eHealth in Denmark

Hans Erik Henriksen, CEO Healthcare DENMARK

heh@healthcaredenmark.dk
Healthcare DENMARK is a public-private partnership
Her Royal Highness Crown Princess Mary is patron for Healthcare Denmark

“In Denmark, our focus on putting the patient first – combined with constant efforts to improve efficiency and quality – has resulted in a wide array of innovative healthcare solutions.
I sincerely believe Danish technologies, products and expertise can have a positive impact on global health.”
Healthcare DENMARK

- Danish healthcare visitor programs
- Conferences
- Danish delegation visit to other countries
- Communication and press activities
- Healthcare DENMARK Ambassadors
- The Healthcare DENMARK homepage
Agenda

• eHealth background and status
• eHealth architecture
• eHealth strategies and governance
• Future plans
A long term focus on health data networks and on e-health provide efficient access to healthcare information

Sundhed.dk
E-health Portal
2003 -

MedCom
Health Data Network
1994 -

Who is behind?
Ministry of Health, Danish Regions, Ministry of Interior, National Association of Local Authorities, National Board of Health, Copenhagen Hospital Corporation, Danish Pharmaceutical Association
SERVICES FOR CITIZENS

• Access to personal health data on treatment
  • E.g. e-Record from hospitals and GPs and Shared Medication Card

• Communication with health care providers
  • E.g. Contact information and e-services like booking, prescription renewals and electronic communication

• General information on health service
  • E.g. quality in health care, patient rights

• Accurate and updated information on health, disease and treatment
  • E.g. medical handbook

• Personal home care/hospital solutions
  • E.g. diabetes and anticoagulant therapy

• Patient to patient dialogue
SERVICES FOR HEALTH CARE PROFESSIONALS

• Access to personal health data on patients
  – E.g. e-Record, laboratory data and Shared Medication Card
• Contact and service information on other health care providers
• General information on health service
  – E.g. waiting lists, quality in health care, health and prevention programs, visitation
• Accurate and updated information on health, disease and treatment
  – E.g. medical handbook, treatment feedback and benchmarking
• Personal home care/hospital solutions
  – E.g. diabetes and anticoagulant therapy
The national EHR today (e-journal)
Central user interface – patient overview:
Central user interface – medication details

<table>
<thead>
<tr>
<th>Startdato</th>
<th>Slutdato</th>
<th>Lægemiddel</th>
<th>Form</th>
<th>Styrke</th>
<th>Dosering</th>
<th>Indikation</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-09-2010</td>
<td>25-10-2010</td>
<td>Procoralan</td>
<td>Filmovetrukne tabletter</td>
<td>5 mg</td>
<td>1 stk morgen og aften</td>
<td>Mod hjertekrampe</td>
</tr>
<tr>
<td>21-09-2010</td>
<td>21-09-2011</td>
<td>Simvastatin &quot;Arrow&quot;</td>
<td>Filmovetrukne tabletter</td>
<td>80 mg</td>
<td>1 stk nat</td>
<td>Mod forhøyet kolesterol</td>
</tr>
</tbody>
</table>

**Detaljer**

<table>
<thead>
<tr>
<th>Simvastatin &quot;Arrow&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oprettet: 21-09-2010 12:55</td>
</tr>
<tr>
<td>Ændret: 25-09-2010 10:37</td>
</tr>
<tr>
<td>Startdato: 21-09-2010</td>
</tr>
<tr>
<td>Slutdato: 21-09-2011</td>
</tr>
<tr>
<td>Virksomt stof: Simvastatin</td>
</tr>
<tr>
<td>ATC-kode: C10AA01</td>
</tr>
</tbody>
</table>

| Indikation: mod forhøyet kolesterol |
| Dosis: 1 stk nat |
| Form: filmovetrukne tabletter |
| Styrke: 80 mg |
| Administration: Oral anvendelse |
| Må substitueres: Ja |
Data for the National E-health platform is delivered by the regional E-health solutions – e.g. the Systematic eHealth platform

Columna is a full blown eHealth platform consisting of

- The Patient Record
- Patient Administration (ADT)
- Booking
- Order/Result
- Medication Management
- Logistics

Facts about Columna

- Columna is used in Central Denmark Region (Denmark’s second largest region with 1.3 million citizens) covering 18 hospitals including University Hospitals
- 10,000 different users per day, 25,000 registered users
- 6.7 million citizens are registered in Columna, of whom 1.2 million are patients with registered data.
- Registration of 2,400 admitted patients and 5,500 outpatients per day.
- More than 25,000 medication prescriptions per day.
- 40,000 lab results per day, 6,500 per hour in peak.
Agenda

• eHealth background and status
• eHealth architecture
• eHealth strategies and governance
• Future plans
The national EHR – how it all started in 1999

- 3 Health Regions
- 3 EMR systems
- Pragmatic approach:
  - Common content
  - XML format
  - XML repository
  - Secure web access
Medication Record – the problem
The Shared Medication Record

Specialist

GP

Citizen

Hospital

Emergency

Clinics

Home Nurse

Pharmacy
National Board of Health: The National Service Platform
The National Service Platform

**Service users**
- Regions
- Municipalities
- Medical practices
- Government

**NSP SERVICES**
- Security Token Service (STS)
- Token exchange

**REGISTER SERVICES**
- Medical Authorisation
- Civil registration no. (CPR)
- Provider
- Client

**BUSINESS SERVICES**
- Shared Medication Record (FMK)
- Treatment relationship
- Follow-up
- Consent
- My log
- Notification
- Notification of birth
- Danish Vaccination Register (DDV)
- Authorisation

Central data collection and distribution unit

**Ministry of Health**
- FMK
- DDV
- Authority
- Registers

**Ministry of Economic Affairs and the Interior**
- CPR

**Ministry of Ecclesiastical Affairs**
- Register of birth
The National Service Platform – and new services

2014: National Image Index
- Radiology
- Ultrasound
- Telehealth

2015: National Telehealth
- Device data
  - General (e.g. weight)
  - Diagnostic (e.g. ECG)
Healthcare Network
Contiuas/XDS/HL7

National Healthportal

Municipal IT

5 Regions

NSP Master

3600 GP’s

Government National Databases

FÆLLES MEDICINKORT

OpenTele

EU systems

38256

National Healthportal

Healthcare Network

Continua/XDS/HL7

NSP Master

3600 GP’s
Agenda

• eHealth background and status
• eHealth architecture
• eHealth strategies and governance
• Future plans
In 2013 Denmark launched the strategy for the next 4 years

- National EHR and E-health architecture
- International standards
  - HL7
  - Continua Health Alliance
- First fully regional telehealth implementations
- Coordinated strategy:
  - Ministry of Health
  - Danish Regions
  - Danish Municipalities
"Making eHEALTH WORK" is the 5. National Health-IT strategy
The Danish E-health organization

National:
The Ministry of Health and Prevention

Regional:
- Danish Regions
  - Region Health IT (RSI)
    - Responsible for:
      - Common projects

  - 5 Regions

Municipal:
- Local Government Denmark
  - 98 Municipalities

The National E-health Authority:
- Board 3
  - Responsible for:
    - Standards
    - Terminology
    - Strategy
    - Governance
    - Development
    - ICT operation
  - Share Medication Record
  - National Service Platform

The National Health Data Network, MedCom:
- Board 3
  - Responsible for:
    - Governance
    - Development
    - ICT operation
  - The National Health Data Network MedCom

The National E-health Portal:
- Board 1
  - Responsible for:
    - Strategy
    - Governance
    - Development
    - ICT operation
  - The National E-health Portal Sundhed.dk

Danish Regions
Local Government Denmark
Region Health IT (RSI)
Agenda

• eHealth background and status
• eHealth architecture
• eHealth strategies and governance
• Future plans
Smartphone, tablet and app access to sundhed.dk
OUR VISION: STAY AT HOME
A coherent and sustainable healthcare system:
Health care for all at the lowest effective cost level
The journey towards Value Based Healthcare

• Value Based Healthcare is about fulfilling the needs of the patient and deliver high quality healthcare results and outcomes for patients with the lowest efficient costs for the healthcare system.

• Danish initiatives:
  • Towards Integrated Care – the patient journey and telehealth
  • Patient Reported Outcomes
  • Population Health and prevention
  • The future role of the hospital
  • Personalized Medicine
The TeleCare North project – telehealth and Integrated Care

TeleCare North
Home monitoring of COPD patients

Supporting a COPD patient across the continuum of care
Towards Patient Reported Outcomes

- **Clinical patient information** collected by patients themselves, e.g. via home monitoring,
- **Health profiles** which include personal information on the patient, e.g. smoker/non-smoker
- **Patient reported experience data** (PRE-data) on the patient’s experience of and satisfaction with the treatment,
- **PRO-data, self-reported information on health**, e.g. degree of pain, headache etc.

Source: Processed from Analysis of patient reported outcomes (PRO), PA Consulting Group
Patient Reported Outcomes – status and progress

Summary of planned and initiated PRO-data-projects in the regions, May 2016

Note: The figures must be interpreted with caution because of incomplete data collection
Source: Survey by Danish Regions and summary from Procordo

Top-10 areas of disorder in PRO-data-projects

Number of hospitals

- Achilles tendon
- Breast cancer
- Epilepsy
- Hip and knee
- Rheumatoid Arthritis
- Lung cancer
- Prostate cancer
- Psychiatry
- Back disorders
- Ear, nose and throat

Note: The figures must be interpreted with caution because of incomplete data collection
Source: Survey by Danish Regions and summary from Procordo
The Population Health and prevention initiative by Danish Regions

Healthy citizens

At risk citizens

Chronic patient

Hospitalized patient

Healthy – no treatment

35%

15%

25%

20%

4%

1%

Comorbidity 2-4 diseases

Comorbidity >5 diseases

ICU – life threatening condition

Clinical issues

Social issues

Lifestyle issues

Danish Regions projects

• A healthy day – promoting a healthy lifestyle
• The health profile – early detection of diseases
• Preventing somatic disease among mental patients
• Mind My Mind – smoking cessation
• Via family – families with mental disease
• Vulnerable pregnant women with social and mental challenges
• Helbredsprofilen.dk – prevention and chronic patient support

• 5 – 12 times higher re-admittance rate
• 11 times higher healthcare costs
The Personalized Medicine strategy – 2017-2020

**Phase 1**
- Establishment of a secure, joint and nationwide technological infrastructure
- Establishment of a National Genome Centre
- Consolidation of existing clinical activities and support functions
- Citizen and patient involvement and collaboration on ethical and legal aspects
- Education and competence development
- Establishment of national genome database
- Programme launch: Establishment of governance model, including management board and related forums
- Implementation and dissemination of harmonised evidence-based clinical practice in the healthcare system

**Phase 2**
- Continuous focus on ethical and legal aspects
- Regional research support
- Research and development activities
- Establishment of base for knowledge sharing in clinical practice
The future hospital structure – and the 16 new hospitals will be completed towards 2025

The new hospital projects,

The new Aarhus University Hospital

The new Odense University Hospital

http://www.danishhospitalconstruction.com/
Hans Erik Henriksen, CEO Healthcare DENMARK
heh@healthcaredenmark.dk