

HL7 Strategic Summit March 2002

HL7 FastTrack Introduction

"HL7 For Dummies"

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Chair (interim), HL7 Australasia User Group



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Session Overview

- ♦ Why standards in healthcare communications?
- ♦ What is HL7?
- ♦ HL7 Standards in Australia
- ♦ A brief tour of HL7
- ♦ What is Version 3?
- ♦ What about XML?
- ♦ Q&A



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Session Overview

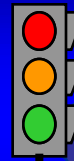
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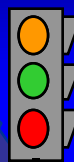
Why do we need Standards? (1)



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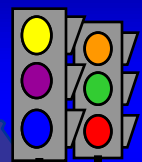
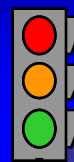
Why do we need Standards? (1)



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Why do we need Standards? (2)



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Why Standards?

- ◆ Healthcare Information is increasingly transmitted electronically.
- ◆ For Healthcare IT systems to exchange information, they can either:
 - communicate via custom interfaces *or*
 - share a common data format
- ◆ A common data format is cost-effective, but needs up-front agreement and commitment = "a Standard"

Other Examples of Standards

- ◆ Mobile Phones ("GSM")
- ◆ CDs ("ISO")
- ◆ ATMs
- ◆ "yes" and "no" in Bulgaria

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global HL7 Mission

- ◆ To provide standards for the exchange, management and integration of data that supports clinical patient care and the management, delivery and evaluation of healthcare services.
- ◆ Specifically, to create flexible, cost effective approaches, standards, guidelines, methodologies, and related services for interoperability between healthcare information systems.

Interoperability

- ◆ **Interoperability**
"Ability of two or more systems or components to exchange information and to use the information that has been exchanged"

[IEEE Standard Computer Dictionary: A Compilation of IEEE Standard Computer Glossaries, IEEE, 1990]

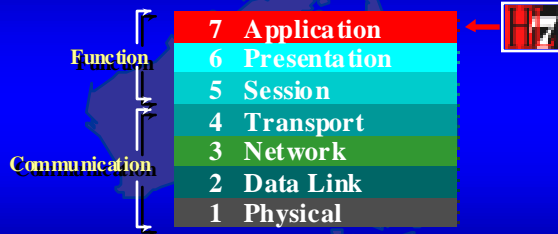
Functional interoperability

Semantic interoperability

A Brief History of HL7 ...

- ◆ 1987: Interested users in the US start work on a standard - "HealthLevel Seven".
- ◆ 1990: First standard (V2.1)
- ◆ 1993-94: First International Affiliates join
- ◆ 1994: More than 93% of all organisations in the US with Health IT systems use HL7!
- ◆ 1997: HL7 as the healthcare messaging standard.
- ◆ 2000: HL7 V2.4 released.
- ◆ August 2001: 1st V3 Draft is released.

Why Health Level “Seven”?



HL7 Inc.

- ◆ ANSI-approved Standards Developing Organisation (SDO).
- ◆ Not-for-profit.
- ◆ >2200 members.
- ◆ >500 corporate members.
- ◆ 19 International Affiliates.
- ◆ Three 6-day Working Meetings per year.

HL7: Messages and More ...

- ◆ Decision Support
 - Arden Syntax Standard (1999)
 - GLIF???
- ◆ Visual Integration (“CCOW”)
- ◆ Clinical Document Architecture (CDA)
- ◆ Oct. 2001: Electronic Health Record (EHR)

HL7 is International!

- ◆ 20 International HL7 Affiliates:
 - Argentina
 - Australia
 - Brazil
 - Canada
 - China
 - Czech Republic
 - Finland
 - Germany
 - India
 - Japan
 - Korea
 - Lithuania
 - New Zealand
 - Southern Africa
 - Switzerland
 - Taiwan
 - Turkey
 - The Netherlands
 - United Kingdom
 - USA

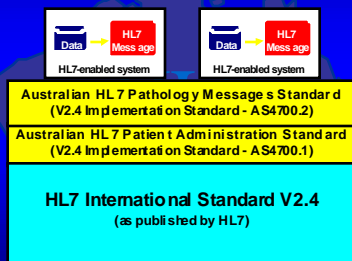
Are there Alternatives to HL7?

- ◆ UN/EDIFACT
 - Originated from CEN in Europe.
 - Large number of messages: Transport, Customs, Supply Chain, etc.
 - Healthcare messages have found only limited proliferation.
 - CEN & HL7 [Memorandum of Understanding](#)
 - Close cooperation, Merging (towards HL7...)
- ◆ XML???

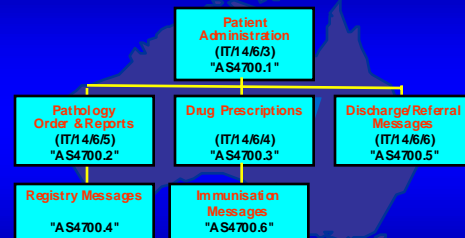
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- ◆ Q&A

Structure of HL7 Standards in Australia



SAA HL7 Technical Committees



Australian HL7 Standards

- ✦ Patient Administration Standard AS4700.1
- ✦ Pathology Orders and Results AS4700.2
 - Australian Pathology Implementation Guide ("Pathology Cookbook")
- ✦ Registry Messages AS4700.4
- ✦ Drug Prescriptions AS4700.3
- ✦ Discharge/Referral Messages AS4700.x
- ✦ Immunisation Messages AS4700.x

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Content of the HL7 V2.4 Standard (1)

- ✦ General Introduction (Chapter 1)
- ✦ Message Infrastructure (Ch. 2)
 - General conventions
 - Data Types
 - Message Construction Rules
- ✦ Patient Administration (Ch. 3)
 - 62 Patient Administration transactions
 - 238 patient-related data items

Content of the HL7 V2.4 Standard (2)

- ✦ Orders & Observations (Ch. 4 & 7)
 - Diagnostic Services (Lab, Radiology, etc.)
 - Medications and Drugs
 - Treatments
 - Clinical trials
 - Dietary
 - Supply
- ✦ Queries (Ch. 5)
 - Queries & Responses

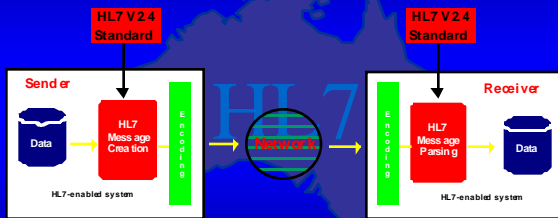
Content of the HL7 V2.4 Standard (3)

- ◆ Management of Master Files/Tables (Ch. 8)
 - Patients???
 - Providers
 - Locations
- ◆ Clinical Document Management (Ch. 9)
- ◆ Scheduling of Medical Services (Ch. 10)
- ◆ Patient Referral/Discharge (Ch. 11)
- ◆ Patient Care (Ch. 12)

Content of the HL7 V2.4 Standard (4)

- ◆ Laboratory Automation (Ch. 13)
- ◆ Financial Management (Ch. 6)
 - basic service billing messages
 - e-claims → HL7 Canada messages
- ◆ Application Management (Ch. 14)
- ◆ Personnel Management (Ch. 15)
- ◆ ... Appendices ...

How does HL7 Messaging work?



What does HL7 look like?

```
MSH|^~\&|PATH|GP123||20000826||ORU|101|P|2.4|34567||AL|NE|AU||en<α>
PID||KNEE123||Knees^Nobby^J^^M||19331215|M||23 Shady Lane^LIGHTNING
RIDGE^NSW^2392||||219171803<α>
OBR|1|PMS6666|956635.9|LFT^LIVER FUNCTION TEST^N270<α>
OBX|1|NM|1751-7^S Albumin^LN||38|g/L|35-45|||F<α>
OBX|2|NM|1779-8^S Alkaline Phosphatase^LN||52|U/L|30-120|||F<cr>
```

Segments ...

```
MSH|^~\&|PATH|GP123||20000826||ORU|101|P|2.4|34567||AL|NE|AU||en<α>
PID||KNEE123||Knees^Nobby^J^^M||19331215|M||23 Shady Lane^LIGHTNING
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```



Segments ...

```
MSH|^~\&|PATH||GP123||20000826||ORU|01|P|2.4|34567||AL|NE|AU||en<α>
PID||KNEE123||Knees^Nobby^J^^Mf|19331215|M|||23 Shady Lane^LIGHTNING
RIDGE^NSW^2392|||219171803<α>
OBR|1|PMS6666|956635.9|LFT^LIVER FUNCTION TEST^N2Z70<α>
OBX|1|NM|1751-7^S Albumin^LN||38|g/L|35-45|||F<α>
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```



Segments ...

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Repeated Segments ...

```
MSH|^~\&|PATH||GP123||20000826||ORU|01|P|2.4|34567||AL|NE|AU||en<α>
PID||KNEE123||Knees^Nobby^J^^Mf|19331215|M|||23 Shady Lane^LIGHTNING
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Repeated Segments ...

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Let's look at a "Segment" ...

```
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Limitations of HL7 V2.x

- ◆ Too much optionality...
- ◆ No explicit information model ...
- ◆ Events and profiles not unambiguous ...
- ◆ Terminology/Vocabularies/Code sets not tightly defined ...
- ◆ Not object-oriented ...

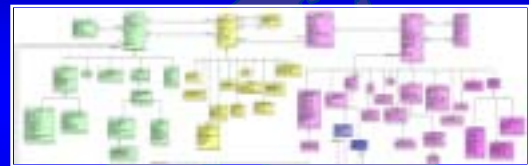


The Promise of HL7 V3

- ◆ HL7 V3 is based on a formal Data Model.
- ◆ Improved precision and clarity, as well as less ambiguity of the specification.
- ◆ Improve adaptability of the spec to change.
- ◆ Allow easier internationalization.
- ◆ *May even achieve "plug & play"!*



The RIM V1.00 - 2001



- 5 Subject Areas
- 207 Attributes
- 48 Classes
- 56 Relationships



V3 Status

- ◆ Version 3 is here!
- ◆ RIM is maturing (V1.10)
- ◆ 1st technical review opened August 9, 2001.
- ◆ V3 has been updated.
- ◆ 2nd technical review ("ballot") March 2002.
- ◆ Publication: early 2003?



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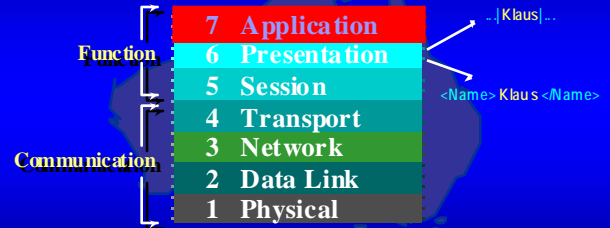


What about XML?

- ◆ eXtensible Markup Language
- ◆ A “sibling” of HTML, derived from SGML - ISO Standard 8879:1986(E).
- ◆ Structure: Name/Value pairs, eg.:
`<Name> Klaus </Name>`



Where does XML fit in?



HL7 and XML

- ◆ HL7 V2.x can be encoded in XML!
 - V2.3, V2.3.1 and V2.4 have XML encoding specifications!
 - Easier to read, but voluminous (~7x)!
 - Cool!?
- ◆ HL7 V3 is committed to XML encoding.



XML Example

Example: Klaus D. Veil

V2.x encoding:

...|Veil^Klaus^D|...

XML encoding:

```
<PatientName>
  <Surname> Veil </Surname>
  <FirstName> Klaus </FirstName>
  <MiddleName> D </MiddleName>
</PatientName>
```



Any Questions?



3rd International Affiliates Mtg.



The HL7 International Affiliates Meeting has become an important annual event on the Global HL7 calendar. After successful and well-attended meetings in Dresden (Germany) and Reading (UK) it is now Australia's pleasure to invite the International HL7 Affiliates and interested guests to meet "down under" to exchange ideas and share experience of the latest international developments in HL7.

The international dimension of HL7 has become an increasingly critical component of the effort to create healthcare information technology standards for global interoperability. The HL7 International Affiliates are strong contributors to this process and are focused on solving the challenges of harmonising a global Standard with local requirements.



4 Meetings in Melbourne, Australia! in August 2002

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
29	30	31	1 August 2002	2	3	4
				CCU Pre-meeting Conference		HSA2002
5	6	7	8	9	10	11
HSA2002		3 rd HL7 Affiliates Meeting		New Zealand?		ISO TC215
12	13	14	15	16	17	18
ISO TC215 Full Meeting						

www.HL7-Australasia.org



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International HL7 Calendar

- ♦ March 14-15, 2002: Asia-Pacific HL7 Conference, Taipei, Taiwan
- ♦ **March 19-20, 2002: Australian HL7 Summit, Sydney, Australia**
- ♦ April 15-18, 2002: ISO TC 215 - WG2, Johannesburg, Sth Africa
- ♦ April 28 - May 3, 2002: HL7 Working Meeting, Atlanta, USA
- ♦ August 7-8, 2002: 3rd HL7 Affiliate Meeting, Australia
- ♦ August 25-29, 2002: MIE 2002, Budapest, Hungary
- ♦ Sept 29 - Oct 4, 2002: HL7 Plenary Meeting, Baltimore, USA
- ♦ Jan 12 - 17, 2003: HL7 Working Meeting, San Antonio, USA
- ♦ April 27 - May 2, 2003: HL7 Working Meeting, Cleveland, USA
- ♦ Sept 7 - 12, 2003: HL7 Plenary Meeting, Memphis, USA
- ♦ May 2004: Europe!



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Q & A

Keep in touch with HL7 developments at:

<http://www.HL7.org>

HL7 Australasia User Group:

<http://www.HL7-Australasia.org>



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