Report to HL7 Australia:

HL7 Plenary Working Group Meeting,
January 18th -23rd, 2004.
San Diego. CA. USA.

David Rowed.
GPCG Representative, and
Chair IT 14/6/6 -Referral and Health Service Messaging.

This, the first of HL7's 3 Working Group meetings for 2004, attracted around 600 delegates. My attendance was supported by the Commonwealth via HL 7 Australia, with additional funding from GPCG and from my medical practice.

Objectives:
My principal objective was to work on clinical communication in the areas of Discharge Referral and Shared Care, together with aspects of Community Based Health. This parallels the work being done within Standards Australia's IT 14/6/6 Working Group and involves HL7 Messaging Versions 2 & 3, together with Version 3 CDA.

Additional objectives were to attend working group meetings relevant to HL7's applicability to Australian patient care with a view to assessing, and where possible influencing, this work.

Background.

See my report on the September 2003 Working Group meeting for background of HL7 and its general relevance to clinical IM & T in the Australian health sector, particularly in primary and community based care.

As noted then, HL7 Version 3 is radically different from its version 2 and is still under development; it has not yet been shown to be easily implementable for the clinical messages we need.

The Clinical Document Architecture –*CDA* is a V3 specification and uses the V3 Reference Information Model (*RIM*) and HL7 data types. It is claimed to be different from messaging in that it specifies documents which are human readable, standalone, intended to persist indefinitely, express authorship, responsibility, and versioning. The architecture aligns with the inner components of openEHR and specification of document types is intended to be by *HL7 Templates*. Such specification is already achievable by Archetype technology which is strongly influencing, and may ultimately subsume, HL7 Template development.
CDA is important for our Referral and Shared Care communication and is being worked on at IT 14/6/6 in addition to V2 and V3 messaging.

Specific Areas of HL7 Relevant to Australian Clinical Practice.

HL7 is being developed to cover a wide area of Health Standards, — much more than messaging. It is important to note that it is fundamentally implementation-focussed, with strong requirements driven from both vendors and users.

The work of most importance to clinicians is currently being done by the following TCs and SIGs:

- *Patient Care,*
- *Electronic Health Records,*
- *Community Based Health,*
- *Patient Safety,*
- *Clinical Decision Support,*
- *Clinical Guidelines,*
- *Arden Syntax,*
- *Vocabulary,*
- *Medications,*
- *Orders and Observations,*
- *Structured Documents,*
- *Templates,*
- *Clinical Context Object Working Group / Visual Integration (CCOW),*
- *Modelling and Methodology*
- *CMETS, and*
- *Control Query.*
- *Paediatric Information,*
- *Public Health—proposed SIG (discussed below)* .

To adequately cover these requires a coordinated team of delegates as we had for this meeting.

Meetings attended.

The main meetings I attended ran from the Sunday to the Friday. These were:

- Patient Care Technical Committee, which has prime responsibility for Referral.
- Community Based Health –a special interest group (SIG) sponsored by Patient Care.
- Orders and Observations.
- Structured Documents Technical Committee, which is developing CDA and facilitating our utilisation of Referral in that form.
- The International Affiliates Meeting on the Sunday.

I also convened our regular extra meeting on the Monday night for Referral development.

Other out-of-session and ad hoc meetings were attended covering international shared clinical information projects, and discussions to gain support and facilitate inclusion of our proposed version 2.6 extensions (discussed below).

The International Affiliates Meeting.

This is always held all day on the Sunday before the week's technical committee work gets underway.
It is important as the international developments align more closely with Australia's clinical information requirements. This group consequently provides coordination and support for our needs in the HL7 standard.

Kai Heitmann from Germany is the new chair of this group.

Woody Beeler gave an update on version 3 status emphasising the need for early adopters and their planned coordination. The message development approach is moving towards the new MIF (Model Interchange Format). Attempts are being made to harmonise templates and models, with Jane Curry of Canada coordinating this work which will look at EHR models in relation to those currently based on the HL7 RIM.

The group looked at the work of the Process Improvement Committee which is developing better practices for the HL7 technical committees and the organisation overall.

Topics of particular importance to the internationals were presented and discussed. They included:
Latest developments in EHR requirements (functional model, care settings, addressing different committees' needs), medication representation and messaging, CEN / ISO / HL7 cooperation together with harmonisation and common reusable artefacts (CMETS / GPICS, data types). The RIM is a balloted standard, and CEN developments on service request and referral are taking place according to models which are now in close alignment.

SNOMED licencing and distribution arrangements were discussed with ongoing consideration of uptake outside of the US.

HL7's chair Mark Shafarman emphasised HL7's extension beyond messaging and described the current RIM support for EHR. Important developments are specific RIM representations including class codes for documents and organisers. UK work on the RMIM for CEN 13606 basic constructions was also illustrated as one such important application.

There were Presentations and discussions of projects by HL7 international groups.

France is a new international affiliate.

SNOMED-CT is being looked at for national use by Netherlands NCTIZ group. A report of this is available in English. They recognise a need to do further trials and research into its use in Shared Care.
NICTIZ is increasingly focussing on Version 3 for clinical messaging. They are developing standards for primary care EHR exchange, stroke service care integration, and generic chain of care communication.
They work with us on Version 3 Referral and the 'Patient Care Message' which they are using in their shared care perinatology project.

Mexico is developing a primary care EHR, together with clinical messaging for haemodyalisis and organ transplantation.

Germany is developing a National Health Telematics Platform. This mandates HL7 Version 2.5. It has also mandated the RIM where applicable, and is still assessing CDA and Version 3 messaging.
The German SCIPHOX CDA project is continuing. This includes discharge / referral and has been reported on previously.

The meeting then covered administrative issues for the International Group.
These included financial support for international activities/affiliates, co-chair numbers, plans to hold a working group meeting outside of North America, and the next CDA and HL7 International meetings.

Australian and NZ Version 2 New Referral Requirements:

Combined Orders and Observations TC, Patient Care TC, and Community Health SIG.

This quarter day session had been arranged at our request to look at significant extensions to the Version 2 standard required by IT 14/6/6 in order to represent clinical history, clinical information context, and relationships between clinical concepts. We are working to have these included in Version 2.6. They are necessary for structured information conveyed in referral, shared care, and event summary communications. Our usage to be supported by these changes is very different from existing HL7 version 2 operation and involves areas of the standard under the control of the Orders and Observations TC. These proposed changes are the result of much iteration by IT 14/6/6, including its responses to public comments on limitations of clinical expression and relationships in the earlier Version 2 Referral message. We have made many attempts to represent this information using conventional V2 structures, always resulting in undue complexity, compromise, and potential ambiguity. We have come to use concepts learned from our involvement in Version 3 development, and have applied them in our V2 extensions to overcome these problems. They form the basis of our proposals.

I presented our requirements, the relevant limitations of V2, and our V 2.6 proposals to:

- Extend the codes within ORC-1 to represent contexts, moods and tenses (cf Version 3).
- Use the OBR segment as a grouper / health history heading (cf CDA).
- Use Clinical LOINC in the OBR headers, and as a subsidiary header in OBX-3.
- Use OBX in a new way --to allow it to relate segments to each other (cf ActRelationship class of V3).
- Extend the data types within OBX-5 to represent pointers to these segments.
- Extend some segments to include instance identifiers in order to act as targets of these pointers.
- Work to find a 'kludge' solution to instance identifiers for OBX segments without the politics of having to extend this universally-used structure.

All this would allow us to take version 2 into a whole new area which is considered the province of V3, but for which V3 has itself not yet been shown to be workable.

We anticipated problems having these accepted on the grounds that they would threaten the uptake of V3. This argument was raised as expected and we countered with:

(i) Our proposals would smooth the transition to V3;

(ii) Our stakeholders have been adamant that they require a V2 solution for this type of clinical communication.

After considerable discussion, and in recognition of the importance of this message, we obtained support and a recommendation to go even further with the proposal:

1. To develop a pure relationship segment (although optimal, we had previously dismissed this as unlikely to gain support).
2. To propose this as a Patient Care (our committee) segment on the expectation that approval would then be smoother.
3. To extend all segments (including OBXs) to include
    a. Instance identifiers,
    b. Mood codes.

This was more than we had requested and we subsequently worked through it at the Monday night informal Referral subgroup meeting. There we:

- Developed a set of mood codes which expressed the conditions we had identified and then extended this to include a subset of the V3 mood codes for which we could find use cases.
- Identified the required content and laid out the design of the new Patient Care relationship segment. Its fields were decided to be:

This, together with appropriate data types, would be taken back to IT 14/6/6 for further refinement. IT 14/6/6 would also develop the proposals and formalise the other segment extensions required.

Version 3 Clinical Information Representation --The 'Clinical Statement':

Relationship Type
Relationship Instance Identifier
Outbound/Source Segment Instance ID
Inbound/Target Relationship Instance ID
Asserting Entity Instance ID
Assertion Date
Negation Indicator
Certainty
Priority No (relative ordering, workflow: plans etc)
Priority Sequence No (relative preference for consideration)
Separability Indicator.

Combined Patient Care TC, Community Based Health SIG, Orders and Observations TC, and Structured Documents TC Meetings to address Clinical Content.

These four committees met for three quarter day sessions. Originally intended to take one such session it was necessary to expand to three.

The Version 3 modelling of the Referral message has led to the 'Patient Care RMIM' developed within IT 14/6/6 by Heath Frankel. It is complex, having to represent clinical history, concepts, and relationships in RIM-patterned classes. Recognising that it was not yet ready for *normative* balloting, IT 14/6/6 and HL7 Australia decided to publish it as *informative* in order to draw comment, and to form the basis for further development.

Other groups within HL7 have found the need for similar clinical content in their messages / documents. The Orders and Observations *Supporting Clinical Information*, the CDA *Sections*, relevant clinical information in the Public Health Reporting message, and the UK's *GP-to-GP* project have all attempted to do this from different perspectives, and to different levels of detail. The UK will also use this type of content in HL7 V3 communications for its new shared EHR project.

Criticisms of the recent ballot stemmed from the fact that there were different, unrelated ways of representing this patient clinical information.

It was agreed that a common approach was required, and that the committees present should undertake the development. All the current HL7 models-in-progress which addressed this were looked at, and it was agreed that the relevant section of the CDA

Release 2 specification could be made more generic by removal of the document-specific relationships. This would then form the basis of the common approach and be further developed by the committees.
It was not decided whether the final product would be a specific re-usable RMIM or a set of more general artefacts to be tailored to requirements of the groups.

This is a very positive outcome for us as it addresses the area that we have found most difficult with referral and shared care development, and which has been a major impediment to our acceptance of V3. IT 14/6/6 should support this work and ensure it includes all the content of the Patient Care RMIM.

Structured Documents TC.

We continued to work on referral requirements and changes to the CDA standard for referral, and discharge referral in particular.
We were able to report on the very detailed Australian GP Hospital Discharge requirements and their extensive mapping to HL7 V2 and to CDA (release 2). This has been done through Health Connect and Stephen Chu's work in NZ.

IT 14/6/6 is working on a CDA standard for Discharge Referral and Shared Care. We have kept options open regarding V3 messaging for this. We have adopted the strategy of a common development path for CDA and V3 messaging although the validity of this has been challenged by members of the Structured Documents TC on the basis of the different dimensions to messaging and documents.

Lloyd Mackenzie, one of the principal developers of V3, has released a discussion paper drawing attention to the mixing of data content and other presentational and structural information within the CDA specification. He argues that they can and should be more separate. The TC did not take a clear position on this and there was certainly no clear immediate agreement with his view. This idea will be developed further.
In subsequent discussions with Lloyd he shared our view that, concentrating on the data content of CDA would enable commonality of development with V3 messaging.

Community Based Health SIG
This group, which we effectively set up, is under the sponsorship of the Patient Care TC. Max Walker from Victoria DHS is our IT 14/6/6 representative and was elected co chair. There is increased interest in this group from the Massachusetts Continuum of Care group which is developing shared care communication via CDA and aligning it with the Australia and NZ work. The SIG will continue to work on Referral and edit the Chapter 11 proposals for V2.6. It is continuing to work on Australian Community Health requirements.
This SIG also works on direct home care monitoring—an important area which has no Australian HL7 involvement.

Public Health Reporting.

Members of the Patient Care TC and Community Based Health SIG held an out-of-session meeting with groups who have expressed interest in using the V2 Referral message, and the clinical content of the V3 Patient Care RMIM (now to be subsumed by the Clinical Statement model) for notifications and public health reporting. We decided that a SIG should be formed for this and that it should also be under sponsorship of Patient Care. This development will progress off-line after the meeting.

CONCLUSION:

This meeting was especially valuable for IT 14/6/6's work on Clinical Communications covering Referral, Discharge / Event Summaries, and Shared Care messaging.
It provided us with endorsement of, and additional recommendations for, the new directions in which we are taking Version 2.6.
It arrived at an approach to overcoming our key stumbling block of developing reusable artefacts for the clinical information and health record components of our V3 and CDA communications. More key players have been mobilised for this and work has commenced under the 'Clinical Statement' work item across key TCs: Patient Care, Structured Documents, and Orders / Observations.

RECOMMENDATIONS:

IT 14/6/6:

We should refine the above proposals for Version 2.6 and have them in acceptable form for submission to the TCs and chapter editors in advance of the May Working Group meeting.

We should work on the Clinical Statement with the TCs as described. This requires ensuring all our clinical history, relevant clinical information, and run-time specifiable relationships are supported. We should ensure that all the capabilities of the Patient Care RMIM are retained.

We should continue with our approach of common development paths for CDA and V3 messaging. Associated with this, we should further investigate the idea of separation of data content from presentation and other information in CDA Release 2 documents.

General:

Electronic clinical communications, in line with long-established work practice, are increasingly including health record information which follows implicit HL7 Version 2 models, and in future will follow the V3 RIM. We have now brought V3 RIM concepts into V2. These communications will be between systems which will accept, store, manage, and expose clinical information according to EHR models. It is imperative that we ensure that such information can be handled smoothly and without loss or corruption in these different application spaces.

We need now to look at the referral and shared care communication standards we have developed, together with those we are developing, in order to ensure interoperability with EHR systems. This needs to be a common work item for all of the Australian groups involved in such work, and particularly for IT 14/6/6 and IT 14/9.

David Rowed.

24th February, 2004.