

Observation binding

Resource

<https://www.hl7.org/fhir/observation.html>

Profile examples

Relevant Confluence pages

Resource – concept model mapping

Yellow rows denote SNOMED CT attributes where there is no specific FHIR counterpart.

File	Modified 
Microsoft Excel Spreadsheet FHIR Specimen 20180503.xlsx	2019-Mar-12 by Peter G. Williams
PNG File image2019-3-12_21-40-15.png	2019-Mar-12 by Jeremy Rogers
PNG File image2019-3-12_21-41-29.png	2019-Mar-12 by Jeremy Rogers
PNG File image2019-3-13_9-21-8.png	2019-Mar-13 by Jeremy Rogers
File Table.url	2019-Mar-13 by Jeremy Rogers

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Resource element (CodeableConcept)	FHIR ValueSet	Binding Strength	SNOMED CT attribute	SNOMED CT range	Comments
Observation. category					Is there a use case for providing SNOMED mappings as an alternative to the preferred set of 9? Unlikely that will be able to draft a 'tidy' mapping to the exact same set of 9 categories, such that if Observation.code, .method, .bodySite and .type are all known then .category can be computed. 2019-04-16: recommend not to use this, but would be allowed. Category can be determined from the code.
Observation. code	https://www.hl7.org/fhir/valueset-observation-codes.html#expansion			<<363787002 Observable entity OR <<386053000 Evaluation procedure	AP: What happens to the findings like 'pulmonary oedema' from the findings hierarchy? Is that only a Condition, or can it also be an Observation? Many clinical condition labels are synonyms for the primary clinical symptom or observation that they cause. And many genuine symptoms are certainly observations (that a phenomenon exists), not pathologies DK: Findings are not the "question" component of the question-answer model - they're a conflation of both question AND answer AP: But where the conflated answer is typically always "is present" UNRESOLVED....revisit
Observation.Value.value CodeableConcept				<<362981000 Qualifier value MINUS valueset for Observation Interpretations? DK thought binding was overly constrained 28May.	LB: why not also members from <<441742003 Evaluation finding JC: Because they decompose (in theory) into an Observable+Qualifier pair

Observation.dataAbsentReason	DataAbsentReason (Extensible)	2019-04-16: seems to be out of scope of SNOMED CT																																																			
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Observation.interpretation	Observation Interpretation Codes (Extensible)	<p>HL7 valueset (n=48) is extensible, so could add new expressivity as SNOMED codes if there were any gaps in existing list ... but that existing list is already relatively matured and 'metalled' by use, so that seem an unlikely requirement. Many of the existing members of the HL7 valuelist have obvious SNOMED equivalents, so there is scope for a <i>mapping</i> rather than a completely separate SNOMED-only valuelist. Mapping exercise may also reveal some holes in existing SNOMED expressivity.</p> <p>2019-04-16: gaps could be filled with new SNOMED CT content, e.g. _ObservationInterpretationNormality</p> <p>2019-06-11: filling Significant low/high,</p> <ul style="list-style-type: none"> <input type="checkbox"/> Daniel Karlsson create requests for Critical abnormal, Critical high, Critical low, Off scale low, Off scale high, Non-susceptible, Synergy - resistant, Synergy - susceptible, Susceptible-dose dependent, Expected, Unexpected. <input type="checkbox"/> Rob Hausam ask for clarification from HL7 Orders and Observations Work Group about this: Insufficient evidence, No CLSI defined breakpoint (a generic "no breakpoint" concept instead?), 																																																			
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H	High	371879000 Abnormally high (qualifier value)
HU	Significantly high	260360000 Very high (qualifier value)
L	Low	371880002 Abnormally low (qualifier value)
LU	Significantly low	260362008 Very low (qualifier value)
N	Normal	17621005 Normal
_ObservationInterpretationSusceptibility		
I	Intermediate	264841006 Intermediately susceptible
NCL	No CLSI defined breakpoint	
NS	Non-susceptible	
R	Resistant	30714006 Resistant
SYN-R	Synergy - resistant	
S	Susceptible	131196009 Susceptible
SDD	Susceptible-dose dependent	
SYN-S	Synergy - susceptible	
EX	outside threshold	394844007 Outside reference range
HX	above high threshold	281302008 Above reference range
LX	below low threshold	281300000 Below reference range
ObservationInterpretationDetection		
IND	Indeterminate	82334004 Indeterminate
E	Equivocal	42425007 Equivocal
NEG	Negative	260385009 Negative
ND	Not detected	260415000 Not detected
POS	Positive	10828004 Positive
DET	Detected	260373001 Detected
ObservationInterpretationExpectation		
EXP	Expected	
UNE	Unexpected	
ReactivityObservationInterpretation		
NR	Non-reactive	131194007 Non-Reactive
RR	Reactive	11214006 Reactive
WR	Weakly reactive	117006002 Weakly-reactive

Observation.bodySite

SNOMED CT Body Structures (Example)

Similar to Condition.bodySite, use values from << 442083009 (Anatomical or acquired body structure) unless the body site can be determined from Observation. code eg 433776001 |Temperature of toe (observable entity)| uses Inheres In Toe Structure. Historical issue with difficulty representing multiple body sites (eg primary and secondary tumor sites). Note that Condition resource allows 0..* bodysites.

2019-06-11: Overlaps with | direct site | of the Observables concept model.

[Daniel Karlsson](#) can you suggest an observable that uses two body sites?

Observation.method	<p>Observation Methods (Example)</p> <p>Current HL7 list specifies: < 272394005 (Technique) OR < 120264002 (Action) OR < 386053000 (Patient evaluation procedure)</p>	<p>HL7 * Only used if not implicit in code for Observation.code^d</p> <p>Note that Observables model currently using Technique (attribute) taking a technique qualifier. Actions are used as the value for a method in a procedure so is less appropriate here. JR suggested that this field should be restricted to < 272394005 (Technique) to address use case of concerns of a Pathology department.</p> <p>Could a patient evaluation procedure be decorated with a technique? Currently only used with observables.</p> <p>TODO - Link to Observables concept model</p> <p>How would we link resources together so that the Observation could reference the actual procedure undertaken to make the determination? Likely via the "basedOn" linked to the ServiceRequest.</p> <p>Similar problem to bodysite with conflict if Technique is used and does not align with Observation.code</p>																																																								
Observation.referenceRange.type	<p>Observation Reference Range Meaning Codes (Preferred)</p> <table border="1"> <thead> <tr> <th>Lvl</th> <th>Code</th> <th>Display</th> <th>SNOMED CT</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>type</td> <td>Type</td> <td></td> </tr> <tr> <td>1</td> <td>normal</td> <td>Normal Range</td> <td>17621005 Normal </td> </tr> <tr> <td>1</td> <td>recommended</td> <td>Recommended Range</td> <td></td> </tr> <tr> <td>1</td> <td>treatment</td> <td>Treatment Range</td> <td></td> </tr> <tr> <td>1</td> <td>therapeutic</td> <td>Therapeutic Desired Level</td> <td>262202000 Therapeutic </td> </tr> <tr> <td>2</td> <td>pre</td> <td>Pre Therapeutic Desired Level</td> <td></td> </tr> <tr> <td>2</td> <td>post</td> <td>Post Therapeutic Desired Level</td> <td></td> </tr> <tr> <td>0</td> <td>endocrine</td> <td>Endocrine</td> <td></td> </tr> <tr> <td>1</td> <td>pre-puberty</td> <td>Pre-Puberty</td> <td>NB 251818004 Prepubertal - no pubic hair (finding) SNOMED Code(s) needed below 307158003 Temporal periods relating to physiological functions ? (Prepubescent, peripubescent, pubescent, postpubertal) ??</td> </tr> <tr> <td>1</td> <td>follicular</td> <td>Follicular Stage</td> <td>SNOMED Code needed below 263845008 Premenstrual ?</td> </tr> <tr> <td>1</td> <td>midcycle</td> <td>MidCycle</td> <td>NB 37733003 Midstage (has synonym: midcycle) SNOMED Code needed below 263845008 Premenstrual ?</td> </tr> <tr> <td>1</td> <td>luteal</td> <td>Luteal</td> <td>SNOMED Code needed below 263845008 Premenstrual ?</td> </tr> <tr> <td>1</td> <td>postmenopausal</td> <td>Post-Menopause</td> <td>307429007 After menopause </td> </tr> </tbody> </table>	Lvl	Code	Display	SNOMED CT	0	type	Type		1	normal	Normal Range	17621005 Normal	1	recommended	Recommended Range		1	treatment	Treatment Range		1	therapeutic	Therapeutic Desired Level	262202000 Therapeutic	2	pre	Pre Therapeutic Desired Level		2	post	Post Therapeutic Desired Level		0	endocrine	Endocrine		1	pre-puberty	Pre-Puberty	NB 251818004 Prepubertal - no pubic hair (finding) SNOMED Code(s) needed below 307158003 Temporal periods relating to physiological functions ? (Prepubescent, peripubescent, pubescent, postpubertal) ??	1	follicular	Follicular Stage	SNOMED Code needed below 263845008 Premenstrual ?	1	midcycle	MidCycle	NB 37733003 Midstage (has synonym: midcycle) SNOMED Code needed below 263845008 Premenstrual ?	1	luteal	Luteal	SNOMED Code needed below 263845008 Premenstrual ?	1	postmenopausal	Post-Menopause	307429007 After menopause	<p>The value set is maturity=0 and binding strength is Preferred, so alternatively we can develop our own SNOMED CT value set from scratch.</p> <p>However, the added value of using SNOMED CT here is... limited.</p>
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Observation.referenceRange.appliesTo	<p>Observation Reference Range Applies To Codes (Example)</p> <p><<415229000 Racial group (racial group) OR <<248153007 Male OR <<248152002 Female OR <<77386006 Pregnant </p>	Likely, missing race/ethnicity codes will not be added to SNOMED CT																																																								
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