

Summary Report from the Australian/NZ Participants at the HL7 Working Meeting

Memphis, USA, September 7 – 12, 2003

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Background:

Health Level 7 is a multinational health information standards development organisation covering among other things standards for inter-system messaging, vocabulary/terminology, Electronic Health Records structure and Clinical Documents. Australia has been an active participant and has adopted HL7 approach to messaging in many key areas of health informatics. Various Australians/NZers participated in the recent HL7 plenary and working group meeting. This is the third and final workgroup meeting for the 2003 cycle.

This report brings together the key issues covered by the Australian participants. This report was edited by Peter MacIsaac and in some areas summarises issues and groups comments under broad issue headings (since at times more than one of our delegation attended specific sessions due to the requirement for particular expertise). A more [detailed report](#) (from which this was summarised) is available. Other reports will be made available to appropriate HL7 and Standards Australia workgroups and will be available via www.HL7.org.au.

There were 486 registrants including 92 Internationals from 19 countries (Canada: 24, Australia: 12, NZ: 2, UK: 13, The Netherlands: 11). The meeting consisted of 31 Technical Committees and Special Interest Groups and 17 other meetings. The program and descriptions of the purpose of each meeting with the agendas can be found at: <http://www.hl7.org/events/memphis092003/index.asp>.

The HL7 Working Group meetings continue to provide a valuable source of information about international activities, ideas and contacts of great relevance to Australian E-Health activities. The minutes and many of the papers and presentations of the plenary, TCs and SIGs will ultimately appear on the HL7 website. See: <http://www.hl7.org>. This meeting saw ongoing vigorous debate on

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issues, as is to be expected among experts tackling issues at the cutting edge. The old timers noted several times that current issues are reminiscent of the early stages of the HL7 version 2 process! and that process has turned out well.

Plenary Session

The meeting commenced with several keynote addresses covering:

- [Health emergency](#) response information exchange – Centres for Disease Control
- [Patient safety](#) and the emerging US Gov. focus on the Electronic Health Records – Institute of Medicine
- [Agro-terrorism](#) and the role of national veterinary data collections to protect the primary production economic sector – American Veterinary Association
- Analysis of data for [population health](#) - WHO
- A report card on HL7 Version 3 - [Wes Richel](#) and [Woody Beeler](#).

The USA is heavily focused at present on addressing a response to potential Biological Warfare (as well as other terrorist threats) and [early detection of emerging Public Health Issues](#) (e.g. SARS). A number of plenary sessions were focussed on plans by the Centre for Disease Control (CDC) and [WHO](#) to upgrade reporting and surveillance systems to permit early detection and response to such threats. In national emergency situations there is an urgent and somewhat unpredictable change in the way data is managed moving from traditional data flows to other arrangements to meet the timely analysis of data. This highlights the need for use of standards in routine collections and communication to allow rapid rearrangement in times of emergency response. It is proposed to fast track improvements to these systems, which will be based on HL7 messages.

An update was provided by [James Battle \(Agency for Healthcare Research & Quality\)](#) on the progress and activities being made in patient safety since the IOM released its 1999 report, "To Err is Human". In particular, Dr. Battle highlighted the value of the recent IOM report, "Key Capabilities of an Electronic Health Record System". See: <http://www.iom.edu/report.asp?id=14391> He also noted the imminent report of the IOM Data Standards for Patient Safety Committee. This Committee was tasked to produce a detailed plan to facilitate the development of data standards applicable to the collection, coding and classification of patient safety information applicable to both adverse event data and errors data. The report should be available later this month from the IOM Web site. See: <http://www.iom.edu/subpage.asp?id=6659>. (Note: The Institute of Medicine has commissioned HL7 to conduct a review of the Electronic Health Record for the US Government. The Australian [OpenEHR](#) team have been key participants in that process.)

Jim Case from the American Veterinary Association reviewed the [potential for epidemics of animal diseases](#) (natural and bio-terrorism) have the potential to inflict extreme economic damage on any nation both from agricultural industry, national food production and food export perspectives. Surveillance and early response is critical to minimising this impact.

Copies of these presentations are available as hyperlinks and will be posted soon at www.hl7.org

Key Issues and Messaging Standards Update (Klaus Veil)

Version 2.5 has finally been published and will be ready for delivery end of September 2003. V2.5 includes resolution of the issues raised by Australia in pharmacy. All other Australian input to this

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version has been included. Ver 2.5 also contains a radiology order message, which should be of interest to Australia given the process to develop a local standard (University of Ballarat)

The HL7 Version 3 report card presentations demonstrate that considerable progress is being made on this next step and HL7 (as with the early days of version 2) will now focus on implementation and supporting and learning from the early adopters. V3 is being released as components are ready and is being currently implemented (while in draft standard mode) in Canada (claims and clinical), UK and Netherlands, Japan. Version 3 ballot resolution continues, with more ballot cycles expected.

Australia participated actively and was one of the major balloters of V3, to ensure that the design concepts and technical detail is compatible with Australian requirements. HL7 Australia and IT14 will need to review V3 progress and participation of Australia. Dick Harding recently attended the HL7 Inc. board retreat, representing HL7 Australia, to provide an implementers perspective on V3 and its direction. A copy of this report will be available via www.HL7.org.au.

The group of HL7 Affiliates has been further enhanced with the admission of Ireland as a new Affiliate; Poland is in the process of applying. The HL7 Board made further steps to balance the HL7 Affiliates with the USA realm.

Appointments:

Klaus Veil, having served the maximum 2 terms as the Representative of the HL7 Affiliates, was re-elected by the general HL7 membership to the HL7 Board.

Grahame Grieve was elected as a Co-chair of the Control/Query Technical Committee, a core V2.x/V3 Committee.

Peter MacIsaac was elected as a Co-chair of the Medicines Information Special Interest Group (formerly known as the Pharmacy SIG)

Sam Heard continues to serve as Co-chair EHR special interest group

Vocabulary (Peter MacIsaac)

The key internal HL7 vocabulary issues were the ongoing development of the Common Terminology Service to streamline access to HL7 vocabularies. There is a proposal to have HL7 vocabularies distributed internationally via the National Library of Medicine (UMLS). The impact of the recent SNOMED-CT national licence for the USA was discussed and there are key lessons from their experience, which will be referred to the newly formed Australian Classification and Terminologies Working Group. Stan Huff continues work on improving the units of measure code table. He has collated various units vocabularies and is harmonising these with the UCUM system (which provides a way of linking units in a computational manner).

Medication (Peter MacIsaac)

Australia is participating in the Lister Hill project, an international HL7 sponsored working group to align drug terminology building on the experience in US, UK and Australia of building national standard drug terminologies or dictionaries. The Lister Hill group is taking forward the HL7 efforts to develop a comprehensive drug dose forms terminology. A new workgroup (Chaired by Peter

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MacIsaac) is tackling the issue of standards for drug dosage instructions to allow effective e-prescribing, decision support and drug data analysis (Although there are places in the V2 and V3 messages for dosage instructions this is not sufficiently constrained to allow computer processability). The Netherlands are building a national medication record (using a highly distributed data storage model) and have been active in developing messages to query medication records. They will be running a demonstration of their system in November 2003. It is expected that version 3 messages for core Community and Inpatient prescribing, dispensing and administration, and query of a medication database will be complete for the next HL7 committee ballot.

Referrals & Discharge Summary (David Rowed/Steven Chu) - [\(further detail available\)](#)

The ongoing Australian/NZ work on standards for the version 2 discharge/referral message and the content of the electronic discharge referral (joint HL7 and HealthConnect projects) was and there is interest in taking this forward both in V2 & V3. There is considerable complexity in the referral message which has strained the abilities of version 2 and additional work will be required in version 3. There is now alignment on the understanding of the referral issue between Australia, US and Europe (with Australia taking the lead on this issue) which should result in the tackling of several difficult technical issues. These types of summary messages are critical to the development of e-discharge referrals and health records summaries such as the proposed HealthConnect system. Referrals are a key application, which sits in the “no-mans land” between the “messaging” and the “Structured Documents” paradigms. Thomas Beale attended some of the key discussions and notes that this exemplifies some of the underlying tensions between the Version 3 methodology and meeting the needs for clinical functionality in the EHR. An emerging project, which will now be advanced within HL7, is the electronic version of the standard referral pro-forma used by the The Massachusetts Medical Society.

Electronic Decision Support (EDS) and Clinical Guidelines: (Ken Harvey) – [further detail](#)

HL7 Australia has identified the area of decision support as requiring a concerted effort. For the past two meeting Australia has had a delegate focusing on Electronic Decision Support and Guidelines. This meeting has provided an opportunity for collaboration between many of the international leading centres¹ in clinical decision support and to potentially link these in to emerging Australian developments, which have emerged from the recent HL7 Decision Support Standards Workshop. There was strong international support for the proposed project to link Australian drug information resources and an HL7 international reference group has been formed.

Despite effort over some time there are no standards for EDS as yet, however some of the follow approaches are tackling the key issues.

- Both the SAGE & GEM projects are starting to define a list of roles & functions (services) necessary in a parent clinical information (EHR) system to support EDS functionality of executable guidelines. These include services such as scheduling; messaging and alerting service (page, fax, etc.).

¹ Key UK groups such as Imperial College (John Fox) and SCHIN/Prodigy (Ian Purves) were not represented at this meeting.

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- A standard method for representing and executing clinical guideline has yet to be achieved with numerous groups working on individual solutions: SAGE, GEM, PROFORMA, PRODIGY, etc. See: <http://www.openclinical.org/research.html>
- There is a need for a Virtual Medical Record (VMR) to act as an interface between a EDS engine and the various vendor implementations of clinical data repositories; this has not yet been specified. Vince McCauley was co-opted to a Working Group established to further scope and define the links between the medical record and EDSS. Sam Heard presented the OpenEHR work on archetypes and there was general agreement that the modelled context approach has the potential to assist in sorting out some of the difficult vocabulary issues.
- Lack of standards for terminology and units are a problem for interfacing decision support with the VMR.
- There is a need for a standard language by which decision support logic can be expressed to express rules for example.. There are a number of candidates (GELLO and ARDEN) but no consensus.. It was hoped that the planned HL7 Australia decision support project might provide a concrete application which could help progress these issues.

Projects worth noting:

- The Canadian (British Columbian) Provincial Laboratory Project. This will also implement decision support for rational ordering and have agreed to cooperate with Australia in this proposal. (see below)
- The “Decision Support Implementers’ Workbook” First Edition² (draft available)
- Sharable Active Guidelines Environment (SAGE) project – \$18million project in hospitals focusing initially on immunisation. <http://www.sageproject.net>. This project aims for a standard format for representing guidelines a toolkit to build them and a way of integrating them into clinical software (note: these have been the aim of the Australian Integrated Care Project)
- Conference On Guideline Standardization (COGS) project; a Delphi process that produced 18 topic headings that experts thought should be present in evidence-based guidelines. See: http://ycmi.med.yale.edu/co_g_s/co_g_smain.jsp

² Anticipated release, Fall/Winter ‘03

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Pathology/Observations and Orders (Vince McCauley)

HL7 Version 2.5 has been adopted as the Standard for a major international consortium (IHE – includes France, Netherlands, Germany, Italy, Japan) for pathology messaging development (to be completed by mid-2004) and Australia along with Canada has been invited to join this team. This is at least in part due to the work we have put into the soon to be published pathology V2.3.1 standard which addresses many of the international issues.

Progress in V3 for Orders and Observations (O&O) has been slow with the messages still only at comment stage. It is hoped to progress to committee ballot after the next HL7 meeting. Canada has agreed to commit resources to the Lab SIG as part of the British Columbian Provincial Laboratory Project, which proposes to handle electronic pathology ordering as we are doing with Mediconnect. See: <http://www.plco.ca/index.asp>. Much of the committee work was focussed on the use and maintenance of common message elements (CMETS).

One of the backbones of the new bioterrorism and epidemic surveillance system will be the version 3.0 roll-out of the Lab messages.

A further new SIG (Blood bank/Tissue Typing) has also been established along with a new Project for messaging of information from implantable devices (initially focussed on pacemakers but Cochlear Australia are now to be invited to join this).

Electronic Health Records (Sam Heard, Peter Schloeffel, Thomas Beale) – [further detail](#)

The EHR ballot received unprecedented response with many comments to address and the group meetings overflowed with almost a quarter of the whole conference there on day 1. It was agreed to have the next ballot in February, however the local focus on EHR in the US realm is pushing for a faster pace. Sam has suggested that Australia might have a realm ballot of 3 or 4 care settings which are defined for our Australian environment. Doing so has some political implications. Perhaps general practice could be one option --with GPCG cooperation and interest. There will be a great deal of activity on the

EHR SIG over the next few months and we want Australians to monitor some of this!

EHR harmonisation with US and Europe continues with agreement on the ACT level code which defines the hierarchies for the EHR. This is based on the hierarchy proposed in the openEHR and CEN. The hierarchy levels are: EHR / Folder / Composition / Section / Cluster / Element / Data Value.

There was some discussion around the linkages between archetypes and terminology and the role of archetypes to express context. There is also a strongly held view in OpenEHR that archetypes need to be quite independent of specific vocabularies. Canada was particularly interested and wants to come to Australia to have a detailed discussion about the use of archetypes. A standard means of representing archetypes has been developed by the OpenEHR team, the ADL (archetype definition language). This and a technical workbench covering an archetype editor were presented by Thomas Beale and was very well received and conceptually in line with work at Intermountain Health Care. For the moment there are a number of subtypes to cope with the various directions (G2GP and CDA) in HL7.

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Further discussions occurred around the boundaries and definitions of templates and archetypes. Eventually the group arrived at reasonable definitions which are close to what openEHR, however, there were some difficulties due to the ambiguity / lack of understanding of the role of HL7 artifacts - DIMs, RMIMs, CMETs, the CDA RMIM, HMDs, and HL7 templates. These discussions revealed that there are still deep differences between the messaging (v3) and CDA approach to transporting clinical information. Resolution of these tensions will be important as both approaches have something to offer. What did strongly emerge was the clear support of the OpenEHR/CEN approach to archetypes and templates. Although the OpenEHR group have been making presentations for the last few years, agreement seems to have been solidified by some concrete examples such as ADL, documents describing it, test archetypes (including a converted HL7 RMIM), and tools. These seem to have made the whole idea much more accessible to people.

Debate continues on whether the general HL7 v3 messaging methodology is suited to some major applications, notably EHR, referrals, and other point of care systems, where the overall structure of information created cannot be known in advance - only the structure of the pieces can.

The EHR area is rapidly progressing and it will be important for Australia. It may be worthwhile fast tracking the development of either message definitions or archetypes by local teams set up by HL7 Australia, and to locally "ballot" them without the time lag of the HL7 International ballot cycle using the archetype editor.

Clinical Document Architecture (CDA) – Peter MacIsaac

Version 1 CDA is already an accredited standard. Version 2 remains in the ballot process and is likely to be complete in early 2004. The Structured Product Label (SPL) is the CDA derived electronic interchange format for the Approved Product Information which accompanies every drug and it passed committee ballot. Australia made a series of recommendations at the previous ballot, mainly with regard to supporting SPL to be an international standard, rather than a US focused structure. As discussed above CDA is involved in the debates between the messaging, EHR architecture and structured document paradigms.

Current work in Australia on the Hospital Discharge Summary/Referral is receiving support from the structured documents group. Likewise Australian plans to create a standard medical certificate were presented and the relevant HL7 technical committees have agreed to advise. Medical certificates bridge the clinical and administrative domains.

Aged Care and Community Based Health Services (Shahn Williams)

For Community Based Health Services Special Interest Group (CBHS SIG), this was a very positive working week. The committee meeting was well attended by USA participants including three large USA vendors (McKesson, Siemens and Cerner) and a large provider of aged and long-term care. There was much discussion of the Australian use cases and identification of common needs with the USA representatives. The need to communicate between agencies is a key requirement and this should be covered through the work on referral messages. In addition, the need to be able to communicate 'assessment' information was another common requirement identified. The CBHS SIG will continue to develop the use cases via the list serve in preparation for the next meeting to progress these common work areas.

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For San Diego in January 2004, it is expected that there will be around double the number of attendees for CBHS SIG, which will enable the work program to be progressed significantly.

Personnel Management Technical Committee was also very active during this week. Following a number of negative ballots on the previous version 3 work, this Committee reviewed an Information Analysis Model that was developed by Charlie Mead and used domain expert terms. Once this model was validated, it was mapped to a domain RIM model in preparation for balloting in the next round. There will be quite a bit of work over the next two months on the associated documentation that will need to accompany this model into the next ballot. The other exciting achievement was proving that this new method of modelling was successful and will consequently be used by all other HL7 committees in the future. This new approach will allow more domain experts interpret ballot material and not need to understand version 3 language prior to looking at the materials.

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List of Australian/NZ participants and sponsors

Klaus Veil	Department of Health and Ageing – Informatics standards area ³
David Rowed	Department of Health and Ageing – Informatics standards area General Practice Computing Group ⁴
Peter Schloeffel	Department of Health and Ageing – Informatics standards area General Practice Computing Group
Ken Harvey	Department of Health and Ageing – Informatics Standards.
Sam Heard	Department of Health and Ageing – HealthConnect project General Practice Computing Group
Thomas Beale	HL7 Australia, Ocean Informatics
Vince McCauley	Department of Health and Ageing – Quality Use of Pathology Programme
Stephen Chu	New Zealand Ministry of Health, HL7 NZ
Stephen Robb	Orion International
Isobel Frea	Wollongong University (PHD student)
Graeme Grieve	Kestral/HL7 Connect
Adrian Russell	Kestral/HL7 Connect
Peter MacIsaac	Department of Health and Ageing – Information and Communication Division
Shahn Williams	Department of Health and Community Services Victoria.

³ The Department of Health and Ageing funds a small core delegation as part of the Health Informatics standards program. Other areas of the Department may also fund standards participation as required for specific programmes or send Departmental officers as employer sponsored delegates as required.

⁴ The General Practice Computing Group supports GPs involved in standards development work and strengthening the GP informatics workforce.