EHR and PHR System Reference Briefing

HL7 EHR Work Group (EHR-WG)

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# Call for Participation

**Schedule:** [http://www.hl7.org/concalls/default.aspx](http://www.hl7.org/concalls/default.aspx)

**List Server:** [http://www.hl7.org/myhl7/managelistservs.cfm](http://www.hl7.org/myhl7/managelistservs.cfm)

## Health Level Seven – Electronic Health Record Work Group

Weekly Teleconference Schedule

Revised: 20 November 2013

<table>
<thead>
<tr>
<th>Day</th>
<th>Time US ET</th>
<th>Activity</th>
<th>Lead(s)</th>
<th>Dial-In</th>
<th>Screen Sharing</th>
<th>List Server (for agendas, announcements)</th>
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<tbody>
<tr>
<td>Mon</td>
<td>1200</td>
<td>Records Management/ Evidentiary Support</td>
<td>Warner, Gelzer</td>
<td>1-877-668-4493 Code 927 002 088#</td>
<td>Link</td>
<td>EHR Legal</td>
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<td></td>
<td>1300</td>
<td>EHRS FM Release 3 Planning</td>
<td>Hufnagel, Dickinson</td>
<td>1-770-657-9270, Passcode 510269#</td>
<td>Link</td>
<td>EHR Interop</td>
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<td>Tues</td>
<td>1400</td>
<td>Meaningful Use Functional Profile</td>
<td>Datta, Dickinson</td>
<td>1-770-657-9270, Passcode 510269#</td>
<td>Link</td>
<td>EHR Interop</td>
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<td>1500</td>
<td>FULL EHR WG</td>
<td>Co-Chairs</td>
<td>1-770-657-9270, Passcode 510269#</td>
<td>Link</td>
<td>EHR WG</td>
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<td>Wed</td>
<td>1200</td>
<td>Personal Health Record WG</td>
<td>Ritter, Dickinson, Doo</td>
<td>1-770-657-9270, Passcode 510269#</td>
<td>TBA</td>
<td>EHR PHR</td>
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<td>1300</td>
<td>EHR System Usability WG</td>
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<td>Fri</td>
<td>0930</td>
<td>EHR WG Co-Chairs</td>
<td>Co-Chairs</td>
<td>1-770-657-9270, Passcode 510269#</td>
<td>TBA</td>
<td>N/A</td>
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**Schedule:** [http://www.hl7.org/concalls/default.aspx](http://www.hl7.org/concalls/default.aspx)

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Functions are modeled as "manage Record-Entry" sub-type Use-Cases. Conformance Criteria are modeled as (subject, verb, object) Scenarios; where,
- subjects and objects are Record-Entry sub-types
- verbs are manage sub-types
Business Rules are "according to scope of practice, organizational policy, jurisdictional law, patient preference or consent."
The EHR-S and PHR-S Reference Model includes Functions and their Conformance-Criteria (CC); where,

- Functions are modelled as “manage Record-Entry” Use-Cases; where, use-cases contain multiple CCs.
- Conformance-Criteria (CC) are modelled as individual “manage Record-Entry” Scenarios
- Clinicians and Patient have Encounters; where, they use System-GUIs (Graphical-User-Interface); such that, The Clinicians, Patients or their designated agent may
  review the Patient EMR (Electronic Medical Record) and other types of Information
  Observe, treat, write Orders and document the Patient-Encounter
  provide Patient-Information and Educational-Information
  sign Encounters
- Systems Functions include multiple manage Record-Entry Conformance Criteria (CC); where,
  - CC manage verb-sub-types and Record-Entry noun-sub-types are used
  - CC Pre-Condition Business-Rules manage entering-data-flows and data-context
  - CC Data-management Business-Rules manage applicability (SHALL/SHOULD/MAY)
  - CC Post-Condition Business-Rules manage exiting-data-flows and data-use
  - CC Business-Rules are in-accordance with
    scope-of-practice, organizational-policy, jurisdictional-law, and patient.preferences.
EHR-S and PHR-S RM for “Manage” Verb-Type Hierarchy

Business-context, given within system-function conformance criteria, constrain manage Record-Entry types “according to scope-of-practice, organizational policy jurisdictional law, patient preference-or-consent.”
EHR-S and PHR-S RM for “Record-Entry” Data-Type Taxonomy

class EHR-S and PHR-S Data Reference Model

- Name: EHR-S and PHR-S Data Reference Model
- Author: EHR Interoperability WG
- Version: EHR-S FIM (2013 r3 Prototype)
- Created: 12/17/2013 2:34:19 PM
- Updated: 12/17/2013 2:42:57 PM
**EHR-S & PHR-S RM for Conformance Criteria**

- **SF CC Invariant-condition** (context)
  - System Identifier (EHR or PHR)
  - System Function (SF) Identifier
  - Profile Identifier

- **SF CC Identifier** (number)

- **SF CC Pre-condition** (trigger)
  - Pre-condition is a verb-clause.
  - After a Human-Action or System-Action; then,

- **SF CC Applicability**
  - The System SHALL, SHOULD or MAY
    - “provide-the-ability-to” or
    - “directly”

- **SF CC System-Action Bindings**
  - Operation linked-to Data-Type; where, conditionally,
  - the *System-Actions depends-on* other-SF
  - Data-Type are *associated-with* other Data-Types
  - Information Exchange(s) are *linked-to*
    - International Interoperability-Standards (e.g., FHIR)
    - Realm Interoperability-Specifications (e.g., FHIM)
    - Implementation Guides (e.g., Consolidated CDA)
    - Behavioral Interoperability-Specifications (e.g., IHE)
    - Service Level Agreement (e.g., local workflow)

- **SF CC Post-Condition** (expected-outcome)
  - Post-condition is a subordinate-clause.
  - “where, the System-Actions are …”

- **SF CC See Also**
  - Supporting or related SFs (e.g., Infrastructure)
EHR-S FIM r3 CP.6.2 Immunization-Management Use-Case: The System may
- capture, auto-populate-maintain Immunization-Administration Record-Entries
- link Immunization-Administration Record-Entries to Standard Codes
- update Immunization-Histories with Immunization-Administration Record-Entries
- render Immunization-Histories or Immunization-Administration Record-Entries
- harmonize Immunization-Histories with Public-Health Registries
- transmit Immunization-Histories to Public-Health Registries or Appropriate Authorities, such as School or Day Care Centers.

"according to scope-of-practice, organizational-policy, jurisdictional-law, patient preference-or-consent."
The system SHALL provide the ability to capture, maintain and render immunization administration details as discrete data, including:

1. the immunization name/type, strength and dose;
2. date and time of administration;
3. manufacturer, lot number;

where, the System-Action is according-to scope-of-practice, organizational-policy and jurisdictional-law.
The Release-3 EHR System Immunization-Management Function

- captures, auto-populates, links, renders, transmits, maintains Immunization-Administration Record-Entries; where,
  - the links are with Standard-Codes
  - The transmission is to Population Health Registries
  - The auto-population is as a by-product of verification of Administering-Provider, Patient, Medication, Dose, Route and Time.

- updates Immunization-Histories from the Immunization-Administration Record-Entries
- harmonizes Immunization-Histories with Public-Health Registries
- renders and transmits Immunization-Histories
  - Where the transmissions are to Appropriate Authorities (e.g., Schools and Day Care Centers);

and where, System-Actions are according-to scope-of-practice, organizational-policy and/or jurisdictional-law.
EHR/PHR Concept-of-Operation is refined into a System Reference-Model (RM); where,

1. **System Functions** are defined by Use-Cases of UML-modelled System-Actions on Record-Entries; where, nouns-and-verbs define a lexicon-of System-Action-type verb-hierarchy and Record-Entry-type data-model

2. **Conformance-Criteria** are System-Action Use-Case Scenario-threads; where,
   - Scenario-Context is defined by
     - pre-condition triggers, and the
     - applicability of
       - SHOULD/SHALL/MAY plus
       - “provide-the-ability-to” manage Record-Entries or “directly” manages Record-Entries
       - post-condition Business-Rules, which are “according-to scope-of-practice, organizational-policy, jurisdictional-law, and patient-preferences”

3. **Information-Exchanges** are defined by Conformance-Criteria Scenarios mapped to FHIR (Fast Healthcare Interoperability Resource) representative of the International-Realm, FHIM (Federal Health Information Model) representative of US-Realm FHIR-profiles, IHE information-exchange behavioral-protocols, refined by,
   - workflow behavioral-protocols and associated
   - Key Performance Parameters (KPPs)

4. **Profiles** are specified by sets-of System-Functions and their constrained-context

5. **Interoperability-Specifications** can be generated from Profiles.