Towards Citizen-Centred Care

Interim Results from An E-Prescription Case

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E-Prescription Case: Needs and goals

• Medication data is central in care
  – Physician orders, renews, checks substance interactions etc.
  – Citizen checks drug names and dosages, generates data of self medication etc.
  – Pharmacies dispence and can relay prescription renewal requests
  – Structured data used in integrated DSS

⇒ Comprehensive and accessible medication data increases patient safety
Background: Health care services in Finland

- 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 Health Record systems (EHR)
    - Patient care records for daily use
    - Some small providers have their patient records only on paper

- Pharmacies (~800)
  - Have own pharmacy-systems
Background: National Information Services in Finland

Citizen - professional

My Kanta pages  PHR

Health centre A

Health centre B

Pharmacy

Hospital

Interfaces for EHRs

Web access

Kanta patient information services

Prescription centre

Patient information archive

Core patient information (structured)

Concent, living will

Pharmaceutical database

National codeserver

Certification service

Qualifier services

Citizen access

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Changing environment: citizen’s role

CITIZEN

My own health and welfare data
Self care plan(s)
Virtual coaching
...etc.

PHR solutions

National databases and information services
- Information management service
- Patient information archive
- Welfare information archive
- Medication information archive
- National PHR database

"My own Kanta" Citizen portal

Customer relationship / Service planning

EHR interfaces Web access

Health and welfare service providers

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Data and methods

• E-prescription data was evaluated in 2015
• Public service providers’ patient information system integration with e-prescription services was completed
  – Data collected 2012-14
  – Primary data set collected by patients with e-prescription updates or other action in November 2014

<table>
<thead>
<tr>
<th></th>
<th>Primary data</th>
<th>Control data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients</td>
<td>596</td>
<td>600</td>
</tr>
<tr>
<td>E-prescription</td>
<td>76 411</td>
<td>39 327</td>
</tr>
</tbody>
</table>

– 48 data elements, 13 HL7 message types
Data per hospital districts
Results: data quality evaluation

• Completeness of data analysed with quantiative comparison
  – Mandatory data elements
    • E.g. ATC-code documented in 97 % of orders
  – Between messaging types

• Shows variation between different hospital districts
  – E.g. permanent medication
  – Based on system differences or training?
  – More differences when documented by a pharmacists
    • E.g. no ATC-code, just a drug name and package data
## Results: data completeness between different message types

<table>
<thead>
<tr>
<th>Message type</th>
<th>Messages (N)</th>
<th>ATC-codes</th>
<th>Preparation type</th>
<th>Purpose of use</th>
<th>Dosage instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prescription order</td>
<td>20616</td>
<td>20109</td>
<td>20246</td>
<td>14824</td>
<td>20616</td>
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<tr>
<td>Dispensing message</td>
<td>35490</td>
<td>34694</td>
<td>35098</td>
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<td>--</td>
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<tr>
<td>Invalidation message</td>
<td>423</td>
<td>416</td>
<td>413</td>
<td>273</td>
<td>273</td>
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<tr>
<td>Correction message</td>
<td>321</td>
<td>314</td>
<td>315</td>
<td>257</td>
<td>257</td>
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<tr>
<td>Renewal request</td>
<td>9711</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>
Results

• Missing data?
  – Only 80 % included *purpose of use* and *dosage information*
  – 47 % the correction messages missed *reason for correction*

• Prescription renewal requests function based on document identifiers, not on ATC-codes ⇔ ATC-codes link continuous medication
Discussion

• Much of the 2015 results were of validating the quality of e-prescription data
  – E-prescription data is complete when stored in the national archive
  – Data reliability/completeness varies between various messages
  – Prescription order and preparation dispensing messages are most completely documented

• Differences between patient record entries and e-prescription contents
  – E.g. purpose of use is documented with ICD-10 codes into patient record and with free text in e-prescription
  – Layman’s terms insufficient also for citizens?
Conclusion: Towards Citizen-Centred Care?

• Current issues:
  – Training the users in common structured documenting to support more reliable data
  – Usability of structured data (e.g. DSS)
  – Provide up-to-date medication list at the national level
  – Solution for ”translating” medication data in citizens’ portal; limiting the view vs. ”showing all”

• Further challenges:
  – Combining e-prescription data and citizen generated data to support citizens’ informed care decisions
  – Requirement’s for PHR data quality and interfaces 2016-17
    • Validation and usability of citizen generated data?
Thank you!