

# Refinement of the HL7 EDS Work Plan

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# Overview




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- Task List & Prioritisation
- Task 1, Priority 1:
  - Standards for data exchange
- Task 2, Priority 2:
  - Medicines terminology
- Deliverables (Task 1)
- Timelines
- Conclusion



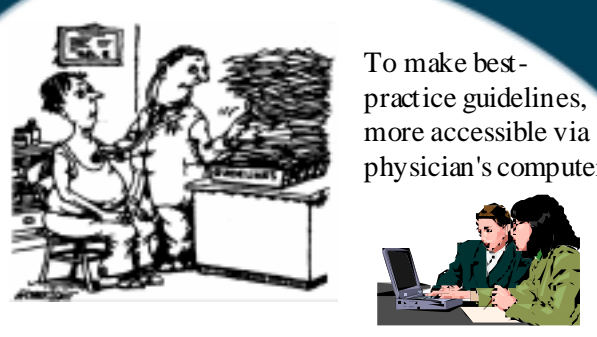
# Background: 1978-1997 CD-ROM project




Royal Australian & New Zealand College of Radiologists, Imaging Guidelines



# The Vision: 1997




To make best-practice guidelines, more accessible via physician's computers.

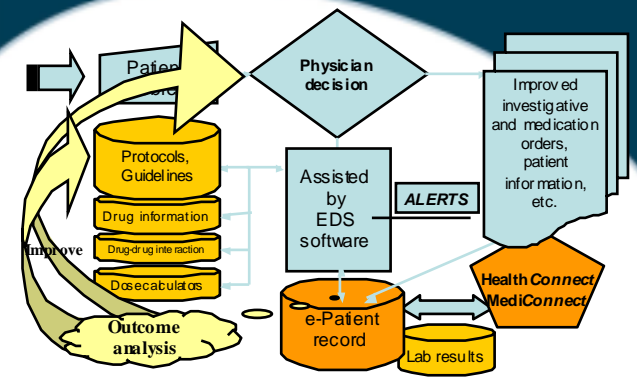


# Subsequent events

May 1999	Commonwealth CDROM project abandoned
Sept 1999	GPCG DS workshop in Canberra
Nov 1999	NHIMAC Health Online "Action Plan"
Aug 2000	1st National Health Online Summit
Sept 2001	NHIMAC Health Online "Action Plan"
Nov 2002	NEDST Report, "Electronic Decision support" and "Action Plan"
Mar 2003	2nd National Health Online Summit in Brisbane
Aug 2003	HL7 Australia DS workshop in Sydney
Aug 2003	ACSQHC-NPS E-prescribing workshop in Sydney
Dec 2003	HL7-ACSQHC-NPS-DoHA EDS workshop & draft "work plan"
April 2004	HL7 EDS "work-plan" submitted to AHIC EDS SC
May 2004	NPS RADAR (PB S) material integrated into 4 GP software packages
June 2004	HL7 "work plan" refined and presented to AHIC EDS SC



# QA approach



The diagram illustrates a feedback loop for quality assurance. It starts with 'Patient records' (represented by a cylinder) which feed into 'Assisted by EDS software'. This software is supported by 'Protocols, Guidelines', 'Drug information', 'Drug-drug interaction', and 'Dose calculations' (represented by stacked cylinders). The software outputs 'ALERTS' and 'Improved investigative and medication orders, patient information, etc.' (represented by a stack of papers). The 'e-Patient record' (cylinder) and 'Lab results' (cylinder) also feed into the 'Assisted by EDS software'. The final output is a 'Physician decision' (diamond). A feedback loop labeled 'Outcome analysis' (cloud) returns from the physician decision to the 'Assisted by EDS software' to 'improve' the system.

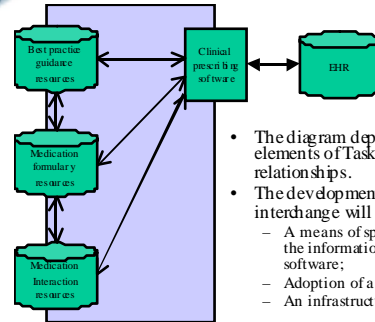


## Work Plan: tasks & priority

Task	Priority
1. Standards for data interchange between current electronic best-practice medication and therapeutic resources and clinical (prescribing) software.	1.
2. Standards for identification of medication and clinical problems/diagnoses required for data interchange.	2.
3. Standards for medication formulary (monograph) representation which incorporates sufficient identifiers to enable lookup.	2.
4. Standards for electronic guideline (and care plan) representation to enable knowledge and work flow to be more readily incorporated into decision support systems.	2.
5. Standards for data exchange of medication-medication interaction data and the development of standard content for common and serious medication-medication interactions.	3.



## Task 1: Standards for data exchange



- The diagram depicts each of the various elements of Task 1 and their inter-relationships.
- The development of standards for data interchange will require:
  - A means of specifying interactions between the information resources and the clinical software;
  - Adoption of a suitable technology; and
  - An infrastructure to enable implementations



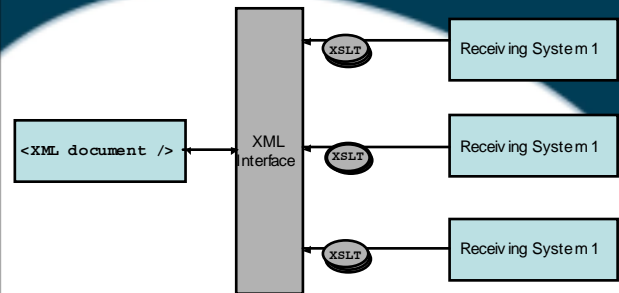
## Specifying the interactions



- We propose using an expanded XML Interface (XI) that has already been used to successfully integrate the RADAR therapeutic knowledge resource into GP prescribing software



## Adoption of suitable technologies



- We propose the use of XML and XSLT technologies as the principal access mechanisms to the interface.

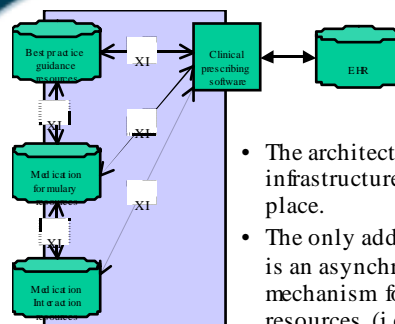


## XML Interface

- [XI test site – online](#)
- [XI test site – local](#)



## Infrastructure to enable implementation



- The architecture proposed uses infrastructure that is already in place.
- The only additional requirement is an asynchronous distribution mechanism for each of the resources. (i.e. distribution)

## Evolving the infrastructure

The diagram illustrates the flow of information and integration. On the left, three 'Web service' boxes are shown, each containing a 'Medicine prescribing software' component. These are connected to a central 'Clinical prescribing software' box, which is in turn connected to an 'EHR' box. A 'DS guidance provision' box is also shown, with arrows pointing to the 'Clinical prescribing software' and the 'Web services'.

- Web services will ultimately become the means for achieving integration
  - The initial interface can be evolved to become web service enabled
- The technology required for web services is currently in place and in day to day use in non-health domains.
- The requirement in the health domain is a scaling up of resources and availability.
  - i.e. The technological problems have been solved

## Task 2: Medicines Terminology

- Unique Identifiers
- Standard Description
- Core defining characteristics
- Accurate & shared core product description

## Task 2: Medicines Terminology

The flowchart shows the process of creating medicines terminology. It starts with 'ACOM (EAN NET)' (Product + GTIN, barcode, link to supply chain) and 'Medicines Terminology' (Hierarchical classes with unique identification at 6 levels). These are combined with 'Messaging Standards' (Classification, EDS Standards, Drug-Drug Interactions, Allergy and Alert Codes, Disease classifications) to produce 'OUTCOMES' (EHR, EDS, E-Prescribing, Supply Chain Reporting). A 'Barcode' is also shown as an 'OUTPUT'.

The diagram shows the central role of 'Terminology (e-dictionary)'. It is connected to 'Record Structure' (Provides context), 'Knowledge Resources' (Concepts are derived), 'Product Catalogue' (Updates), 'Information model' (Used by), and 'Classifications' (Maps to).

## Conceptual Model - A&NZ Medicines + Devices Terminology

The conceptual model shows the relationships between different levels of product representation. 'Virtual Therapeutic Moiety (VTM)' is linked to 'Brand-Family Group (BFG)'. 'Virtual Product (VP)' is linked to 'Actual Product (AP)'. 'Virtual Product Pack (VP)' is linked to 'Actual Product Pack (APC)'. 'Ingredient' is a key element, with 'active' and 'Key excipient' relationships. 'Dose form', 'Strength', and 'Unit dose type' are also shown as attributes of the Virtual Product.

## Deliverables (task 1): short term

- Within **3 months** of establishing the project team we will have established proof of concept of the expanded XML interface by embedding trial topics of *eTG Complete* in a test-bed clinical computer system (McCauley Software Pty. Ltd).
- Within 6 months, given approval by the TGL Board and by commercial GP software vendors, we will have a subset of content equivalent to 10% of *eTG Complete* embedded in two of the four leading GP prescribing packages.
- In addition, given the co-operation of the Australian Medicines Handbook Pty. Ltd. and commercial GP software vendors we will also have the electronic version of *Australian Medicines Handbook* embedded in the same leading GP prescribing packages.



## Deliverables: medium term

- Within **12 months** of commencing we will have content equivalent to 2 books of *eTG Complete* embedded in 2 of the 4 leading GP prescribing packages.
- We will also be working with the Health Connect electronic health record (EHR) team on extracting items such as age, sex, weight, allergy status, etc. from a “virtual medical record” to demonstrate a working prototype of Task 1.2.
- We anticipate exploring the use of openEHR Foundation archetypes for this and related purposes (Dr. Sam Heard, et al. and Ocean Informatics) as well as leveraging the availability of a Clinical Context Object Workbench (CCOW) server in NSW as part of the recent EHR tender, won by a consortium including Orion systems



## Deliverables: long term



- Over 3 to 5 years we would anticipate that our team would be servicing a number of other information providers (both Australian and international) and integrating their content on a regular basis as envisaged in Appendix I of our work-plan.



## Timelines: first 12 months



## Conclusion



- Our aim is not only to achieve important deliverables in a staged and timely manner but also to build the capacity and linkages necessary to further develop EDS and assist the numerous information providers who need to integrate best-practice resources into clinical software in a standard manner.
- We support the formation of a cross-jurisdictional “Best Practice Reference Centre” recently suggested by the Boston Consulting Group as part of a new independent “National Health IM/ICT entity”.
- We believe that such a Centre would have considerable export earning potential.

# Thank you



## Resources required

Task	Requirement	Effort	Resource
1.0	X1 supporting software	12 weeks	Developer
1.1a	Development of X1 for TG and AMH	39 weeks	Developer
1.1b	Development of X1 in a prototype prescribing system (MED base from McCauley Software Pty. Ltd.) with extension to other large commercial vendors	15 weeks	Developer
1.2	Development of X1 for EHR data	30 weeks	Developer
2.0a	Coding professional to confirm coding process (via liaison with NHCC)	12 weeks	NHCC coder
2.0b	Development of sustainable cost assignment process (and supporting software)	9 weeks	Developer
2.1	Editorial staff (with pharmacy knowledge) to assign codes to AMH	20 weeks	Pharmacist/editor
2.2	Editorial staff (with pharmacy knowledge) to assign codes to TG topics	45 weeks	Pharmacist/editor
A.1	Documentation and support of deliverables	15 weeks	Developer
A.2	Specialist medical advice	4 weeks	Medical consultant
	Project management (0.75FTE)	39 weeks	IT / IM Management
	Administration staff (0.5FTE)	26 weeks	Admin



## Investment required

Resource	Rate per week	Rate per hour	Effort (weeks)	EFT	Total
Medical Consultant	\$5,000.00	\$125.00	4	0.08	\$20,000.00
IT & IM Project Manager	\$3,400.00	\$85.00	39	0.75	\$132,600.00
System Architect / Developer(s)	\$2,800.00	\$70.00	120	2.31	\$336,000.00
NHC Coder	\$2,000.00	\$50.00	12	0.23	\$24,000.00
Pharmacist Editor	\$2,000.00	\$50.00	65	1.25	\$130,000.00
Administrative support	\$1,000.00	\$25.00	26	0.50	\$26,000.00
Travel (Mel-Can-Syd-Adel-Bris)					\$12,500.00
Sub total			266	5.12	\$681,100.00
Plus GST @ 10%					\$68,110.00
TOTAL					\$749,210.00