

Perhaps most developed in discussions around allergies and allergic reactions, in particular discussions around the relevance of ‘has definitional manifestation’ relationship in associating these notions.

**Assets:**

Event condition Project Group January 21st 2009 confcall.ppt  
Events, conditions, episodes-1 - bruce slides Helsingor 2009.ppt  
Event condition Project Group June30th 2008 Minutes.doc  
events-v3.ppt

### 'situation v. kernel modeling'

A natural companion to ‘inter-relationship modelling’, this aspect of the project relates to the view that many ‘compound concepts’ (X with Y, X without Y, X manifest by Y) might be best represented as ‘situations’ as opposed to ‘specialisation of X’ classes within the ‘context-neutral’ finding/event/disorder parts of SNOMED CT. In the case of X with/without Y this approach has long been suspected (in order to provide access to SNOMED CT’s machinery for negation), but has long been controversial for ‘X and Y’ and not really considered for X manifest by Y.

More recently explanations from Kent, as well as material provided by Barry Smith may provide additional guidance on this distinction pattern.

**Assets:**

Notes on distinguishing diseases and situations.doc  
diabetes-disorder-proposed.doc  
diabetes-current.doc  
X with\_without Y.ppt  
Combination terms as clinical situations.ppt  
Combined disorders and their definitions.ppt  
Disease\_and\_Diagnosis.pdf

### 'temporal analysis'

Still immature at this stage, this component relates to a deeper consideration of ‘episodes’ – in particular from a data analysis perspective. Not considered elsewhere in the project, it is important to be able to distinguish (and thus identify and count) distinct disorder episodes, as compared to multiple entries that merely restate a disease/disorder notion that persists over time.

**Assets:**

None at present - hopefully slides/presentation from Bethesda meeting

## **'problem list construction and retrieval query construction'**

Probably most relevant as implementation guidance - once content of particular types has been added (and in particular where > 1 code represents a superficially similar notion), there is a need to make clear which 'types' of code are to be presented for recording in problem lists (or other structured recording settings), and which should be sought for particular analysis/retrieval questions.

<b>Assets:</b>
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None at present
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### ***Next steps***

It will be noted from the above section that the project is at serious risk of spreading its efforts very thinly over the multiple identified project components. In an attempt to mitigate this, and instead to allow satisfactory progress in specific areas, it has been attempted to concentrate activity on a limited number of project components

Entering the Bethesda IHTSDO working group meetings, the group intends to concentrate on exploring in greater detail the contribution that a formal ontological approach might give to the 'one code or more' and the 'situation v. kernel' discussion. This will include an opportunity to 'compare and contrast' current project approaches with that described by Barry Smith, and the application of various approaches to worked clinical examples – in particular to see whether the approaches can be used in a complementary fashion.

### ***Scenario illustration of project value***

In order to test the ideas discussed, and also to make the problems and solutions of the project more accessible to new project members, it is our intention to work through and document as many (complex) clinical examples as possible.

Not produced in time for circulation of this document, but will be worked on during the Bethesda WGMs using complex/compound critical care examples from the book 'Critical Care Pearls'<sup>1</sup> and any other examples that group members can provide.

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<sup>1</sup> Excerpts can be previewed at [http://books.google.com/books?id=ICY1B7u-WhcC&source=gbs\\_ViewAPI](http://books.google.com/books?id=ICY1B7u-WhcC&source=gbs_ViewAPI)