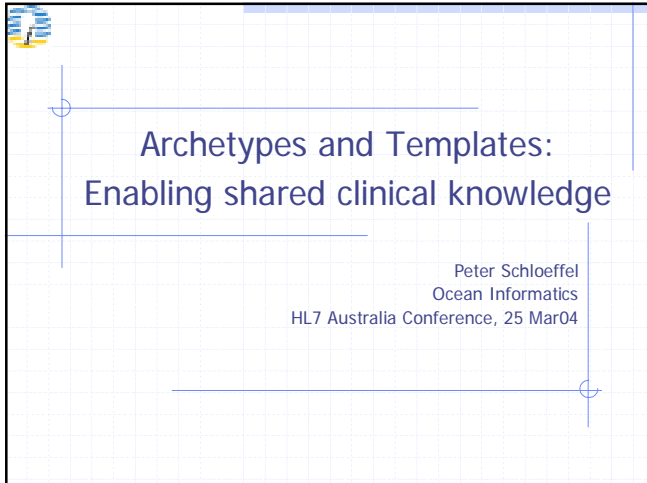


Archetypes & templates: Enabling shared clinical knowledge

Peter Schloeffel, HL7 Australia Conference, Melbourne, 25 May 2004



Benefits of interoperability standards

- ◆ The 3 big benefits of health information interoperability standards
 - ◆ Reduced medical errors -> improved patient safety
 - ◆ Better quality care -> improved health outcomes
 - ◆ More efficient care delivery -> reduced costs
- ◆ These benefits are fundamentally dependent on the ability to share patient information:
 - ◆ between different applications within a single CIS
 - ◆ between different clinicians at a single location
 - ◆ across different locations and clinical systems

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Requirements for interoperability

- ◆ Standardised Reference Information Model
 - ◆ Semantics of information structure
- ◆ Standardised Service Models
 - ◆ Semantics of interface to EHR and other services
- ◆ Standardised Archetypes and Templates
 - ◆ Definitions of domain concepts and constrained groupings of these concepts
- ◆ Standardised Terminology
 - ◆ The language of health

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What is an Archetype?

- ◆ Dictionary definition - a model or prototype
- ◆ *openEHR* archetypes are models of clinical or other domain-specific concepts
- ◆ They define the business rules (constraints) for valid values of a concept
- ◆ May define simple concepts such as 'blood pressure' or 'address', or more complex compound concepts such as 'biochemistry results' or 'family history'
- ◆ Use terminology to identify archetype components

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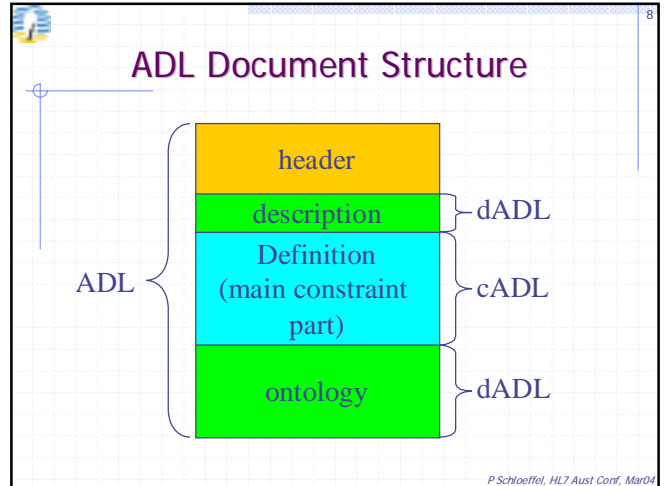
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The language of archetypes

- ◆ Need a formal language to express archetypes
- ◆ ADL (Archetype Definition Language)
 - ◆ A new language specifically for archetypes
 - ◆ Developed in Australia by Tom Beale & Sam Heard
 - ◆ Archetypes expressed in ADL resemble programming language files
 - ◆ ADL has 3 component syntaxes
 - dADL – describes data within the archetype
 - cADL – expresses structured constraints
 - “gADL” – the “glue” syntax which combines the archetype components
 - ◆ Also a template form of ADL (tADL)

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Why yet another KR language?

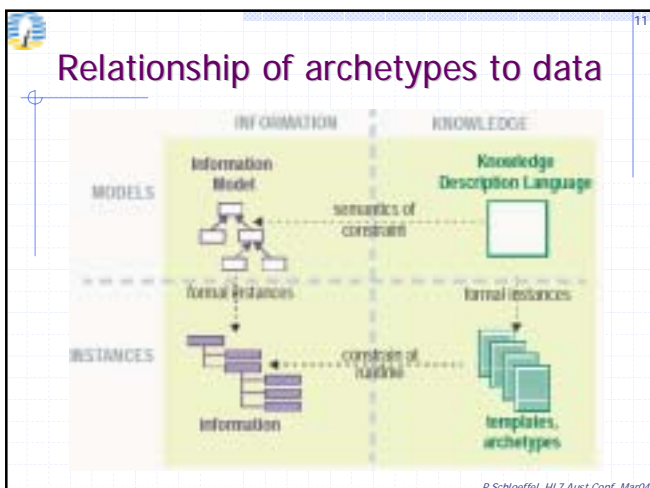
- ◆ Other possible archetype languages
 - ◆ XML / XML-schema
 - ◆ OWL (Web Ontology Language)
 - ◆ OCL (Object Constraint Language)
 - ◆ KIF (Knowledge Interchange Format)
 - ◆ Schematron
- ◆ US interoperability project
 - ◆ Mayo Clinic
 - ◆ UCSF
 - ◆ HL7 Templates SIG
 - ◆ Ocean Informatics

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Archetypes not just for *openEHR*

- ◆ An archetype is a formal expression of a distinct domain-level concept, expressed in the form of constraints on data whose instances conform to some information model, known as a reference model
- ◆ Archetypes can therefore be built for any reference model e.g.
 - ◆ GEHR
 - ◆ *openEHR*
 - ◆ CDA
 - ◆ CEN 13606

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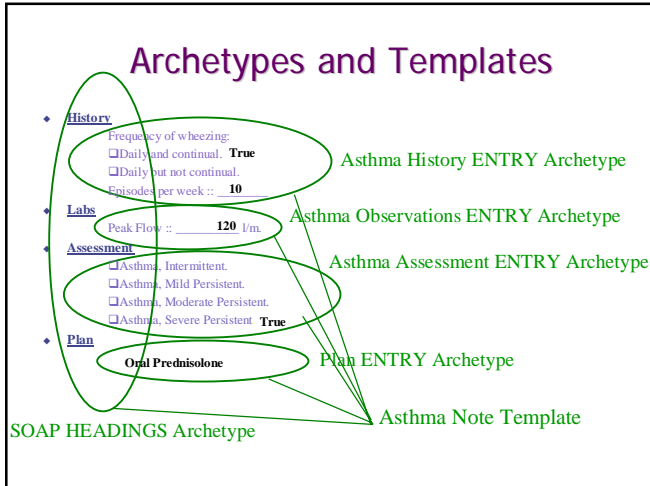
What is a template?

- ◆ A structured collection of archetypes used to narrow the choices of archetypes for local or specific purposes such as a screen entry form
- ◆ Templates are directly useable for:
 - ◆ Data construction: used at runtime to constrain the creation of data in local contexts to conform to data capture requirements
 - ◆ Data validation: used at runtime to validate data from other sources
- ◆ Templates specify:
 - ◆ which archetypes will be used
 - ◆ which optional elements will be included
 - ◆ which default values apply

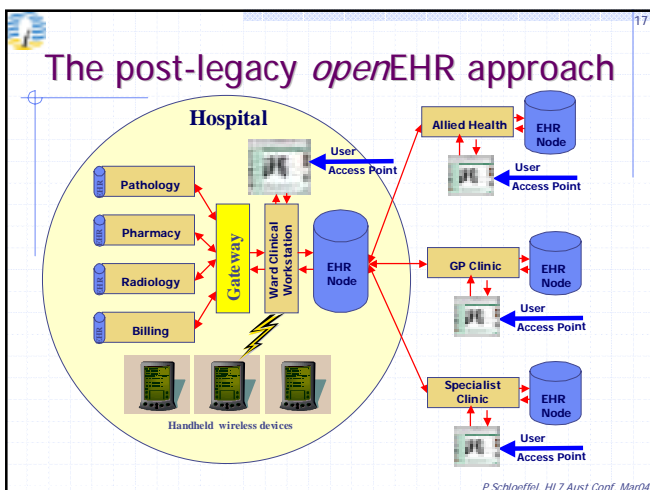
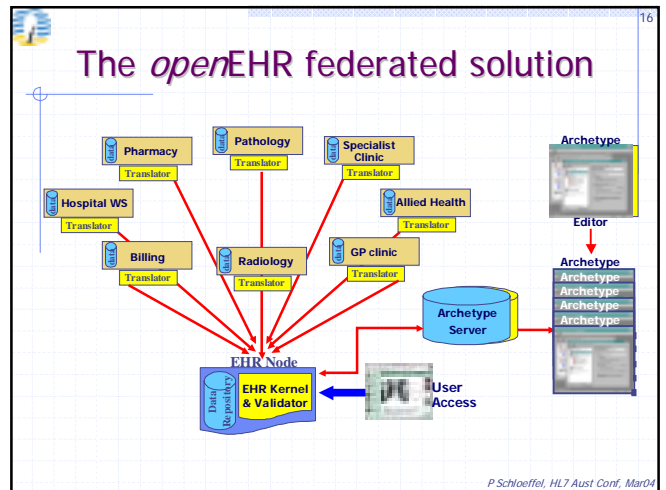
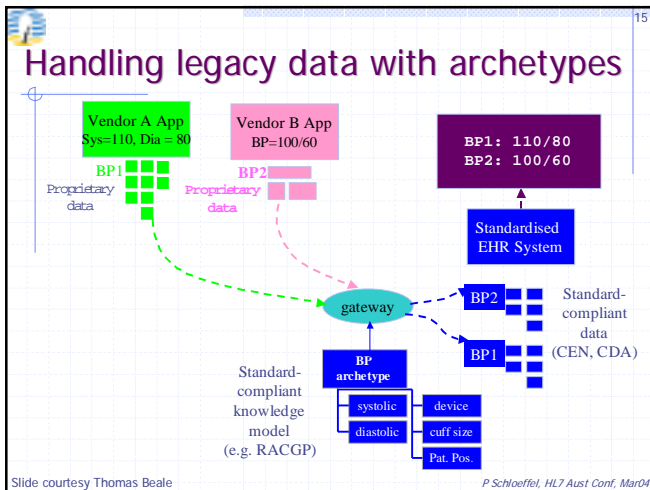
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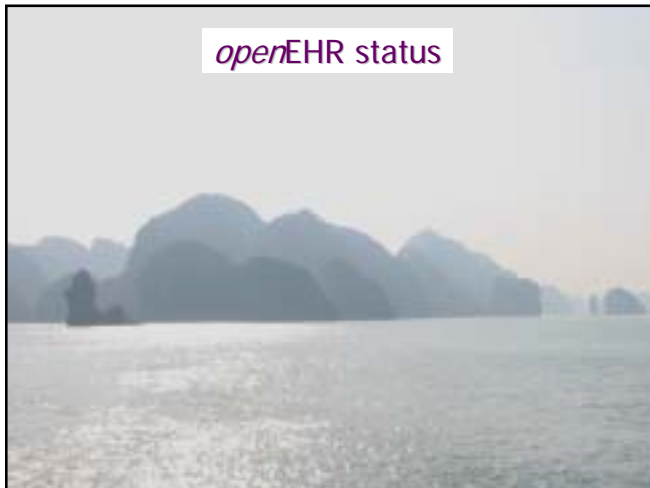
- ## Management of archetypes
- ◆ Need to avoid the terminology “anarchy” problem
 - ◆ Initial creation of archetypes
 - ◆ Domain experts -> professional Colleges
 - ◆ Technical quality assurance/certification
 - ◆ Probably best done by Health Informatics SDOs e.g. SAI/HDSC, HL7, CEN, ISO
 - ◆ Web-based archetype repositories
 - ◆ Archetypes must be in the public domain
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- ## Benefits of archetypes
- ◆ Ensures knowledge-level interoperability
 - ◆ Enables intelligent decision support
 - ◆ Archetypes developed directly by clinicians, independent of “techies”
 - ◆ Ensures data validation via archetype constraints for data entry
 - ◆ Enables efficient querying on large amounts of EHR data
 - ◆ Can be used to define demographics, guidelines, workflow etc
 - ◆ Ensures future-proof EHRs
 - ◆ Enables future-proof EHR systems
 - ◆ → significant software maintenance cost reductions
- Slide courtesy Thomas Beale
- P.Schloeffel, HL7 Aust Conf, Mar04

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openEHR status

- ◆ *openEHR* V0.9 now released
- ◆ New *openEHR* website – www.openehr.org
- ◆ *openEHR* Foundation now has 395 members from 50 countries
- ◆ Australian *openEHR* trial
- ◆ Archetype Definition Language (ADL)
 - ◆ ADL archetype editor
 - ◆ GPCG archetype editor project
 - ◆ Mayo Clinic/UCSF/HL7 project

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