Philips Motiva & Catharina Hospital Eindhoven Interconnection using CDA

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Agenda

- Project Context
- Introducing Motiva
- Problem Description
- Implementation
- Findings

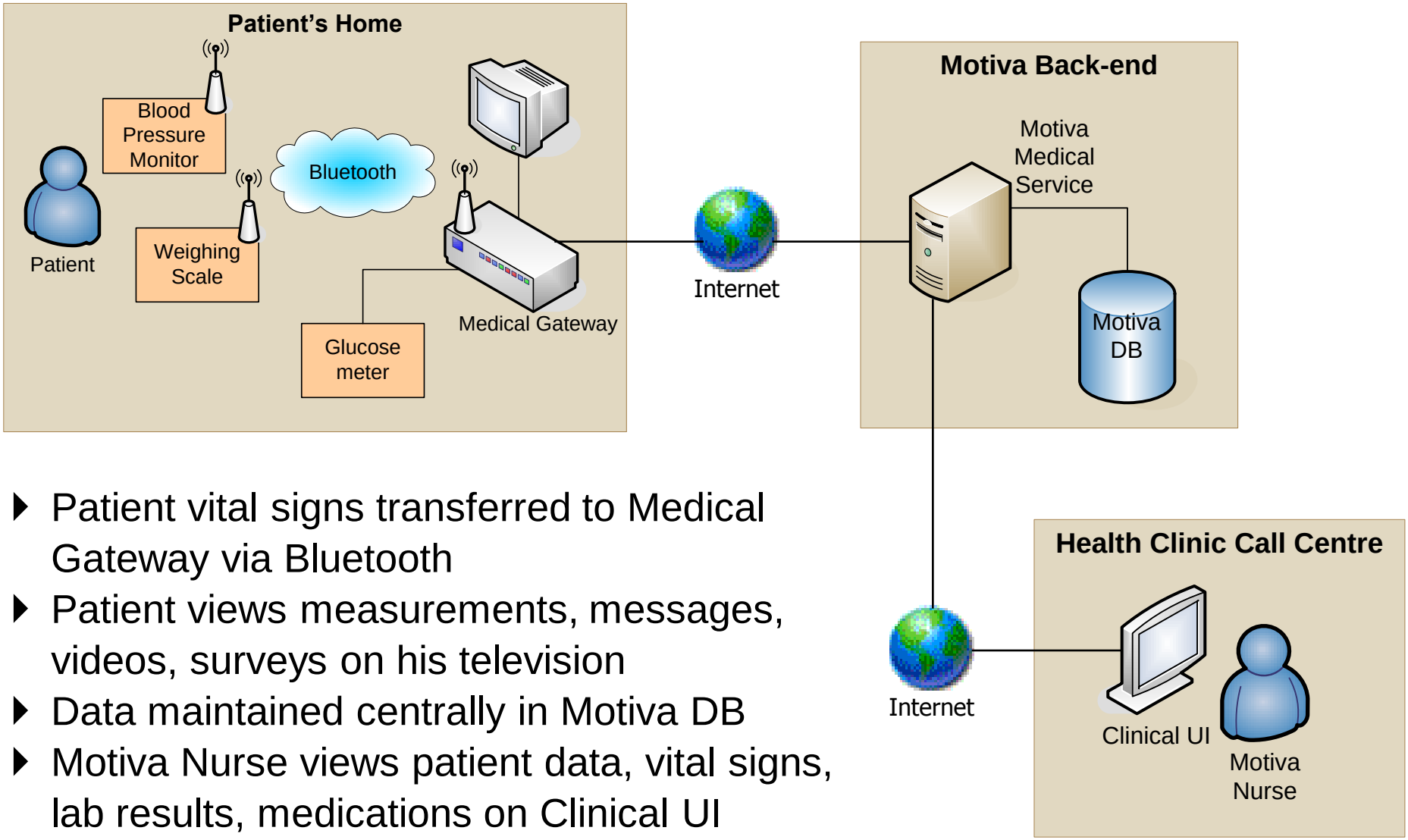
Project Context

- Philips Applied Technologies (Eindhoven) and Philips Home Healthcare Solutions (USA) worked towards developing Motiva

- Philips Applied Technologies wished to investigate
  - Data exchange with other healthcare providers
  - Integration into national healthcare infrastructure

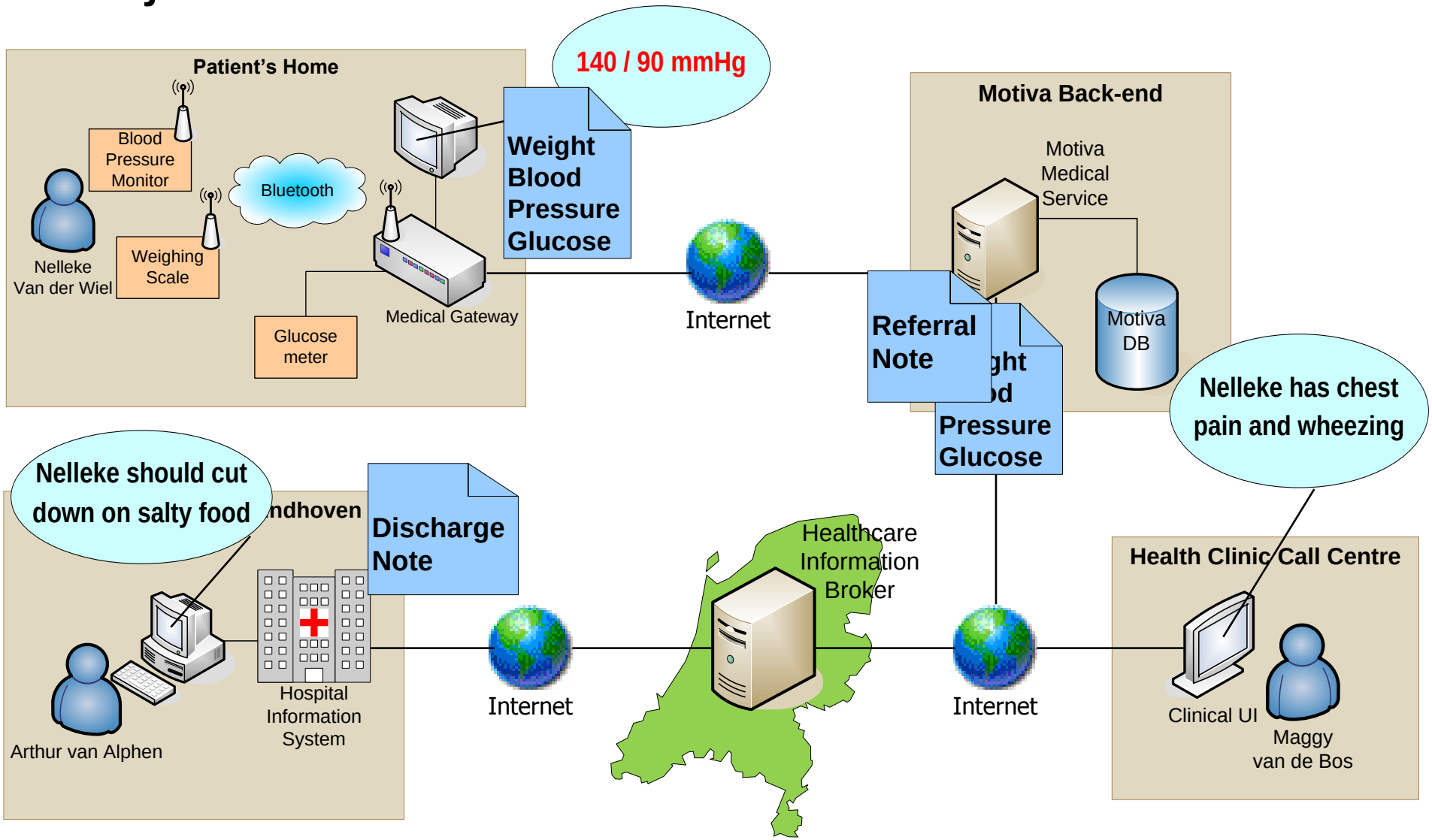
- Apptech and Catharina Hospital agreed to work on a joint prototype
  - Deliver by August 2007
  - Observe the standards of Dutch infrastructure
  - Provide realistic solution

Introducing Motiva



- Patient vital signs transferred to Medical Gateway via Bluetooth
- Patient views measurements, messages, videos, surveys on his television
- Data maintained centrally in Motiva DB
- Motiva Nurse views patient data, vital signs, lab results, medications on Clinical UI

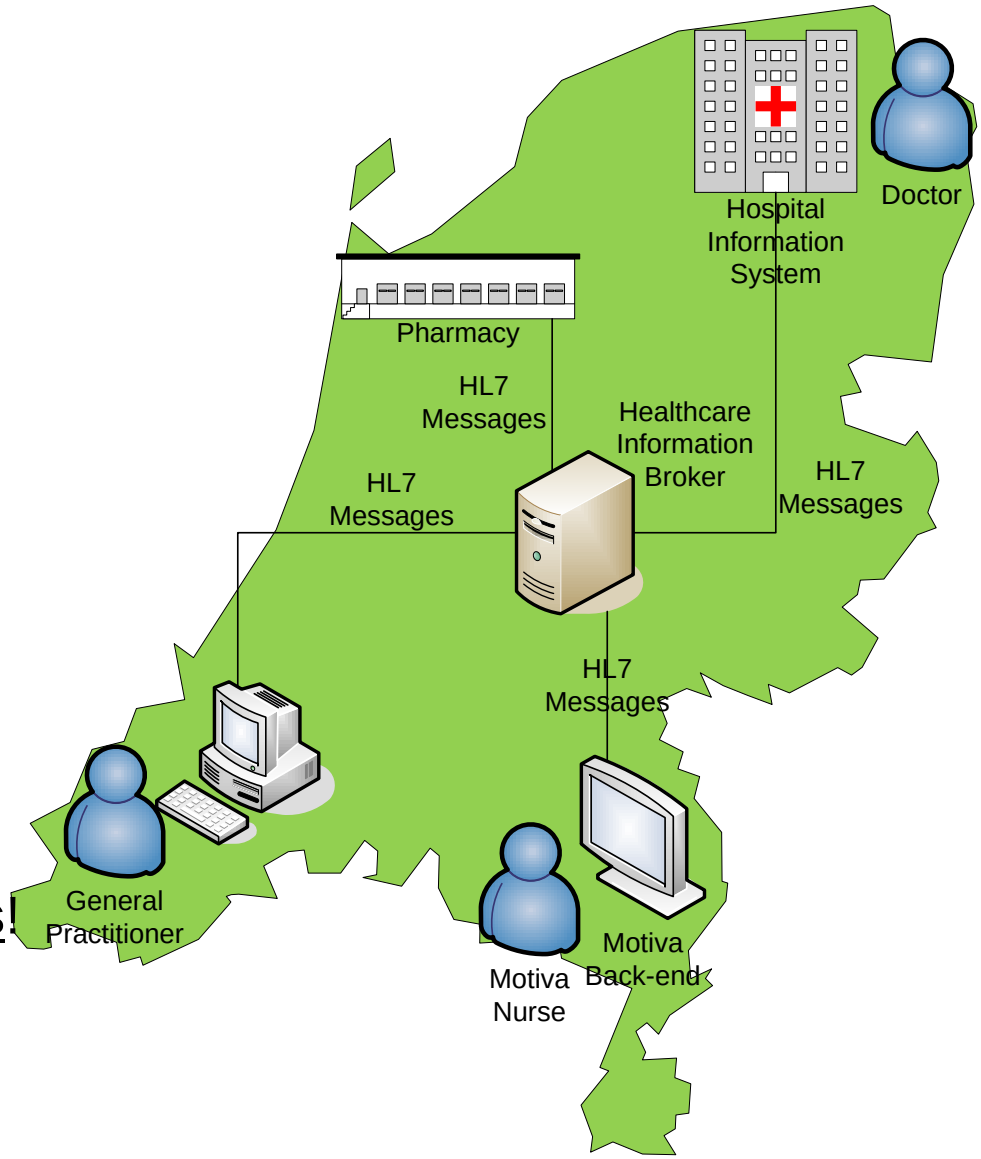
Project Scenarios



Introducing the Dutch IT healthcare infrastructure

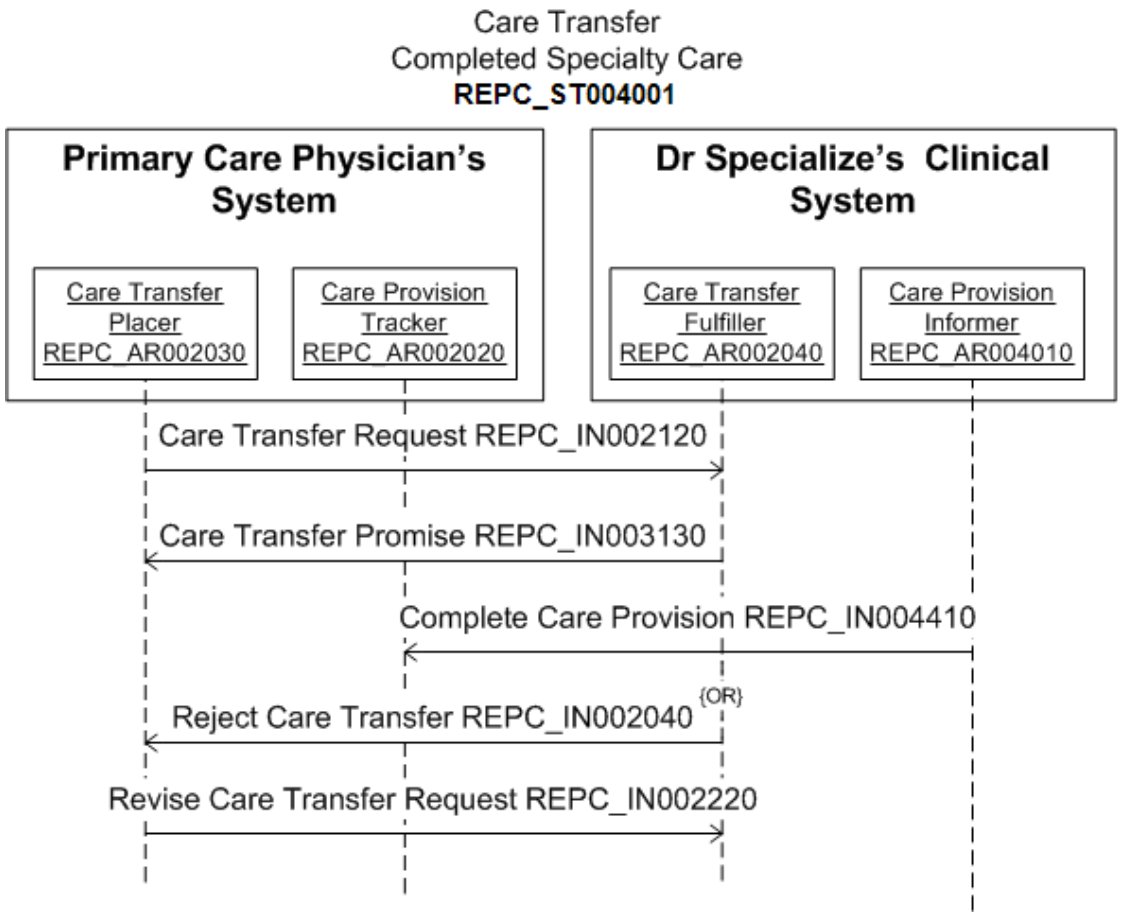
- AORTA infrastructure
  - Developed by NICTIZ
- Decentralized architecture
  - Sustained by a broker (HIB)
  - Contains no central repository

  “Data stays in the source!”
- Smart cards to authenticate clinicians
- Favors the exchange of <u>messages</u>!



The HL7 v3 Patient Care Provision Model

- Models the provision of care to patients or groups of patients
- Based on HL7 v3
- Contains storyboards to describe the encounters
- Defines interactions and messages
- Adopted by the Perinatology Group (+NICTIZ)
- Favored by NICTIZ (?)

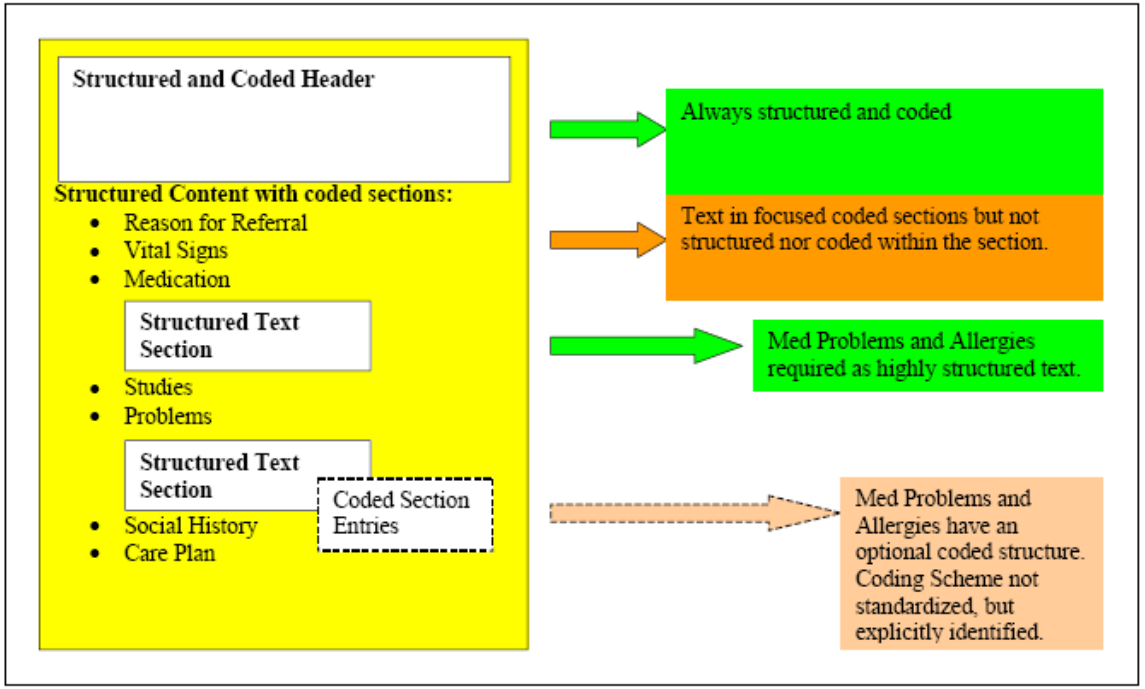


CDA for Referral & Discharge notes

- Header
  - Particip
  - Institut
  - Time in
- Body (narra
  - Reason
  - Medica
  - Vital tre
- Body (struc
  - Vital tre
- Freedom to

The IHE Patient Care Coordination Profile

- Implementation guideline, not a standard!
- Defines interactions for referral & discharge
- Based on HL7 CDA R2
- Restricts CDA
  - obligatory + optional sections
- Suggests use of Repository
- Wide acceptance
  - conflicts with NICTIZ



Prototype Implementation

- Referral & Discharge notes
  - Created XML templates according to CDA xsd
  - Placeholders for info kept in Motiva (Patient id, vital signs etc.)
  - Content defined with Catharina Hospital IT team
- Transmission
  - Java program to parse templates and fill in the missing data
  - Sign the CDA xml file with provider's Certificate
  - Send to receiver's web service over SSL
- Illustration
  - Created custom xml stylesheet (xslt)
  - Referral note content displayed on Motiva Clinical UI
  - Referral / Discharge note displayed on Web browser

Findings

- HL7 CDA is very promising solution for structuring referral and discharge notes
- Use of XML templates more efficient than JAXB
  - JAXB on CDA xsd lead to more than 100 Java classes!
  - Memory stack overflow
- Work iteratively! One step at time
  - Find interested parties
  - Define sections and content
  - Narrative sections first, then structured elements
  - Extend continuously
- Cooperation helped surface implementation issues

Questions?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