



The Role of HL7 International Standards and Interoperability in the Profession of Nursing

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Chair, HL7 Board of Directors

NI 2016

Caregivers

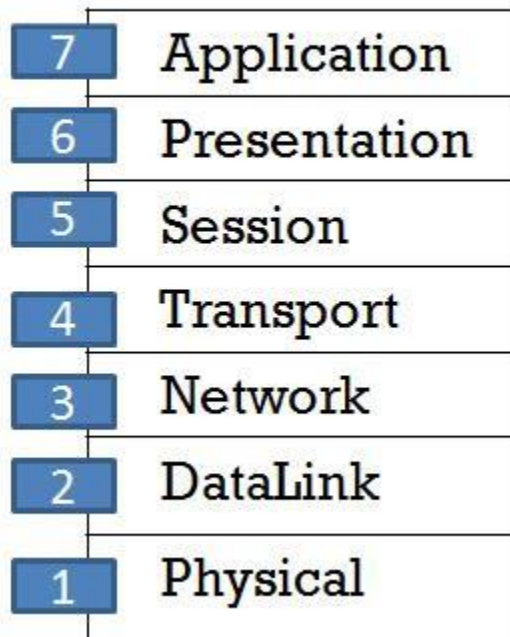
- **Efficiency**
- **Seamless systems**
- **Improved patient experience**
- **Creativity**
- **Usability**
- **'Precision' care-giving**

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HL7 – What does it mean?

OSI Model



"Level Seven" refers to the seventh level of the International Organization for Standardization (ISO) seven-layer communications model for Open Systems Interconnection (OSI) - the application level. The application level interfaces directly to and performs common application services for the application processes.

What is the HL7 International Mission and Vision?

- **Vision**

A world in which everyone can securely access and use the right health data when and where they need it.

- **Mission**

HL7 empowers global health data interoperability by developing standards and enabling their adoption and implementation.

The HL7 International Standards

- **Messaging Standards**
 - V2
 - V3
- **Clinical Document Architecture**
 - CCDA
 - Attachments
- **Functional Models**
 - Electronic Health Record
 - Personal Health Record

Fast Healthcare Interoperability

Resources



- Next generation standards framework
- Does not leave behind the existing standards
- Leverages using newer technologies such as web technologies
- Tight focus on implementability

Resources

- Building blocks that can be assembled and reused
- Can be adapted to meet local needs
- Specification is freely available
- Administrative and clinical applications
- Environments unlimited: cloud, mobile, complex, simple

Example: Clinical Resources

Care Provision

Care planning, tracking care provided

Name	Aliases	Description
CarePlan	Care Team	Describes the intention of how one or more practitioners intend to deliver care for a particular patient, group or community for a period of time, possibly limited to care for a specific condition or set of conditions.
Goal		Describes the intended objective(s) for a patient, group or organization care, for example, weight loss, restoring an activity of daily living, obtaining herd immunity via immunization, meeting a process improvement objective, etc.
DetectedIssue	DDI, drug-drug interaction, Contraindication	Indicates an actual or potential clinical issue with or between one or more active or proposed clinical actions for a patient; e.g. Drug-drug interaction, Ineffective treatment frequency, Procedure-condition conflict, etc.
FamilyMemberHistory		Significant health events and conditions for a person related to the patient relevant in the context of care for the patient.
NutritionOrder	Diet Order, Diet, Nutritional Supplement	A request to supply a diet, formula feeding (enteral) or oral nutritional supplement to a patient/resident.

Resource Characteristics

- A common way to define and represent
- Building from Data Types that define common, reusable patterns
- Common set of metadata
- Examples: Patient, Allergies/Intolerances, Referrals, Care Provision, Medications, Immunizations, Diagnostics

Why FHIR is attractive

- Focus on implementation
- Many examples in the implementation library
- XML, JSON, HTTP, Oauth and others
- RESTful architectures
- Human-readable wire format
- Maturity Model

```
<Patient xmlns="http://hl7.org/fhir">
```

```
<id value="glossy"/>
```

```
<meta>
```

```
<lastUpdated value="2014-11-13T11:41:00+11:00"/>
```

```
</meta>
```

```
<text>
```

```
<status value="generated"/>
```

```
<div xmlns="http://www.w3.org/1999/xhtml">
```

```
<p>Henry Levin the 7th</p>
```

```
<p>MRN: 123456. Male, 24-Sept 1932</p>
```

```
</div>
```

```
</text>
```

```
<extension url="http://example.org/StructureDefinition/trials">
```

```
<valueCode value="renal"/>
```

```
</extension>
```

```
<identifier>
```

```
<use value="usual"/>
```

```
<type>
```

```
<coding>
```

```
<system value="http://hl7.org/fhir/v2/0203"/>
```

```
<code value="MR"/>
```

```
</coding>
```

```
</type>
```

```
<system value="http://www.goodhealth.org/identifiers/mrn"/>
```

```
<value value="123456"/>
```

```
</identifier>
```

```
<active value="true"/>
```

```
<name>
```

```
<family value="Levin"/>
```

```
<given value="Henry"/>
```

```
<suffix value="The 7th"/>
```

```
</name>
```

```
<gender value="male"/>
```

```
<birthDate value="1932-09-24"/>
```

```
<careProvider>
```

```
<reference value="Organization/2"/>
```

```
<display value="Good Health Clinic"/>
```

```
</careProvider>
```

```
</Patient>
```

Resource
Identity &
Metadata

Human
Readable
Summary

Extension
with URL to
definition

Standard
Data:

- MRN
- Name
- Gender
- Birth Date
- Provider



Maturity Model

- the resource or profile (artifact) has been published on the current build
- FMM0 + the artifact produces no warnings during the build process and the responsible WG has indicated that they consider the artifact substantially complete and ready for implementation
- FMM1 + the artifact has been tested and successfully exchanged between at least three independently developed systems at a connectathon whose results have been reported to the FHIR Management Group
- FMM2 + the artifact has been verified by the work group as meeting the [DSTU Quality Guidelines](#) and has been subject to a round of formal balloting with at least 10 implementer comments drawn from at least 3 organizations resulting in at least one substantive change
- FMM3 + the artifact has been tested across its scope (see below), published in a formal publication (e.g. DSTU), and implemented in multiple prototype projects. As well, the responsible work group agrees the resource is sufficiently stable to require implementer consensus for subsequent non-backward compatible changes.
- FMM4 + the artifact has been published in two formal publication release cycles at FMM1+ (i.e. DSTU level) and has been implemented in at least 5 independent production systems in more than one country

Framework

- **Base resources, frameworks and API's**
- **Extend and adapt existing resources**
- **Follow development and implementation guidance**
- **Be consistent in approach**
- **Improve--share the work**
- **Improve--participate in the balloting process**

To Succeed

- **Volunteer driven**
- **Standards are at no cost**
- **Depend on clinicians who are 'hands on'**

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If you want to go fast, go alone. If you want to go far, go together.

--African Proverb

Caregivers

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Upcoming Events

- **Application Showcase**
- **Connectathons**
 - **Clinician**
 - **Payor**
 - **Technical**

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Where to get Information

- www.HL7.org/FHIR
- FHIR.org

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