E-Health in Norway

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International Patient Summary Workshop, European Commission, Brussels February 2017
About me

- Cand.med. 2001 University of Oslo
- 5 years clinical practice in orthopedic trauma and anesthesiology
- 10 years experience in e-health
  - 5 years at Rikshospitalet: EHR, CPOE, booking, results follow up...
  - 4 years at Directorate of health: Summary care record, One citizen - one record...
- Specializing in public health

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The Government aims to ensure that everyone, irrespective of their personal finances and where they live, has access to good health and care services of equal standard.

GOVERNANCE:
Ministry of health and care services issues laws and regulations and own the regional health authorities.

Directorate of health executes political decisions, advise political leadership and the health sector and oversees laws.

4 regional health authorities responsible for specialist care. They govern 22 trusts with approximately 70 hospitals.

428 municipalities responsible for primary care defined as GPs, home care and services, long term care, rehabilitation and public and preventive health.

Area 385 000 square km
Population density 13,26 inhab/square km

Population 5 MILLION
Life Expectancy 81,5 years
Health pros pr 1000 inhabitant
3,2 DOCTORS
12,9 NURSES
GP is a gatekeeper to specialized care
Expenditure on health 9.4 % OF GDP
Public funding 85 %

Source: OECD 2010
Governance model for healthcare and e-health

Nasjonalt
- Andre fagmyndigheter
- Helsedirektoratet
- norskhelsenett
- dfi

Regional/lokal
- Helse MIdt-Norge
- Helse NORD
- Helse Sør-Øst
- Helse VEST

428 municipalities
- 4.200 GPs
- Kommunale og interkommunale IKT-funksjoner

Leverandørmarkedet

Ca. 160 avtale-spesialister og institusjoner
Ca. 108 avtale-spesialister og institusjoner
Ca. 1.200 avtale-spesialister og institusjoner
Ca. 330 avtale-spesialister og institusjoner
Norway was early adopters of e-health, but...

...only 1 hospital at HIMSS Emram stage 5 – all others stage 2/3

Each GP Office, municipality and hospital has their own local EMR. Almost no cloud hosting.
Direct messaging – well established for years

Standardized messages:

- Referrals
- Discharge summaries
- Requisitions and test results
- Nursing reports between hospitals and home care/nursing homes
- Dialogue-based messaging between hospitals and GPs
- Electronic prescriptions
Hypersensitivity

Complications in anesthesia

Alert medical conditions

Ongoing treatment and implants

Contagious
Must be alerted because it might kill or harm the patient if not known

Must be easy to find

Alert

Practical and useful

Rest of the medical record

Diagnosis
- Addison
- Bleeder
- Marfan

Implants
- Heart valve replacement
- Cerebral shunt

Medications
- Anticoagulants
- Chemo

AMI
- Diabetes

Orthopedic implants

Medications currently in use
- Varices
- Hernia

What type orthopedic implant

Alert information exists

Summary care record without alerts

SCR contain info registered from patient

Patient do not have a summary care record

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Terms for alerting a medical condition

– The diagnose **shall not be easy to discover** with ordinary examinations and tests

– The diagnose **might cause severe danger if not known** because of either:

  1. Severly affected level of consciousness
  2. Affected respiration or risk of hypoxia
  3. Severe risk of bleeding
  4. Risk of circulation failure
  5. Risk of problem during anaesthesia
  6. Risk of severe complication during surgery
  7. Risk of life threatening complication if medication is changed
Current list of conditions meeting these terms

- Amyloidose
- Angioödem
- Aortaaneurisme
- Bartters syndrom
- Binyrebarksvikt
- Blodgruppeantistoff påvist
- CADASIL
- Dravet syndrom
- Døvblindhet
- Ehlers-Danlos syndrom
- Fabry sykdom
- Fenylketonuri
- Feokromocytom
- Fettsyreoksydasjonsdefekt
- Fibrodysplasia ossificans progressiva
- Galaktosemi
- Gitelmans syndrom
- Gjennomgått subaraknoidalblødning
- Glycogen storage disease
- Hemofili
- Hydrocephalus
- Hypofysesvikt
- Hypoparathyreoidisme
- Immunsvikt
- Isovaleriansyreemi
- Karnitinmangel
- Lang QT-syndrom
- Loeys-Dietz syndrom
- Malign hjernetumor
- Malign hypertermi
- Maple syrup urine disease
- Marfan syndrom
- Mastocytose
- MELAS
- Metylmalonsyreemi
- Mitokondriesykdom
- Morbus Osler
- Muskeldystrofier/myopatier
- Myasthenia gravis
- Osteogenesis imperfecta
- Paraneoplastisk syndrom
- Parokysmal nokturnal hemoglobinuri
- Porfyri
- Propionsyreemi
- Pseudocholinesterasemangel
- Pulmonal hypertensjon
- Respirasjonssvikt type II
- Sarkoidose
- Situs inversus
- Splenektomert
- Sturge Weber syndrom
- Svelgparese
- Trombocytopeni
- Trombofili
- Tuberøs sklerose
- Ureasyklusdefekter
- Vaskulære malformasjoner i hjernen
- Wilsons sykdom
<table>
<thead>
<tr>
<th>Begrep</th>
<th>Synonyme søkeord</th>
<th>Samsvarende ICD-10 koder</th>
<th>Begrunnelse</th>
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<tbody>
<tr>
<td>Malign hypertermi</td>
<td>Ondartet hypertermi Hypertermi under anestesi</td>
<td>T88.3 Ondartet hypertermi som skyldes anestesi</td>
<td>Malign hypertermi er en plutselig reaksjon på enkelte narkosemidler som kan være livstruende. De som har hatt malign hypertermi må unngå utløsende agens i fremtiden.</td>
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<tr>
<td>Fibrodysplasia ossificans progressiva</td>
<td>Myositis ossificans Stone Man Syndrome FOP Progresiiv fibrodysplasia Progredierende myositis ossificans</td>
<td>M61.1 Myositis ossificans/Fibrodysplasia ossificans progressiva</td>
<td>En bindevesykdrom der skadet muskeløvve omdannes til benvev i stedet for å tilheles, eksempel ved intramuskulære injeksjoner og kirurgi. Det kan være intubasjonsvansker og hjerte- og lungeproblemer.</td>
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<tr>
<td>Marfans syndrom</td>
<td>Morbus Marfan Marfans sykdom Mb Marfan</td>
<td>Q87.4 Marfans syndrom</td>
<td>Marfans syndrom er en bindevesykdrom som kan gi svekkelser i hjerteklaffer og aorta i tillegg til en rekke andre symptomer.</td>
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International comparison of content in summary care records in a master thesis

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<th>SJ (Denmark)</th>
<th>KP (Finland)</th>
<th>SCR (England)</th>
<th>ECS, KIS, ePCS (Scotland)</th>
<th>IHR (Wales)</th>
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Source: Based on information obtained by mail from contact persons working in organisations responsible for each SCR and from analyses of following resources: Boman, D. & Magnusson C., 2013; Direktoratet for eHelser, 2016; DMP, 2016; eHealth and Care, 2016; Greenhalgh et al., 2013; Healthcare Improvement Scotland, 2016; Helsedirektoratet, 2016; HSCIC, 2015; HSCIC, 2016a; Hyppönen et al., 2015; Inera, 2015; Inera, 2016a; Kanta, 2016a; NHS24, 2016a; Northern Ireland Direct, 2015b; Regjeringen 2015; sandeford, 2015a; Tieto, 2016.

Factors affecting the use of “Kjernjournal” in the Norwegian healthcare system.

Vinda Ikere

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University of Oslo
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