



Clinical Building Blocks for the standardization of patient information for multiple usage

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Me...

- Michiel Sprenger, PhD
- Clinical Physicist
- MRI, X-ray, radiotherapy
- Clinical informatics
- Free University MC, Amsterdam
- Joined Nictiz 2008
- Joined Eindhoven Technical University (part-time), 2010





Presentation Outline

1. Introduction
2. Program “Registration at the Source”
3. Clinical Building Blocks
4. Further projects
5. Conclusions



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Problem

- 10 years of EHR development in hospitals
- But... information captured for patient care can NOT (always) be re-used
- For:
 - Transfer of patients to other institutions
 - Quality indicators
 - Reimbursement
 - Epidemiology
 - ...

Causes

- Goal specific registrations (> 100!!)
- Variations between hospitals in definitions
- Variations within hospitals in definitions
- Gaps
- Overlaps

Registrations

Patient care 1

Patient care 2

Quality 1

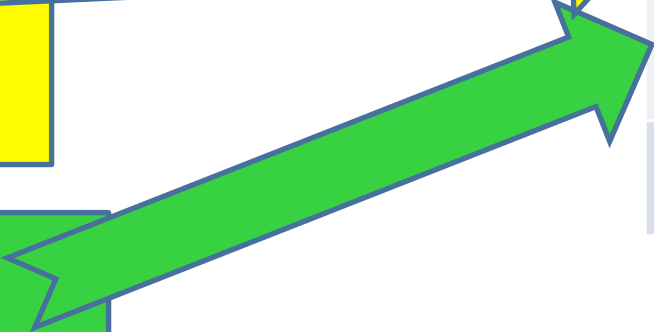
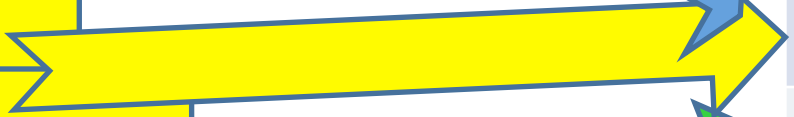
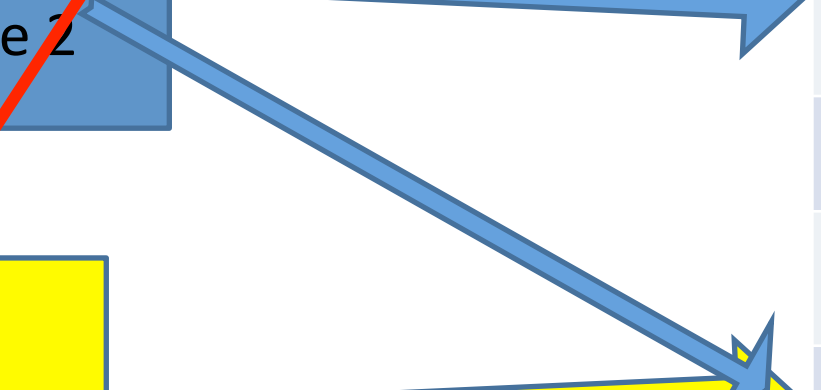
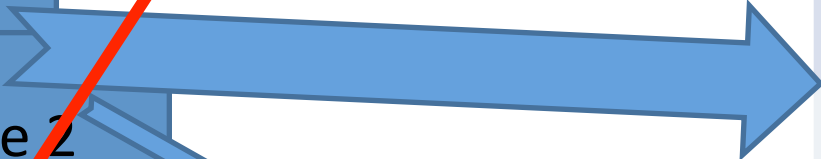
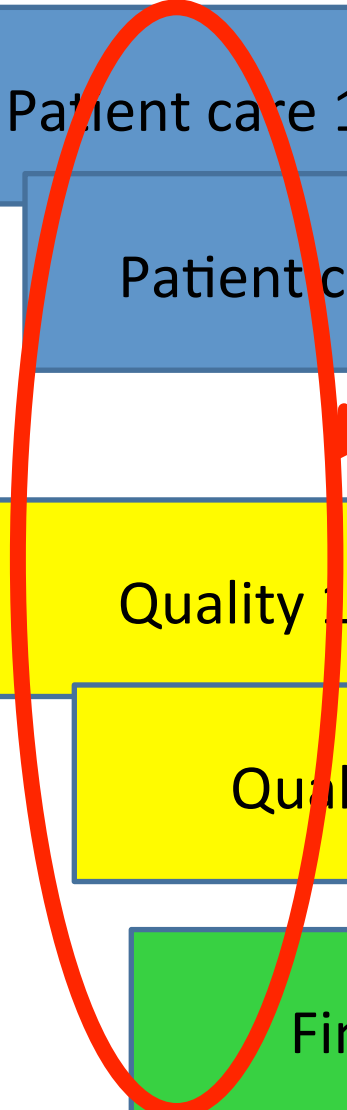
Quality 2

Financial

**GAPS
OVERLAPS
INCONSISTENCIES**

Usage

Usage
Patient Care
Transfer of patients
Research
Management information
Quality indicators
Financial / reimbursement
Etc.





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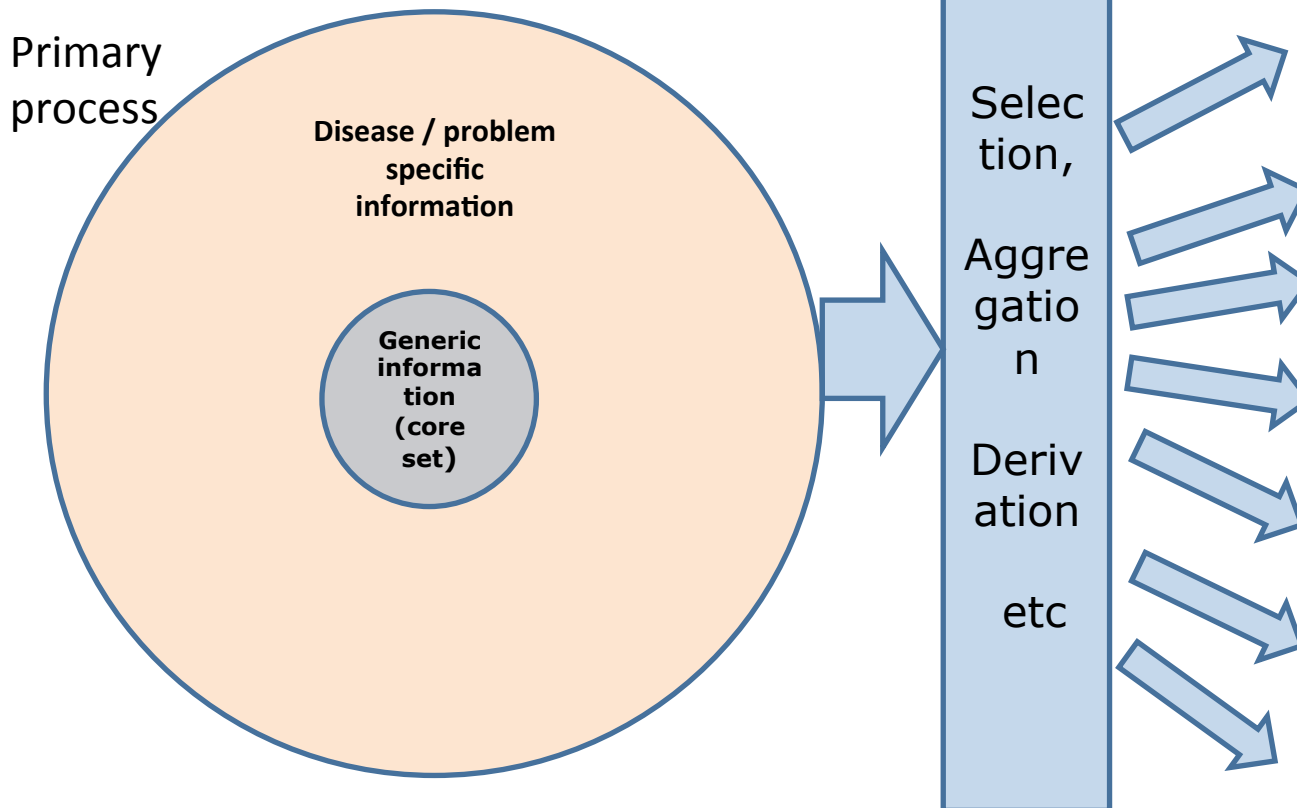
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Initiative by

- NFU: the federation of University Medical Centers (8)
- Nictiz: national competence center for eHealth and interoperability
- To improve the situation

**Register once,
unambiguously,
IN (or close to)
primary process**



Multiple Usage

Usage
Patient Care
Transfer of patients
Research
Management information
Quality indicators
Financial / reimbursement
Etc.

Assumptions

- The information **can** be structured into a finite number of generic building blocks:
 - As large as needed (complete **clinical concepts**)
 - As small as possible (genericity, **re-usability**)
- Generic **and** specific blocks will be necessary
- Usage possible for **different purposes**

Clinical Building Blocks



Stable, re-usable
clinical building blocks



usage 1: transfer



usage 2: quality indicators



usage 3: EHR

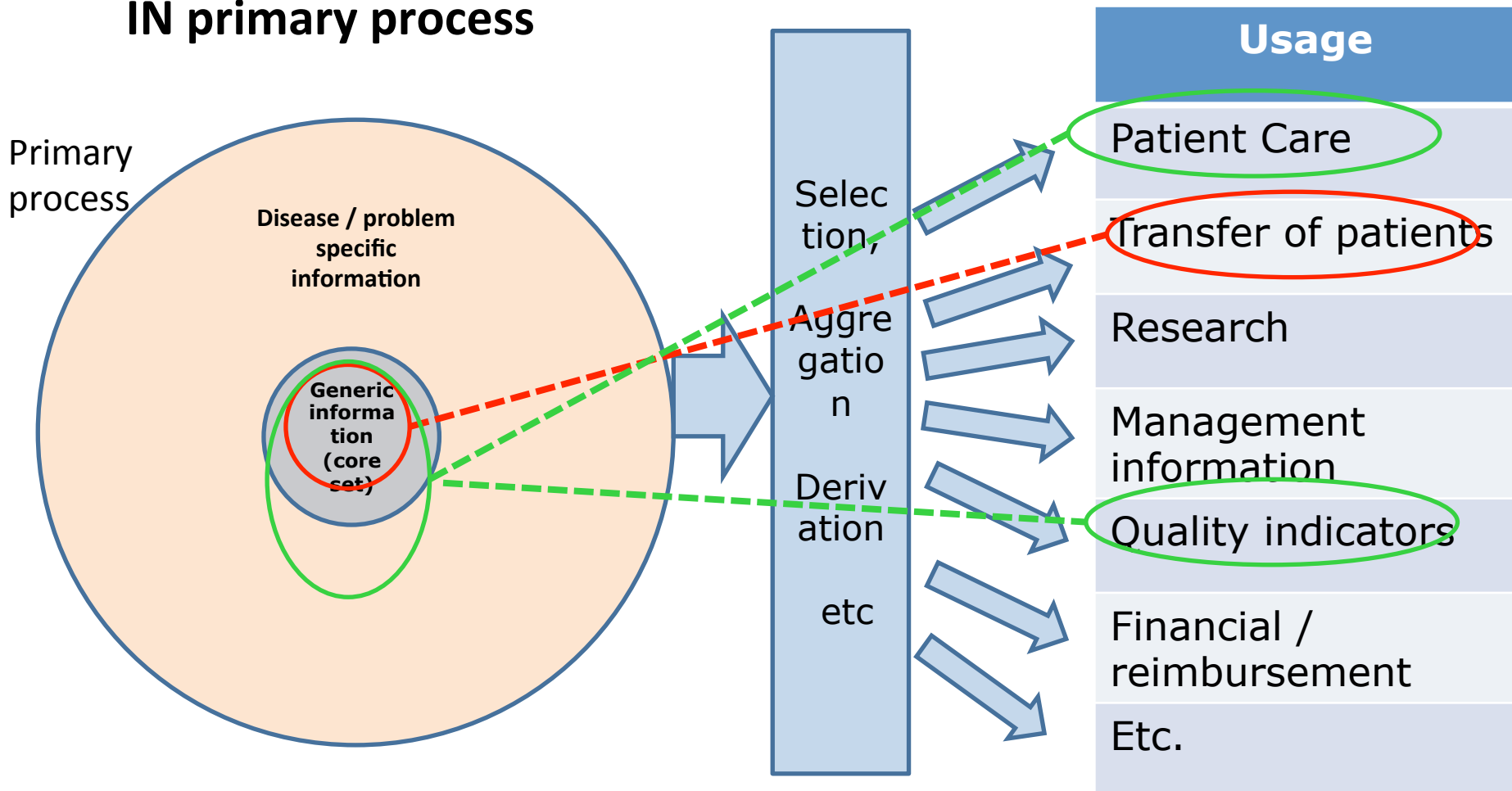


Method of working

- Started with generic transfer data
 - First medical
 - Extend with nursing
- Investigate specific disease care process plus quality indicators: head and neck tumors

**Register once,
unambiguously
IN primary process**

Multiple Usage





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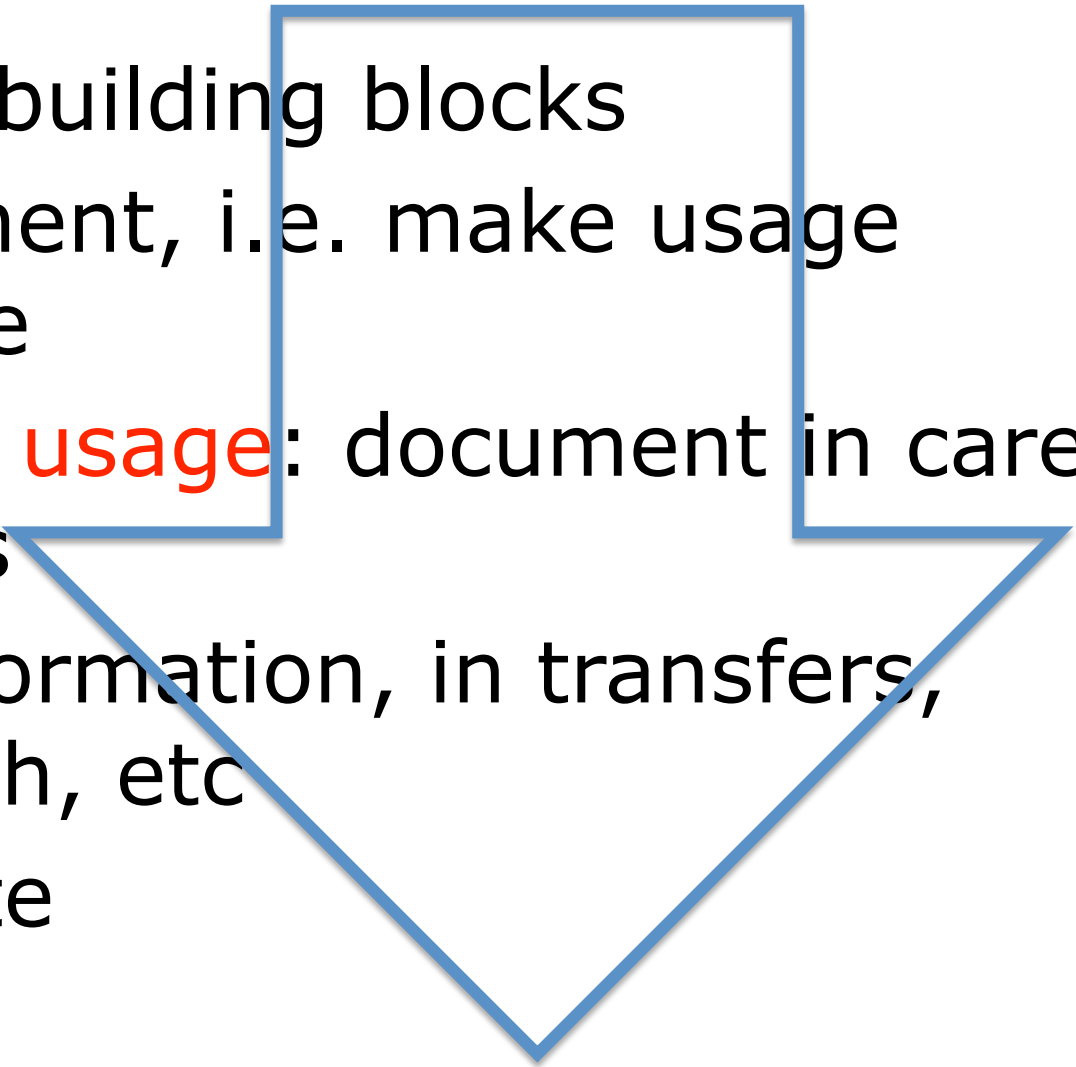
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Started with transfer of patients

- To be re-used for other goals
- Based upon CCR (Continuity of Care Record) structure
- SNOMED coded where possible
- Finished and first published, 2013 (v1.0)
- Maintenance in place, ~80 RFC handled
- 40 medical, 40 nursing
- <http://www.nictiz.nl/module/360/1042/Accompanying%20document%20and%2037%20clinical%20building%20blocks.zip>
- Implementation for transfer into C-CDA (HL7)

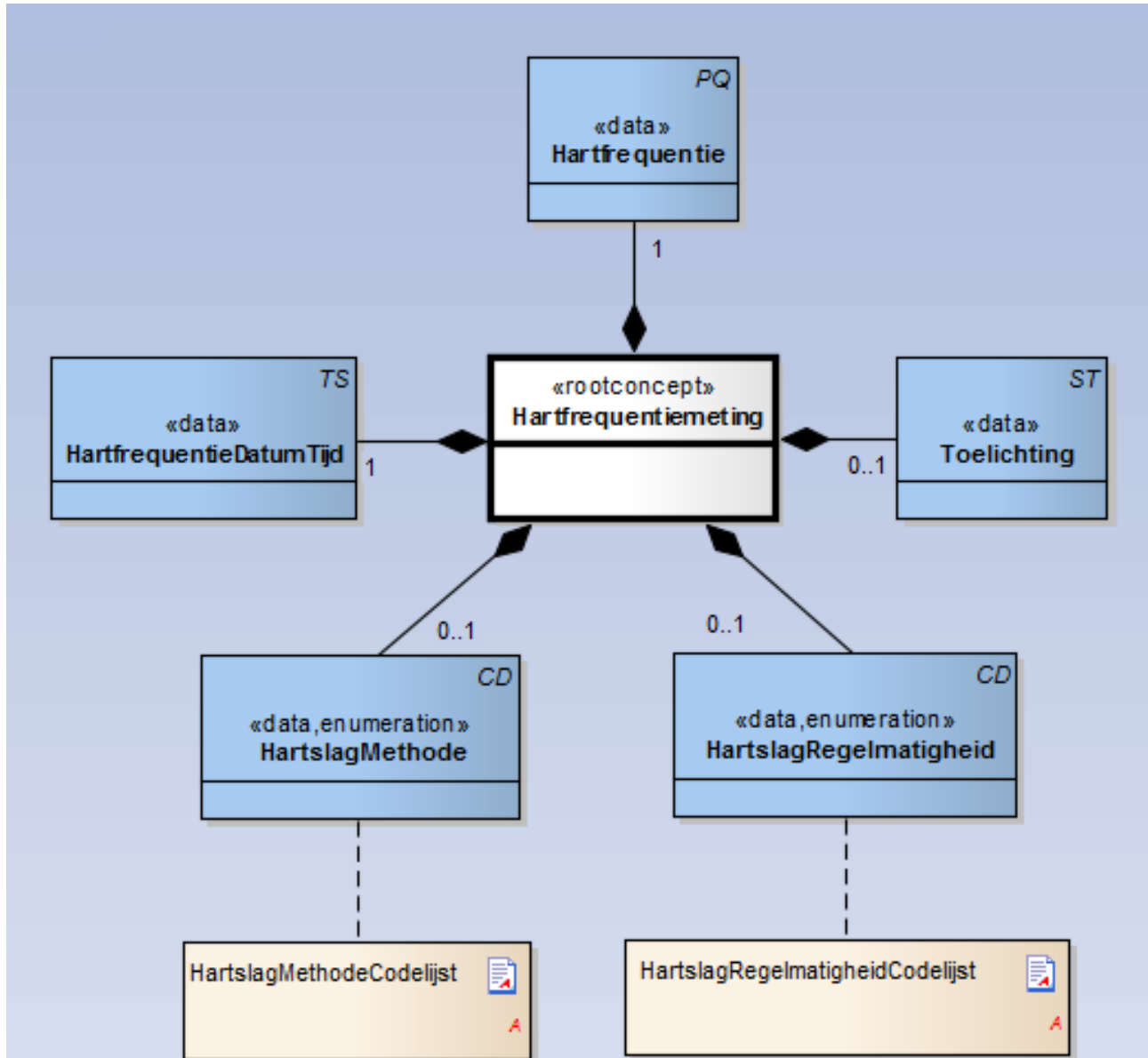
Working cycle

1. Define building blocks
 2. Implement, i.e. make usage possible
 3. **Clinical usage**: document in care process
 4. Use information, in transfers, research, etc
 5. Evaluate
- 

Inside the building blocks

- Concepts: SNOMED CT
- Values: SNOMED CT when value sets
- From CBB heart rate:
- Example 1: Heart rate, SNOMED observable entity, value=number
- Example 2: Regularity of heart rate

HartslagRegelmatigheidCodelijst			OID: 2.16.840.1.113883.2.4.3.11.60.40.2.12.3.1	
Concept Name	Concept Code	Coding Syst. Name	Coding System OID	Description
Regular	271636001	SNOMED CT	2.16.840.1.113883.6.96	regelmatige polsslag
Irregular	61086009	SNOMED CT	2.16.840.1.113883.6.96	onregelmatige polsslag



Inside the building blocks 2

- In cases where other coding is generally accepted, no usage of SNOMED CT:
 - G-standard, medication in NL
 - ICF in nursing
 - LOINC in laboratory tests (but SNOMED CT for bacteria, viruses, etc)



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Further steps

- More disease specific information
- Problem oriented registration
- Awareness and education
- Outreach to other care providers (general hospitals, mental health,..)
- Discuss the huge numbers of quality indicators
-



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Conclusions

- So far, assumptions valid
- Develop our methodology on the fly
- Will have first implementations shortly for transfer
- SNOMED CT is an indispensable element in the solution
- Program will foster acceptance of SNOMED CT in the Netherlands

Centered around this threefold agenda:

- Unambiguous set of definitions of information
- How to register (in the primary process)
- How to extract



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Documentation at the source



further information...

- www.nictiz.nl
- www.nfu.nl

- sprenger@nictiz.nl

