

# Immunization

<http://build.fhir.org/immunization.html>

See also

- [ImmunizationEvaluation 0](#) (note interest in targetDisease and RH thought that protocol should also be present, but was not)
- [ImmunizationRecommendation 1](#)

Used to document the fact of a vaccine being (or not being) administered. Note does not include passive immunization ie is about vaccination.

31 March 2020

JC: Immunization is not the same thing as vaccination. FHIR spec says: *While the terms "immunization" and "vaccination" are not clinically identical, for the purposes of the FHIR resources, the terms are used synonymously.*

FHIR 4 Element	Strength / Cardinality	Binding	Discussion
status	Required 1..1	completed   entered-in-error   not-done	
statusReason		<a href="http://terminology.hl7.org/CodeSystem/v3-ActReason">http://terminology.hl7.org/CodeSystem/v3-ActReason</a>	Only used when vaccination is not done - as per Event pattern.
vaccineCode	Example 1..1	Include all codes defined in <a href="http://hl7.org/fhir/sid/cvx">http://hl7.org/fhir/sid/cvx</a> Include all codes defined in urn:oid:1.2.36.1.2001.1005.17  Suggest << 787859002  Vaccine product (product)	Currently a mix of CVX and Australian Codes.  Note use of ImmunizationRecommendation.recommendation.contraindicatedVaccineCode for products that should not be used eg inhaler supplied when patient has asthma.
Information Source (R5)		<< 48176007  Social context (social concept)	Or reference to other resource (Patient   Practitioner   PractitionerRole   RelatedPerson   Organization)
location		Reference to Location resource	
manufacturer		Reference to Organization resource	Note that national extensions can represent eg "suppliers" via single SNOMED codes - however may be no direct link through drug dictionary.
lotNumber		String	
expirationDate		Date	

Passive immunization products (eg gamma globulin or immune serum) could be handled using a Medication Resource.

## Changes in R4 (R5 - current build):

Recording of information source (further changes for R5)

R4 split Event and Validity into separate resources - ImmunizationEvaluation (as recommendations may change over time)

Question: Why not just use Medication resource for this? Possibly due to vaccine specific elements. May be worth comparing with Medication.

[Jeremy Rogers](#) brought up issue in tracking immunizations for specific conditions when vaccine product treats more than one thing - how is that held against the primary immunization schedule ie moving from 3 to 4 components could mean finishing one schedule while only starting one for the 4th disease. Answer (Craig Newman): ImmunizationEvaluation (Maturity 0) is an attempt to address this sort of thing, which might then cause an ImmunizationRecommendation (Maturity 1) to be generated.

[Jeremy Rogers](#) asked if immunization for cancer by injecting tumour cells (autoimmune therapy) is in scope. HL7 have not discussed explicitly "does not include administration of non-vaccine agents"

site		<p>Currently "LA", "RA" <a href="http://terminology.hl7.org/CodeSystem/v3-ActSite">http://terminology.hl7.org/CodeSystem/v3-ActSite</a> &lt;&lt; 442083009  Anatomical or acquired body structure (body structure) </p>	<p>Suggest we restrict this to the routinely used administration sites? Note that some of these are routes of administration rather than sites. <a href="#">Jeremy Rogers</a> thought there would be about 13 (in lateralized pairs).</p> <p>What site would be entered for oral preparation? See Route.</p> <p>Note that usage of some sites would invalidate the effectiveness of the vaccine eg rabies invalid when injected into glut.</p> <p>91775009 Structure of left shoulder region (body structure) </p> <p>762214005 Structure of part of left upper limb (body structure)  aka deltoid?</p> <p>37622008 Deltoid region structure (body structure) </p> <p>723979003 Structure of left buttock (body structure) </p> <p>61396006 Structure of left thigh (body structure) </p> <p>762084003 Structure of left quadriceps femoris muscle (body structure) </p> <p>91774008 Structure of right shoulder region (body structure) </p> <p>762212003 Structure of part of right upper limb (body structure) </p> <p>723980000 Structure of right buttock (body structure) </p> <p>11207009 Structure of right thigh (body structure) </p> <p>762085002 Structure of right quadriceps femoris muscle (body structure) "</p> <p><b>Update 31 March 2020 UK Refset here:</b> <a href="http://diseasesdatabase.co.uk/snomed/refset_metadata.aspx?id=1127941000000100">http://diseasesdatabase.co.uk/snomed/refset_metadata.aspx?id=1127941000000100</a></p>																												
route		<p><a href="http://terminology.hl7.org/CodeSystem/v3-RouteOfAdministration">http://terminology.hl7.org/CodeSystem/v3-RouteOfAdministration</a></p> <p>&lt;&lt; 284009009  Route of administration value (qualifier value) </p>	<p>IDINJ Injection, intradermal  IM Injection, intramuscular  NASINHL Inhalation, nasal, prongs  IVINJ Injection, intravenous  PO Swallow, oral  SQ Injection, subcutaneous  TRNSDERM Transdermal</p> <p>Note that Medication has a fuller list of SNOMED CT codes for this same field</p> <p><a href="http://build.fhir.org/valueset-route-codes.html">http://build.fhir.org/valueset-route-codes.html</a> specifies &lt;&lt; 284009009  Route of administration value (qualifier value) </p> <p><b>Update 31 March 2020 UK Refset here:</b> <a href="http://diseasesdatabase.co.uk/snomed/refset_metadata.aspx?id=115231000001104">http://diseasesdatabase.co.uk/snomed/refset_metadata.aspx?id=115231000001104</a></p> <p>UK Refset Metadata example (note not currently computable): <a href="https://dd4c.digital.nhs.uk/dd4c/publishedmetadatas/intid/808?size=10">https://dd4c.digital.nhs.uk/dd4c/publishedmetadatas/intid/808?size=10</a></p>																												
doseQuantity		<p>SimpleQuantity - cannot use comparator so will be absolute value.</p>	<table border="1"> <thead> <tr> <th>Name</th> <th>Flags</th> <th>Card.</th> <th>Type</th> </tr> </thead> <tbody> <tr> <td> Quantity</td> <td>Σ I <b>N</b></td> <td></td> <td>Element</td> </tr> <tr> <td> value</td> <td>Σ</td> <td>0..1</td> <td>decimal</td> </tr> <tr> <td> comparator</td> <td>?! Σ</td> <td>0..1</td> <td>code</td> </tr> <tr> <td> unit</td> <td>Σ</td> <td>0..1</td> <td>string</td> </tr> <tr> <td> system</td> <td>Σ I</td> <td>0..1</td> <td>uri</td> </tr> <tr> <td> code</td> <td>Σ</td> <td>0..1</td> <td>code</td> </tr> </tbody> </table> <p>How would concentration be entered eg 10mg/ml (in SNOMED CT we'd express the denominator in the FSN eg 10mg /1 mL)</p> <p>Answer: value = 10 unit or code (eg UCUM) = "mg/mL"</p> <p>Craig suggested mostly in the US administration is expressed as milliliters.</p>	Name	Flags	Card.	Type	Quantity	Σ I <b>N</b>		Element	value	Σ	0..1	decimal	comparator	?! Σ	0..1	code	unit	Σ	0..1	string	system	Σ I	0..1	uri	code	Σ	0..1	code
Name	Flags	Card.	Type																												
Quantity	Σ I <b>N</b>		Element																												
value	Σ	0..1	decimal																												
comparator	?! Σ	0..1	code																												
unit	Σ	0..1	string																												
system	Σ I	0..1	uri																												
code	Σ	0..1	code																												

reasonCode		<p>TODO A more complete list was felt to be desirable</p>	<p>Currently mapped to ValueSet of:</p> <p>429060002  Procedure to meet occupational requirement (procedure)   *281657000  Travel vaccinations (procedure) </p> <p>2nd one is inactive, replaced by 14747002  Elective immunization for international travel (procedure) </p> <p>JC: Reasons such as "school" or "childhood" obviously missing.</p> <p>AP: Context is not balanced here, using a procedure code for a reason.</p> <p>See here under Indication: <a href="https://developer.nhs.uk/apis/digitalmedicines-1.1.1-alpha/explore_vaccinations.html">https://developer.nhs.uk/apis/digitalmedicines-1.1.1-alpha/explore_vaccinations.html</a></p> <p><b>April 14:</b> the reason value set has a procedure concept 429060002  Procedure to meet occupational requirement (procedure) </p> <p><a href="http://build.fhir.org/valueset-immunization-reason.html">http://build.fhir.org/valueset-immunization-reason.html</a></p>
isSubpotent		boolean	
subpotentReason			<p>partial - Partial Dose - The full volume of the dose was not administered to the patient.</p> <p>coldchainbreak - Cold Chain Break - The vaccine experienced a cold chain break.</p> <p>recall Manufacturer - Recall - The vaccine was recalled by the manufacturer.</p>
fundingSource			private / public
reaction		Reference to an Observation resource	
protocolApplied	0..*		
series		String	HL7 have not been able to encode this field.
protocolApplied.targetDisease		<p>Note that this list could also be used for ImmunizationEvaluation.</p>	<p>Selected valueset from Disorder see <a href="http://build.fhir.org/valueset-immunization-target-disease.html">http://build.fhir.org/valueset-immunization-target-disease.html</a></p> <p>Craig Newman suggested there was a list of SNOMED CT codes for vaccination responsive diseases.</p> <p>JC: Could be derived from the list of vaccine products. Jim also mentioned discussion underway on possibly adding the target disease to the vaccination concept model as an attribute, which again would make a list of relevant disorders easy to determine.</p> <p><input type="checkbox"/> Rob Hausam could you ask Craig about this please?</p>
protocolApplied.doseNumber			
protocolApplied.series			Recommended number of doses for immunity.