National Patient Summary in Finland

IHE World Summit 8.6.2016, Amsterdam
Dr. Heikki Virkkunen

- Senior Medical Officer in National Institute for Health and Welfare in Finland.
  - non profit Competence Center under Ministry of Health and Social welfare in Finland
- Graduated in 1990 and specialized in Anaesthesiology in 1996.
- No IT education but a “self made eHealth nerd” since 1991, working with Health IT
  - with Anaesthesia Information Systems since 1997
  - with Hospital Information Systems since 1999
  - since 2011 in Finnish National eHealth Competence Centre coordinating eHealth development in Finland.
  - Focus on structured patient data, especially
    - the National Patient Summary and
    - the National Medication List.
- No financial linkages to any industry
National Patient Summary in Finland in 3 pictures

IHE World Summit 8.6.2016, Amsterdam
**Finnish National eHealth Information Service**

- **Public healthcare providers**
  - Hospital districts (20)
  - Primary care org. (~200)
  - Private healthcare providers (~4000)
  - Pharmacies (~800)

- **Health care professionals**

- **Swedish epSOS NCP**
  - Connection closed after successful pilot

- **Citizens (> 5 000 000)**
  - Aged 18 and older

- **Main standards**
  - HL7 V3: CDA R2 Level 3 and Medical Records
  - IHE IT-I Profiles
  - W3C XML DSig
  - WS Addressing, WS-I
  - TLS, X.509

- **Other national services**
  - National code server
    - Code lists and terminologies
    - Organization registry
  - Form and document structures
    - Pharmacies register
  - Certification services
    - Health care professionals register

- **Data repository for Social services (Becoming)**

- **Kanta messaging layer**
  - Web-GUIs for HCPs
  - My Kanta pages
  - Radiology DICOM studies

- **Pharmaceutical database**
  - Medicine*
  - Logs
  - Prescriptions
  - Dispensations
  - Renewals

- **Patient data repository**
  - Health records, legacy (CDA R2 L1 / PDF / TXT)
  - Health records, structured (CDA R2 L3)
  - Radiology
  - Lab. results
  - Phys. findings
  - Diagnoses
  - Alerts
  - Vaccinations
  - Procedures
  - Consent and will management service
    - Organ don.wills
    - Living wills
    - Consents and their restrictions

- **Consent and will management service**
  - My Kanta pages
  - Citation Kanta pages

- **Personal Health Record**
  - Customer mydata

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**8.6.2016**

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## Medication

### Permanent medication

<table>
<thead>
<tr>
<th>Changes</th>
<th>Start</th>
<th>Medication</th>
<th>Dosage</th>
<th>Indication</th>
<th>Notice</th>
<th>Checked</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15.8.99</td>
<td>Seloken tabl, 50mg</td>
<td>1kaps(50mg) x 2 hrv po</td>
<td>Hypertonia</td>
<td>May not be changed</td>
<td>4.4.11</td>
</tr>
<tr>
<td></td>
<td>8.6.08</td>
<td>Marevan tabl 5 mg</td>
<td>tauolla</td>
<td>Embolia</td>
<td>Paused until 6.6.201</td>
<td>4.4.11</td>
</tr>
<tr>
<td></td>
<td>1.5.11</td>
<td>Amorlon mixt, 100mg/ml</td>
<td>5ml(500mg) x 3 hrv po</td>
<td>Sinuitus</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15.8.10</td>
<td>Ex Tempore</td>
<td>1ml x2 fihon alle</td>
<td>Pain killer</td>
<td>Sic!</td>
<td>15.4.11</td>
</tr>
</tbody>
</table>

### Medication on demand

<table>
<thead>
<tr>
<th>Changes</th>
<th>Start</th>
<th>Medication</th>
<th>Dosage</th>
<th>Indication</th>
<th>Notice</th>
<th>Checked</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5.12.09</td>
<td>Burana tabl 600mg</td>
<td>1tablel(60mg) x 3 hrv po tarv</td>
<td>Pain killer</td>
<td></td>
<td>4.4.11</td>
</tr>
<tr>
<td></td>
<td>5.12.09</td>
<td>Panacod poredtabl, 500mg/30m</td>
<td>2 poredtabl(100mg) x 3 hrv po tarv</td>
<td>Pain killer</td>
<td></td>
<td>4.4.11</td>
</tr>
</tbody>
</table>

## Diagnosis

### Chronic summary

<table>
<thead>
<tr>
<th>Timer</th>
<th>Period of time</th>
<th>ICD-code</th>
<th>Diagnosis name</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
<td>119.91</td>
<td>Hypertonia arterialis</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>413.01</td>
<td>Angina pectoris</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>173.40</td>
<td>Arthrosis Coxae</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Medical riskfactors

#### Critical riskfactors

<table>
<thead>
<tr>
<th>Start</th>
<th>Risk</th>
<th>Notice</th>
<th>Old Risk</th>
<th>Certainty</th>
<th>Ends</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.8.10</td>
<td>Pain killer induced asthma</td>
<td>Must not use anti-inflammatory drugs</td>
<td>Sure</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Example of one Finnish Patient record systems Patient summary view
Background of the National Patient Summary in Finland
Patient Records in Finland

In Finland we have

- **Public health care providers (municipal) (~200)**
  - Hospital districts (21)
  - Health centers (~192)

- **Private Health care providers (~4000)**
  - Nation wide companies
  - Local (small) companies
  - Private GP:s and Specialists

➢ Each Healthcare Provider has own
  - Electric Patient Record systems (EPR)
  - Patient Care Records (PCR) in daily use
    - Some Providers have their patient records only on paper

- **Pharmacies (~800)**
  - Have own pharmacy-systems
EPR-systems in public health care in Finland in 2010-2011

Primary Health Care
2010–2011

Specialist Care
2010–2011
The one National Health Record Service in Finland - *Kanta*

- National Archive of Health Information = Kanta
  - Electronic Prescription & Pharmaceutical Database
  - Patient Data Repository
    - National Digital Imaging Archiving and Sharing Infrastructure
  - My Kanta Pages (My Health Information)
    - Personal Health Record (PHR)
  - Data Repository for Social Services
Main standards
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Other national services
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Data repository for Social services (Becoming)
The Finnish Patient Summary
Finnish National Patient Summary

- Consists of the **most important structured patient data** stored in the national database
  - Information that is essential to the health care and medical treatment of the patient (by Decree on Nationwide Health Care Information System Services (165/2012) 2§)

- The content and structure of patient summary
  - is defined Nationally
    - Based partly on epSOS guidelines (is more precise)
    - Is published in the National Code server
    - Uses national / international classifications
    - Is obligatory to use in every patient record system in Finland
### Summary documents

- Diagnosis
- Alerts (Risk factors)
- Procedures
- Radiology (only text)
- Laboratorio results
- Physiological measurements
- Immunization
- Medication

### Updating documents

- Health and care plan
Finnish National Patient Summary

- Finnish Patient Summary is a automatically generated "snapshot" of present moment
  - But it can also show "a movie" - changes from history to present
  - It is not a manually updated document

  - Is based on individual markings (entries) in local Patient records made by "all" health care providers
    - Is “patient centric” - it is available regardless which health care provider originally has produced and archived it (with patients permission)
    - Contains total history of data
Finnish National Patient Summary

- Finnish National Service *doesn’t show* Patient Summary
  - It only collects the data and hands it over to Local Patient Record Systems

- Patient summary is shown by Local Patient Record Systems
  - It can also be based on Local data (if National data is unavailable)
Finnish National Patient Summary

• Finnish Patient Summary is meant for every day use for the every day patient
  – It is a up-to-date summary of patient’s most important health information
    • It can be ”seen at a one glance”
    • It gives general view on patient’s health condition
  – It serves also as a Index to more complete documents

– It is not only for emergency situation
Functionality of The Finnish Patient summary
Aiming for good functionality

In Patient Summary

1. Important health information
   – Seen "at one glance"
   – Shown the way you notice them
     • Important health information will be paid attention to
# Patient Summary for Professionals

**Medication**

- **Permanent medication**
  - **Changes** | **Start** | **Medication** | **Dosage** | **Indication** | **Notice** | **Checked**
  - 3 | 15.8.99 | Seloken tabl, 50mg | 1kaps (50mg) x 2 htv po | Hypertonia | May not be changed | 4.4.11
  - 8.6.08 | Marevan tabl 5 mg | tauolla | Emboli | Paused until 6.6.201 | 4.4.11
  - 1.5.11 | Amorlon mixt, 100mg/ml | 5ml (500mg) x 3 htv po | Sinuitis | | |
  - 15.8.10 | Ex Tempore | 1ml x 2 lv ltn alle | Pain killer | Sic | 15.4.11

- **Medication on demand**
  - **Changes** | **Start** | **Medication** | **Dosage** | **Indication** | **Notice** | **Checked**
  - | 5.12.09 | Burana tabl 600mg | 1tabletit 600mg, 1 htv po tarv | Pain killer | | 4.4.11
  - | 5.12.09 | Panacod poredabl, 500mg/30mg | 2 poredabl 500mg/30mg, htv po tarv | | | 4.4.11

**Diagnosis**

- **Chronic diagnosis**
  - **Code** | **Diagnosis name**
  - 4 | Hypertonia arterialis
  - 3 | Angina pectoris
  - 2 | Arthrosis Coxae

**Medical Riskfactors**

- **Critical riskfactors**
  - **Start** | **Risk** | **Notice** | **Certainty** | **Ends**
  - 15.8.10 | Pain killer induced asthma | Must not use anti-inflammatory drugs | Sure | 

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Only model!
Aiming for good functionality

In Patient Summary

1. Important health information
2. Easy access to original text
   - Necessary information easily found
     - Information is used in care

Click the date with mouse (and you get the original text)
Aiming for good functionality

In Patient Summary

1. Important health information
2. Easy access to original text
3. Easy access history and more detailed information
   - Necessary information easily found
     • Information is used in care
Aiming for Practicality

In Patient Summary
1. Important health information
2. Easy access to original text
3. Easy access history and more detailed information
4. "Intelligent" features
   - Remarks of "false" treatment
   - Advices (how to treat)
   - Automated (Evidence based) medical Decision support systems

Notice!
Patient has "Burana tabl 600mg" even "NSAIDs provoke Asthma" for him.

Finnish example of the Real World

- Example of one Finnish Patient record systems Patient summary view
Finnish National Patient summary: Yesterday - Today – Tomorrow

• These were ”only plans” in 2013 – and they still are
• But they should be true
• by 2013 plan
  – 1.9.2014 partly
  – 1.9.2016 totally
• by 2016 plan
  1.10.2017 partly (Diagnosis, Alerts)
  31.12.2020 totally

Thanks !