**Allergy Domain Terminologies**

This document lists the elements identified as coded properties in the FHIM Allergy & Intolerance domain. They are captured from existing standards – in this case, C-CDA and FHIR. (V2 core does not address allergies.) The FHIM publishes both bindings, but we propose that the owning work groups harmonize them, in whatever fashion seems appropriate, so that the respective synonymous elements use shared value sets to support common understanding of the data irrespective of the format in which it is shared.

In cases where we have two value sets and we wish to select one as the single standard for common understanding, we have identified several selection criteria. These criteria should be ranked by priority in order to support a more transparent and collaborative selection process. There may be cases where thorough consideration suggests that neither value set is ideal, and one or the other might be modified to provide the best available solution for both specifications.

Selection criteria:

* Clarity of meaning and correctness of terms
* Legibility
* Size of installed base & cost of change
* Licensing
* Realm-specific concerns (including legibility)
* Support for logical inference

Note that for large value sets (reaction, substance), there is a conflict between two uses of value sets: to ensure that captured or received information is valid (value set is as inclusive as possible) and to support efficient processes, whether manual or automated (value set is small and manageable). However the implementation design groups implement this distinction, it may be important for the steward workgroup to define both.

**Criticality**

C-CDA and FHIR have the same concepts but use different codes.

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| [**C-CDA**](https://vsac.nlm.nih.gov/valueset/2.16.840.1.113883.1.11.20549/definition) **Value (ObservationValue)** | | [**FHIR**](http://hl7.org/fhir/ValueSet/allergy-intolerance-criticality) **Value (allergy-intolerance-criticality)** | |
| CRITH | high criticality | high | High Risk |
| CRITL | low criticality | low | Low Risk |
| CRITU | unable to assess criticality | unable-to-assess | Unable to Assess Risk |

**Category**

FHIR specifies physiological mechanism and substance category; C-CDA precoordinates these in a single “type” element. The FHIR design is more expressive, but many combinations are of limited usefulness.

Confirm need for type. Is “allergy” a proxy for criticality, which we record anyway, or is there a use case for needing to make this distinction?

Confirm the need for substance classification code. Substance is already captured; classification might be inferred.

If neither is needed, remove. If one is needed, converge both standards on the one. If both are needed, converge the standards on one pattern or, since this involves a structural divergence, the best option may be a mapping. Such a mapping would need to handle cases where one value set supports values for which the other has no equivalent.

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| [**C-CDA**](https://vsac.nlm.nih.gov/valueset/2.16.840.1.113883.3.88.12.3221.6.2/expansion) **Value** | |
| 235719002 | Food intolerance (disorder) |
| 414285001 | Food allergy (disorder) |
| 416098002 | Drug allergy (disorder) |
| 418038007 | Propensity to adverse reactions to substance (disorder) |
| 418471000 | Propensity to adverse reactions to food (disorder) |
| 419199007 | Allergy to substance (disorder) |
| 419511003 | Propensity to adverse reactions to drug (disorder) |
| 420134006 | Propensity to adverse reactions (disorder) |
| 59037007 | Drug intolerance (disorder) |

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| [**FHIR**](http://hl7.org/fhir/valueset-allergy-intolerance-type.html) **Code (type, i.e., physiological mechanism)** | **FHIR Value** |
| Allergy | Allergy |
| Intolerance | Intolerance |

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| [**FHIR**](http://hl7.org/fhir/valueset-allergy-intolerance-category.html) **Code** **(category)** | FHIR Value |
| Food | Food |
| Medication | Medication |
| Environment | Environment |
| Biologic | Biologic |

**Reactant**

The [C-CDA](https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1010.1/definition) value set “Substance-Reactant for Intolerance” (“NDFRT, then RXNORM, then UNII, then SNOMED CT”) has proven too large for effective implementation, and is a primary motivation for the common allergy substances project.

The [FHIR](http://hl7.org/fhir/valueset-allergyintolerance-code.html) value set “AllergyIntolerance Substance/Product, Condition and Negation Codes” includes substances, products, intolerances, and assertions of no intolerance.

This difference results in part from a modeling divergence: CDA uses the RIM negation indicator pattern to articulate absence with a distinct data element, whereas FHIR precoordinates absence in the focal element code.

Further, C-CDA leans on US Realm assets. The US Core FHIR profile [substance](http://hl7.org/fhir/us/core/ValueSet-us-core-substance.html) value set imports RxNorm and NDF-RT, leading to a size issue similar to that facing C-CDA.

Like Category, this element is complicated by structural differences that may be addressable only with a map. However, it should be possible to agree on a core set of concepts, e.g.,

* Include substances from SNOMED CT
* Include products from SNOMED CT (potentially to support mixtures)
* Exclude conditions from SNOMED CT
* Permit addition of situations (absence of sensitivity to substance) from SNOMED CT, with mappings

**Clinical Status**

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| **C-CDA: HITSP** [problem status](https://vsac.nlm.nih.gov/valueset/2.16.840.1.113883.3.88.12.80.68/expansion) | | [**FHIR**](http://hl7.org/fhir/ValueSet/allergy-clinical-status) **allergy clinical status** | |
| 55561003 | Active (qualifier value) | active | Active |
| 73425007 | Inactive (qualifier value) | inactive | Inactive |
| 413322009 | Resolved (finding) | resolved (child of inactive) | Resolved |

Terms for clinical status are identical between FHIR and C-CDA. C-CDA uses SNOMED CT, which should support inference, but it uses concepts from different hierarchies, preventing such a use.

Patient Care is currently revising the Condition clinical status value set for both FHIR and C-CDA. The current FHIR set is (active | recurrence | inactive | remission | resolved); the current candidate set also includes (well-controlled | poorly controlled | relapse).

The use case for this element requires clarification before an appropriate semantic scope can be specified. Control and periodicity are important facts, but they may belong in distinct properties.

**Reaction**

C-CDA uses the HITSP [Problem](https://vsac.nlm.nih.gov/valueset/2.16.840.1.113883.3.88.12.3221.7.4/expansion) value set from SNOMED CT. FHIR uses the [Clinical Finding](http://hl7.org/fhir/valueset-clinical-findings.html) axis of SNOMED CT. Both of these are very large. FHIM recommends the [Adverse Clinical Reaction](https://vsac.nlm.nih.gov/valueset/2.16.840.1.113883.3.2074.1.1.30/expansion) value set, also from SNOMED CT but narrowed by frequency of incidence.

Conformance requirements should not prevent users from recording unusual concepts, but a consistent “recommended” set should be defined.

**Severity**

C-CDA uses the HITSP [Problem Severity](https://vsac.nlm.nih.gov/valueset/2.16.840.1.113883.3.88.12.3221.6.8/expansion) value set; FHIR values seem to be a subset. FHIM recommends adopting the smaller set of values (subject to clinical review).

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| [C-CDA](https://vsac.nlm.nih.gov/valueset/2.16.840.1.113883.3.88.12.3221.6.8/expansion) problem severity | | [FHIM](http://hl7.org/fhir/ValueSet/reaction-event-severity) reaction severity | |
| 24484000 | Severe (severity modifier) (qualifier value) | severe | Severe |
| 255604002 | Mild (qualifier value) | mild | Mild |
| 371923003 | Mild to moderate (qualifier value) |  |  |
| 371924009 | Moderate to severe (qualifier value) |  |  |
| 399166001 | Fatal (qualifier value) |  |  |
| 6736007 | Moderate (severity modifier) (qualifier value) | moderate | Moderate |