



A Look at the Future of HL7

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Note: Much content taken from presentation to HL7UK Nov 2007

The Beginning

- Formed in 1987 to create required standards to enable “best of breed” approach to hospital information systems
- Small, overlapping working group with few committees: focused on admission, discharge and transfer (ADT); orders and results; patient administration; control and query
- Independence of governance and working group activities
 - Chair, secretary and treasurer elected; rest of board appointed
 - Primary Stakeholders – vendors and providers; formed IAB and PAB
 - Hired management group (AMG) in 1991



The first product

- Version 2.x driven by simplicity; implicit model: see it, do it
 - Basic building block were data items combined into logical segments
 - Messages driven by trigger events and consisted of segments in defined sequence. Segments could repeat and some were optional.
 - New required elements were sequentially added to existing segments
 - New functionality created new segments.
 - Z segments permitted independence and expansion.
 - Implementation was at the interpretation and needs of the implementer.
 - Backwards compatibility demanded.



Evolution of governance

- Formed Technical Steering Committee with chair, vice chair
- Evolved to international organization
- Evolved to largely elected board (8 at large, including international) (TC Chair and vice chair non-elected members)
- Convergence of governance and technical work; mainly bottom up and volunteer driven
- ANSI accreditation influenced governance and balloting
- Grew rapidly in numbers: membership, technical committees, special interest groups; scope expands
- Addition of SGML/XML activity; vocabulary; clinical interests; moved toward model driven approach resulting in RIM, v3, CDA
- Loss of communication among groups; increased time to create standards



Evolution of technology

- Migration to model-based v3 standards competed with existing base of v2 standards; co-existence demanded
- Increasingly unsolved issues impacted efficiency of organization
- Increasing competition among groups both national and international
- Interests from government and regulatory bodies
- EHR standards activity – expanded participation
- Increased importance of ambulatory care standards
- Wider audience, expanded set of stakeholders



The Present Governance

- Board becomes strategic; Technical Steering Committee controls technical standard development
- Hiring of a Chief Executive Officer, Chief Technical Officer; Executive Director of Management Group became Chief Operating Officer
- New structure organized around common themes
 - Foundation and Technologies
 - Structure and Semantic Design
 - Domain Expertise
 - Technical and Support Services
- Increase in top down governance but still balanced by bottom up influence; still a volunteer organization
- Importance of global approach recognized
- Increased efforts of joint activities among SDOs in creating standards



Operational evolution

- Pressures on HL7 from multiple groups, increasing with US stimulus package
- Movement towards testing of standards through Draft Standards for Trial Purposes
- Perceived increased complexity in implementing model-based standards
- Increased requirements for family of implementation manuals
- Pressure to create standards more quickly
- Increased interest in standards throughout healthcare community
- New focus on interoperability standards
- New attention from clinical community
- Demand for tools at all levels – making, implementing, using standards



New requirements

- Addition of genomic and proteomic data to health record
- Movement toward predictive and preventive health model with personalization of care and treatment
- Modifications in workflow
- Increased demands for quality, patient safety, access, efficiency, effectiveness, integrity, privacy
- Integration of data from disparate sources; life and death decisions based on integrated model



No single focus

- Geographical
 - International
 - National
 - Regional
 - Local
- Stakeholder
 - Providers, vendors, payers, governments, consultants, payers, researchers, knowledge brokers, regulators, consumer, employers, suppliers, imaging (PACS), others
 - Interoperable solutions must satisfy all
- Sites of care
 - Inpatient, ambulatory care, emergency care, nursing and long term stay facilities, home care
- Multiple diseases; increasing focus on chronic diseases



Challenges

- HL7 must view itself as part of a larger community dedicated to a specific role in using IT to improve health care. HL7 must become involved with that broader community; we must form new relationships and new partnerships.
- Standards require both a policy and a technical framework to be effective. What is HL7's role in policy? How do we influence policy?
- HL7 needs to understand the problems with today's health care and how IT may improve the system.
 - Does more data mean better care?
 - What is the value of IT in health care?
 - What standards are necessary and what else is required for sufficiency?
- When does HL7 drive and when does HL7 follow?
- What is HL7 role with terminology?



What does the future hold?

- Evidenced based medicine
 - Standards for knowledge representation, knowledge extraction for data, knowledge transfer and knowledge use
 - Standards for clinical guidelines, care plans, decision support
- Translational research
 - Reusable data: clinical trials fed by patient care data
 - Decrease time from bench top research to routine bedside use
- Query standards that make it easy to access information; push and pull standards



Future requirements?

- Understanding content, similarities and differences in different views of health care data
 - EHR, EMR, population or summary records, personal health record
 - Variation in sites and purpose; linkages and relationships
- Views, content and functionalities of
 - Regional health information systems (RHIO or HIE)
 - States or provinces
 - National (NHIN)



Establishing trust

- Security, Privacy and Confidentiality
 - Authentication
 - Authorization
 - Access
 - Audit Control
 - Digital signature
 - Integrity
 - Non-repudiation
 - Encryption
 - De-identification standards
 - Probability of risk vs value



Accommodating technology

- Move to service-oriented architecture approach
 - Service components can be modified or expanded independently
- Keep solutions as technologically neutral as possible
- Provide functionally rich and well-documented tool sets



Other services

- Rule-based data exchange
- Filters for data presentation
- Mapping services in transition
- Consent management
- Identifying candidates for clinical trials
- Record linkages
- Digital identifiers
- Notification services
- Business processes
- Natural language processes



What is the future HL7?

- HL7 no longer can exist as an independent group of “techies” making standards as we please.
- How does much of the broader community view HL7? The image must change.
- HL7 must change its vision to understand its role in an expanding and evolving world; we must become part of the solution and claim that role.



What is the role of HL7?

- HL7 needs to determine what standards are required to meet national visions for use of IT in patient care, research, reimbursement, performance evaluation
 - What can and should HL7 do itself?
 - When should HL7 collaborate and with whom?
 - When should HL7 endorse?
 - What should HL7 leave to others?



Questions HL7 Must Answer

- Should our vision be broad or narrow?
- What is the proper balance between academic and “real world” approaches?
- What is balance between national and global?
- In making a standard
 - How many people are required?
 - How long should it take?
 - Is creating different than approving?
- What else is required beyond creating a standard?

