

Format and Integration of Clinical Guidance Resources

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Overview_ REDO***

- TherapeuticGuideline Ltd.
- Background
- Decision support context
- Architecture of a Guidelines production system (SISMO)
- Structure of the guideline elements
- Formats used
- Innovative interfaces
- Demonstrate the level of control we now have over Guideline presentation.
- Active decision support based on TherapeuticGuidelines is now possible.

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SPIRT - Towards decision support: optimising the production of Therapeutic Guidelines

- To optimise the production of the Guidelines
 - Increase efficiency
 - Maintain quality
- Increase utility
 - Increase the ability to retrieve relevant information at the time required
- Towards decision support
 - Develop the structures and standards necessary for decision support

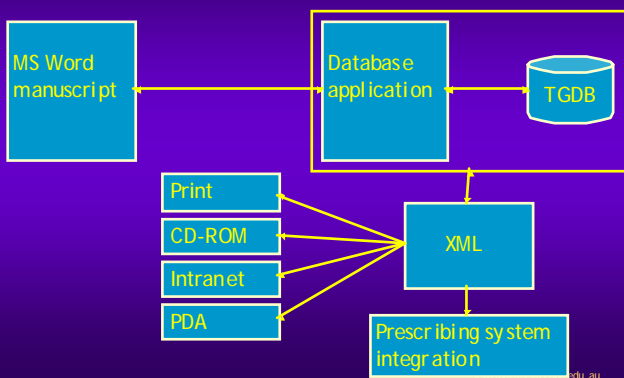
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Background

- Narrative decision support
 - provision of a advisory narrative text that is at least partially structured so as to increase usability.
- Active decision support
 - extends narrative decision support to also indicate appropriate subsequent processing
 - the host system can elect to utilise active decision support.
Eg. Therapeutic Guideline regimen values being provided to a prescribing system [2].
- Algorithmic decision support
 - the explicit representation of reasoning, eg.
IF severe pneumonia (as previously defined) ...
THEN (treat as follows).

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SISMO Architecture



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SISMO Usage

- A Guideline manuscript is produced as a Word document
- The manuscript is imported into the Guidelines database.
- ePublication operations
 - Indexing
 - Extensive restructuring
 - Rephrasing for screen presentation
- Central storage is in a Relational DB.
- XML is the principle means of output.
- The database is structured according to the Guidelines data model.
 - All elements of a guideline are identified
 - topic hierarchy
 - narrative text
 - regimens, drug names, dose amounts, routes of administration, frequencies
 - dosage types
 - index terms

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Guideline elements - Manuscript

Drug	Child dose	Amount	Route	Frequency
Flucloxacillin	20 mg/kg	2 g	intravenously	6-hourly

- Each element of a recommendation can be identified
- Database content can be identified

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Guideline elements - DB

ROUT	DOSE_FREQ	DURATION	RATE	DOSES_PER_DAY
IV	6-hourly		0	4

AMOUNT	Unit	QTY_TYPE	MIN_OR_MAX	NORMALISED_AMOUNT
2 g		Dose_quantity	max_qty	2000

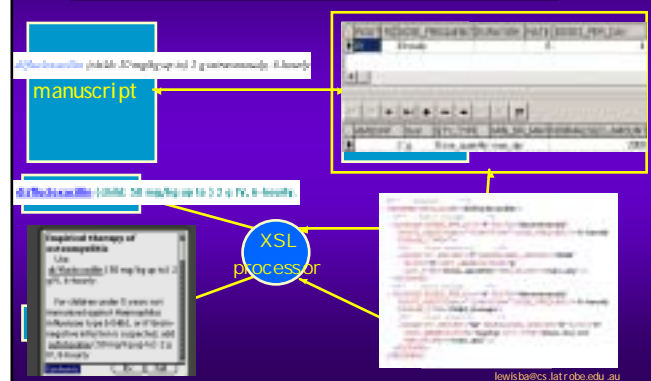
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<!-- Regimen -->
<REGIMEN DRUG_NAME="flucloxacillin">
  <!-- Adult Dosage -->
  <DOSAGE DOSES_PER_DAY="4" ROUTE="intravenously"
    ROUTE_ADDITIONAL="" DURATION="" DOSE_FREQUENCY="6-hourly"
    DOSAGE_TYPE="">
    <!-- Dose quantity -->
    <QUANTITY AMOUNT="2" NORMALISED_AMOUNT="2000"
      RATIO="0" UNIT_ABBREVIATION="g"
      QTY_TYPE="Dose_quantity" MIN_OR_MAX="max_qty" />
  </DOSAGE>
  <!-- Child Dosage -->
  <DOSAGE DOSES_PER_DAY="4" ROUTE="intravenously"
    ROUTE_ADDITIONAL="" DURATION="" DOSE_FREQUENCY="6-hourly"
    DOSAGE_TYPE="Child_Dosage">
    <!-- Dose quantity -->
    <QUANTITY AMOUNT="50" NORMALISED_AMOUNT="0" RATIO="0"
      UNIT_ABBREVIATION="mg/kg" QTY_TYPE="Dose_Per_KG"
      MIN_OR_MAX="max_qty" />
  </DOSAGE>
</REGIMEN>
  
```

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SISMO - Process



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Demonstrations

- Integrating information across the Guidelines
 - Dynamic, user customisable ([Dynamic display](#))
 - Active guidelines
- Integrating information across resources
 - Dynamic, user customisable ([PDS](#))
- Integrating with clinical systems
 - Yet to move out of the laboratory
- Algorithmic Decision Support ([CAP](#))

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Requirements for Management of Decision Support Content

- Flexible document manipulation architecture
 - Formal relation DB as core storage
 - XML, XSLT and associated technologies for output
- Well defined data model
 - Manage the documents (document model)
 - Manage the clinical content (clinical model)
- Manage the production process - reflect editorial usage
 - Unconstrained narrative construction
 - Ongoing evolution of output presentation

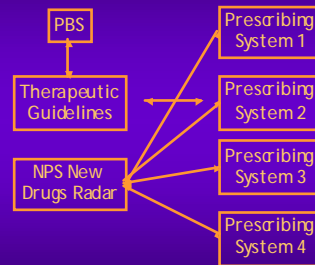
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Implications

- The identification and tagging of data in Therapeutic Guidelines has
 - increased the potential of presenting and manipulating guideline information
 - made active decision support based on the Guidelines possible - now.
- Next steps
 - Determining more precisely how the Guideline data can be integrated into the user interfaces of clinical systems.
 - Determining a generic interface mechanism.

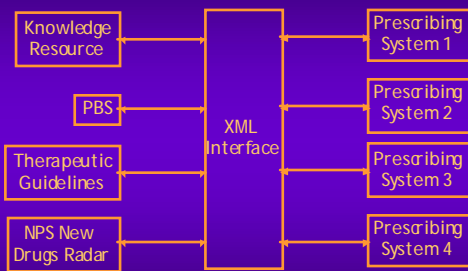
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An Immediate Integration Problem



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Integration Architecture



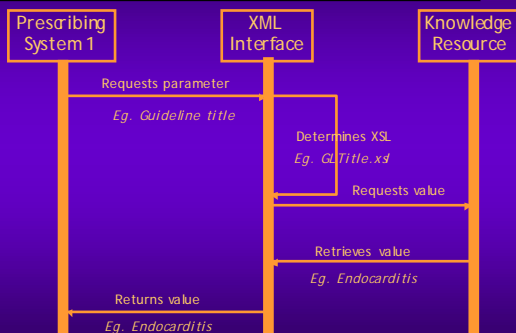
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XML Interface

- XML based
 - Universally applicable
- Minimal setup requirements for enabling connection
- Considered a approach to interface requirements
- Extensible
- As simple as possible and as complex as necessary

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Simple XI example



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