Immunization

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.

FHIR 4 Element	Strength / Cardinatlity	Binding	Discussion
status	Required 1..1	completed | entered-in-error | not-done	
statusReason		http://terminology.hl7.org/CodeSystem/v3-ActReason	Only used when vaccination is not done - as per Event pattern.
vaccineCode	Example 1..1	Include all codes defined in http://hl7.org/fhir/sid/cvx 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	

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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.*

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		Currently "LA", "RA" http://terminology.hl7.org/CodeSystem/v3-ActSite << 442083009 |Anatomical or acquired body structure (body structure)|	Suggest we restrict this to the routinely used administration sites? Note that some of these are routes of administration rather than sites. Jeremy Rogers thought there would be about 13 (in lateralized pairs). What site would be entered for oral preparation? See Route. Note that usage of some sites would invalidate the effectiveness of the vaccine eg rabies invalid when injected into glut. 91775009|Structure of left shoulder region (body structure)| ~~762211005|Structure of part of left upper limb (body structure)| aka deltoid?~~ 37622008|Deltoid region structure (body structure)| 723979003|Structure of left buttock (body structure)| 61396006|Structure of left thigh (body structure)| 762084003|Structure of left quadriceps femoris muscle (body structure)| 91774008|Structure of right shoulder region (body structure)| 762212003|Structure of part of right upper limb (body structure)| 723980000|Structure of right buttock (body structure)| 11207009|Structure of right thigh (body structure)| 762085002|Structure of right quadriceps femoris muscle (body structure)|" **Update 31 March 2020 UK Refset** here: http://diseasesdatabase.co.uk/snomed/refset_metadata.aspx?id=1127941000000100
route		http://terminology.hl7.org/CodeSystem/v3-RouteOfAdministration << 284009009 |Route of administration value (qualifier value)|	IDINJ Injection, intradermal IM Injection, intramuscular NASINHLC Inhalation, nasal, prongs IVINJ Injection, intravenous PO Swallow, oral SQ Injection, subcutaneous TRNSDERM Transdermal Note that Medication has a fuller list of SNOMED CT codes for this same field http://build.fhir.org/valueset-route-codes.html specifies << 284009009 |Route of administration value (qualifier value)| **Update 31 March 2020 UK Refset** here: http://diseasesdatabase.co.uk/snomed/refset_metadata.aspx?id=115231000001104 UK Refset Metadata example (note not currently computable): https://dd4c.digital.nhs.uk/dd4c/publishedmetadatas/intid/808?size=10
doseQuantity		SimpleQuantity - cannot use comparator so will be absolute value.	 How would concentration be entered eg 10mg/ml (in SNOMED CT we'd express the denominator in the FSN eg 10mg /1 mL) Answer: value = 10 unit or code (eg UCUM) = "mg/mL" Craig suggested mostly in the US administration is expressed as milliliters.

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