



**December 2013**

## **EHR Work-Group (EHR WG)**

Last Updated on Dec 15, 2013 by SHufnagel@tiag.net, facilitator  
Edmond Scientific subcontractor to Veterans Health Administration/  
Health Informatics/ Office of Informatics & Analytics/ Knowledge Based Systems

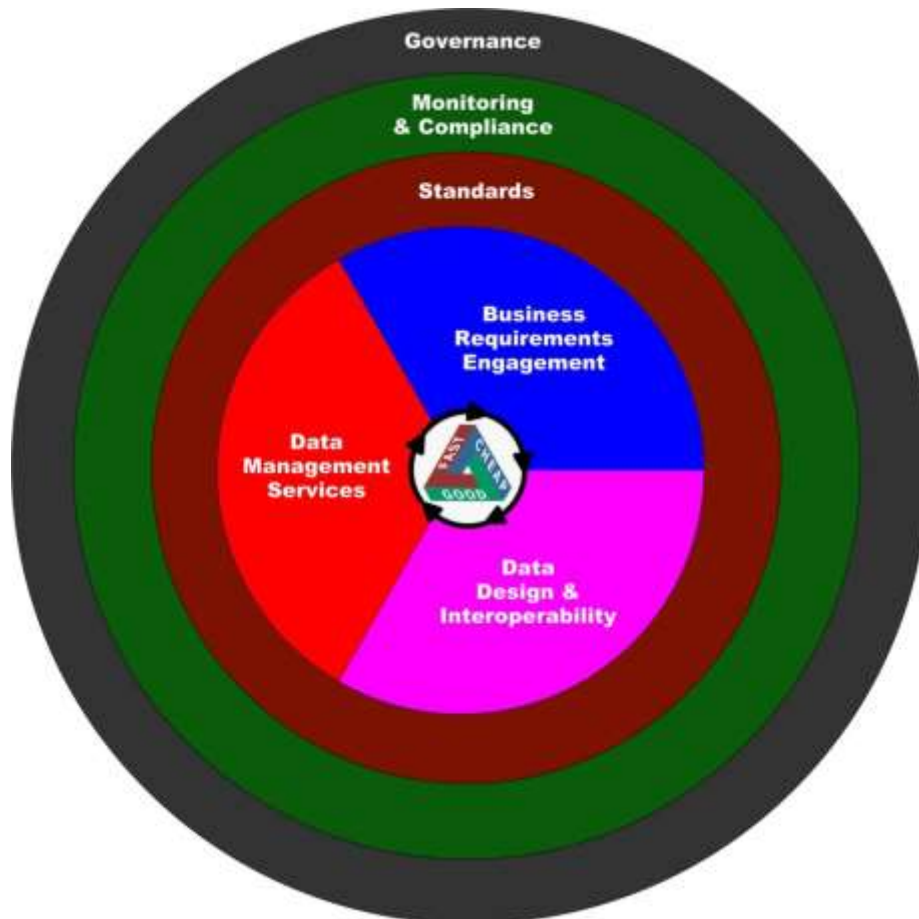
The complete-and-latest version of the Summary-Report is available at:

[http://wiki.hl7.org/images/0/0a/Hufnagel - FY2014 HL7-EHR-WG Summary-Report.pdf](http://wiki.hl7.org/images/0/0a/Hufnagel_-_FY2014_HL7-EHR-WG_Summary-Report.pdf)

## **EXECUTIVE SUMMARY**

### **HL7 EHR-S and PHR-S FIM Release-3**

*This executive-summary specifically addresses EHR-S and PHR-S FIM capabilities and/or trends, which impact the VA, DOD and IPO "EHR Modernization" mission needs.*



**Figure 1 EHR-Modernization Standards-and-Interoperability Data-Management Mission-Needs Areas**

**INTRODUCTION: HL7 EHR-S FIM** (Function-and-Information Model) release-3 PSS (Project Scope Statement) #688 was approved in January 2012; where, '2017 EHR-S and PHR-S FIM release-3 (r3) follows an agile-process to formally-structure EHR functional-requirements and add data requirements-specifications to the '2014 release-2 EHR-S and PHR-S FM. Additionally, reusable business-process use-case, scenario

and interoperability-specification capabilities, Meaningful-Use stage-2 criteria, International **FHIR** (Fast Healthcare Interoperability Resources) and US Realm **FHIM** (Federal Health Information Model) are being incorporated into the EHR-S and PHR-S FIM Reference Model; where,

- EHR-S FIM capabilities are resident in the Sparx EA (Enterprise Architect) tool.
- Figure 1 shows the EHR-Modernization standards-and-Interoperability Data-Management mission-needs areas directly-supported by the HL7 EHR-S and PHR-S FIM r3.

The *purpose* of this report is to document the release-3 FIM Mission-Needs-Statement<sup>1</sup>, development and related projects<sup>2</sup>; where monthly report-content is refined; until ultimately, EHR-S and PHR-S FIM profile requirements-specifications can be generated by the EHR-S FIM tool as a demonstration of the release-3 FIM “Easy-Button” Interoperability-Specification report-generation capability. All EHR WG release-3 FIM working-draft documents are published at [http://wiki.hl7.org/index.php?title=EHR\\_Interoperability\\_WG](http://wiki.hl7.org/index.php?title=EHR_Interoperability_WG).

## LEGEND:

- 1) Capitalized and Underlined nouns-and-adjectives are Record-Entry data-types aka data-model, which should be in the EHR-S FM data dictionary; and, *italicized* verbs are *manage* sub-types aka verb-hierarchy. See [www.skmtglossary.org](http://www.skmtglossary.org) for standard healthcare data-dictionary / glossary.
- 2) **Blue-Bold words** are recommended -additions to original text.
- 3) **Red-Bold words** are recommended-deletions from the original text.
- 4) **Highlighted Yellow words** are issues-Actions and/or important new material for the main EHR WG to-review.

**GOAL:** The *goal* of the Electronic Health Record (EHR) Work Group (WG) is to support the HL7 mission of developing standards for EHR data, information, functionality, and interoperability. The Work Group creates and promotes appropriate and necessary standards.

EHR WG *objectives* include:

- 1) Functional-and-Information Requirements-**Specifications** for Electronic Health Records (EHR) and systems (**EHR-S**),
  - 2) Functional-and-Information Requirements-**Specifications** for Personal Health Records (PHR) and systems (**PHR-S**),
  - 3) Definition of a high-level framework to support the interoperability requirements-**specifications** and life cycles, and
  - 4) Identification of existing and emerging information **interoperability**-requirements and **related HL7 artifacts**.
- A Jan 2012 Project #688 System Function-and-Information Model release-3 (**EHR-S FIM r3**) *objective* of the EHR Interoperability WG is an **UML-specified EHR/PHR Concept-of-Operations (CONOPS), Reference Model (RM), set-of Function Use-Cases with Conformance-Criteria Scenarios; where, EHR-S FIM r3 is to-be**
    - create a clear, complete, concise, correct, consistent and easy-to-use; because,

---

<sup>1</sup> The EHR-S FIM **MNS** (Mission Needs Statement) identifies “EHR-S Modernization” lifecycle-needs,

- that are optimally-satisfied by the EHR-S FIM tool-and-processes;
- where, the EHR-S Modernization lifecycle includes requirements-specifications, acquisition or development, test and certification and sustainment phases;
- where, EHR-S Modernization processes include data-related management, monitoring-and-compliance, governance, requirements-outreach, doctrine, organization, training, materiel, leadership-and-education, personnel-and-facilities (DOTMLPF).

<sup>2</sup> EHR-S FIM Related-profile-projects include:

1. RMES (Resource Management and Evidentiary Support)
2. MU2 (Meaningful Use stage 2)
3. Usability
4. PHR (Personal Health Record)

- HL7 ballot-publishable from the Sparx Systems Enterprise-Architect tool
- targeted for 3-to-5 years from now; because,
  - joint ISO-HL7 ballots are very challenging to manage and
  - sufficient-time is needed to address the structural issues identified by the EHR-S FM r2 ballot; where, VA voted negative, due to inconsistency, non-intuitiveness and unnecessary-complexity/non-usability.
- A *second-objective* of the EHR Interoperability WG is to produce a Meaningful Use profile for EHR-S FM r2 and r3.
- The *objective* of the Resource Management Evidentiary Support (RM-ES) project team is to provide expertise to the EHR work group, other standards groups and the healthcare industry on records management, compliance, and data/record integrity for, EHR systems and related to EHR governance to support the use of medical records for clinical care and decision-making, business, legal and disclosure purposes.
- The *objective* of the EHR Usability Project is to translate existing, well established usability guidelines and health information management principles into functional conformance-criteria in the EHR-S FM standard.

## SITUATION

### EHR-S and PHR-S FIM '2016 Release-3 Preparation

An EHR/PHR **Concept-of-Operation** (CONOPS) was defined-and-refined into a System **Reference-Model** (RM); where,

- 1) **System Functions** are defined-by **Use-Cases**; where,
  - a) **System-operations** are verbs refined into a "*manage verb-hierarchy*" aka operation-type model,
  - b) **System-entities** are subject-and-object nouns refined into a "Record-Entry data-model" aka data-type model
  - c) **Terminology value-sets** are bound-to discrete-data-elements within each Record-Entry.
- 2) **Requirements** Conformance-Criteria are defined-by use-case scenarios; where, **Scenarios** define **business-context** and **subject-verb-object-terminology bindings**; where,
- 3) **Business-Context** defines pre, post and invariant conditions; where,
  - a) **pre-condition** are triggers, followed by
  - b) **applicability**; where,
    - i) "The System SHOULD or SHALL or MAY"
    - ii) "provide-the-ability-to-*manage Record-Entries*" or "*directly-manage Record-Entries*," where,
      - (1) a use-case constrained *manage-hierarchy verb* applies and
      - (2) a use-case constrained *data-model noun* applies; where,
  - c) **post-condition** Business-Rules are "according-to scope-of-practice, organizational-policy, jurisdictional-law, and patient-preferences."
- 4) **Information-Exchanges** are defined-by scenarios mapped-to
  - a) **FHIR** (Fast Healthcare Interoperability Resource) specifications, for the International-Realm, profiled-with
  - b) **FHIM** (Federal Health Information Model) specifications, for the US-Realm, bound to
    - **Terminology value-sets**,
  - c) **IHE information-exchange behavioral-protocols** refined by,
    - **SLA** and **DURSA** (Service-level-agreement and Data-Use-and-Reciprocal-Support-Agreement ) and
    - **KPPs** (Key Performance Parameters).
    - **Cost** estimation factors
- 5) **EHR-S/PHR-S Profiles** are defined-by a set-of System-Function Use-Cases, with further constrained scenario' Applicability, business-context and subject-verb-object-terminology bindings.
- 6) **Interoperability-Specifications** are generated with the FIM r3 reporting-tool.

The **benefit** of this formally-specified **Concept-of-Operation (CONOPS)** and **Reference Model (RM)** is a clear, complete, concise, correct and consistent **Function-and-Information Model (FIM)**, profiles and resultant **Interoperability-Specifications (ISs)**.

## ACTIONS

1. EHR-S FIM home page is [www.hl7.org/EHRSFIM](http://www.hl7.org/EHRSFIM)
2. **FHIR WG Coordination** to integrate EHR-S FIM-FHIR into a joint Sparx Enterprise Architect (EA) model; where, EA can generate integrated EHR-S FIM-FHIR International-Realm interoperability requirements-specifications
3. **FHIM Team Coordination** to integrate EHR-S FIM-FHIR-FHIM into a joint Sparx Enterprise Architect (EA) model; where EA can generate integrated EHR-S FIM-FHIR-FHIM US-Realm interoperability requirements-specifications
4. **Call-for-Participation** in EHR-S/PHR-S FIM r3 based on a common EHR-S/PHR-S RM (Reference Model), where, Six Full Time Equivalent (FTE) level-of-effort is estimated (2-FTEs per-year for three-years)  
Calls every-Tuesday, 1PM ET, + 1-770-657-9270, PC 510269# and please joint EHR Interoperability ListServer

## Release-3 EHR-S and PHR-S FIM

**Table 1 Plan-of-Actions & Milestones Dashboard**

POA&M Task	#	Start	Done	POC	Status-Risks-Mitigations
CONOPS		12-2013	12-2013	SH, GD	Potential for minor changes in the future
Reference Model		06-2013	12-2013	SH, GD	Potential for minor changes in the future
manage operation-type			05-2013	EHRWG	Verb-Hierarchy was part of r2 ballot
Record-Entry data-types		01-2012	active	SH, GD	Data-Model to-be refined for each function
<a href="http://www.HL7.org/EHRSFIM">www.HL7.org/EHRSFIM</a>		01-2014		EHRWG	<b>ISSUE:</b> Open IP approval by board
FHIR Integration		01-2014		EHRWG	<b>ISSUE:</b> Integrated or linked models?
FHIM Integration		01-2014		EHRWG	<b>ISSUE:</b> Integrated or linked models?
EHR-S FIM r3 Resources	6	01-2014		EHRWG	<b>ISSUE:</b> 6 FTEs for EHR-S & PHR-S FIM r3
Other work (Pub., FHIR, FHIM)		pending	1-2017	EHRWG	1 FTE
EHR-S specific work		pending	1-2017	EHRWG	1 FTE
PHR-S specific work		pending	1-2017	EHRWG	1 FTE
EHR-S and PHR-S FM Modelling specific	143	1-2014	1-2017	Interop	3 FTEs = 1 week-per-function (143)
<b>Care Provision</b>	37				
CP.1 Manage Clinical History	9	pending			
CP.2 Render Externally Sourced Information	2	pending			
CP.3 Manage Clinical Documentation	6	pending			
CP.4 Manage Orders	7	01-2012	inactive	SH, GD	√ 2012 prototype → Todo wrt RM
CP.5 Manage Results	2	01-2012	inactive	SH, GD	√ 2012 prototype → Todo wrt RM
CP.6 Manage Treatment Administration	3	01-2012		SH, GD	√ 2012 prototype → Todo wrt RM
CP.6.1 Medication Management			inactive		
CP.6.2 Immunization Management		10-2013	active		√ Use case done, CCs in progress
CP.7 Manage Future Care	3	pending			
CP.8 Manage Patient Education & Communication	2	pending			
CP.9 Manage Care Coordination & Reporting	3	pending			
<b>Care Provision Support</b>	67				
CPS.1 Record Management	14	pending			
CPS.2 Support Externally Sourced Information	9	pending			
CPS.3 Support Clinical Documentation	13	pending			
CPS.4 Support Orders	10	pending			
CPS.5 Support for Results	1	pending			
CPS.6 Support Treatment Administration	5	pending			

<b>POA&amp;M Task</b>	<b>#</b>	<b>Start</b>	<b>Done</b>	<b>POC</b>	<b>Status-Risks-Mitigations</b>
CPS.7 Support Future Care	2	pending			
CPS.8 Support Patient Education & Communication	7	pending			
CPS.9 Support Care Coordination & Reporting	6	pending			
<b>Population Health Support</b>	17				
POP.1 Support for Health Maintenance, Preventive Care and Wellness	3	pending			
POP.2 Support for Epidemiological Investigations of Clinical Health Within a Population	1	pending			
POP.3 Support for Notification and Response	1	pending			
POP.4 Support for Monitoring Response Notifications Regarding a Specific Patient's Health	1	pending			
POP.5 Donor Management Support	1	pending			
POP.6 Measurement, Analysis, Research and Reports	6	pending			
POP.7 Public Health Related Updates	1	pending			
POP.8 De-Identified Data Request Management	1	pending			
POP.9 Support Consistent Healthcare Management of Patient Groups or Populations	1	pending			
POP.10 Manage Population Health Study-Related Identifiers	1	pending			
<b>Administration Support</b>	22				
AS.1 Manage Provider Information	8	pending			
AS.2 Manage Patient Demographics, Location and Synchronization	1	pending			
AS.3 Manage Personal Health Record Interaction	3	pending			
AS.4 Manage Communication	5	pending			
AS.5 Manage Clinical Workflow Tasking	5	pending			
AS.6 Manage Resource Availability	7	pending			
AS.7 Support Encounter/Episode of Care Management	6	pending			
AS.8 Manage Information Access for Supplemental Use	6	pending			
AS.9 Manage Administrative Transaction Processing	6	pending			
<b>Trust Infrastructure</b>					
TI.1 Security	25	01-2012	inactive	GD, SH	√ 2012 prototype → Todo wrt RM
TI.2 Audit	1	01-2012	inactive	GD, SH	√ 2012 prototype → Todo wrt RM
TI.3 Registry and Directory Services	1	pending			
TI.4 Standard Terminology and Terminology Services	1	pending			
TI.5 Standards-Based Interoperability	6	pending			
TI.6 Business Rules Management	1	pending			
TI.7 Workflow Management	1	pending			
TI.8 Database Backup and Recovery	1	pending			
TI.9 System Management Operations and Performance	1	pending			
<b>Record Infrastructure</b>					
RI.1 Record Lifecycle and Lifespan	25		inactive	GD, SH	
RI.1.1.2 Record Entry Create		12-2012			√ 2012 prototype → Todo wrt RM
RI.2 Record Synchronization	1	pending			
RI.3 Record Archive and Restore	1	pending			



## WORKGROUP AND PROJECT LOGISTICS

- HL7 List Server Registration: <http://www.hl7.org/myhl7/managelistsevs.cfm>
- HL7 Workgroup Call-Schedule: <http://www.hl7.org/concalls/default.aspx>
- EHR WG Wiki: <http://wiki.hl7.org/index.php?title=EHR>

Health Level Seven – Electronic Health Record Work Group Weekly Teleconference Schedule Revised: 20 November 2013						
Day	Time US ET	Activity	Lead(s)	Dial-In	Screen Sharing	List Server (for agendas, announcements)
Mon	1200	Records Management/ Evidentiary Support	Warner, Gelzer	1-877-668-4493 Code 927 002 088#	<a href="#">Link</a>	EHR Legal
Tues	1300	EHR-S FM Release 3 Planning	Hufnagel, Dickinson	1-770-657-9270, Passcode 510269#	<a href="#">Link</a>	EHR Interop
	1400	Meaningful Use Functional Profile	Datta, Dickinson	1-770-657-9270, Passcode 510269#	<a href="#">Link</a>	EHR Interop
	1500	FULL EHR WG	Co-Chairs	1-770-657-9270, Passcode 510269#	<a href="#">Link</a>	EHR WG
Wed	1200	Personal Health Record WG	Ritter, Dickinson, Doo	1-770-657-9270, Passcode 510269#	TBA	EHR PHR
	1300	EHR System Usability WG	Mon, Ritter, Rocca, Gartner	1-770-657-9270, Passcode 510269#	<a href="#">Link</a>	EHR Usability
Thur	Open					
Fri	0930	EHR WG Co-Chairs	Co-Chairs	1-770-657-9270, Passcode 510269#	TBA	N/A

- **EHR CCD to Blue Button Tool Project Wiki** - This project defined the conversion of an HL7 Continuity of Care Document (CCD) to the Blue Button format via an XSLT style sheet tool.  
Project contact: Lenel James and Keith Boone. List Service: [EHRTeamCCD@lists.hl7.org](mailto:EHRTeamCCD@lists.hl7.org)
- **EHR-S FM Profile Tool Project Wiki** – This project, sponsored by the HL7 Tooling Workgroup, will produce a (web-based and/or desktop) tool to create EHR-S FM profiles (starting with the EHR-S FM R2), with enforced profiling rules, and exports as documents, support for and XML interchange format for reuse across profile tool instances or for use in other tools. Project contact: John Ritter; [johnritter1@verizon.net](mailto:johnritter1@verizon.net)
- **EHR Usability Project Wiki** This project has been launched to translate existing, well established usability guidelines and health information management principles into functional criteria in the EHR System Functional Model (EHR-S FM) standard.  
Project contact: John Ritter, Don Mon, Mitra Rocca and Walter Suarez  
List Service: [ehrwgusability@lists.hl7.org](mailto:ehrwgusability@lists.hl7.org)
- **PHR Project Wiki** The HL7 Personal Health Record System Functional Model provides a reference list of functions that may be present in a Personal Health Record System (PHRS).  
Project contact: John Ritter; [johnritter1@verizon.net](mailto:johnritter1@verizon.net)
- **Diabetes Data Strategy Project Wiki** The scope for this project is to focus on the minimum data set and data standards in EHR systems for diabetes assessment in children in outpatient clinic settings, based on clinical and business requirements. Project contact: Don Mon; [donmon@rti.org](mailto:donmon@rti.org)



## REFERENCE INFORMATION

### 1) Common Clinical informatics standards:

- a) **SNOMED CT** for problems, smoking status
- b) **DICOM** for radiology
- c) **LOINC** for laboratory anatomical pathology, **LOINC** taxonomy for document types for inpatient notes
- d) **RxNorm** for pharmacy
- e) **CVX** and **MXV** for immunology
- f) **HITSP C32**, **HL7 CCD** and **CCDA-CCD** for VLER Health data
- g) **ICD9 CPT4/HCPCS ICD9PCS** for TRICARE billing data.
- h) **ICD-10** and **SNOMED CT** for outpatient visits, **ICD-10** and **LOINC** for admissions encounter data
- i) **CPT4** and **HCPCS** for procedures
- j) **PDA-F** for scanned paper reports
- k) **CDC** value set race codes for demographics
- l) **UCUM** for units of lab measures
- m) **NUCC** Health provider taxonomy for provider types

### 2) Common technical standards:

- a) **CTS** or Common Terminology Service
- b) **FHIR** or Fast Healthcare Interoperability Resource with RESTful API.
- c) **CDS** or Clinical Decision Support API
- d) **CCDA** is Consolidated CDA
- e) **VPR** or Virtual Patient Record
- f) **RDF** or Resource Description Framework for semantic web applications
- g) **RLUS** or Retrieve Locate Update Service for heterogeneous database facades
- h) **JSON** or JavaScript Object Notation
- i) **WS\*** or Web Service Standards

### 3) EHR-S FM r2.0 Perspectives

#### a) Care Provision

- i) CP.1 Manage Clinical History
- ii) CP.2 Render Externally Sourced Information
- iii) CP.3 Manage Clinical Documentation
- iv) CP.4 Manage Orders
- v) CP.5 Manage Results
- vi) CP.6 Manage Treatment Administration
- vii) CP.7 Manage Future Care
- viii) CP.8 Manage Patient Education & Communication
- ix) CP.9 Manage Care Coordination & Reporting

#### b) Care Provision Support

- i) CPS.1 Record Management
- ii) CPS.2 Support Externally Sourced Information
- iii) CPS.3 Support Clinical Documentation
- iv) CPS.4 Support Orders
- v) CPS.5 Support for Results
- vi) CPS.6 Support Treatment Administration
- vii) CPS.7 Support Future Care
- viii) CPS.8 Support Patient Education & Communication
- ix) CPS.9 Support Care Coordination & Reporting

#### c) Population Health Support

- i) POP.1 Support for Health Maintenance, Preventive Care and Wellness
- ii) POP.2 Support for Epidemiological Investigations of Clinical Health Within a Population
- iii) POP.3 Support for Notification and Response
- iv) POP.4 Support for Monitoring Response Notifications Regarding a Specific Patient's Health
- v) POP.5 Donor Management Support
- vi) POP.6 Measurement, Analysis, Research and Reports

- vii) POP.7 Public Health Related Updates
- viii) POP.8 De-Identified Data Request Management
- ix) POP.9 Support Consistent Healthcare Management of Patient Groups or Populations
- x) POP.10 Manage Population Health Study-Related Identifiers

#### d) Administration Support

- i) AS.1 Manage Provider Information
- ii) AS.2 Manage Patient Demographics, Location and Synchronization
- iii) AS.3 Manage Personal Health Record Interaction
- iv) AS.4 Manage Communication
- v) AS.5 Manage Clinical Workflow Tasking
- vi) AS.6 Manage Resource Availability
- vii) AS.7 Support Encounter/Episode of Care Management
- viii) AS.8 Manage Information Access for Supplemental Use
- ix) AS.9 Manage Administrative Transaction Processing

#### e) Trust Infrastructure

- i) TI.1 Security
- ii) TI.2 Audit
- iii) TI.3 Registry and Directory Services
- iv) TI.4 Standard Terminology and Terminology Services
- v) TI.5 Standards-Based Interoperability
- vi) TI.6 Business Rules Management
- vii) TI.7 Workflow Management
- viii) TI.8 Database Backup and Recovery
- ix) TI.9 System Management Operations and Performance

#### f) Record Infrastructure

- i) RI.1 Record Lifecycle and Lifespan
- ii) RI.2 Record Synchronization
- iii) RI.3 Record Archive and Restore

### 4) FHIR (Fast Healthcare Interoperability Resources)

- a) FHIR Data Dictionary is at <http://www.hl7.org/implementation/standards/fhir/>
- b) **FHIR Administrative**
  - i) Attribution: Patient, RelatedPerson, Practitioner, Organization
  - ii) Resources: Device, Location, Substance, Group
  - iii) Workflow Management: Encounter, Alert, Supply, Order, OrderResponse
  - iv) Financial: Coverage
- c) **FHIR Clinical**
  - i) General: AdverseReaction, AllergyIntolerance, CarePlan, FamilyHistory, Condition, Procedure, Questionnaire
  - ii) Medications: Medication, MedicationPrescription, MedicationAdministration, MedicationDispense, MedicationStatement, Immunization, ImmunizationProfile
  - iii) Diagnostic: Observation, DiagnosticReport, DiagnosticOrder, ImagingStudy, Specimen
  - iv) Device Interaction: DeviceCapabilities, DeviceLog, DeviceObservation
- d) **FHIR Infrastructure**
  - i) Support: List, Media, Other, DocumentReference, (Binary)
  - ii) Audit: Provenance, SecurityEvent
  - iii) Exchange: Document, Message, OperationOutcome, Query
  - iv) Conformance: Conformance, ValueSet, Profile



e) **Acronyms**

- **aka** also known as
- **CC** EHR-S FIM Conformance Criteria
- **CDA** Clinical Document Architecture
- **DD** Data Dictionary
- **CIM** Conceptual Information Model
- **CP** Care Provision
- **CPS** Care Provisioning Support
- **DFD** Data Flow Diagram
- **EA** Enterprise Architect
- **EHR-S** EHR System
- **EHR-S FIM** EHR-S Function-and-Information Model
- **FHA** US Federal Health Architecture
- **FHIM** US Federal Health Information Model
- **FHIR** Fast Healthcare Interoperability Resources
- **FIM** EHR-S Function and Information Model
- **FIM(MU)** EHR-S FIM Meaningful Use profile
- **FM** Function Model
- **FY** Fiscal Year
- **IHE** [Integrating the Healthcare Enterprise](#)
- **IM** Information Model
- **MDHT** Model Driven Health Tools
- **MU** US Meaningful Use objectives-and-criteria
- **ONC** US Office of the National-Coordinator
- **OHT** Open Health Tools
- **POA&M** Plan of Actions and Milestones
- **R 2/3** Release 2 or 3
- **RI** Resource Infrastructure
- **RIM** HL7 Reference Information Model
- **S&I** ONC Standards & Interoperability Framework
- **WBS** Work Breakdown Structure
- **WG** Work Group

2 1 December 2013 ..... 10

3 2 November 2013 ..... 10

4

5 **MONTHLY SUMMARIES**

6 (Reverse Chronological Order)

7 **1 December 2013**

8 December work has focused on

- 9 • refining the November 2013 content and
- 10 • developing the Table 1 Plan-of-Actions & Milestones Dashboard.

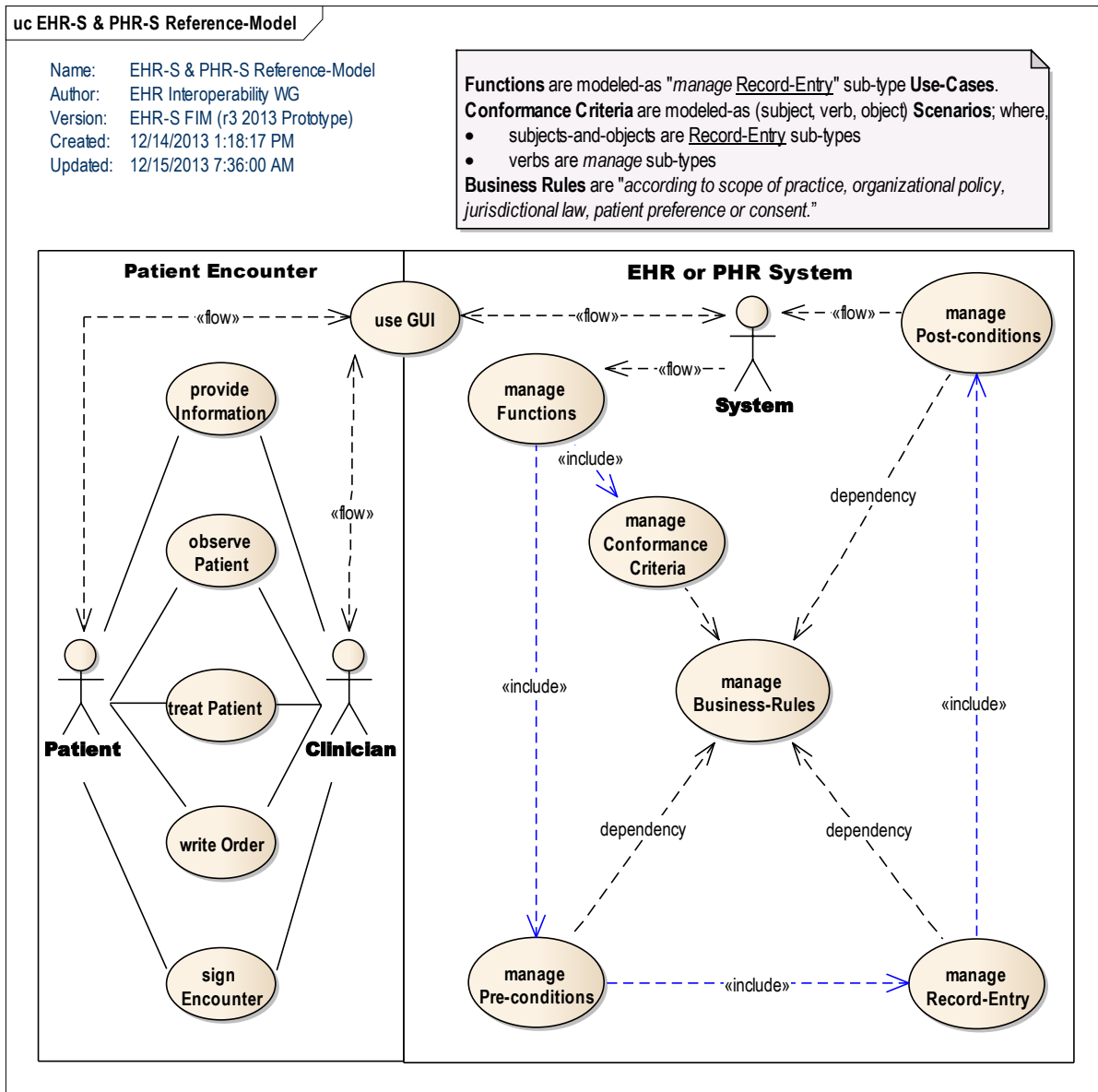
11

12 **2 November 2013**

13 For details see [http://wiki.hl7.org/images/8/83/HL7\\_EHR-WG\\_Summary-Presentation\\_November\\_2013.pdf](http://wiki.hl7.org/images/8/83/HL7_EHR-WG_Summary-Presentation_November_2013.pdf)

- 14
- 15 1) **EHR WG** is waiting on the EHR-S FM Release-2 ISO ballot comments; where, the HL7 release-2  
 16 ballot-comments have already been reconciled. The ISO ballot closes on 3-Dec-2013; and then, the  
 17 ISO-ballot-comments can be reconciled during December-and-January and EHR-S FM release-2  
 18 can be finalized in January 2014. The EHR WG has also been updating the EHR-S FM release-2  
 19 add-on to the Sparx EA-tool to support the creation of profiles.
  - 20 2) **PHR WG** is waiting on the PHR FM Release-2 ISO ballot-comments, which close 3-Dec-2013 and  
 21 will be reconciled during December-and-January; where, the HL7 release-2 ballot-comments have  
 22 already been reconciled.
  - 23 3) **EHR RMES WG** is discussing release authorization within the S&I Framework esMd group; where,  
 24 esMD is analyzing the situation where healthcare-payers frequently request that providers submit  
 25 additional medical-documentation for a specific claim, to support claims processing and other  
 26 administrative functions, such as the identification of improper payments. Currently, Medicare  
 27 Review Contractors request approximately 2 million medical documents per year by mailing a paper  
 28 request letter via US Postal Service to healthcare providers. Until recently, providers had only two  
 29 options for submitting the requested records: 1) mail paper or 2) send a fax. The manual paper  
 30 process is costly, time consuming and can delay proper claims processing on both the senders' and  
 31 receivers' end.
  - 32 4) **EHR Usability WG** is collecting issues and mitigations into a reference library, which can be the  
 33 basis of integrating usability into the release-3 EHR-S FIM.
  - 34 5) **EHR Interoperability WG** focused on the May-2014 Meaningful-Use Profile for the EHR-S FM  
 35 release-2 and preparation for release-3:2016; where, the November release-3 focus was to define  
 36 Reference-Models for Concept-of-Operations, Function Information-and-Conformance-Criteria:
    - 37 • Figure 7 HL7 EHR-S FIM release-3 Relationship with HL7 RIM-and-FHIR
    - 38 • Figure 2 EHR-S and PHR-S Reference Model (RM)
    - 39 •
    - 40 • Figure 2 EHR-S and PHR-S Reference Model (RM)
    - 41 • Figure 3 EHR-S and PHR-S FIM Operation-Type Verb-Hierarchy

- 42 • Figure 4 EHR-S and PHR-S FIM Record-Entry Data-Types
- 43 • Figure 5 CP.6.2 Immunization-Management Use-Case
- 44 • Figure 6 CP.6.2 CC#01 Immunization-Management Scenario
- 45 • Figure 8 EHR-S FIM-FHIR-FHIM Requirements-Specifications
- 46 • Figure 9 Example EHR-S FIM-FHIR Requirements-Specifications
- 47 • Figure 10 Example EHR-S FIM-FHIR-FHIM Requirements-Specifications
- 48



**Figure 2 EHR-S and PHR-S Reference Model (RM)**

50  
51  
52  
53  
54  
55  
56

- The **EHR-S and PHR-S Reference Model**<sup>3</sup> [based-on OASIS RM] includes Functions and their Conformance-Criteria; where,
1. Functions are modelled as “*manage Record-Entry*” Concept-of-Operations (CONOPS) **Use-Cases**
  2. Conformance-Criteria (CC) are modelled as “*manage Record-Entry*” Functional **Scenarios**
  3. Clinicians and Patient have Encounters; where, they use System-GUIs (Graphical-User-Interface), such that,

<sup>3</sup> According to the Organization for the Advancement of Structured Information Standards (**OASIS**) a reference model is "an abstract framework for understanding significant relationships among the entities of some environment, and for the development of consistent standards or specifications supporting that environment. A reference model is based on a small number of unifying concepts and may be used as a basis for education and explaining standards to a non-specialist. A reference model is not directly tied to any standards, technologies or other concrete implementation details, but it does seek to provide a common semantics that can be used unambiguously across and between different implementations."

- 57 a. The Clinicians, Patients or their designated agent may
- 58 b. *review the Patient EMR (Electronic Medical Record) and other types of Information*
- 59 c. *Observe, treat, write Orders and document the Patient-Encounter*
- 60 d. *provide Patient-Information and Educational-Information*
- 61 e. *sign Encounters*
- 62 4. Systems Functions include *manage Record-Entry Conformance Criteria (CC); where,*
- 63 a. CC Pre-Condition Business-Rules manage entering-data-flows and data-context
- 64 b. CC Data-management Business-Rules manage applicability
- 65 • (The System SHALL/SHOULD/MAY “provide-the-ability to *manage*” or “*directly-manage*”)
- 66 c. CC Post-Condition Business-Rules manage exiting-data-flows and data-use
- 67 d. CC Business-Rules are in-accordance-with
- 68 scope-of-practice, organizational-policy, jurisdictional-law, and patient-preferences.
- 69

70 **Conformance Criteria Syntax:** A System-Function (SF) Use-Case is a constrained-scope and refined-detail  
 71 System Reference-Model; where, **SF Conformance-Criteria** are System-Action scenario-threads through the SF Use-Case  
 72 Model containing:

- 73 1) **SF Invariant-condition** (context)
- 74 a) System Identifier (EHR or PHR)
- 75 b) System Function (SF) Identifier
- 76 c) Profile Identifier
- 77 2) **SF CC Identifier** (Number)
- 78 3) **SF CC Pre-condition** (trigger)
- 79 a) Pre-condition is a verb-clause.
- 80 b) After a Human-Action or System-Action; then,
- 81 4) **SF CC Applicability**
- 82 a) The System SHALL, SHOULD or MAY
- 83 i) “provide-the-ability-to”
- 84 ii) “directly”
- 85 5) **SF CC System-Action Bindings**
- 86 a) Operation linked-to Data-Type; where, conditionally,
- 87 b) the *System-Actions depends-on* other-SF
- 88 c) Data-Type are *associated-with* other Data-Types
- 89 d) Information Exchange(s) are *linked-to*
- 90 i) International Interoperability-Standards (e.g., FHIR)
- 91 ii) Realm Interoperability-Specifications (e.g., FHIM)
- 92 iii) Implementation Guides (e.g., Consolidated CDA)
- 93 iv) Behavioral Interoperability-Specifications (e.g., IHE)
- 94 v) Service Level Agreement (e.g., local workflow)
- 95 6) **SF CC Post-Condition** (expected-outcome)
- 96 a) Post-condition is a subordinate-clause.
- 97 b) “where, the System-Actions are ...”
- 98 7) **SF CC See Also**
- 99 a) Supporting or related SFs (e.g., Infrastructure)

100 **ISSUE:** Michael van der Zel suggests we consider using generalization rather-than <<include>> dependency within the verb hierarchy

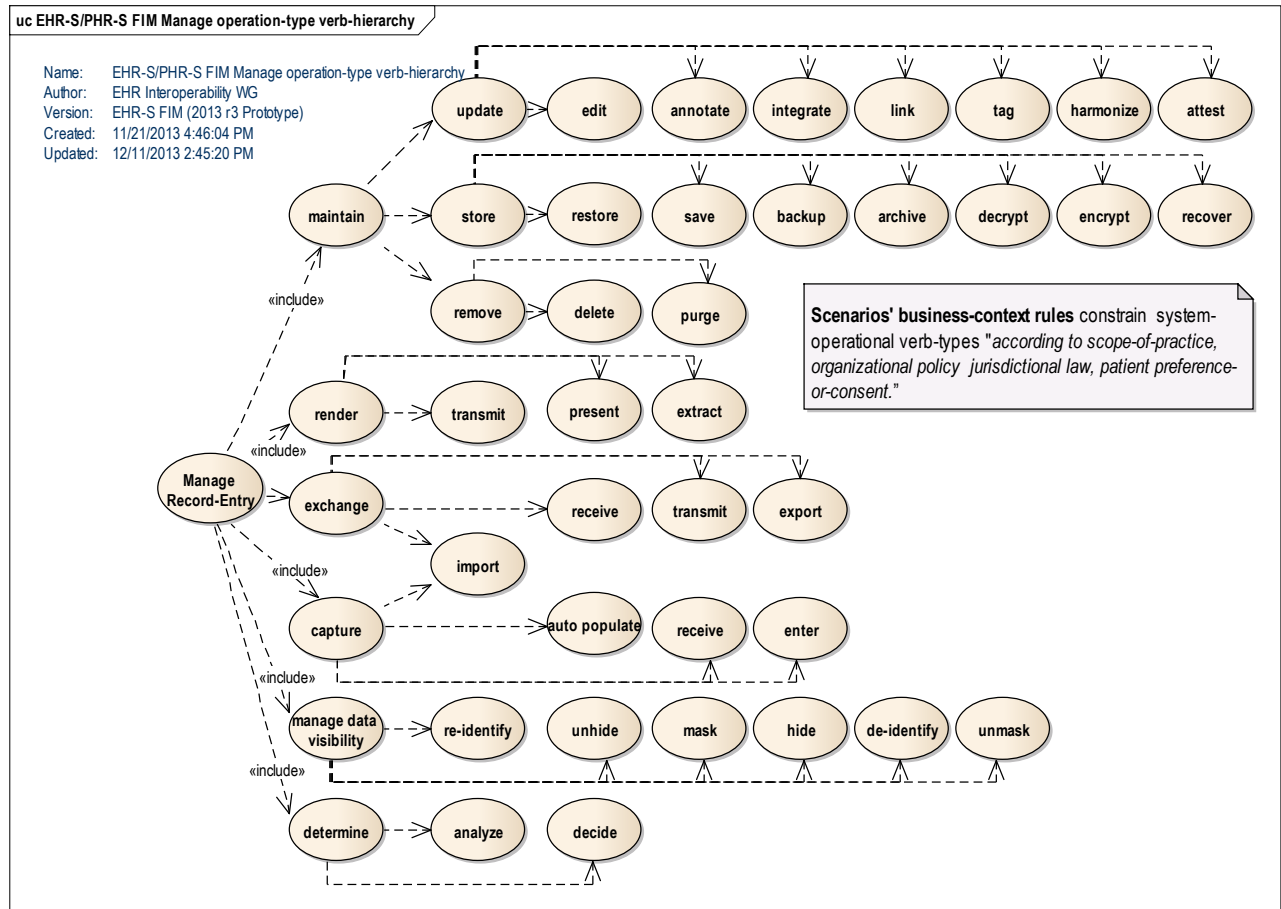


Figure 3 EHR-S and PHR-S FIM Operation-Type Verb-Hierarchy

**ISSUE:** Gora Datta suggests we consider using aggregation within the Record-Entry Data-Types model, for simplicity

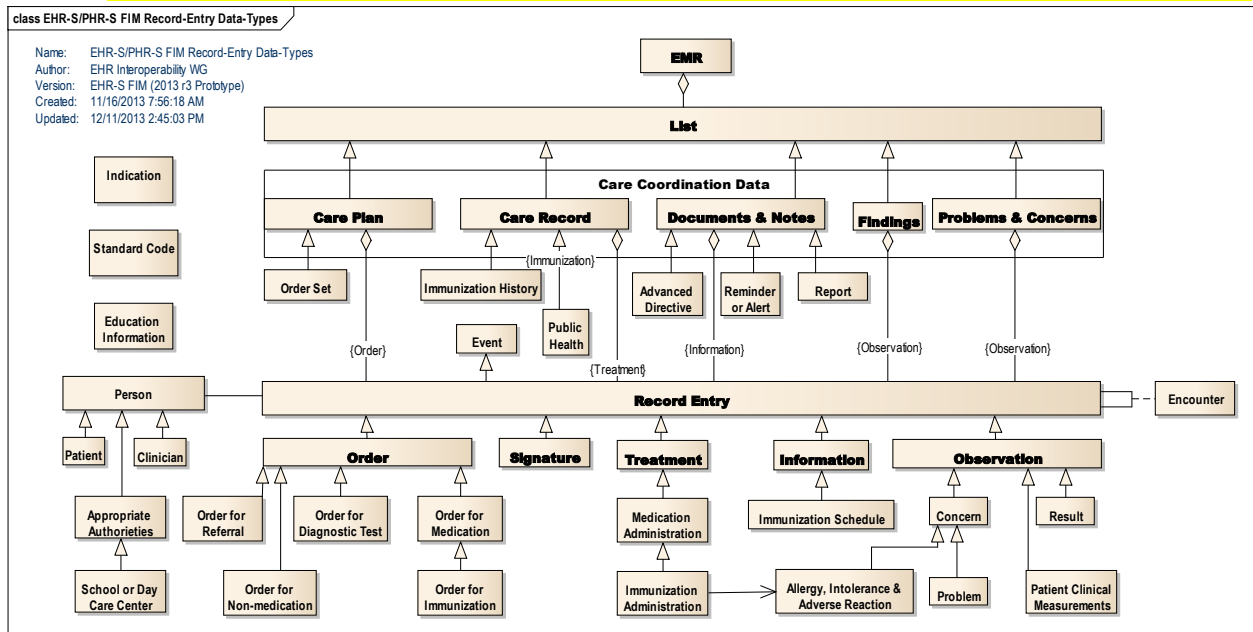


Figure 4 EHR-S and PHR-S FIM Record-Entry Data-Types

101  
102  
103

104  
105



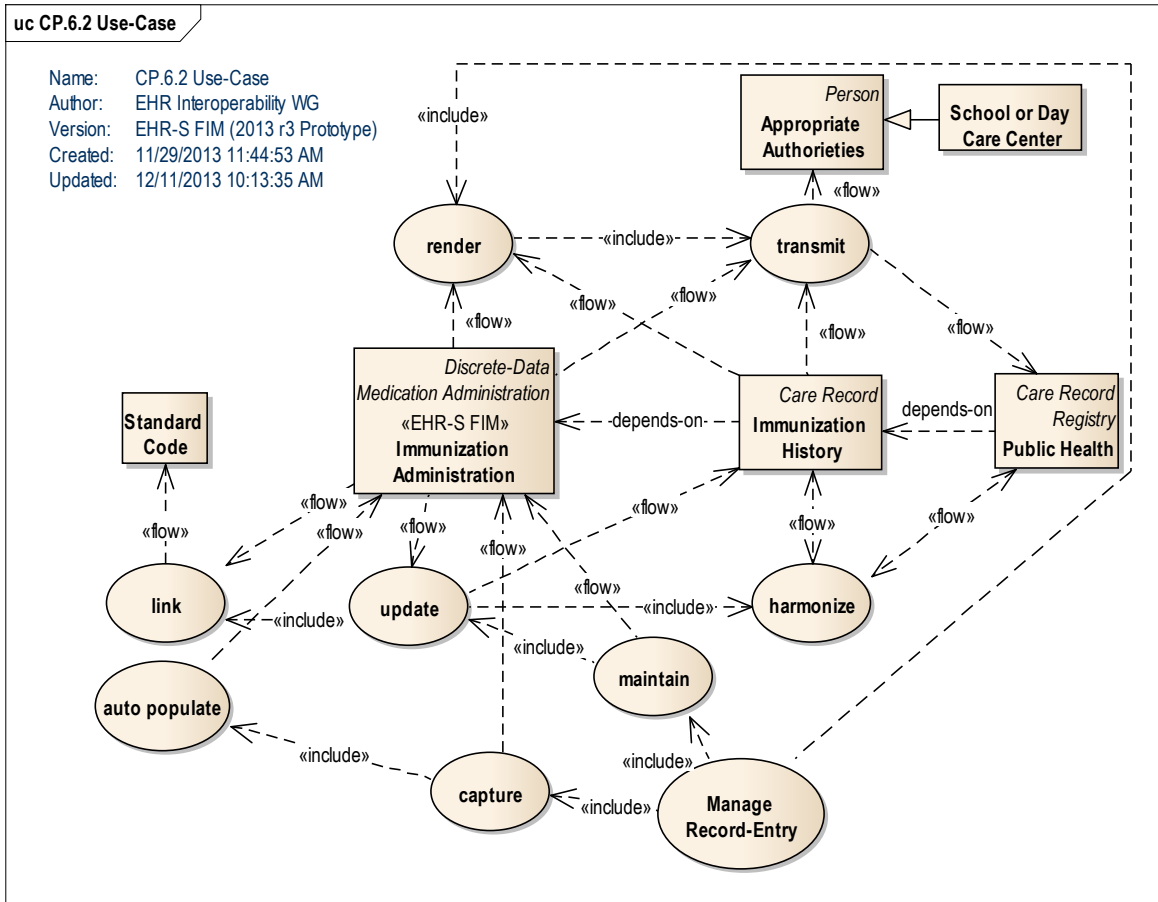


Figure 5 CP.6.2 Immunization-Management Use-Case

106  
107  
108  
109  
110  
111  
112  
113  
114  
115  
116  
117  
118  
119  
120  
121  
122  
123  
124  
125

The Release-3 EHR System Immunization-Management Function Use-Case includes

1) **A Clinician uses the EHR-S, during an Encounter, to**

- a) *review* EMR, Alerts-and-Notifications
- b) *enter* Observations, Treatments, Orders and associated Documents and Notes
- c) *sign* the Encounter
- d) **Immunization Management involves the following:**

- i) **System-Actions:** *auto-populate, capture, determine, exchange, harmonize, link, maintain, manage, render, transmit, update; where,*
  - (1) Immunization-Administration is
    - (a) *linked* with Standard-Codes
    - (b) *transmitted* to Population Health Registries
    - (c) *auto-populated* as a by-product of verification of Administering-Provider, Patient, Medication, Dose, Route and Time.
  - (2) Immunization-History is
    - (a) Updated-with the Immunization-Administration Record-Entries
    - (b) *harmonized* with Public-Health Registries
    - (c) *rendered and transmitted; where,*

126  
127  
128  
129  
130  
131  
132  
133

- (i) transmitted to Appropriate Authorities (e.g., Schools and Day Care Centers);
  - ii) **Data:** Immunization-Administration, Immunization-History, Public-Health Registry
  - iii) **Associated Data:** Alerts-and-Notification, Allergy-Intolerance-or-Adverse-Event, Patient-Clinical-Measurement, Patient-Directive, Immunization-Schedule, **Patient-Educational-Information**, Signature.
- e) Where all System-Actions are “according to scope-of-practice, organizational-policy, jurisdictional-law, patient preference-or-consent.”

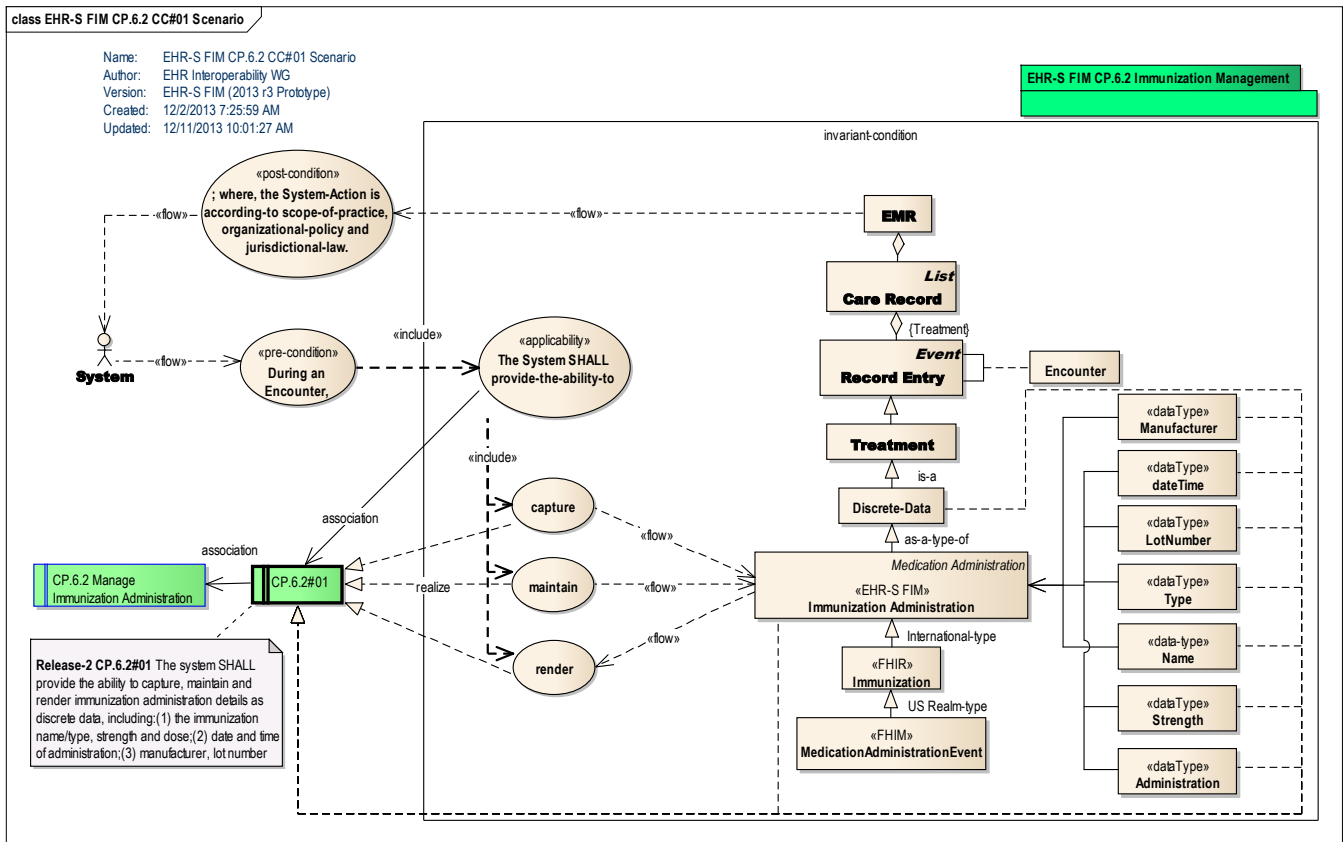


Figure 6 CP.6.2 CC#01 Immunization-Management Scenario

134  
135  
136  
137  
138  
139  
140  
141  
142  
143  
144  
145  
146  
147

CP.6.2#01 During an Encounter, the system SHALL provide-the-ability-to *capture, maintain and render* Immunization Administration; where,

- Treatment Record-Entry details are as discrete-data, including
  - immunization name/type, strength and dose; date-and-time of administration;
  - manufacturer, lot number
- Immunization Administration can be realized-by FHIR; where,
  - Immunization-Administration is then associated with the following resources:
    - AdverseReaction and other Observations,
    - Patient , Practitioner, Organization, Location;
- Immunization-Administration can be realized-by FHIR-profiles based-on the US Realm FHIM Immunization and related Domains.

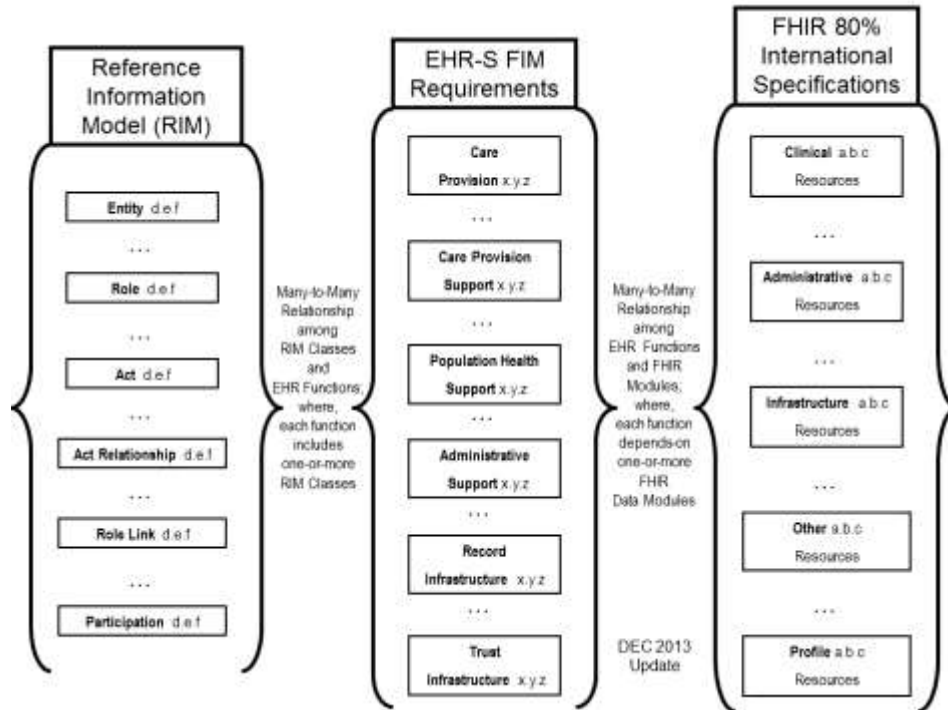


Figure 7 HL7 EHR-S FIM release-3 Relationship with HL7 RIM -and-FHIR <sup>4</sup>

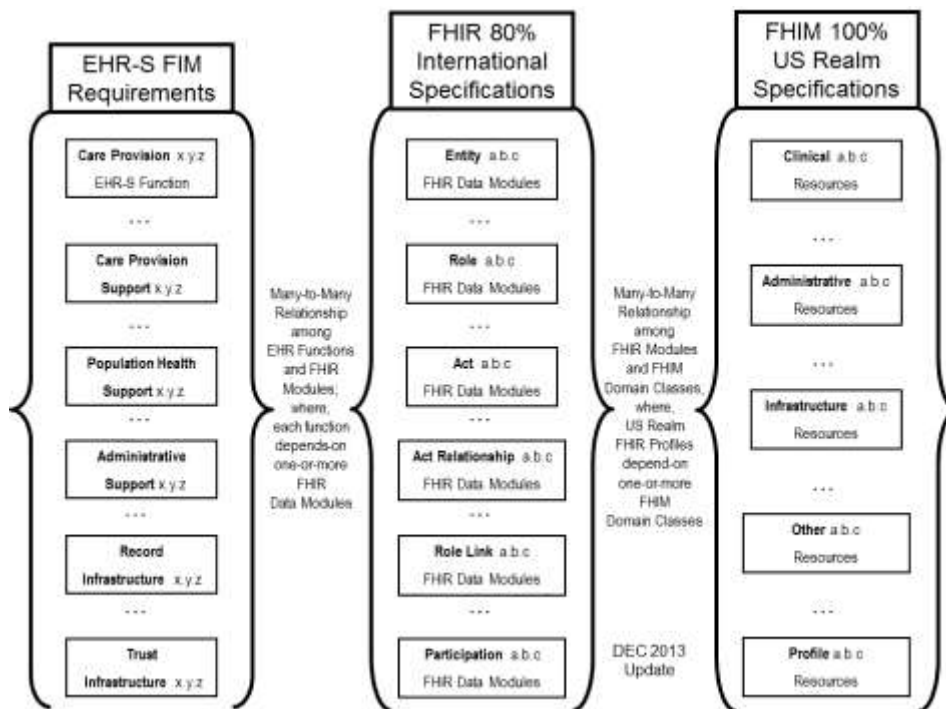


Figure 8 EHR-S FIM-FHIR-FHIM Requirements-Specifications

<sup>4</sup> As a rule of thumb, FHIR uses an 80/20 rule; where, elements should be included in a resource if they are catered-for/ used-by 80% of the implementing systems; and where FHIR profiles define the 20% of specific-implementation elements.

class FHIR Specification for Allergy, Intolerance and Adverse Reaction

Name: FHIR Specification for Allergy, Intolerance and Adverse Reaction  
 Author: EHR Interoperability WG  
 Version: EHR-S FIM (2013 r3 Prototype)  
 Created: 11/5/2013 4:25:17 AM  
 Updated: 12/6/2013 6:04:37 PM

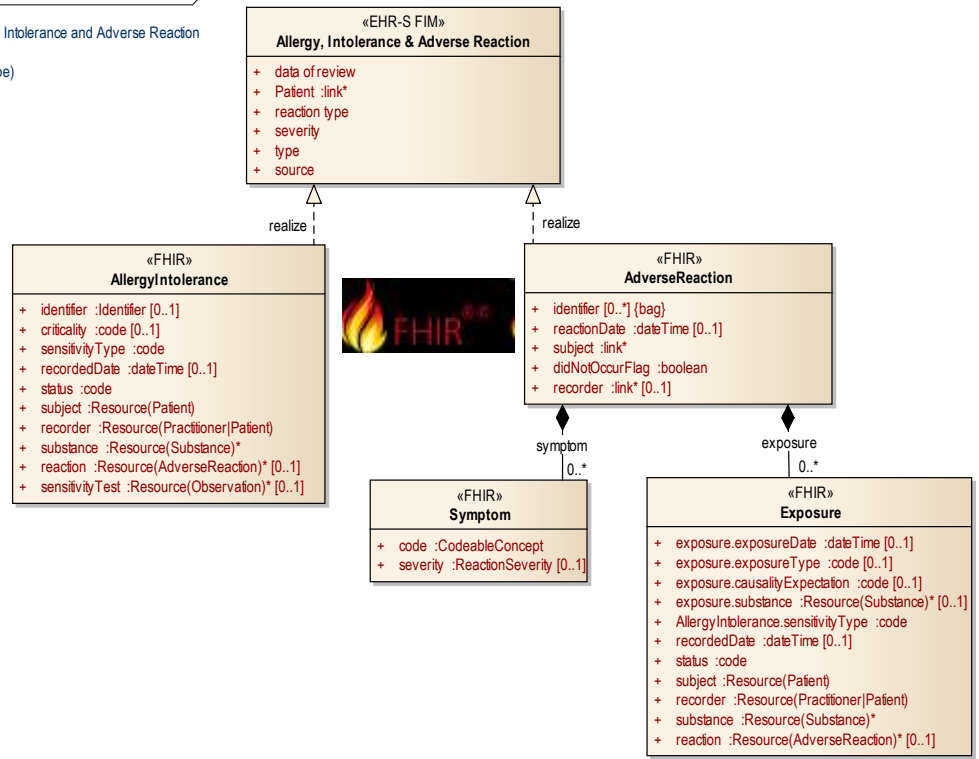


Figure 9 Example EHR-S FIM-FHIR Requirements-Specifications

154  
155

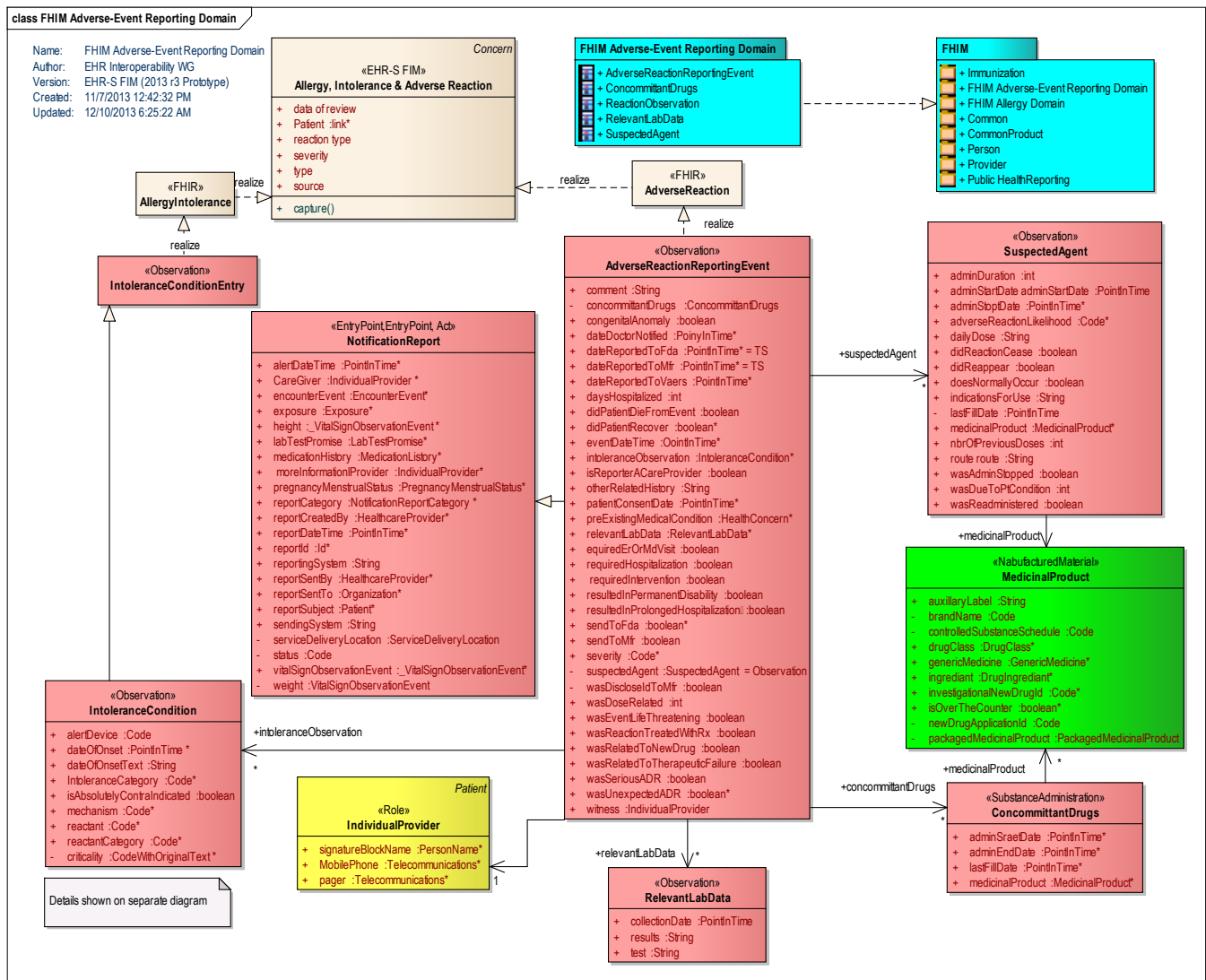


Figure 10 Example EHR-S FIM-FHIR-FHIM Requirements-Specifications

## NOVEMBER ISSUES-ACTIONS

1. EHR-S FIM IP license.
2. EHR-S FIM home page should be is [www.hl7.org/EHRSFIM](http://www.hl7.org/EHRSFIM)
3. **FHIR WG Coordination** to integrate EHR-S FIM-FHIR into a joint Sparx Enterprise Architect (EA) model; where, EA can generate integrated EHR-S FIM-FHIR International-Realm interoperability requirements-specifications
4. **FHIM Team Coordination** to integrate EHR-S FIM-FHIR-FHIM into a joint Sparx Enterprise Architect (EA) model; where EA can generate integrated EHR-S FIM-FHIR-FHIM US-Realm interoperability requirements-specifications
5. **Call-for-Participation** in EHR-S/PHR-S FIM r3 based on a common EHR-S/PHR-S RM (Reference Model), where, Six Full Time Equivalent (FTE) level-of-effort is estimated (2-FTEs per-year for three-years)  
 Calls every-Tuesday, 1PM ET, + 1-770-657-9270, PC 510269# and please joint EHR Interoperability ListServer