Semantic Interoperability

Reflections for Workshop
16-May-2007
Mike Bainbridge
Milk Chocolate Wrigglers
A Can of Chocolate Worms
for those who’ll eat absolutely anything
Global / EU / National Problem

Ageing population
More over 65s than under 16s by 2014

Millions

Under 16

65 and over

Projections

Population aged under 16 and 65 and over, United Kingdom
Consent / Legal
Confidentiality
Identity management for citizens
Trust, truth and provenance
EU?

- Infrastructure largely in place..
- Transition from ‘research’ to ‘deployment’
  - Driven by interoperability
- ‘Personal health’ capture and storage next priority
- Awareness of biomedical informatics on the way
Routemap?

- Vaccination
- ADR
- Medication
- Non drug allergy

- Clinical Engagement as a vehicle for success
### General expression

<table>
<thead>
<tr>
<th>Condition</th>
<th>Go to table</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propensity to adverse reaction to drug</td>
<td>Table 10</td>
</tr>
<tr>
<td>Propensity to allergy to drug</td>
<td>Table 11</td>
</tr>
<tr>
<td>Intolerance to drug</td>
<td>Table 12</td>
</tr>
<tr>
<td>Propensity to anaphylaxis to drug/ anaphylactic reaction to drug</td>
<td>TBA</td>
</tr>
<tr>
<td>Propensity to anaphylactoid reaction to drug</td>
<td>TBA</td>
</tr>
</tbody>
</table>

The expressions below would be represented by the general HL7 CD pattern (where e.g. ‘adverse reaction’ = [EVENT OR CONDITION] and ‘substance’ = [AGENT], codeSystem not shown):

```xml
<code code="413350009" displayName="Context-dependent finding">
  <qualifier>
    <name code="246090004" displayName="associated finding"/>
    <value code="CONCEPTID" displayName="[EVENT OR CONDITION]">
      <qualifier>
        <name code="246075003" displayName="causative agent"/>
        <value code="CONCEPTID" displayName="[AGENT]"/>
      </qualifier>
      <value/>
    </value>
  </qualifier>
  <qualifier>
    <name code="408729009" displayName="finding context"/>
    <value code="416519009" displayName="at risk"/>
  </qualifier>
</code>
```
Allergy, adverse reaction and intolerance event

Use this form to record the details of an allergic reaction, adverse reaction or intolerance event.

Also create a corresponding entry in the Allergies and Adverse Reactions list

Core information * denotes a mandatory field

* Category of reaction: Please select

* Causative medication: Select from medication record
  OR Search drug dictionary
  Date of event: Not specified

Further details

Certainty: Not specified

Further details: This information will help future users of this patient’s record to make clinical judgements in relation to this event

Related items: Select type

Link related items to this event to help future users of this patient’s record to understand its clinical context
Allergy, adverse reaction and intolerance event

Use this form to record the details of an allergic reaction, adverse reaction or intolerance event.

Also create a corresponding entry in the Allergies and Adverse Reactions list

Drugs

Core information * denotes a mandatory field

* Category of reaction
  - Allergy with anaphylaxis
  - Allergy
  - Adverse reaction
  - Intolerance

* Causative medication
  - Search

* Date of event
  - Not specified

Further details

Certainty
  - Not specified

Further details
  - This information will help future users of this patient’s record to make clinical judgements in relation to this event

Related items
  - Select type
  - Search

Link related items to this event to help future users of this patient’s record to understand its clinical context

Save
Allergy, adverse reaction and intolerance event

Use this form to record the details of an allergic reaction, adverse reaction or intolerance event.

Also create a corresponding entry in the Allergies and Adverse Reactions list

**Core information** *denotes a mandatory field

*Category of reaction**

Allergy with anaphylaxis


*Causative medication* Select from medication record

OR Search drug dictionary

penic

*Date of event* Not specified

Further details

**Certainty**

Not specified

*Further details* This information will help future users of this patient's record to make clinical judgements in relation to this event

Related items* Select type ▼ Search

Link related items to this event to help future users of this patient’s record to understand its clinical context

Save Cancel
Allergy, adverse reaction and intolerance event

Use this form to record the details of an allergic reaction, adverse reaction or intolerance event.

Also create a corresponding entry in the Allergies and Adverse Reactions list

Drugs
Foods, plants, animals & other substances

Core information * denotes a mandatory field

* Category of reaction

Allergy with anaphylaxis

* Causative medication

Select from medication record
OR Search drug dictionary

penic

Search

Click to select an item from the list below

Can’t find it?

<table>
<thead>
<tr>
<th>Name</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Penicillins</td>
<td>Drug class</td>
</tr>
<tr>
<td>benzathine benzylpenicillin</td>
<td>Generic substance</td>
</tr>
<tr>
<td>benzylpenicillin</td>
<td>Generic substance</td>
</tr>
<tr>
<td>penicillamine</td>
<td>Generic substance</td>
</tr>
<tr>
<td>phenoxymethylpenicillin</td>
<td>Generic substance</td>
</tr>
<tr>
<td>procaine benzylpenicillin</td>
<td>Generic substance</td>
</tr>
<tr>
<td>benzathine benzylpenicillin 1.2million unit powder</td>
<td>Product</td>
</tr>
</tbody>
</table>

* Date of event
03-Oct-2007

Further details
Allergy, adverse reaction and intolerance event

Use this form to record the details of an allergic reaction, adverse reaction or intolerance event.

Also create a corresponding entry in the Allergies and Adverse Reactions list.

[Image of form with fields filled in]

- Category of reaction: Allergy with anaphylaxis
- Causative medication: Phenoxybenzamine
- Date of event: 30-Sep-2007

Next step: MHRA yellow card report
Allergies, adverse reactions and intolerances

This list shows conditions which have been judged likely to recur under similar circumstances in future.

Add new

<table>
<thead>
<tr>
<th>Category</th>
<th>Name</th>
<th>Classification</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allergy with anaphylaxis</td>
<td>phenoxy methylpenicillin</td>
<td>Generic substance</td>
<td>04-Oct-2007</td>
</tr>
<tr>
<td></td>
<td>Certain - causative medication and category of reaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Allergy event 30-Sep-2007</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intolerance</td>
<td>Lactose</td>
<td>Food</td>
<td>23-Mar-2006</td>
</tr>
</tbody>
</table>

These details must appear on any decision support alert triggered in conjunction with this record.
Sine qua non....

- SNOMED
- Drug database
- Definitions
  - ADR
  - ‘Current’ etc...
- Context...

- Getting the data in is the easy bit....
Both dm+d and SNOMED have a central core with local additions.
A Common User Interface

A partnership with Microsoft

3 overarching drivers

- Patient safety
- Clinical utility
- Reduced (re-) training

.. and secure a return on investment

[www.mscui.org](http://www.mscui.org)
Simple rules for long SNOMED terms

Malignant tumour involving left fallopian tube by direct extension...
Malignant tumour involving left fallopian tube by direct extension...
Malignant tumour involving left fallopian tube by separate metastasis...

2 character indent for wrapped text
No hyphenation

Cui programme.mailbox.nhs.net
mscui.org or
nww.cui.nhs.uk
Different methods of data entry

GP consultation
(Anything possible)

Specialist outpatient appointment

ENT Clinic
History

Examination

Investigations

etc.

Geriatric SAP assessment

If “yes”, please specify

Geriatric SAP assessment