Communication requirements in healthcare

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Background figures

- 17 million inhabitants
- 92 Hospitals
- 8 University hospitals
- 4500 GP practices
- 1800 Pharmacies
Healthcare structure

• Healthcare structure in Netherlands:
Business case

• *Estimation of 41,000 hospital admissions yearly in the Netherlands due to medication issues. 19,000 are potentially avoidable. Costs are estimated to €85 million per year.*

_HARM (hospital admissions related to medication) report, 28-11-2006, Utrecht Inst. for Pharmac, Sci._
Medication issues

• Intolerances & allergies
• Contra-indications
• Medication interaction between drugs
• Incorrect dosage
Medication Process

Prescribe → Dispense → Administer

Check

Prescription → Dispense

Medication History
Interaction check
Dosage check
Condition check
Intolerances & Allergies
Lab results
Patient Experience

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Hurdles

- Many actors with different systems & protocols
- Information spread, missing, unavailable or not understandable
- Use of IT in workflow of care providers
- Recognition of patients, drugs, conditions
- Privacy & security issues
Recognition: too many islands

- Primary Care, Secondary Care
Building bridges between islands

- Critical Success Factors for exchanging information are:
  - An infrastructural network
  - Standard containers for exchange
  - Common languages & coding
  - Common knowledge of protocol
  - Fit in the workflow of professional

- The use of law and regulation
  - Privacy protection and secure exchange
  - Monitoring of regulations
Nictiz organization

• Nationwide and neutral “change agent” for ICT and Innovation in healthcare
• Knowledge centre, Design, Maintenance, Operations
• All parties involved take part: care-providers, patients, healthcare insurers, IT-industry
• Funding by the government
Stakeholders

- Citizenship
- Insurance companies
- Care providers
- Institutions
- Partners
- Commerce
- Care providers
- Insurance companies
- Citizens
- Companies
- Policy
- CIBG
- Min. VWS
- Min. OC&W
- Min. Fin.
Mission of Nictiz

• Efficiency in healthcare
  • Prevent errors due to lack of information
  • Prevent unnecessary and double work
  • Uniformity in information through the use of standards
Distributed systems are a fact
Initiate the following components

• Unique Patient Identifier

• Unique Care Provider Identification

• Information broker

• Certified systems of health care providers
Unique Patient Identifier

- Trace and collect patient information
- Irrefutable patient information
Unique care provider identification

- Authentication
- Irrefutable identity
- Electronic Signature
Basic operation
Recognition of drug part numbers

• G-standard maintained by Z-index
  • Generic code (GPK)
  • Prescription code (PRK)
  • Consumer product code (HPK)

• Hospital drug codes
  • Use of own drug part numbers
  • Specialties, cocktail mixes, trials

• Stichting Healthbase
  • Use of separate generic code
Recognition of contra-indications

- Primary Care: International Classification for Primary Care (ICPC v 2)
- Secondary Care: International Classification of Diseases 9 and 10 (ICD-9, ICD-10)
- SNOMED CT
- Mapping tables and terminology server
- Distributed through G-standard by Z-index
Communication standards

- Nictiz publication of standards
  - HL7v3 messages for pharmacy, GP’s
  - Clinical Documents for imaging
- Provide training & coach IT vendors
- Certify IT applications
Connections 25-09-2011

- 4880 care providers are connected to the network
  - Pharmacies: 1752 = 98%
  - GP practices: 2991 = 66%
  - Locum practices: 120 = 100%
  - Hospitals: 17 = 18%
- Citizens = 8,788,873
- Records in registry = 12,483,912
- 2.6% citizens opposed
Guidelines Medication Transfer

• Mandatory per 1-1-2011 by ruling of the Health Inspection Authority:
  • A care provider is responsible for providing a recent medication profile during transfer of the patient to the next care provider

LEVV, NVVA
## Guidelines for Transfer of Medication Profile

<table>
<thead>
<tr>
<th></th>
<th>Guidelines</th>
<th>HIB</th>
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<tbody>
<tr>
<td>1</td>
<td>Basic patient information</td>
<td>Rolled out</td>
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<tr>
<td>2</td>
<td>Dispensed medication</td>
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<td>3</td>
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<td>4</td>
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<td>Qualifications</td>
</tr>
<tr>
<td>5</td>
<td>Prescriptions</td>
<td>Qualifications</td>
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Currently supported on infrastructure
The role of GS1 standards

• The use of GS1 standards can help to ease the workflow and prevent errors:
  • Reading the part number of drugs
  • Verifying the patient identity
  • Verifying the dosage
  • Reporting back the lot number
Bar coding in Nictiz projects

• Closed loop for Immunizations
• Youth health program from 0 – 17 years
• Vaccination program for children
• Administered lot numbers of vaccines are reported back to central repository
• Trace back and take corrective action if lot was not effective
Process flow

1. Register lot
2. Send valid lotnumbers
3. Scan patiënt & drug & lot
4. Update central immunization database
5. Revaccinate

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Questions?

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