

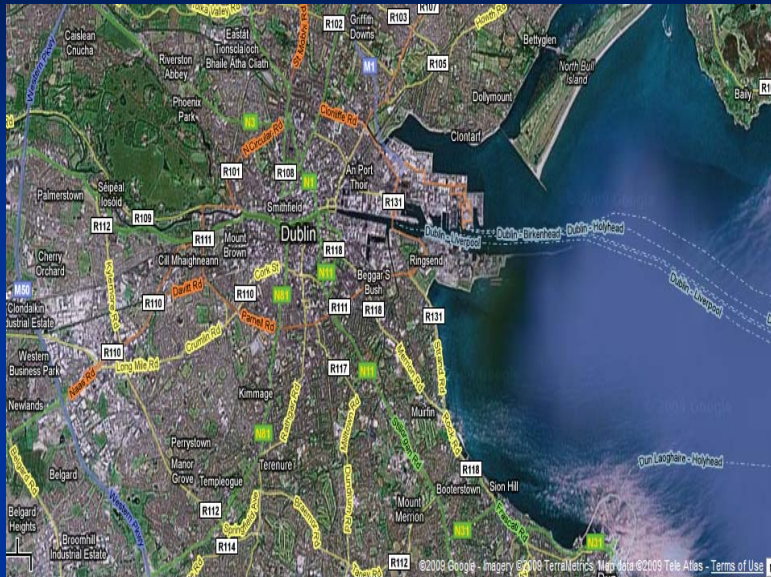


HIQA Workshop

Pamela Henry

30th June 2009

Standards in Context



**Dublin Mid Leinster
Areas 6 , 7 & 8
MMUH
St Mary's Hospital
Phoenix Park**



Background

- NSAI HISC
- EHRland – Clinical engagement
- Lecturer, School of Nursing DCU
- Focus of my PhD - clinical concepts terminology and the development of archetypes for inclusion in EHR

Standards offer opportunities

- To capitalise on existing programmes within Europe – e.g. Scandinavia
- Develop shared meaning amongst key stakeholders whilst accommodating multiple perspectives – *'think tanks'*
- Offer a clear and coherent quality framework with opportunities for local tailoring due to their often abstract approach

This presentation seeks to

- Discuss some health informatics standards that I have applied to my work over the past couple of years
- Offer the group some concrete examples from a practice setting
- Offer an opportunity to generate some discussion and comments on health informatics standards

Why we engage with HI standards?

If your heading in the wrong direction
technology won't take you to the right
place

but standards will assist
in pointing you in the right direction



The controversial PPARS health service pay...
Twomey.
His comments follow news that the payroll system is set to cost the State at least 231 million euro, which Dr Twomey...
estimate, and the system is four years behind schedule.
The *Irish Medical Times* has reported that the original cost estimate for the project back in 2002 was 8.8 million euro, but the final cost is likely to
be 231 million euro.

...no problem with resour...
...the government, the northeast...
...patients may now have to travel to...
...are implemented and in a...
...could be compromise...
...developed" i.e.

THE IRISH TIMES

Saturday, November 11, 2006

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Regional News

...our Lady of Lourdes...
...patient safety". And these...
...midlands and Dublin areas.

Apologies to Steve Ehrmann

The standards we will discuss

- **EN 18104** Reference terminology model for nursing diagnosis and interventions
- **ISO 11179** Specification and Standardisation of Data Elements
- **EN 13940_1** Systems of concepts for continuity of care
- **ISO DTS 22789** Conceptual framework for patient clinical findings and problems
- **EN 13606** Archetype Development – one to many templates

Standards in context 1

EHRland & PARTNERS Projects

■ Primary focus

- Clinical engagement to review existing practices across and between services and see if interagency communication can be enhanced by the adoption of archetypes **EN 13606 EHRcom**

■ Secondary focus

- Educate and train nurses (clinicians) on concepts and terminology and the existence of health informatics standards **ISO 18104 Reference terminology for nursing diagnosis and interventions**

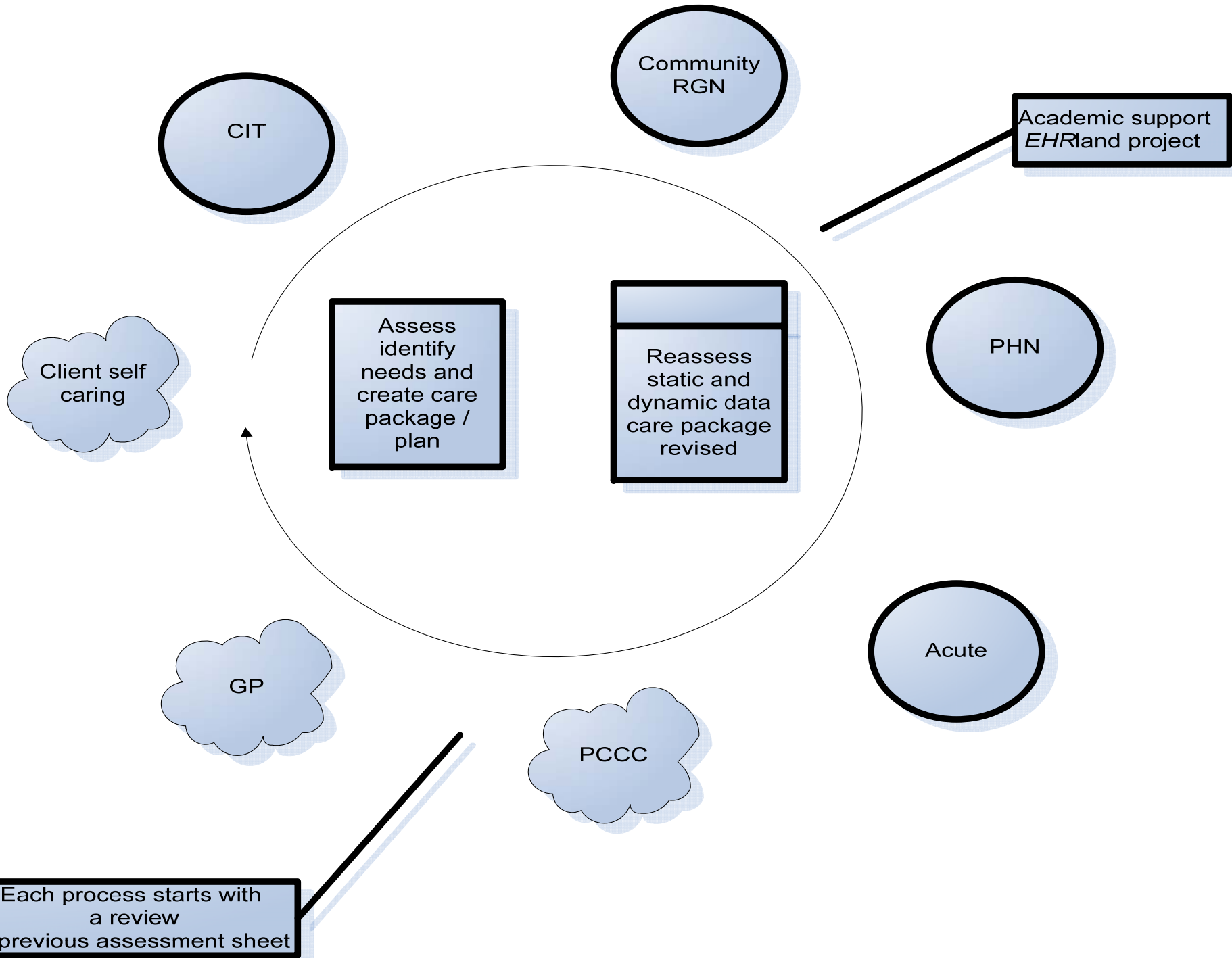
■ Other objectives

- Develop patient centred care approach that relates to the transformational programme / health policy development **EN 13940_1 Contsys**

Standards in context outputs

- ISO 18104 Reference terminology for nursing diagnosis and interventions
Key requirements for documentation
- ISO 11179 Specification and Standardisation of Data Elements
Data dictionary v.1 framework
- EN 13606 EHRcom
Potential to enhance interagency communication
- EN 13940_1
Informs the emerging CMO model

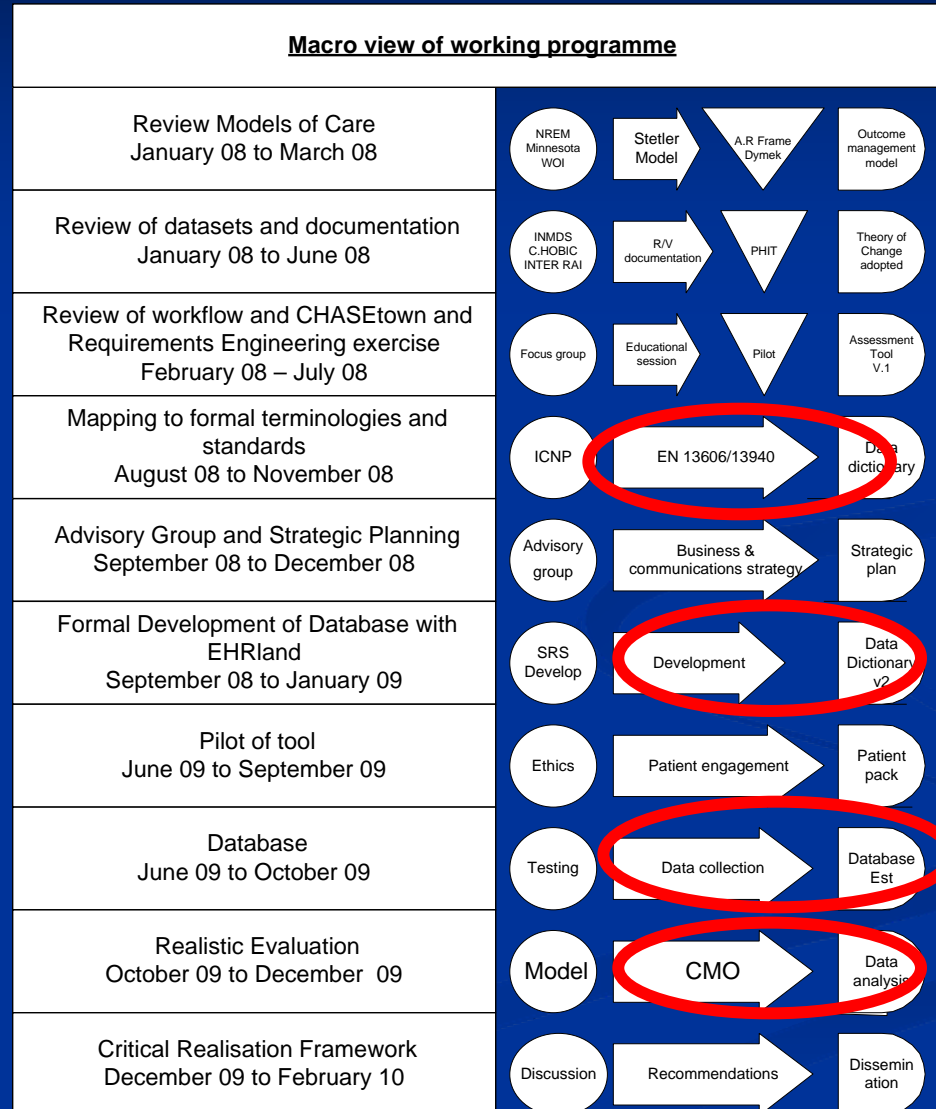




Emerging Standards & Technical Specifications

- CEN 13940_1 System of concepts for continuity of care
 - Offers a conceptual framework for care across services including multiple views for healthcare providers to source data from an EHR identifies concept of health issues and health threads
- ISO DTS 22789 DTS
 - Conceptual Framework for patient findings and problems in terminologies
 - Offers a categorical structure with domain constraints for use within terminology systems

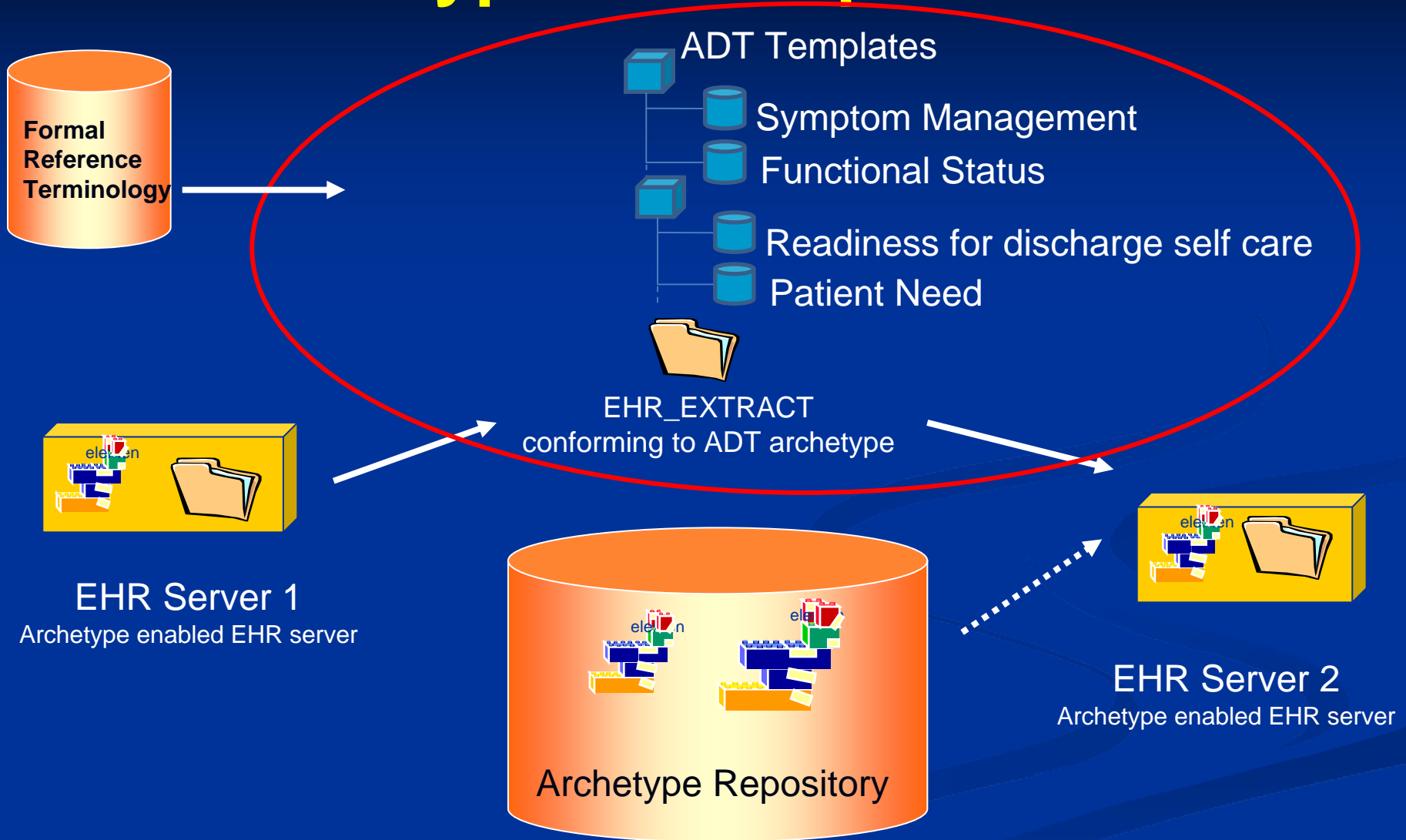
Using HI Standards in Context



EN 13606 EHRcom is

- A layered and logical model driven jointly by clinicians and software engineers (Berry 2009)
- An agreed approach to communicating extracts of information across and between services using an instrument called an archetype
- An **EHR archetype** is an agreed, formal and interoperable specification of the data and their inter-relationships that must or may be logically persisted within an electronic health record for documenting a particular clinical observation, evaluation, instruction or action (Kalra 2004)

Archetypes conceptual view



So what goes into the archetypes

- The same data that we have always been collecting however the organisation of the information is structured for clarity and purpose across **all** of the services
- For this to happen we turn to concepts and terminology standards

ISO DTS 22789

- Is a Draft Technical Specification which offers a conceptual framework for patient findings and problems in terminologies
- Offers a categorical structure with domain **constraints** for use within terminology systems

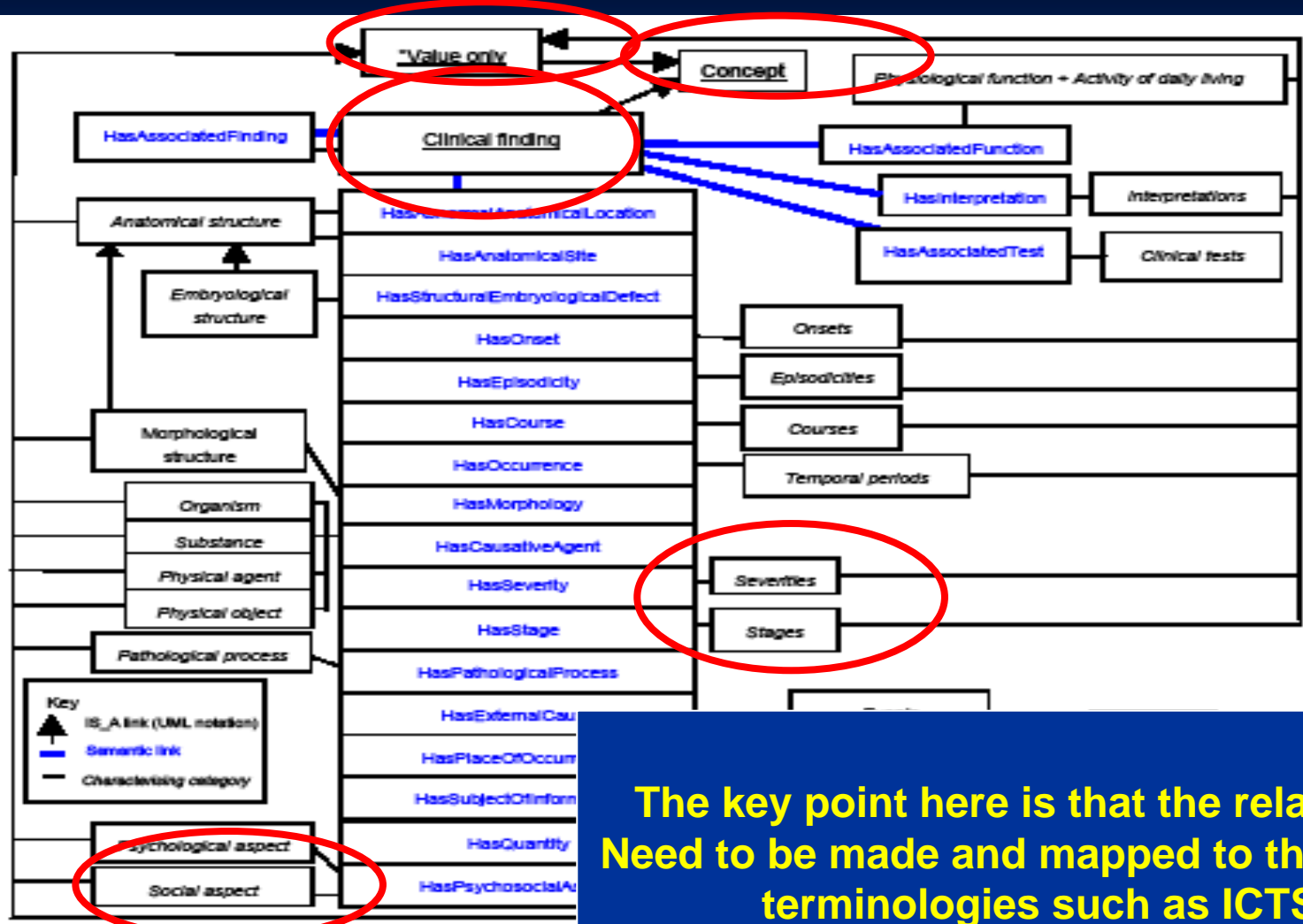


Figure 1 — Conc

The key point here is that the relationships need to be made and mapped to the reference terminologies such as ICTSDO clinicians need to assist in doing this work

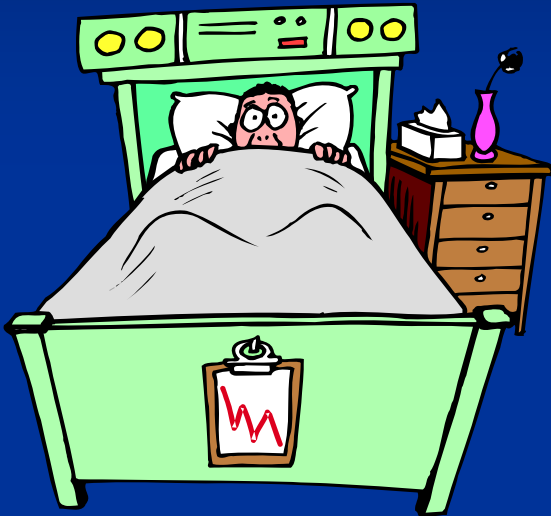
A more simplistic example

- ISO 18104 reference terminology for nursing diagnosis and interventions developed in 2003 currently under revision by ISO WG3 and CEN WG2

Patient has a Problem

- On assessment the nurse makes a judgement that one of the problems this patient has is PAIN
- Currently we document this problem in to the patients chart and evaluate the intensity of the pain by perhaps a scale and then decide upon a set of interventions with the MDT for this specific patient

If We Were to Standardise this



- We need to build a picture up around this problem within the patients notes and include site , source frequency and intensity. We also need to document if there is a particular dimension that is significant

For Example

- What is the source of the pain – **FOCUS**
- Where is the pain – **SITE**
- How severe is the pain -**JUDGEMENT**
- Confirm if there are any other circumstances we need to include relating to this problem
DIMENSION
- Who has this problem – **SUBJECT OF INFORMATION**

(This may seem obvious but the SOI may be a population)

Moving Towards a Standard

If we addressed each one of our patients/clients problems in this manner and documented in this way then we would be producing a care plan which is ISO 18104 Nursing Reference Model compliant

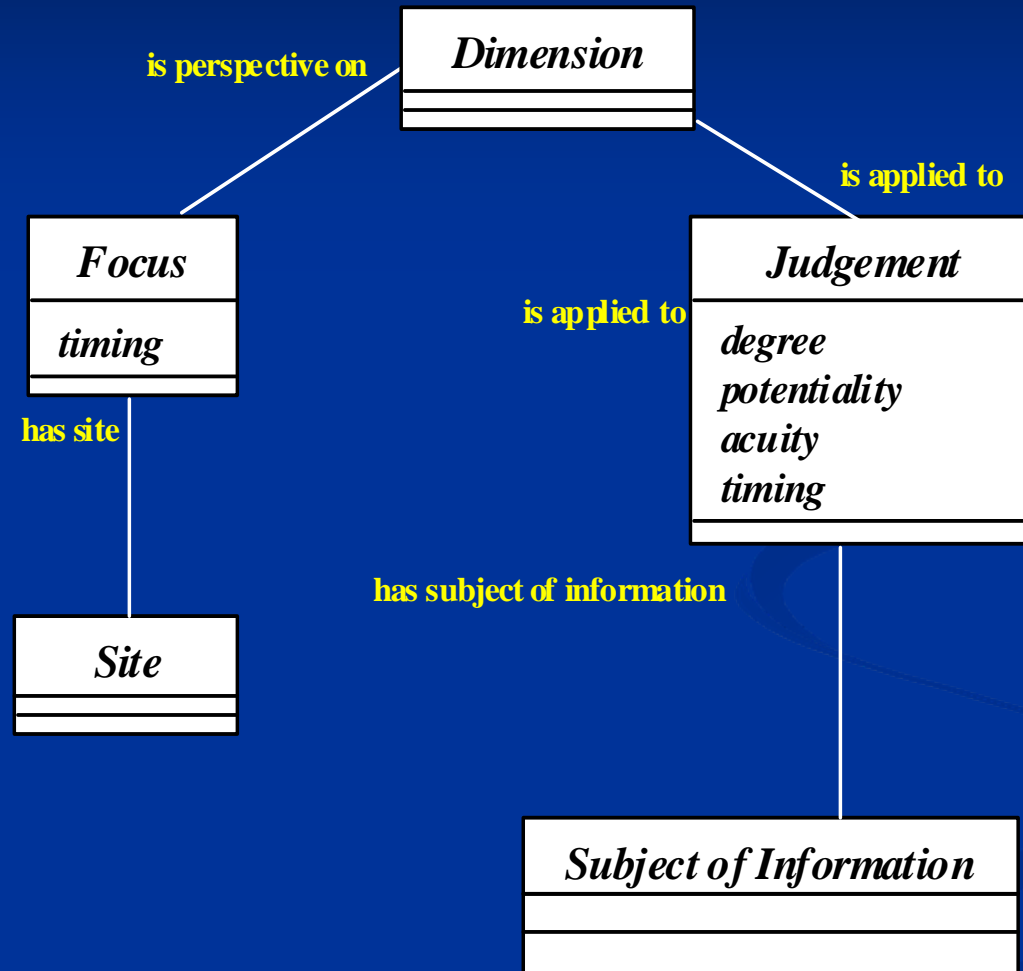
Is It That Easy!!

- Yes and no!
- What complicates it is that craft of bringing the problems and associated terms together (the data) in such a way as to be defined as
 - *Discrete entities that can be described objectively without interpretation*
- Some people describe the process as Lego blocks deconstructing and then reconstructing having identified each data element

When You Consider

- How many types of pain there are and how many instances of the “source of pain, site of pain, severity of pain” there is
- We need to look at the problems and interventions and outcomes in a very abstract manner
- Mapping to reference terminologies is a key element of this work see <http://www.ihtsdo.org/>

ISO 18104 Conceptual Model for diagnosis



Compulsory Attributes Are:

- **Focus** - which is the area of attention may be qualified by timing
- **Judgement** - is a state of something or anything. It is an opinion or a discernment related to a focus or dimension. Judgement can be qualified by degree potentiality timing and acuity

Dimension

- Dimension is a quality possessed by a group or individual which provides a perspective on structures or process
- For example independent living – a dimension descriptor could be ability

Subject of Information

- Is the “bearer” - it could be the family or an individual client other subjects of information could be the physical environment
- You need to understand that in some standards subject of information relates only to the patient whilst in others it could be a population e.g. vaccinations programme.
(e.g. EN13940_1 & ISO 18104)

Site

- Is defined in ISO as a physical structure that specifies the position of the focus in a problem or a target in an intervention
- Examples could be an altered structure such as a wound or body component or device.

Semantic Links

- Semantic links are provided by ISO 18104 and examples of how the semantic links can be used are in Annex A, B & C of the document
- The above noted sections provides dissections for different problems and interventions

An Example of a Dissection

Reduction in ability to concentrate

Judgement is **Reduction**

Has potentiality **actual**

Is applied to **ability**

Is perspective on **concentrating**

Has subject of information **client**

Semantic links

- Semantic links are used to represent associative relations between concepts for example;
 - *Is applied to* is the semantic link used to represent associative relations between judgement and focus and dimension
Is perspective on is the semantic link to represent associative relations between focus and dimension

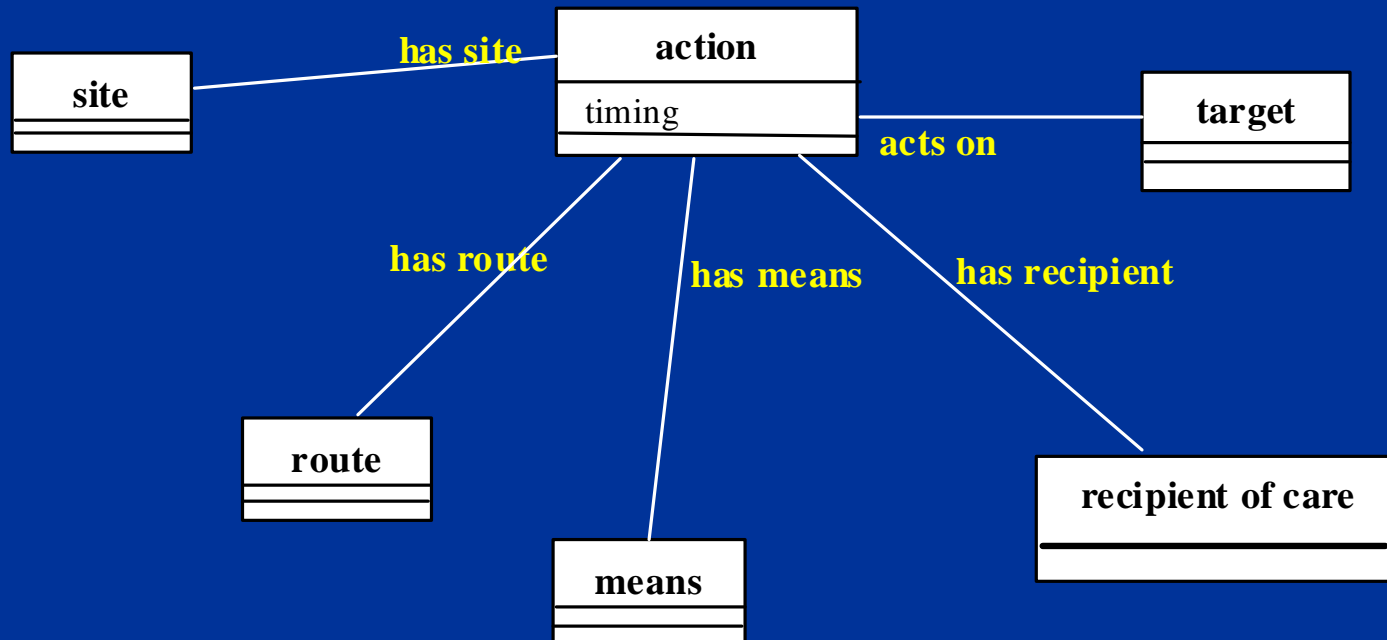
Semantic Link Between A & T

An **ACTION** acts on a **TARGET**

Reduction in Ability to Concentrate

- *Has potentiality* is a qualifier from judgement - **Actual problem**
- *Is applied to* is a semantic link used to represent relations between judgement focus and dimension- **Ability**
- *Is a perspective on* is a semantic link between focus and dimension - **Concentrating**
- *Has subject of Information* - **Client**

ISO Interventions Conceptual Model



Compulsory Attributes Are

- Target is the entity that is affected by the nursing action or that provides the content of nursing action
- Action is the process by which an intentional service is applied to a recipient of care
- Examples of semantic categories for action are *assessing teaching performing caring*

Target

- Semantic categories in the **target domain** can be *body component, sign, device, substance, physical environment, resource, process, dimension, individual, group*, and those categories which have the role of **focus** in the diagnosis category
- For example a problem of pain has a focus of pain
- An intervention of administration of medication can have a target which is pain

Dissection for Intervention

Replace dressing

- *Replacing* (Action)
- *Acts on* **dressing** (target)
- *Has* **client** (recipient of care)

How to Format These Terms

- Take this information and produce a meta data dictionary
- To do this there is also a standard which the next section will review

ISO /IEC 11179

- Specification and Standardisation of Data Elements
- Available on line

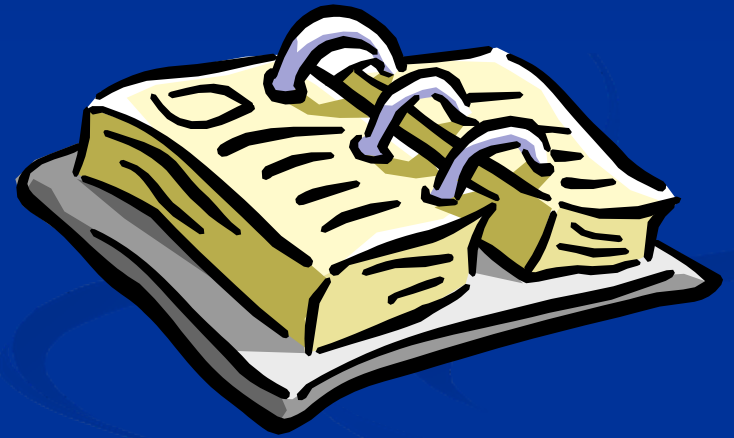
<http://www.metadatastandards.org/11179/>

What It Is

- This standard is a four part standard which identifies which core data elements must be described if one wishes to write a meta data dictionary
- Simply stated a meta data dictionary describes and identifies all elements which are required to take a nursing record and standardise it

A Meta Data Dictionary

- Is a large document which describes the data about the data!
- Consider it the preface and contents section of a book or in this case a system



Each Nursing Concept Must Have

- Definition
- Identify Attributes
 - clinical /relational and representational
- Specifically those attributes that are mandatory for ISO 18104 & ICNP Version1

In EHR*land* PARTNERS

- Revised existing documents
- Completed workflow of each of the stakeholders
- Reviewed a number of datasets and conceptual models used in community care – Selected C.HOBIC, CANE & elements of the INMDS
- Selected the core data elements for inclusion on the tool
- Completed RE process in the simulation laboratory passing the batonto a to b and refined the tool
- Mapped to a reference terminology ICNP V1.1
- Created a data dictionary in line with ISO 11179

10 Symptom Management A= 1 Assessment B= Return in/ repeat assessment C= Change in Status D= D/ E= T/F out F=Routine Quarterly									
Assessment type	A								
Measurement Date	010109								
Insert code for Fall in table below on Falls 1= Never 2= Rarely 3= Often 4= Risk for fall is high 5 Risk for fall is low									
Falls	2								
Risk for Falls is	5								
Insert code for Pressure ulcer / skin integrity PU 1= PU Stage 1 2= PU Stage 2 3= PU Stage 3 4 = PU Stage 4 5= None 6= At risk									
Pressure Ulcer / Skin Integrity	6								
Insert code for continence below 1= None 2= Partial 3= Total I = Intermittent C= Continuous									
Continence is	2								
Continence (Int or Cont)	I								
Insert codes for Constipation 1= None 2= Actual if actual 3= Partial 4 = Total									
Constipation (problems with)	2								
Extent of Constipation	3								
Insert code for nutrition below 1= Nutrition in normality state 2= Abnormal state If abnormal then refer to dietary <u>assesmt</u>									
Nutrition	1								
Fluid balance is 1= Normal state 2 Abnormal if 2 then select from following list 3 = Deficit in fluid volume 4= Excess fluid volume 4= Fluid and electrolyte imbalance 5= Fluid retention									
Fluid Balance	1								
Abnormal status is	---								
Insert code for breath/days 1= Dyspnoea none 2= Functional Dyspnoea low 3= Functional Dyspnoea high 4 =Resting Dyspnoea									
Breathing / Dyspnoea	3								
Insert code for Weakness and Fatigue 1= Fatigue none 2= Fatigue low 3= Fatigue Moderate 4= Fatigue high 5= Fatigue extreme									
Weakness / Fatigue	3								
Insert code for Nausea below 1= None 2= Low 3= Moderate 4= High 5 = Extreme									
Nausea	1								

Challenges

- Privacy & UHI – **encrypted laptop!**
- Versioning – at all levels of development
- Education – EHR is a virtual repository
- Training especially on mapping a brief introduction
- Attribution an integral element of partnership
- Rhetoric versus practical examples

In Summary

- Health informatics standards provide a gateway for us to ensure our work is to a particular level of quality
- From the local, regional national and to the international community, standards offer us a framework to progress That's of course if you believe that quality exists

Conclusion

If quality exists in the object, then you must explain just why scientific instruments are unable to detect it. You must suggest instruments that will detect it, or live with the explanation those instruments don't detect it because your whole quality concept, to put it politely is a pile of nonsense... Pirsig, R. M. (2004)

From - Zen and the Art of Motorcycle Maintenance

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