

Report on HL7 Working Group Meeting —San Antonio USA 12th -17th Jan 2003.

David Rowed.
Chair and GPCG Representative,
IT14/6/6 –Referral and Health Service Messaging.

Background:

HL7 Australia, with partial funding from the Commonwealth, sent a delegation to attend this meeting as part of an ongoing commitment to ensuring Australia's needs are met in the development, understanding, and application of HL7 and related standards. The 10 members of this delegation each had specific objectives related to their represented domains. NZ also sent one delegate, Professor Stephen Chu, who worked closely with us on the IT 14/6/6 Discharge Referral objectives.

Where possible the delegates also supported other members and the general objectives of the group.

I was nominated to attend by IT 14/6/6 whose objectives were agreed by the committee. These centred around:

- Clinical Messaging –particularly Discharge and Referral
- Clinical Decision Support, and
- Community Based Health.

Max Walker of Victoria DHS was also nominated by IT 14/6/6 to address detailed Community Based Health requirements.

My work involved attending Technical Committee (TC), and Special Interest Group (SIG) meetings between 8.30 am and 5pm with some additional specially convened evening sessions. The meetings I attended took place between Sunday 12 January and Thursday 16th January, 2003.

They involved working at the following TCs and SIGs:

- Patient Care,
- Structured Documents,
- Clinical Decision Support,
- Arden Syntax,
- Clinical Guidelines,
- Community Based Health,
- Electronic Health Records, and
- International Committee

The session times, detailed agendas and minutes of these meetings are available at the particular TC / SIG sections on the HL7 website www.hl7.org.

Main Points from the meetings in relation to IT14 /6/6 objectives:

Referral / Shared Care Communications:

We held an extra evening meeting on Monday 13th January to review the CDA work done in Australia/ NZ, and to further plan for working on CDA Referral at the Patient Care and Structured Documents sessions. This meeting was attended by members from Australia, NZ and UK. Our approach to the next few days' meetings was developed.

It was agreed that we should develop a high level UML model of referral in accordance with the process required by the HL7 Development Framework (HDF). The HDF is an evolving robust methodology intended to apply to future developments of HL7 standards. It includes requirements analysis and agreement, high level domain modelling using UML –but independently of the HL7 RIM which may be applicable only later in the process. The referral model was developed at this evening meeting. Our extensive stakeholder analysis through IT 14/6/6 sits comfortably in front of this model within the HDF approach.

Version 2 Referral message:

This work is being driven by Australia. We are working jointly with the Community Based Health SIG and the Patient Care TC on major extensions to the standard. These comprise the changes and requirements resulting from the public comments on the IT14/6/6 Draft Discharge Referral specification. They involve combining the message specified in HL7 Chapter 11 ('Referral' –which has an administrative focus) with all of the separate messages described in Chapter 12 ('Patient Care' –which has a clinical focus) into one general message. This has resulted in an extremely complex message structure which challenge Version 2's capability to satisfy our stakeholder requirements.

I presented the current specification to a combined meeting of the Patient Care TC and the Community Based Health SIG on 14th January.

Our concerns with the complexity of the latest version 2 Referral specification were discussed, along with possible ways of addressing the problems which have arisen from inclusion of all the Chapter 12 segments, together with the need to represent their inheriting contexts. These segments—which can be multiple, optional, and interdependent—cover Problems, Provider Roles, Goals, Pathways and Variances. They can be related by relative positions (complicated by optionality of other segments) or by unique segment identifiers with association mechanisms. The optimal solution to this problem is not clear and the recommendation from the meeting was that we trial both approaches prior to a submission for version 2.6. We have in-principle agreement from the TC in the validity of our proposed extensions.

Version 3 Referral Message.

The Netherlands' Perinatology project was discussed at the above joint meeting. This project includes Shared Antenatal and Referral messaging under Version 3. The DMIMs and RMIMs for this have been developed although the concept of Referral has been represented as in Event mood where as we feel it requires a special Referral mood or at least a 'soft' Order mood.

At the meeting the Netherlands group agreed to work with us on the RMIMs for Version 3 Referral. Their perinatology work to date is not sufficiently general to cover our requirements, and their discharge referral work does not yet align closely enough with our approach. Our combined efforts will be very helpful for shared care messaging for Australian antenatal projects which are under development in a number of our divisions of general practice.

Version 3 CDA (Clinical Document Architecture) Referral Specification.

The HL7 CDA specification is a standard for representation of documents in XML. CDA documents are human readable but structured and therefore also machine processable. They are intended to align with clinician workflow and contain the resultant communication e.g a referral, an outpatient report, a particular type of assessment summary. They are considered to differ from messages in that CDA documents would normally be expected to persist in time, and they are each completely meaningful when standing alone. CDA documents have been shown to have the capability for close alignment with parts of the openEHR specification, but cannot themselves constitute an EHR.

At the last HL7 meeting, Australia was invited to work with the Structured Documents TC on development of Referral under CDA Level 3.

IT 14/6/6 members and stakeholders have recognised this as a key direction for Referral and Shared Care communication. This is even more pressing given the limitations and difficulties we have encountered in clinical messaging under HL7 Version 2.

IT 14/6/6 commenced this work late in 2002, and has been joined by NZ who have been working on CDA in relation to Event Summaries.

I presented our Referral work to the Structured Documents TC and to a specially convened Structured Documents subgroup. Together with NZ, we worked on the CDA shortcomings which we had identified, and prepared a submission for changes to the coming V3 ballot. This will be taken forward through the Structured Documents TC.

Note on Current Status of CDA:

The CDA specification has previously been intended for release under three levels of structural refinement: *CDA Levels 1 to 3*. Level 3 is maximally structured with all document sections, sub-sections, and content derived from the HL7 Reference Information Model (RIM). It is Level 3 which we have targeted for Referral and Shared Care. A recent proposal is to generalise the CDA specification to encompass all 3 levels, the particular expression being controlled by an *HL7 Template*. *HL7 Templates* is at this stage a proposal encompassing a set of requirements and cannot yet be implemented. This work has been done in close association with openEHR Archetype developments.

Archetypes are already being implemented and appear able to provide this functionality required by HL7 CDA and V3 Message specification.

Definition and Representation of Referral:

After discussion of our domain model at the Patient Care TC, it emerged that there are different ideas as to what constitutes a Referral and a definition needs to be agreed. One view is that it can be considered as the act of requesting transfer of care in part or in whole with a level of assumption of acceptance and of responsibility to notify in response, ranging from acceptance /rejection through to ongoing clinical progress. (ie Referral being essentially a Care Transfer related event).

Another view was that it comprises the whole episode from the time of requested transfer to the end of a component of the ensuing shared care. ('Duration of Referral' idea)

Common to all is a key notion of *Responsibility* and its assumed states during the processes around referral

IT 14/6/6 currently defines Referral as the Transfer of Care; this needs to be elaborated despite its acceptance at public comment.

Next meeting:

Referral is to be a main topic for Clinically focussed TCs and SIGs at the April meeting in Cleveland.

Clinical Decision Support, Arden Syntax and Clinical Guidelines.

HL7 Arden Syntax is still the only significant decision support standard in existence. Its latest version 2.1 was accepted in December, 2002 and includes significant enhancements through XML output specifications ('Structured Write'). Work continues on version 2.5 which will be more object oriented and include OO type notations. Arden does not use RIM-derived semantics nor HL7 data types and work is proceeding to bring it into line for future releases. Efforts continue aimed at checking its ability to align with the RIM. Work was presented showing that Arden Medical Logic Modules (MLMs) can be expressed in XML Schema.

The Clinical Guidelines SIG are still looking at the UK based Clinical Practice Guideline Architecture (CPGA) and the US based GEM with its supporting tools ('GEM Cutter' and 'GEM Polisher'). There appears to be little further development in CPGA which was not discussed in any depth at this meeting.

The GELLO expression language is being developed for general CDS use and probable inclusion in Arden version 3. It is essentially a UML OCL (Object Constraint Language) subset.

Work continues around Workflow modelling for Decision Support and Guideline representation. This is being driven by the Stanford group and is drawing on other international developments, particularly the WfMC (Workflow Management Coalition).

The Clinical Decision Support work is still held back by a focus on competing solutions some of which relate to existing standards. We have argued at this and previous meetings that the CDS, and particularly the Clinical Guidelines developments, need to proceed in accordance with the HL7 Development Framework (HDF) (as we are doing with Referral). This would change the emphasis to that of achieving agreed requirements, followed by high level modelling, and finally detailed specification probably, but not necessarily, involving RIM semantics and HL7 data types. The current path is the reverse of this although there is now an increasing awareness of the need to change the approach.

The International Forum

This meeting was held on the Sunday 12th January.

The international representation at HL7 continues to grow. It is of increasing importance to us as much of the clinical development we are doing is more closely in line with that of the international community than with that of the dominant US players. This is particularly true of Discharge, Referral and Shared Care, EHR, CDA as applied to clinical communication, and Community Based Health.

Community Based Health SIG (CBH SIG).

This SIG was essentially set up at Australia's request following our gap analysis which showed HL7 did not properly address our requirements for non-hospital based clinical communication. We hold one of the co-chair positions on the SIG but have had difficulty with ongoing representation.

Max Walker of Victoria DHS represented IT 14/6/6 for the CBH SIG work at this meeting. The Victorian requirements around Community and Mental Health were worked through and will be further developed prior to the April meeting

Other Community Health requirements are being developed principally by NSW and Victoria as IT14/6/6 projects—first as requirements and then as HL7 message proposals. Prominent in these are Legal Status, Consent and Mental Health communication. Work is continuing to ensure these are adequately represented in the RIM.

Conclusions:

We are increasingly effective in influencing HL7 and the addressing of Australia's requirements for interoperability standards in clinical care. This is noteworthy given our requirements for extra-hospital communications in environments different from that which has historically driven the US focussed development of HL7.

Our Version 3 Discharge Referral standard will be one of the first developments carried out in line with the HL7 Development Framework (HDF). This is consequently gaining additional interest and support from the Patient Care TC and members of the HDF group.

The Discharge Referral specification will be a major enhancement to the Version 2 message and is on course for inclusion in Version 2.6. It will be the only significant clinical care message developed and used in Version 2 and consequently has strong support from the Patient Care TC. To be acceptable to HL7, it needs to be 'Version 3 aware' ie translation to V3 must be straight forward and all concepts aligning with RIM semantics. Our parallel V3 and CDA development will help us meet this requirement.

Our CDA version of this will position us for complex clinical communications well into the future and we are benefiting from the support given us by the Structured Documents TC at HL7.

Arden Syntax is still the only available standard for groups wanting to implement Clinical Decision Support. It will be considerable time before the guideline work matures to a balloted standard able to meet our clinical practice needs.

Recommendations based on above activities:

IT14/6/6 should:

- Review the two approaches to the context / interrelationship problems of the clinical segments in the Version 2 Referral message;
- Request that stakeholders wanting to use these segments work with developers in assessing the implementation feasibility of these approaches.
- Investigate the implications of recommending that HL7 Version 2 Chapters 11 and 12 be combined into one for Shared Care messaging of which Referral and Discharge are specific instances.
- Continue development of CDA implementations for Referral, Discharge, Shared Care and Event Summaries.
- Work with HL7 NZ, and the Netherlands Perinatology project on development of the RMIM for Shared Care, Discharge and Referral.
- Continue to work towards a solution to the vocabulary needs of messaging across different care domains.

The Australian Clinical Communities and Govt Outcome-focussed Groups should:

- Identify priority application needs in Clinical Decision Support and Guidelines
- Assess Arden Syntax as a potential solution and implement accordingly
- Assess HL7 Guideline developments against needs
- Communicate needs, articulate objectives, and ensure Australian representation at HL7 CDS sessions.

In addition to these specific recommendations to the groups mentioned, I also recommend that the overall objectives and representation at HL7 continue and that we also continue to support advanced technical expertise through ongoing attendance at RIM harmonisation and other specifically focused HL7 meetings as they arise.

It is important that there be dissemination of knowledge learned at HL7. As the Australian HL7 meetings have proven successful, they should continue as a key element of this strategy.

David Rowed.

16th February, 2003.