Medication documentation in the Netherlands

Practical experiences and future plans

22/5/2017
• **AORTA**: national infrastructure for health data
• **Medication Documentation**: past, present and future (shifting scope... shifting standards)
  - **Operational**: Electronic Medication Record (v3)
  - **Implementation**: Medication Process (CDA)
  - **Planned**: Personal Health Environment (FHIR)
• Building blocks for standards
• Lighting the FHIR...
AORTA: a brief history

- National infrastructure for the standardized electronic exchange of healthcare data
- Initially funded by ministry of health
- Political crisis 2011 → government pulls out
- Since 2012: funded by private insurers
- Operated and innovated by VZVZ, an organisation of all healthcare providers
- Participation optional (patients and providers)
AORTA: how it works

Push traffic
Index updates
Pull traffic

Well Managed Care System (GBZ)
Well Managed Care System (GBZ)
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Well Managed Care System (GBZ)

National Switching Point (LSP)
reference index
The Electronic Medication Record

- Retrieval of **medication dispense data** from pharmacies by pharmacies, GPs and hospitals
- Includes allergies and contra-indications
- Replaced existing regional infrastructure
- Standard: based on **HL7v3 messaging**
- Currently 200,000+ messages per week
Medication Process (current national program)

- Exchange of a complete medication overview between care providers
- Covers the complete medication cycle
- Based on new conceptual building blocks
- Standard: CDA-compliant templates (implementable building blocks)
MedMij: linking the Personal Health Environment

- Bidirectional exchange of information between patients and their providers
- Scope initially medication, allergies, lab and self-testing (later expanded to other data)
- Based on same conceptual building blocks
- Standard: profiles for FHIR resources (implementable building blocks)
Building blocks for standards

**What?**
- Care Information Building Blocks

**How?**
- Infra A (XDS)
- Infra B (AORTA)
- Infra C (vendor-specific)
- Infra D (…)

**Syntax:**
- HL7v3 (CDA) templates
- FHIR profiles

**Semantics:**
- Document exchange
- Message exchange
- RESTful interface
AORTA 8: infrastructure for the exchange of standardized building blocks of health data
Push mechanism
CDA documents

CDA document with building blocks as document entries (clinical statements)

routing by LSP
Generic query with “context” parameters:
Patient, Context [, Period, Source]
(= Who? What? When? Where?)

Queries for building blocks parameters: Patient [, Period], filters based on context and authorisation

Selection and Determination Service
Context + Authorisation → selection of building blocks from source systems
Pull mechanism response messages

Query response with **bundled** building block instances

Query responses with building block instances (as CDA clinical statements)

**Flexibility** on the requesting side
**Stability** on the source side
Levels of building blocks

**Infrastructural:**
More and more content-agnostic

**Exchangeable:**
Context-specific information sets

**Implementable:**
HL7 templates or FHIR profiles

**Conceptual:**
Care Information Building Blocks
MedMij (patient interface): finding a role for AORTA

MedMij 4-corner model

Traditional role

Expanded role

MedMij requirements
LSP with transformation service

National Switching Point (LSP)

Transformation Service

Care provider system

CDA

Care provider system

v3

CDA

Patient environment

CDA

FHIR

v3

FHIR

Patient environment
The bottom line for the Netherlands

- **Dutch advantages:**
  - national infrastructure AORTA
  - universal coding system for medication

- **Dutch challenges:**
  - install base of existing interfaces
    - gap between ‘old’ and ‘new’ system vendors
    - co-existence of v3 messaging, CDA and FHIR
    - need for transformation until full migration
  - lack of coordination in standards development
    - investment in projects without a shared strategy