EDIFACT Messaging: Enabling Laboratory to General Practitioner Exchange of Pathology Reports

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EDIFACT (Electronic Data Interchange For Administration Commerce and Transport) is being used for transmission of laboratory reports to General Practitioners (GPs) in the UK. There is a need for mechanisms to allow sites using different clinical systems to manage this in a safe and consistent way. This poster describes the methods used, including work undertaken to create a professionally refined list of codes for use in messages, and efforts to enable compatibility with international standards.

Infrastructure

The NHS Information Strategy is committed to transferring all pathology test results to primary care by electronic messaging by the end of 2002 1. To enable this several key technologies are required. A national network infrastructure is being installed linking all 10,000 primary care centres and 200 laboratories to the NHSNet. Over this infrastructure will run a messaging service based on EDIFACT and X.400 protocols. The messages are to be encrypted using PKI algorithms supported by centrally managed encryption services. At the message content level a national coding standard is required to allow seamless interchange of data.

Code Sets.

In the UK three versions of the Clinical Terms (The Read Codes) are currently in use in clinical systems. In order to maintain inter-version compatibility, and ensure consistent use of codes an initial “bounded list” of approximately 300 codes for laboratory results, consistent across all versions was produced. This was piloted in three hospitals and approximately 20 GPs. Feedback from this pilot was positive, but suggested that additional code were required. Analysis of textually identified investigations (implying the absence of a suitable code) and specific requests from participating laboratories provided a user-driven source of terms for consideration to be added to a revised ‘Laboratory Messaging Subset’. From this list suitable terms were identified jointly by representatives of the Royal Colleges of Pathologists, General Practitioners and the NHS Information Authority. The criteria for inclusion being terms which could be adequately semantically defined according to the CEN TC251 pre-standard ENV1614 2 (Figure 1) Finally metadata fields to specify the usage (e.g. reporting, requesting) and the results type (e.g. numeric, ratio, text) were populated.

Figure 1: Simplified ENV1614 diagram.

Relationship to other standards and vocabularies

One of the major challenges in code development is to deal with the interaction between the message structure and the message content. As well as rebuilding the code lists we have adopted a new approach to professional agreement of the message standard by using an open internet discussion site to negotiate and agree the standards (Issues Resolution Forum) 3.

It is envisaged that in the future new HL7 4 and/or XML standards may emerge to supersede the EDIFACT syntax. The code standards being employed would be fully consistent with such future developments and should allow a smooth transition as the fully functional electronic health record develops.

Of the six components within a LOINC 5 name, four (System, Component, Property and Observation procedure) map to elements within the ENV1614 pre-standard. With the coded clinical terms in use in messages being definable according to ENV1614, this will facilitate compatibility both with standards being developed in Europe and in the USA.

References

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3. http://www.leeds.ac.uk/acb/IRM
4 http://www.hl7.org/
5 LOINC Users Guide release 1.0N, 02/04/2000