HL7 - A Quick Introduction

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HIMSS 2006
Health Level Seven

- ANSI-accredited Standards Development Organization
- Established 1987
- Approx. 3,000 members
- 28 affiliates in Canada, Europe, Asia-Pacific, Latin America, Africa, etc.

ISO’s Open Systems Interconnect (OSI) model:
“Application Level” - level 7
HL7 Mission Statement

HL7 is an international community of healthcare subject matter experts and information scientists collaboration to create standards for the exchange, management and integration of electronic healthcare information. HL7 promotes the use of such standards within and among healthcare organizations to increase the effectiveness and efficiency of healthcare delivery for the benefit of all.

Approved by the HL7 Board August, 2005
U.S. Health Messaging Standards Development Efforts

HL7
(Health Level 7)

ACR/NEMA (DICOM)
(American College of Radiologists / National Electrical Manufacturers Association)
(Digital Image Communications)

X12 (X12N)

ASTM (E31)
(American Society of Testing Materials)

IEEE
(Institute of Electrical and Electronic Engineers)

NCPDP
(National Council of Prescription Drug Producers)

ADA
(American Dental Association)
HL7 Diversifies ...

- Electronic Data Exchange in Healthcare Environments
  - Version 2 & Version 3
- Arden Syntax
- Visual / Context Integration (CCOW)
- Version 2.x XML (XML encoding of HL7 messages)
- Clinical Document Architecture (CDA)
- Electronic Health Record System (EHRS) Functional Model
• Working group meetings
  - 3 times each year
  - about 500 attendees

- The Membership
  Members get discounts at meetings and have no-charge access to the Standards

- Technical Committees
  Create normative specifications or chapters in the standard

- Special Interest Groups
  Collaborate in area of interest to contribute to the work of the TCs

- Non-Member Participation
  Non-members can register and participate in most activities, including some ballots

- Technical Steering Committee
  Technical affairs
  Appointed officers plus chairs of the committees & SIGs

- Board of Directors
  Business affairs
  Elected
Version 2.6 Chapters*

1. Introduction
2. Control
3. Patient Administration
4. Order Entry
5. Queries
6. Financial Management
7. Observation Reporting
8. Master Files
9. Medical Records / Information Management
10. Scheduling
11. Patient Referral
12. Patient Care
13. Clinical Laboratory Automation
14. Application Management
15. Personnel Management
16. Non-US Claims (new to 2.6)
17. Materials Mgmt. (new to 2.6)

Appendix:
A. Data Definition Tables
B. Lower Layer Protocol
C. BNF Definitions
D. Glossary

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* 2.6 is scheduled to be published in 2006
Committees & Special Interest Groups

- Architecture Review Board**
- Anesthesia
- Arden Syntax
- Anatomic Pathology
- Attachments
- Cardiology
- Common Message Element Types***
- CCOW*
- Clinical Decision Support*
- Clinical Genomics
- Clinical Guidelines
- Community Based Health Services
- Conformance
- Infrastructure & Messaging*
- Education**
- Electronic Health Records*
- Electronic Services**
- Emergency Dept.
- Financial Management*
- Government Projects (US)
- Imaging Integration
- Implementation**
- International Affiliates**
- Java
- Laboratory
- Health Care Devices
- Marketing**
- Medical Records/Information Management*
- Modeling & Methodology*
- Orders & Observations*
- Organization Review**
- Outreach for Clinical Research*
- Patient Administration*
- Patient Care*
- Patient Safety
- Pediatric Data Standards
- Personnel Management*
- Pharmacy
- Process Improvement**
- Public Health & Emergency Response
- Publishing**
- Regulated Clinical Research Information Management (RCRIM)* (formerly Clinical Trials)
- Scheduling & Logistics*
- Security*
- Service Oriented Arch.
- Structured Documents*
- Technical Steering Committee**
- Templates
- Tooling**
- Vocabulary*
- XML

* Technical Committees, ** Board Committees, ***Task Force

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As of 2/13/06
HL7 Standards

• Informative or normative
• Balloting (normative)
  - committee-level: 66.6%
  - membership level 90%
  - ANSI-certification
  - ISO fast track
• Informative & Draft Standard for Trial Use (DSTU) 66.6%
HL7 Standards

• Version 2.x
  - used worldwide, 90% of US hospitals
  - “pipe & hat”: HL7-proprietary, EDI-like
    PID||2247^^^Primary|098018500^^^MRN||FIX
    -INTF^PAT||19650618|Female|

• Version 2.XML
  - a normative XML encoding for V2
    <PatientGroup>
      - <PID PID07_DateOfBirth="19650618"
        PID08_Sex="Female"
HL7 Standards

• **Version 3.0 (November 2005)**
  - based on Reference Information Model (RIM)
  - technology independent: so far, XML schemas, JAVA API

• RCRIM/CDISC lab reporting is a V3 standard, as is Structured Product Labeling

• First normative V3 spec was CDA R2
Some Elements of HL7 Version 3.0

- Message Development Framework (MDF)
- Use-case Model
- Reference Information Model (RIM)
- Domain Information Model (DMIM)
- Restricted Message Information Model (RMIM)
- Hierarchical Message Description (HMD)
- Common Message Element Definition (CMET)
- Implementable Technology Specification (i.e., XML)
HL7 Version 3
Approved for publication an promotion to ANSI as an HL7 Standard in September, 2004.

Foundation Documents
- Introduction
- HL7V3 Guide
- Vocabulary
- Reference Information Model
  - Literary Expression
  - RIM Diagrams
  - State Machines
- Glossary
- Refinement, Constraint and Localization
- Data Types
- Implementable Technology Specifications
  - XML
  - UML
- Transport Protocols

Legend
- Reference: Content is harmonized during HL7 meetings or approved by the HL7 Board. It is not subject to ballot acceptance.
- Informative: Content is balloted by general membership; however, it is not considered to be a structural part of the standard, only supporting information.
- Normative: Content is balloted by general membership and is considered a structural component of HL7 standard. Negative ballots MUST be resolved.
- Draft Standard for Trial Use: Content is balloted by general membership as the draft of a standard which will, following a suitable period for evaluation and comment, be expeditiously incorporated into a fully balloted and accredited version of the standard.
- Note: Some Foundation Document groupings (for example, ITS XML or Transport Protocols) may be balloted during a cycle as Normative at Committee or Member while other documents contained in that same grouping might be DSTU or Informative.
HL7 Standards

• **Clinical Document Architecture**
  - ANSI/HL7 CDA R1.0-2000, R2.0-2005
  - first certified XML spec for healthcare
  - first balloted portion of HL7’s “V3”
  - first RIM-based specification

• **CDA used for HIPAA Attachments**
  - Joint effort with ASC X12N
  - Two operating paradigms
    • “Human Decision Making”
    • “Computer Decision Making”
HL7 Standards

• **CCOW**
  - Clinical Context
  - “Composite Applications”

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Thank you!
any questions?