



December 2013

## EHR Work-Group (EHR WG)

### Cumulative-FY14 Summary-Report

Last Updated on Dec 7, 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

*This executive-summary and report specifically address potential EHR impacts and/or EHR trends, which are important for the VA, IPO and DOD to be aware of.*

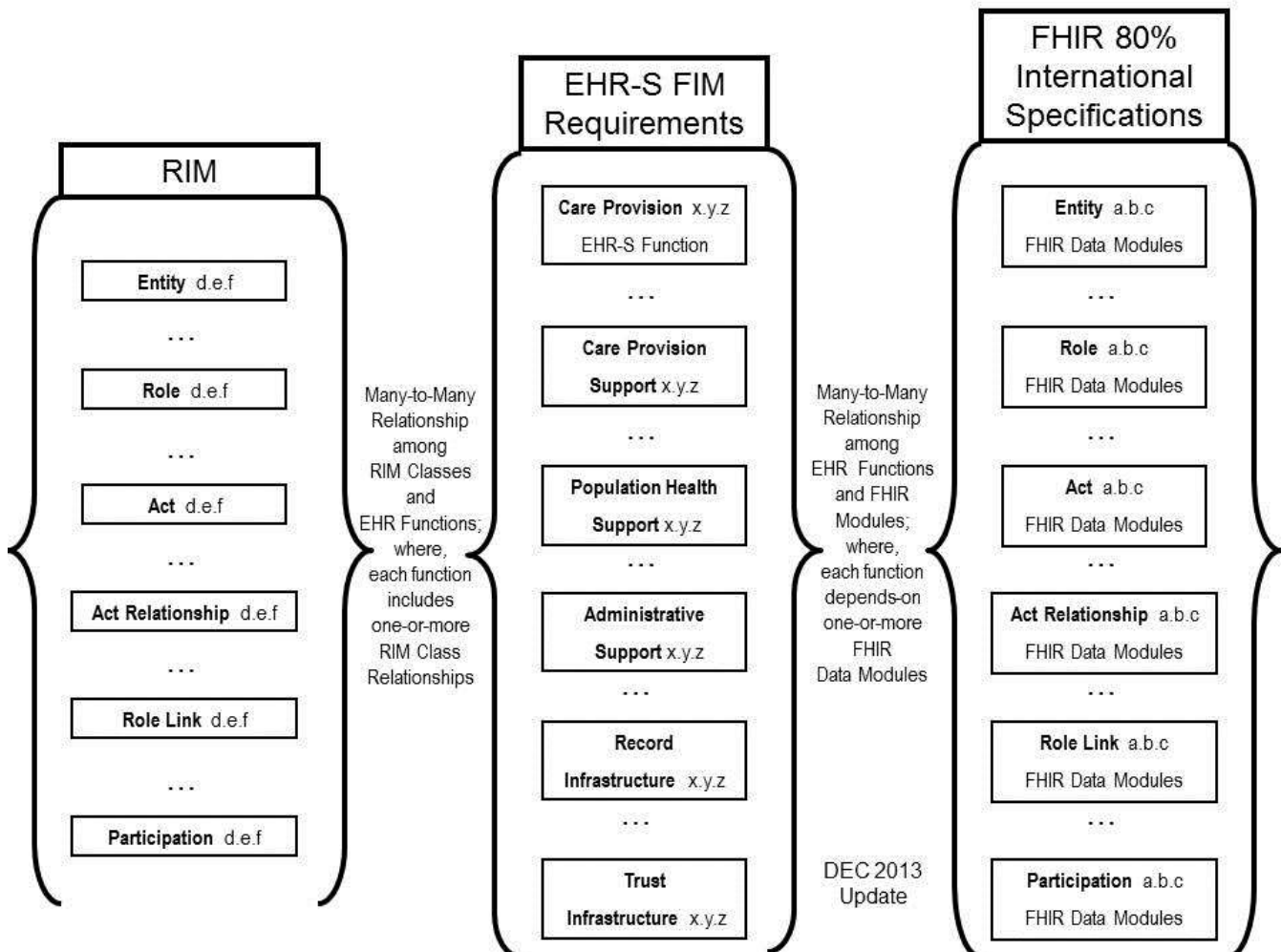


Figure 1 RIM-and-FHIR Relationship with EHR-S FIM release-3 [2012 PSS #688]

**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, including:

- Functional and Information Requirements-**Specifications** for Electronic Health Records (EHR) and systems (**EHR-S**),
- Functional and Information Requirements-**Specifications** for Personal Health Records (PHR) and systems (**PHR-S**),
- Definition of a high-level framework to support the interoperability requirements-**specifications** and life cycles, and
- Identification of existing and emerging information **interoperability**-requirements and **related HL7 artifacts**.
- An *objective* of the EHR Interoperability WG team, under the System Function-and-Information Model release-3 (**EHR-S FIM r3**) project #688 based-on **UML-specified EHR/PHR Concept-of-Operations (CONOPS), Reference Model (RM), Function Use-Cases and Conformance-Criteria Scenarios; where, EHR-S FIM r3**
  - is create a clear, complete, concise, correct, consistent and easy-to-use
  - **is HL7 ballot-publishable from the Sparx Systems Enterprise-Architect tool. EHR-S FIM r3 is 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.**
    - **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 REPORT

## EHR-S FIM Release-3 Preparation

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)

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

- 1) **System Function** is defined-by a **Use-Case** lexicon-of *system-operations* bound-to Record-Entries; where,
  - a) System-operations are verbs refined into a “manage” operation-type-model (aka verb-hierarchy) and
  - b) System-entities are subject-and-object nouns refined into a “Record-Entry” data-type-model (aka information model)
- 2) **Conformance Criteria** is defined-by a scenario-constrained use-case of
  - a) business-context and
  - b) subject-verb-object-terminology binding; where,
- 3) **Scenario-Constrained Business-Context** is defined-by
  - a) pre-condition triggers,
  - b) applicability of
    - i) “SHOULD” or “SHALL” or “MAY” plus
    - ii) “provide-the-ability-to-manage Record-Entries” or “directly-manage Record-Entries,” where,
      - (1) a use-case constrained verb-hierarchy applies and
      - (2) a use-case constrained data-model applies; where,
  - c) post-condition Business-Rules are “according-to
    - i) scope-of-practice, organizational-policy,
    - ii) jurisdictional-law, and patient-preferences.”
- 4) **Information-Exchange** is defined-by a scenario subject-verb-object-terminology binding mapped to
  - a) **FHIR** (Fast Healthcare Interoperability Resource), which is representative of the International-Realm,
  - b) **FHIM** (Federal Health Information Model), which is representative of US-Realm FHIR-profiles,
  - c) **IHE** information-exchange behavioral-protocols, which may-be refined-or-replaced by,
    - i) **Service-level-agreement** workflow-protocols and
    - ii) **Key Performance Parameters (KPPs)**.
- 5) **EHR-S/PHR-S Profile** is defined-by a set-of (System-Function Use-Cases) with further constrained scenario
  - a) applicability
  - b) business-context
  - c) subject-verb-object-terminology binding.
- 6) **Interoperability-Specifications** are generated with the EHR-S/PHR-S FIM r3 “Easy-Button (aka report-tool).”

## CURRENT ACTIONS

1. **HL7 Board to approve** EHR-S FIM Release-3 open-IP; where, the EHR-S FIM home page is [www.hl7.org/EHRS-FIM](http://www.hl7.org/EHRS-FIM)
2. **Coordinate with FHIR WG** to integrate EHR-S FIM & FHIR into a joint Sparx Enterprise Architect (EA) model; where, EA can generate integrated EHR-S FIM-FHIR interoperability requirements-specifications
3. **Call for Participation** in EHR-S/PHR-S FIM r3 based on a common EHR-S/PHR-S RM (Reference Model), where, an estimated 6 Full Time Equivalent (FTE) level of effort is estimated (2-FTEs per year for three-years)

## 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	EHRs 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: Lene 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
- **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

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4 **MONTHLY SUMMARIES**  
5 (Reverse Chronological Order)

6 **LEGEND**

- 7 1) Capitalized and Underlined nouns and adjectives are concepts, which should be in the EHR-S FM data dictionary; and, they should also correspond
- 8 to ISO 13940 Continuity-of-Care "CONTsys" concepts. See [www.skmtglossary.org](http://www.skmtglossary.org) for standard healthcare data-dictionary / glossary.
- 9 2) **Blue terms** are recommended terms to be added to the conformance criteria.
- 10 3) **Red terms** are recommended terms to be removed from the conformance criteria.
- 11 4) **Highlighted Yellow Sections** are issues and/or new material for the main EHR WG to-review and to-comment-on.

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14 **1 November 2013**

15 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)

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- 17 1) **EHR WG** is waiting on the EHR-S FM Release-2 ISO ballot comments; where, the HL7 release-2  
18 ballot-comments have already been reconciled. The ISO ballot closes on 3-Dec-2013; and then, the  
19 ISO-ballot-comments can be reconciled during December-and-January and EHR-S FM release-2  
20 can be finalized in January 2014. The EHR WG has also been updating the EHR-S FM release-2  
21 add-on to the Sparx EA-tool to support the creation of profiles.
- 22 2) **PHR WG** is waiting on the PHR FM Release-2 ISO ballot-comments, which close 3-Dec-2013 and  
23 will be reconciled during December-and-January; where, the HL7 release-2 ballot-comments have  
24 already been reconciled.
- 25 3) **EHR RMES WG** is discussing release authorization within the S&I Framework esMd group; where,  
26 esMD is analyzing the situation where healthcare-payers frequently request that providers submit  
27 additional medical-documentation for a specific claim, to support claims processing and other  
28 administrative functions, such as the identification of improper payments. Currently, Medicare  
29 Review Contractors request approximately 2 million medical documents per year by mailing a paper  
30 request letter via US Postal Service to healthcare providers. Until recently, providers had only two  
31 options for submitting the requested records: 1) mail paper or 2) send a fax. The manual paper  
32 process is costly, time consuming and can delay proper claims processing on both the senders' and  
33 receivers' end.
- 34 4) **EHR Usability WG** is collecting issues and mitigations into a reference library, which can be the  
35 basis of integrating usability into the release-3 EHR-S FIM.
- 36 5) **EHR Interoperability WG** focused on the May-2014 Meaningful-Use Profile for the EHR-S FM  
37 release-2 and preparation for release-3:2016; where, the November release-3 focus was to define  
38 Reference-Models for Concept-of-Operations, Function Information-and-Conformance-Criteria:
- 39 • Figure 1 RIM-and-FHIR Relationship with EHR-S FIM release-3 <sup>[2012 PSS #688]</sup>
  - 40 • Figure 2 EHR/PHR Concept-of-Operations (CONOPS)
  - 41 • Figure 3 EHR-S/PHR-S RM
  - 42 • Figure 4 EHR/PHR-RM Operation-Types Model (Verb-Hierarchy)
  - 43 • Figure 5 EHR/PHR-RM Data-Types Model
  - 44 • Figure 6 CP.6.2 Immunization-Management Use-Case
  - 45 • Figure 7 CP.6.2#01 Immunization-Management Conformance-Criteria
  - 46 • Figure 8 EHR-S FIM-FHIR-FHIM Requirements-Specification Relationship
  - 47 • Figure 9 Example EHR-S FIM-FHIR Requirements-Specifications
  - 48 • Figure 10 Example EHR-S FIM-FHIR-FHIM Requirements-Specification
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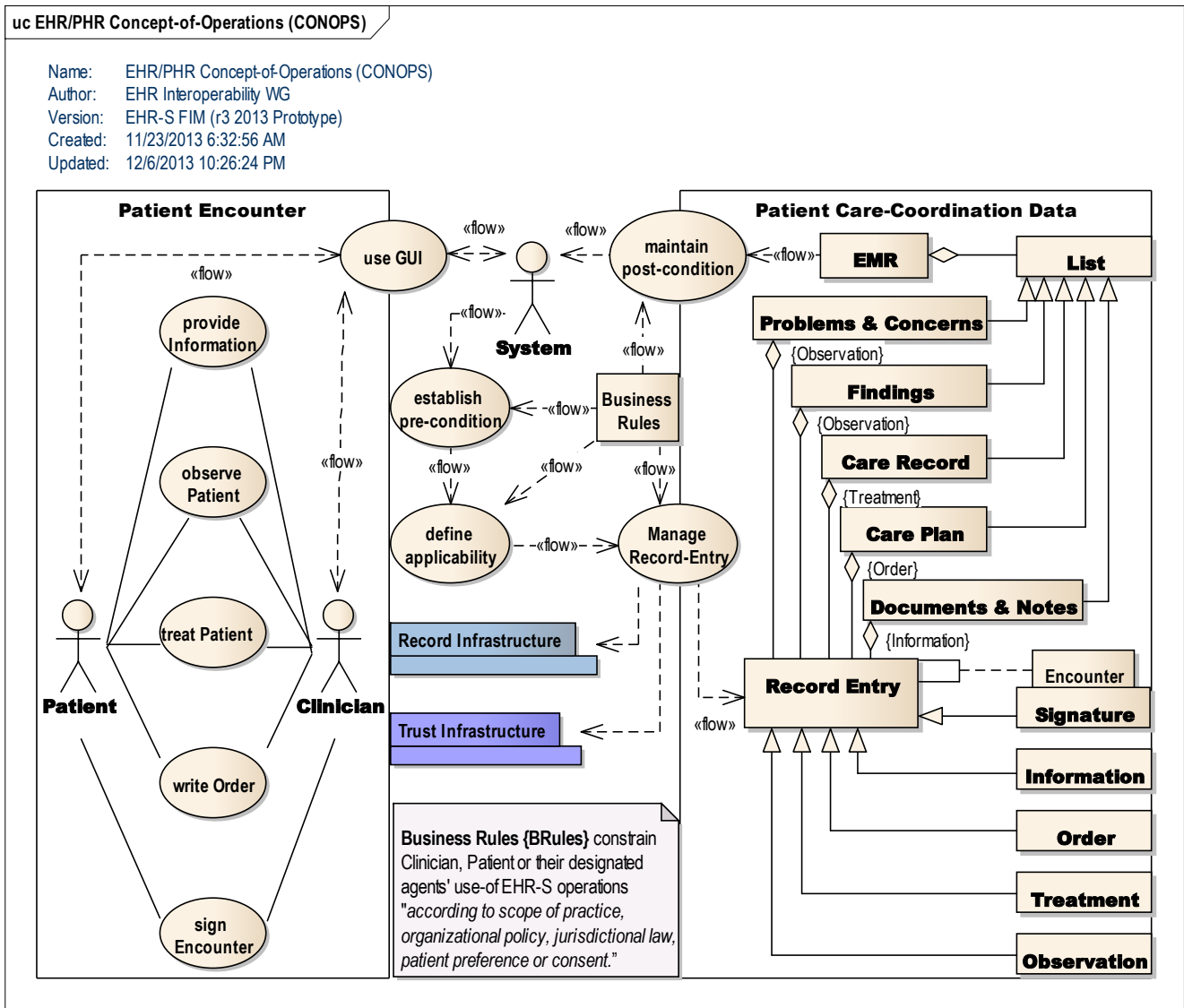


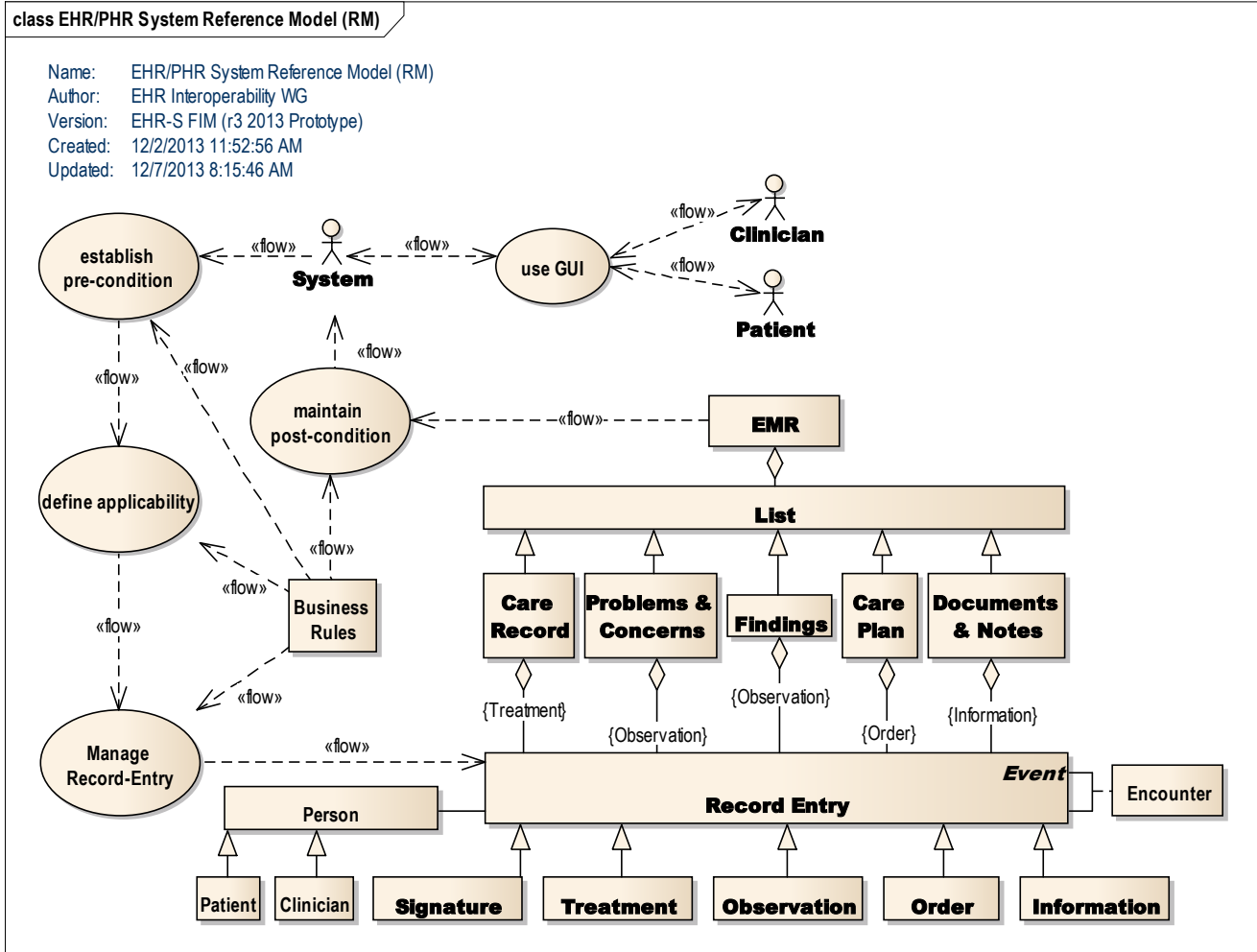
Figure 2 EHR/PHR Concept-of-Operations (CONOPS)

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**EHR-S Concept-of-Operations (CONOPS) Use-Case A** Clinician and Patient and/or their designated Agents have Encounters; where, they use a System GUI (Graphical-User-Interface) to manage Record-Entries and EMRs (Electronic Medical Records); where,

- The System, based-on Business Rules,
  - *establishes pre-conditions to trigger information flow*
  - *determines (SHALL/SHOULD/MAY) applicability for the System to-provide-the ability-to-manage or directly-manage*
  - *maintains post-conditions in accordance with*
    - *scope-of-practice, organizational-policy,*
    - *jurisdictional-law, and patient-preferences.*
- The Clinician, Patient (or their designated agent) can
  - *review the Patient EMR (Electronic Medical Record) and associated Information*
  - *observe and treat the Patient, write Orders, document the Encounter, provide Information*

- provide patient-Information and educational-Information
- enter EMR Records and associated Information; where,
  - Record Entries are Orders, Treatments, Observations and associated Information
  - Lists are Care-Plans, Care-Records, Findings, Problems-and-Concerns, Documents & Notes
- sign Encounter by the Clinician(s) and/or the Patient
- Conformance-Criteria are Scenario threads-of-execution through the Use-Case or Model.



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Figure 3 EHR-S/PHR-S RM

75 **The EHR Reference-Model (RM)**<sup>1</sup> [based-on OASIS RM definition]

- 76 1. Establishes pre-conditions
- 77 2. Defines applicability (The System SHALL/SHOULD/MAY “provide-the-ability to *manage*” or “directly-*manage*”)
- 78 3. Structures Record-Entry relationships

<sup>1</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.”

- 79 – defined-by system operation-and-data models; where,
- 80 – EHR/PHR system RM is based-on a functional-use-case constrained hierarchical-lexicon of
- 81 • nouns (Record-Entry data-types) and noun qualifiers,
- 82 • verbs (*manage* operation-types) and verb qualifiers with
- 83 • conditions {Business Rules based on laws, policies, preferences}; where,
- 84 – Conformance Criteria (CC) are use-case scenario-threads (context and subject-verb-object bindings).
- 85 4. **Defines Conformance-Criteria syntax-and-semantics; where,**
- 86 – Function Conformance-Criteria and their profiles constrain the *manage* sub-types, Record-Entry sub-types
- 87 – Functions can-be linked-to Information Exchanges (IEs),
- 88 – IEs can-be linked-to implementation standards-technologies-paradigms-and-patterns (e.g., FHIR, FHIM, IHE).

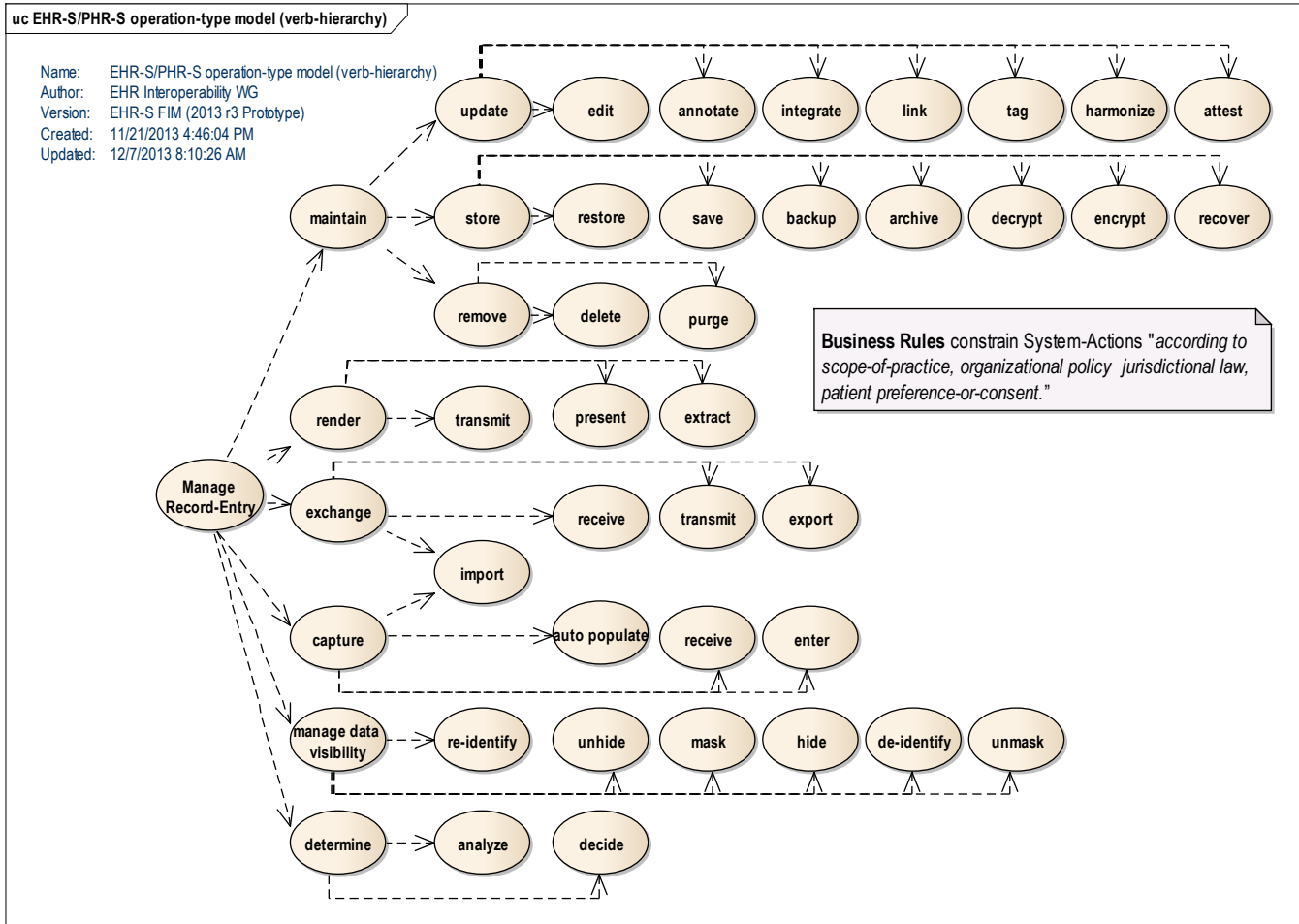
89 5. Maintains post-conditions; where,

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

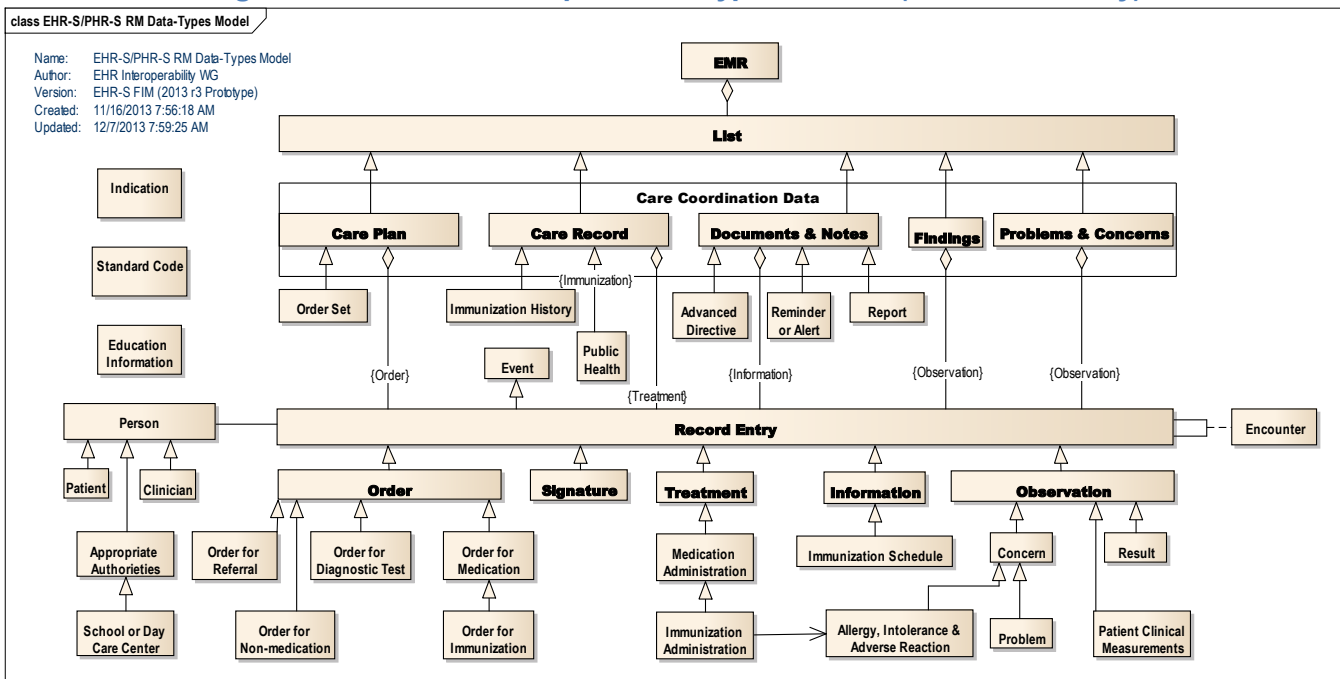
- 93 1) **SF Invariant-condition** (context)
  - 94 a) System Identifier (EHR or PHR)
  - 95 b) System Function (SF) Identifier
  - 96 c) Profile Identifier
- 97 2) **SF CC Identifier** (Number)
- 98 3) **SF CC Pre-condition** (trigger)
  - 99 a) Pre-condition is a verb-clause.
  - 100 b) After a Human-Action or System-Action; then,
- 101 4) **SF CC Applicability**
  - 102 a) The System SHALL, SHOULD or MAY
    - 103 i) “provide-the-ability-to”
    - 104 ii) “directly”
- 105 5) **SF CC System-Action Bindings**
  - 106 a) Operation linked-to Data-Type; where, conditionally,
  - 107 b) the *System-Actions depends-on* other-SF
  - 108 c) Data-Type are *associated-with* other Data-Types
  - 109 d) Information Exchange(s) are *linked-to*
    - 110 i) International Interoperability-Standards (e.g., FHIR)
    - 111 ii) Realm Interoperability-Specifications (e.g., FHIM)
    - 112 iii) Implementation Guides (e.g., Consolidated CDA)
    - 113 iv) Behavioral Interoperability-Specifications (e.g., IHE)
    - 114 v) Service Level Agreement (e.g., local workflow)
- 115 6) **SF CC Post-Condition** (expected-outcome)
  - 116 a) Post-condition is a subordinate-clause.
  - 117 b) “where, the System-Actions are ...”
- 118 7) **SF CC See Also**
  - 119 a) Supporting or related SFs (e.g., Infrastructure)

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Figure 4 EHR/PHR-RM Operation-Types Model (Verb-Hierarchy)



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Figure 5 EHR/PHR-RM Data-Types Model

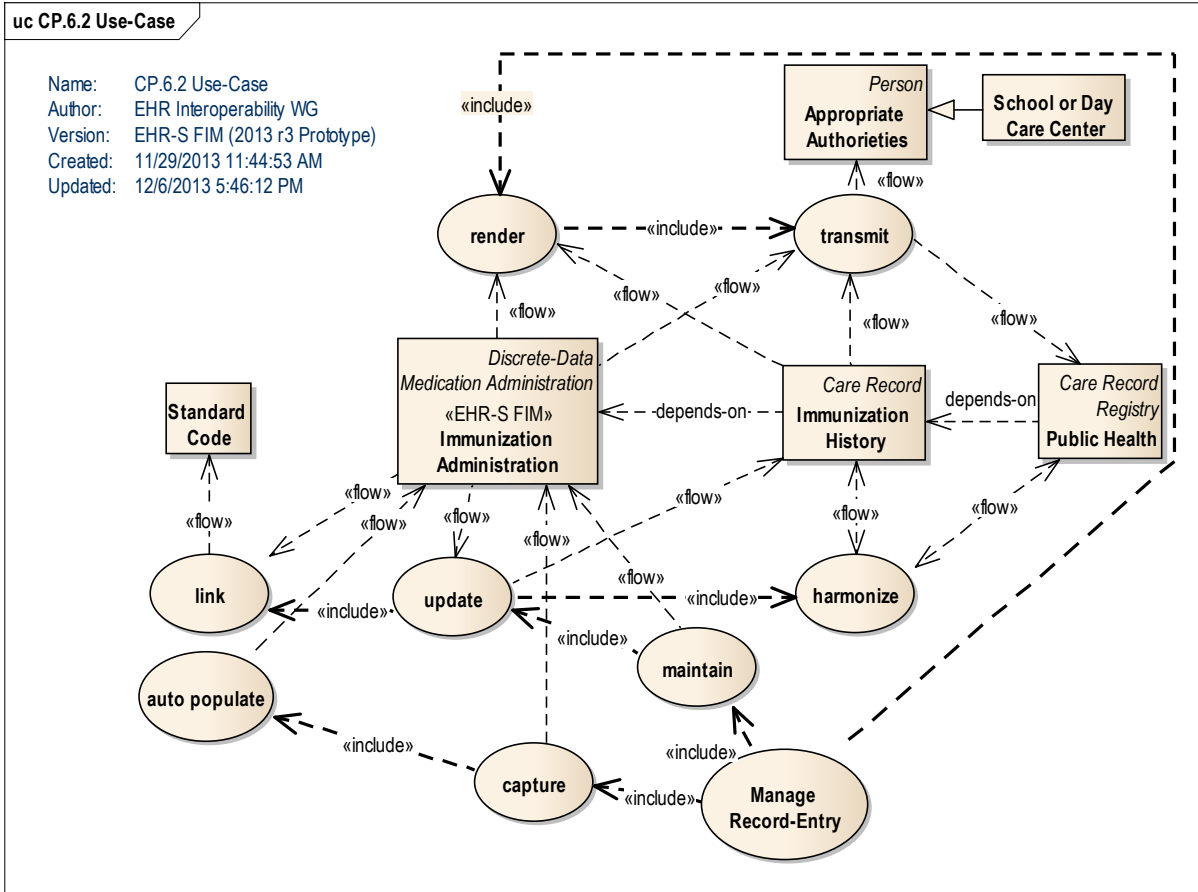


Figure 6 CP.6.2 Immunization-Management Use-Case

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

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

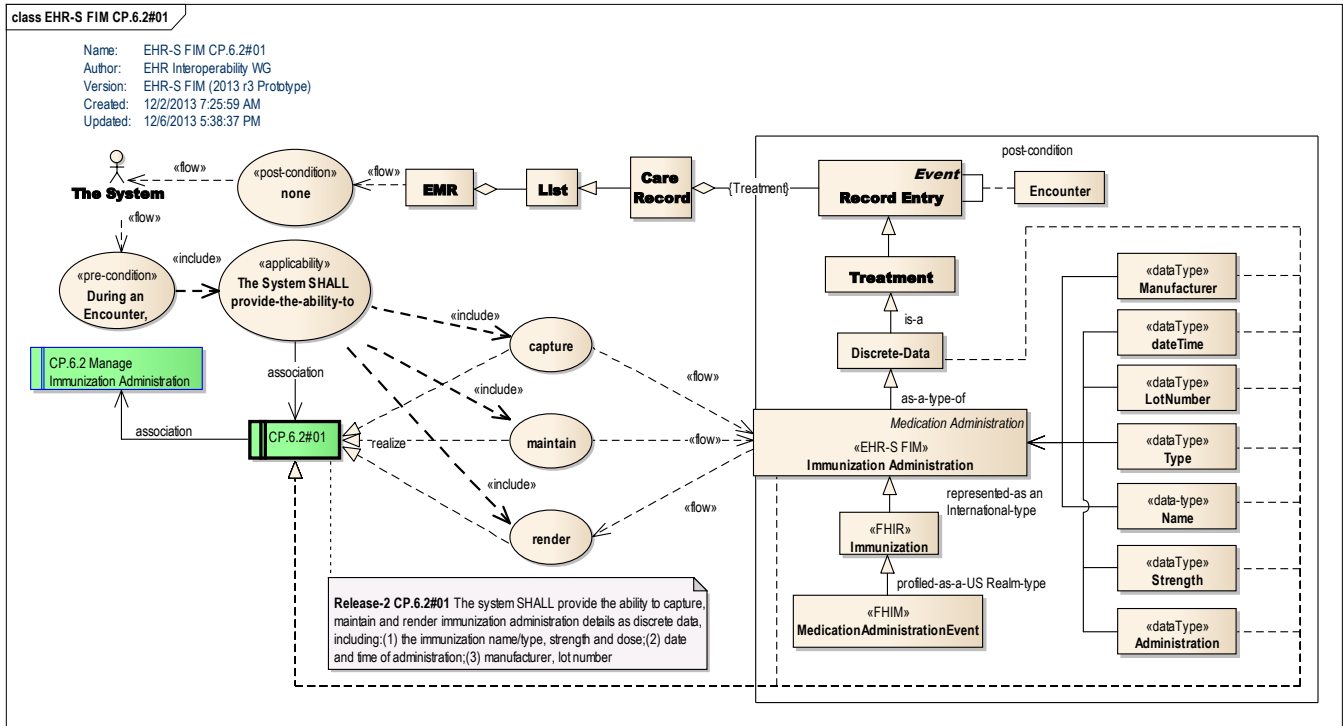
- a) *review* EMR, Alerts-and-Notifications
- b) *enter* Observations, Treatments, Orders and associated Documents and Notes
- c) *sign* the Encounter
- d) **Immunization Management involves the following:**

- 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,*
      - (i) transmitted to Appropriate Authorities (e.g., Schools and Day Care Centers);
- ii) **Data:** Immunization-Administration, Immunization-History, Public-Health Registry

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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.”

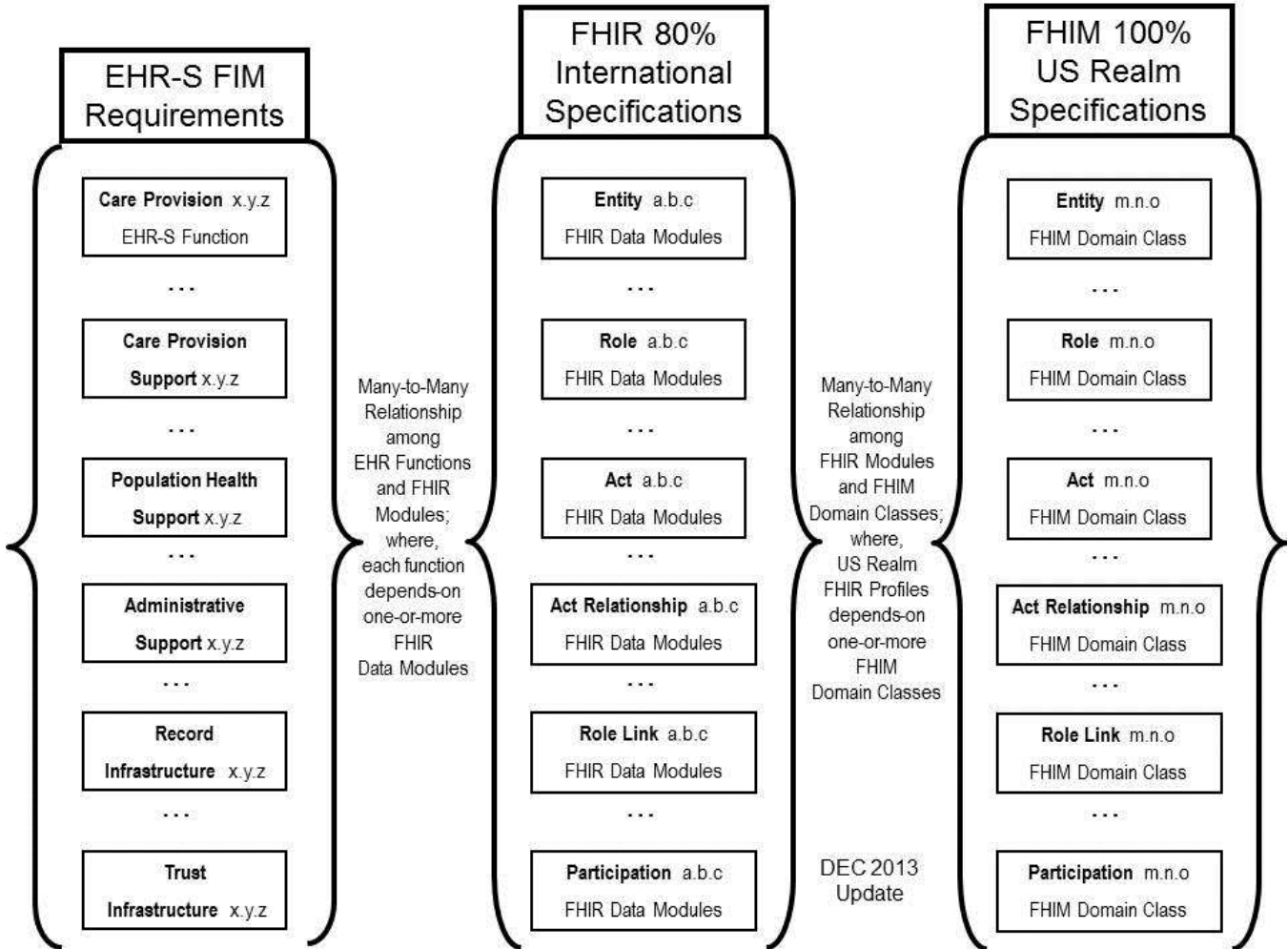


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**Figure 7 CP.6.2#01 Immunization-Management Conformance-Criteria**

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.

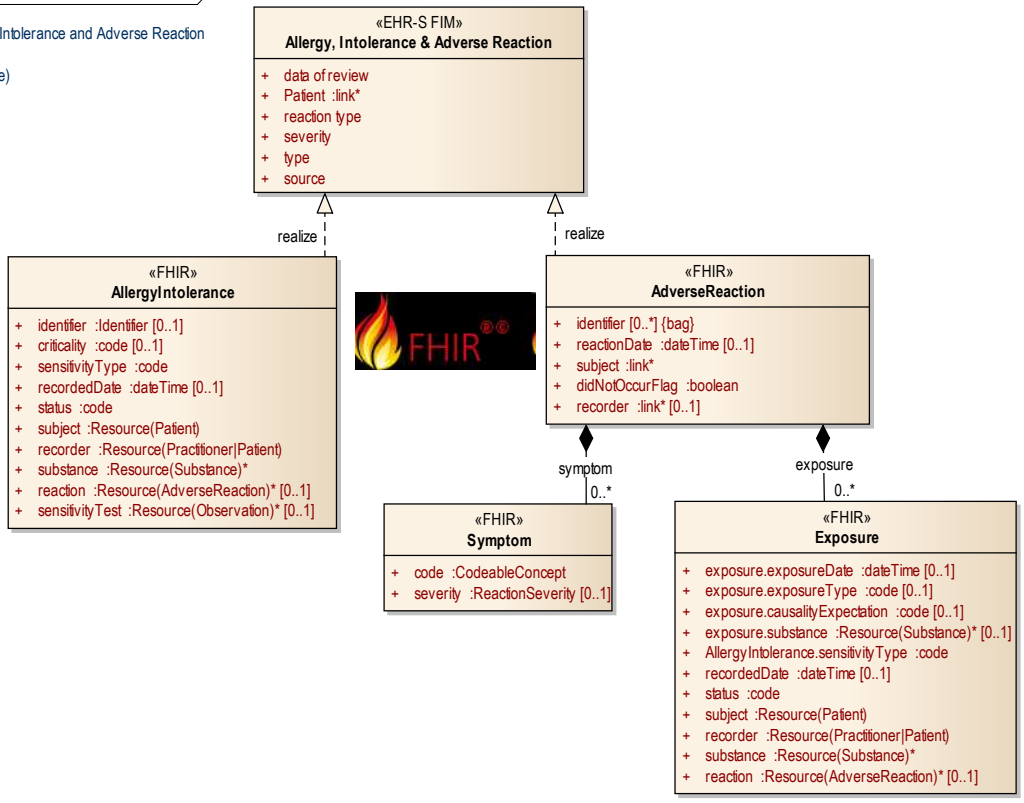


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Figure 8 EHR-S FIM-FHIR-FHIM Requirements-Specification Relationship

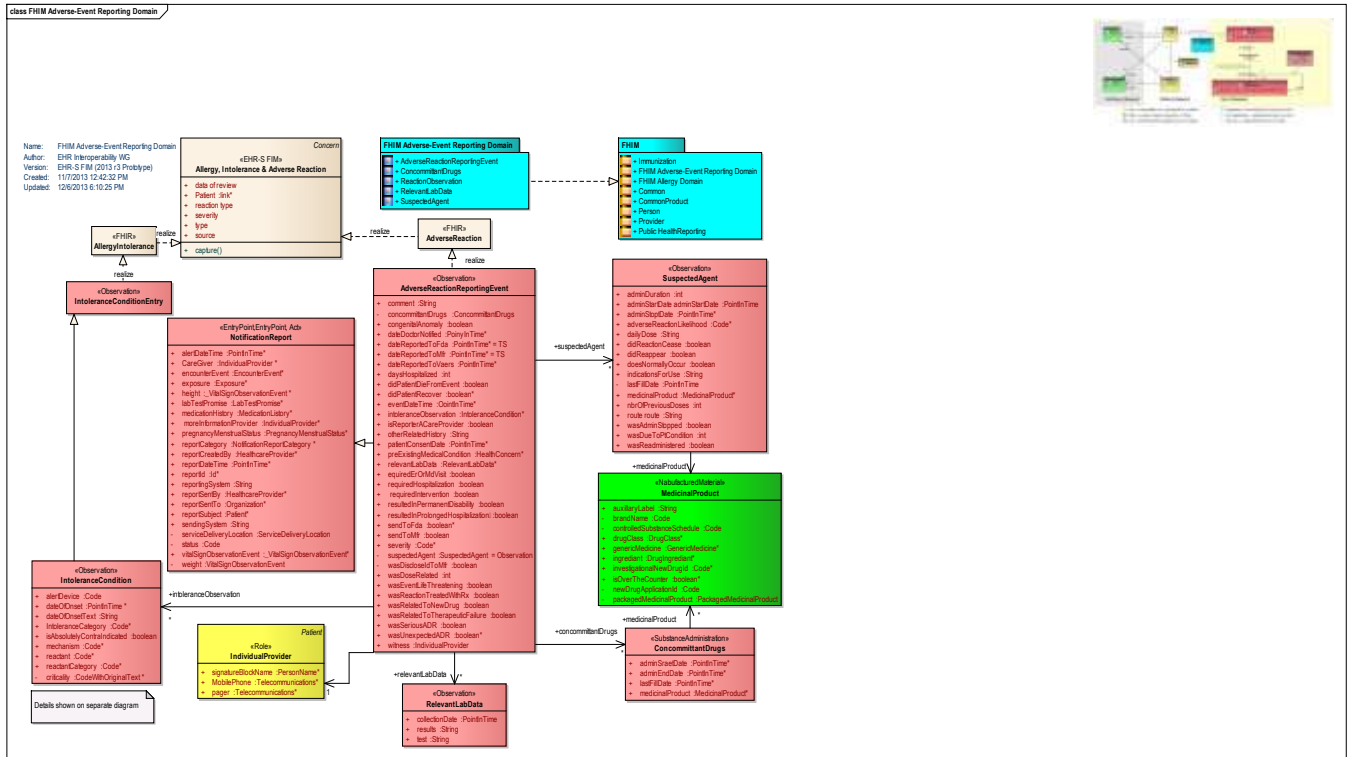
class FHIR Specification for Allergy, Intolerance and Adverse Reaction

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



169  
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Figure 9 Example EHR-S FIM-FHIR Requirements-Specifications



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