



HL7: Version 2 Standard

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Agenda

- **HL7 Version 2.0 – 2.5.1**
 - **History & Use**
 - **Basic Tenets Elements & Structures**
- **HL7 Version 2.6 – October 2007**
- **HL7 Version 2.7**



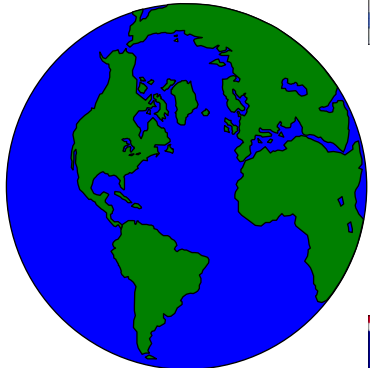
How we got here...

- **HL7 Version 2.x started as Version 1.0 at HIMSS 1988.**
- **First version of HL7 (1.0 & 2.0) were used solely as “desk” standards and a couple of pilot tests (e.g., Moses Cone).**
- **First accepted “usable” HL7 Version 2 Standards was 2.1 completed and published at the end of 1990. Now used in over 32 countries.**



35 HL7 Countries

And growing



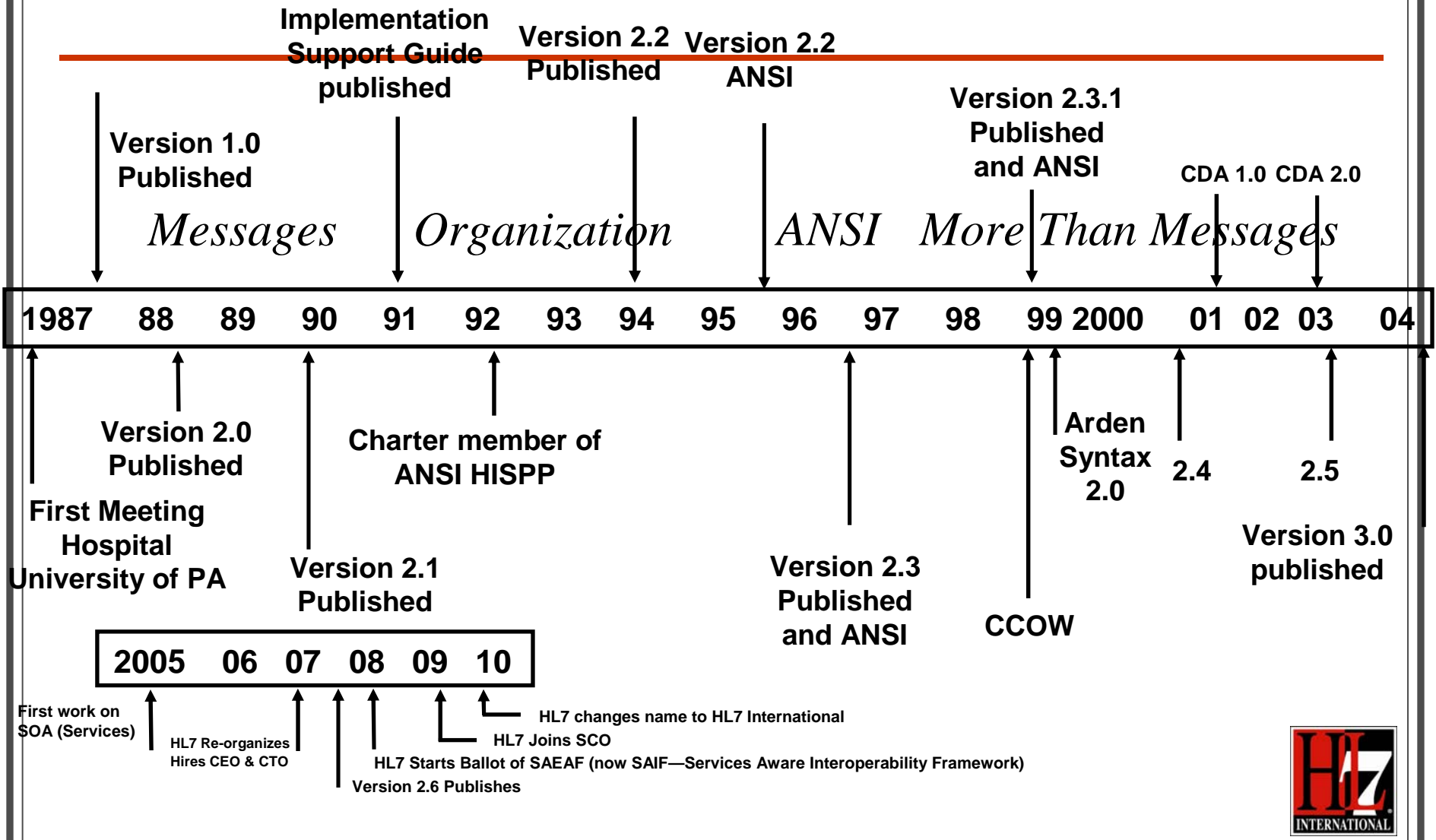
A collection of 35 national flags arranged around a central globe. The flags are labeled with the names of the countries they represent. The countries shown are: Argentina, Australia, Austria, Brazil, Canada, Chile, China, Colombia, Croatia, Czech Republic, Denmark, Finland, France, Germany, Greece, Hong Kong, India, Ireland, Italy, Japan, Mexico, New Zealand, Romania, Russia, Singapore, South Korea, Spain, Sweden, Switzerland, Taiwan, The Netherlands, Turkey, United Kingdom, United States, and Uruguay.

HL7 Version 2.x

- **First widely used version 2.1 published in 1991**
- **Used in 90%+ provider organizations in the US and at least 34 other countries and is widely supported by vendors.**
- **Generally requires bi-lateral negotiations between communicating parties.**
- **Backwards-fitted (imperfectly to HL7 Reference Information Model (RIM))**
- **Not well normalized.**
 - **Segments & Data Elements moved to a single location (Chapter 2) only in 2.5 in 2003.**
- **Makes no formal attempt to define process**
- **Most implementations are a mix of versions ranging from 2.1 to 2.3 (even though current version is 2.5)**



History of HL7



Message Type

- **Most HL7 messages are “unsolicited updates” and involve two parties:**
 - **Sender...creates and pushes an unsolicited update message (e.g., patient is registered, here is an order, etc.)**
 - **Receiver has a serving roll and always has a read pending waiting for an unsolicited up message from a sender.**
- **The Query/Response mode is also supported but is used less often.**
- **Services are proving to be better suited to support queries and complex workflows.**



Acknowledgment

- **Acknowledgement messages are most frequently “immediate”. That is, the receiver (usually the interface engine) gives a nominal acknowledgement that the message was received without detectable error.**
- **Implementation of End-to-end (i.e. functional) acknowledgements are uncommon because it is difficult. Unfortunately, it is also indicative of a much more robust model.**



Messages

- **A message is a unit of data transferred between systems. It is comprised of a group of segments in a defined sequence.**
- **The message type defines its purpose (e.g., unsolicited trigger, query, response)**
- **Message components include:**
 - **Message**
 - **Segments**
 - **Fields(Data types)**
 - ✓ **Components (complex data types)**



HL7 V2 Subject Domains

- **The HL7 V2 Standard covers messages that exchange information in the general areas of:**
 - **Patient Demographics**
 - **Patient Charges and Accounting**
 - **Patient Insurance and Guarantor**
 - **Clinical Observations**
 - **Encounters including Registration, Admission, Discharge and Transfer**
 - **Orders for Clinical Service (Tests, Procedures, Pharmacy, Dietary and Supplies)**
 - **Observation Reporting including Test Results**
 - **The synchronization of Master Files between systems**
 - **Medical Records Document Management**
 - **Scheduling of Patient Appointments and Resources**
 - **Patient Referrals—Specifically messages for primary care referral**
 - **Patient Care and problem-oriented records.**



The Effects of Version 3

- **HL7 Version 3 was never intended to be either dependent on or a change agent to Version 2.x**
- **Nevertheless, some new developments in V3 are finding their way back into V 2.5, 2.6 and 2.7**
 - **New domains and expanded scope of existing domains**
 - **More rigorous normalization of V2 artifacts (e.g., data types, segment and field definitions and formal code-set bindings.**
- **A recognition that deprecated artifacts and events cannot be carried forward forever.**



Version 2.6 & 2.7 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*



What We Added in 2.6

1. The addition of a new segment, UAC – User Authentication Credential, to ALL messages
2. The replacement of the TS – Timestamp data type with the DTM – Date/Time data type
3. The replacement of the CE – Coded Element data type with either the CNE – Coded with No Exceptions data type or the CWE – Coded with Exceptions data type
4. The deprecation of the CNN, NDL, LA1 and LA2 data types
5. The inclusion of "external" tables referencing a set of coded values defined and published by another standards organization assigned an HL7 number but without designation as an HL7 table (as was previously the practice)
6. The revision of examples in all chapters to support HIPAA compliance
7. The inclusion of a new chapter supporting electronic messaging transactions of claims and reimbursement data (which is produced for implementations of HL7 outside of the United States; in the United States, HIPAA law mandates an already in-use set of implementation guides of X12 messages for these purposes)
8. The inclusion of a new chapter supporting electronic messaging transactions of supply chain management data within healthcare facilities



Version 2.7

- **Final Balloting completed in late 2009**
- **Reconciliation left on one issue regarding semantic compatibility 2.5-2.6-2.7**
- **Resolution will require publication of errata notice for 2.6 & 2.7 with recommended resolution**
- **Still expect 2.7 will publish in 2010.**



Summary of Significant Additions / Changes for 2.7

- Additions and updates to Data types and consistent support for OIDs in V2 Data types.
- Support to communicate conformance level certification at a message level
- Initiation of Consolidation in V2.7 of code-set tables to a single location in Chapter 2. Goal after final consolidation in 2.8 is the ability to separately ballot code-sets outside of a general 2.x ballot.
- New field added to support allergy comment information. Adding more fields to communicate who and when an allergy was created, modified, and inactivated.
- Provide changes to support harmonization of the Race, Ethnicity, Marital Status and Administrative Sex code tables with version
- ePrescription Enhancements
- Multiple Order IDs in order messages
- Result and Parent Result Identifier added to OBR
- Enhancement to Universal Service Identifier definition
- Order Number clarification on uniqueness
- Ability to apply an order to all specimens in a shipment



Summary of Significant Additions / Changes for 2.7

- The Pharmacy and Immunization content has been moved to a new Chapter 4A.
- Specimen Shipment manifest message with associated new segments
- Patient Results Release Category
- Various field additions to OBX segment to support Performing Laboratory, Producer Address, and Medical Director Name.
- Addition of patient connected medical device reporting example
- A new Scheduling event to send a snapshot of a schedule that would reflect any changes made to scheduled (appointments) since the last time a batch interface ran.
- A suite of Messages called the Collaborative Care Message (CCM). These messages include the aspects of (a) being able to share information without requiring a transfer of care and (b) can pertain to a group of people rather than just individuals and are therefore suitable for public health notifications/request as well as patient centric care.
- Field additions to Authorization segment to support discipline and treatment units





Questions?
