

e-health in Norway

AEMH Conference

“E-health in hospitalcare in 2017”

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DEN NORSKE
LEGEFORENING

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 DIGITAL DOCTOR

Hope, Hype, and
Harm at the
Dawn of Medicine's
Computer Age

ROBERT WACHTER



Our network

- **The ICT-comittee**

- Advisory to the central board of the Medical Association.
- Voluntary work.

- **The reference group for EMRs**

- Unformal (virtual) network with good climate for sharing and discussions.
- Voluntary work.
- Chaired by Susanne Prösch
(similar to the NHS CCIO Network)

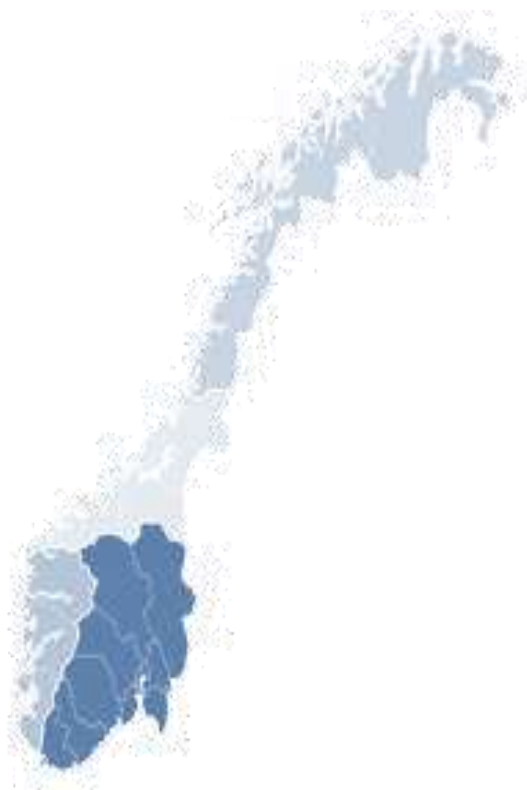
<http://www.refepj.no/>



Topics

- Governance
- Information architecture and information exchange
- Privacy regulations
- The future

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 approximetly 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



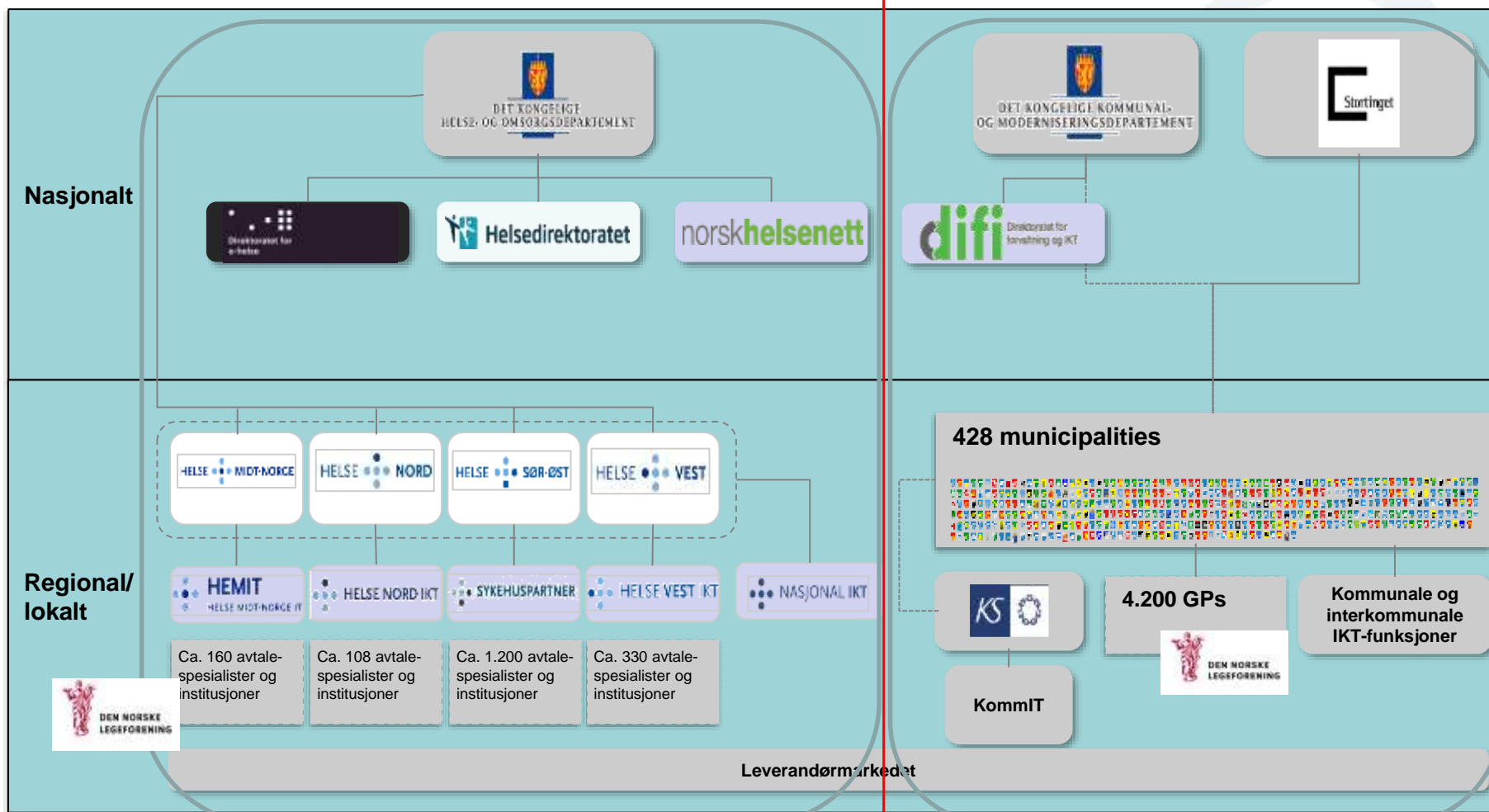
Expenditure on health
9.4 % OF GDP



Public funding
85 %

Source: OECD 2010

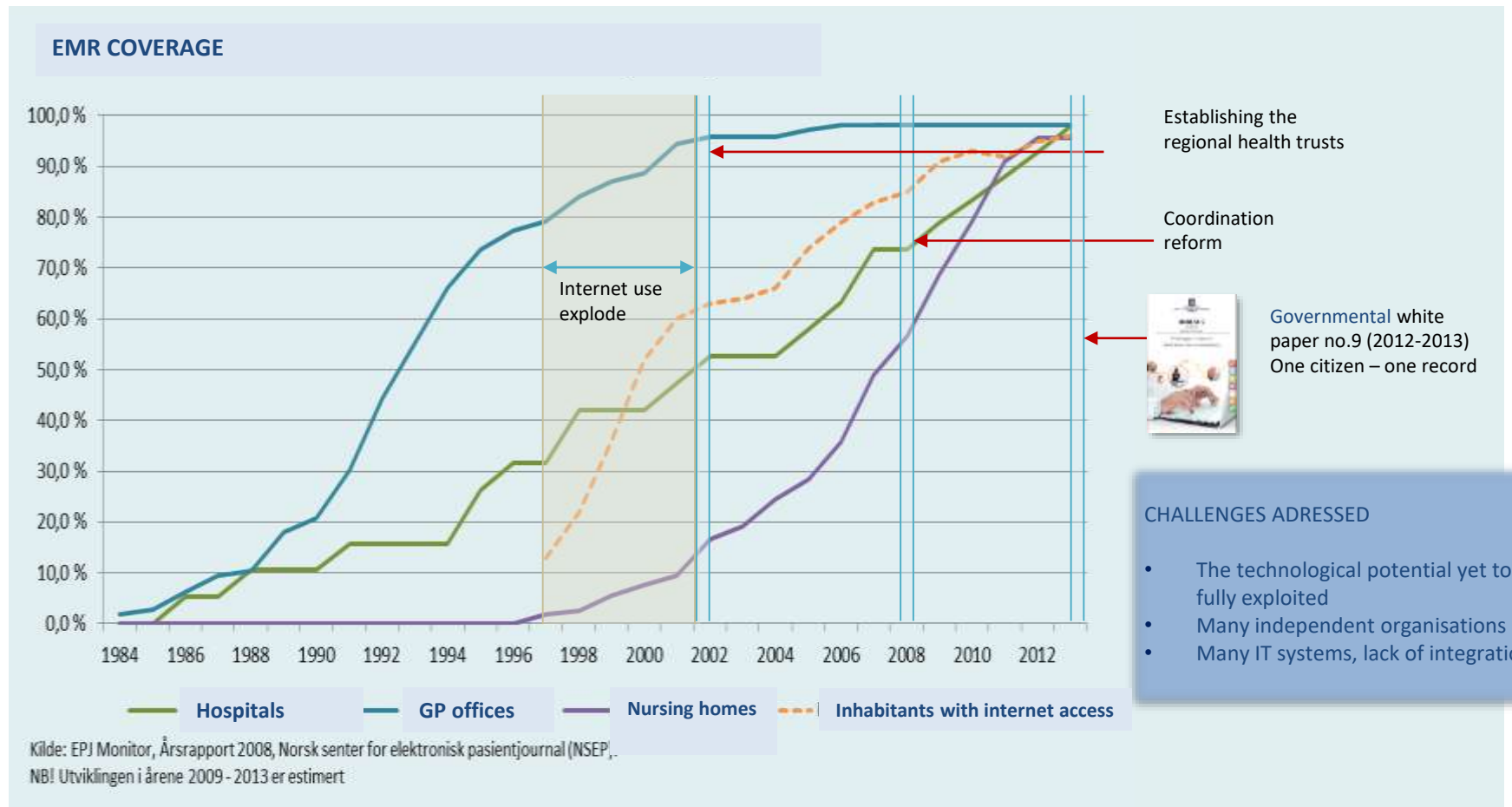
Governance model for the Norwegian Health care services



**DEN NORSKE
LEGEFORENING**

Norway was early adopters of e-health, but...

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

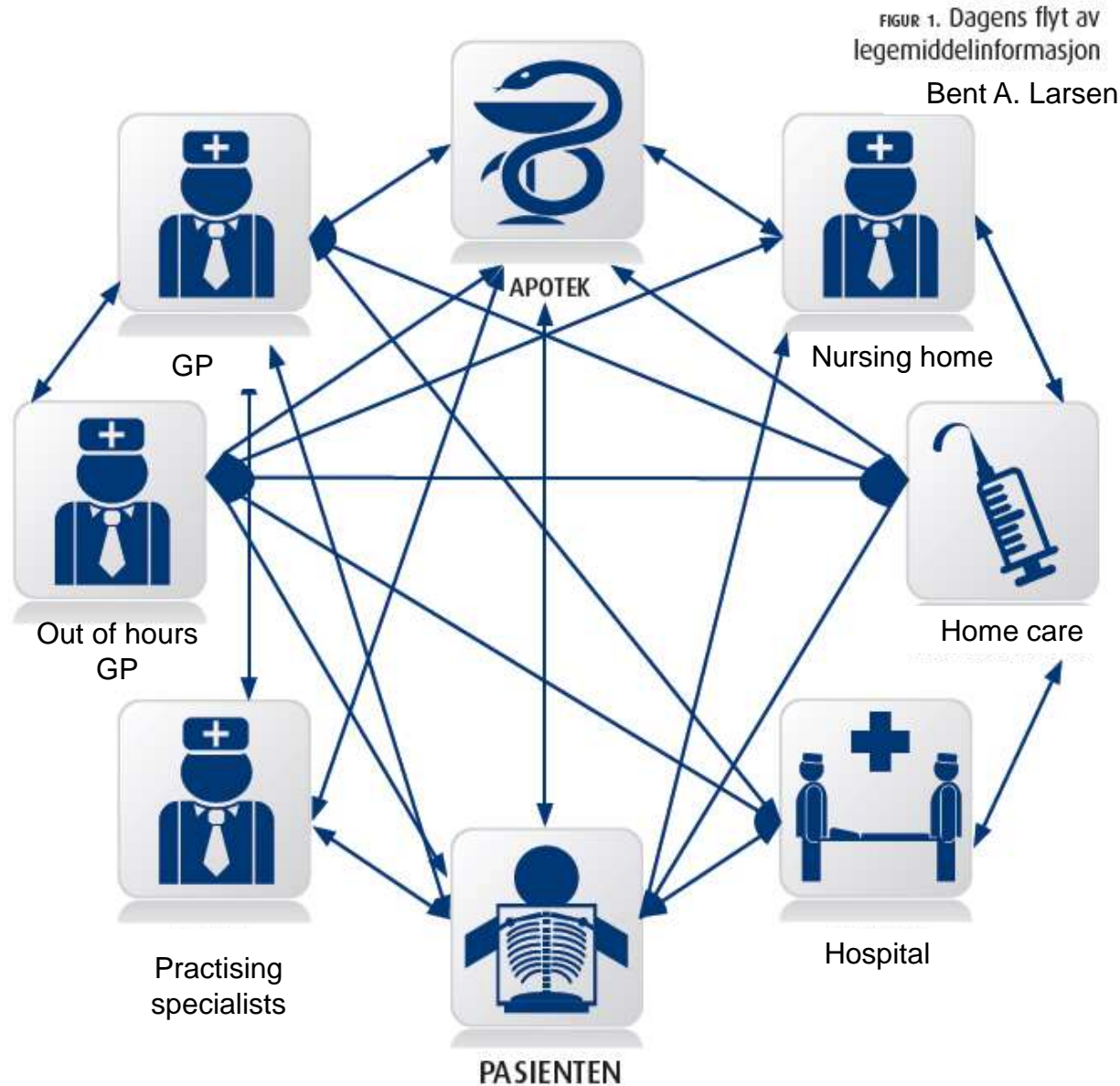


Each GP Office, municipality and hospital has their own local EMR. Almost no cloud hosting/SaaS

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Direct messaging – well established for years



Standardized electronic messages:

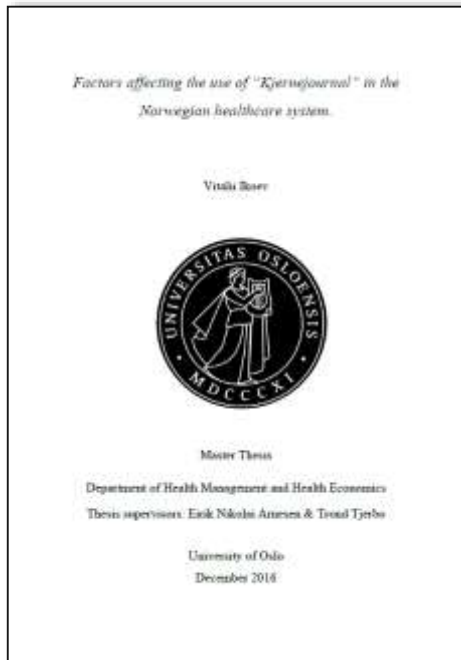
- Referrals
- Discharge summaries
- Requisitions and test results
- Nursing reports between hospitals and home care/nursing homes
- Dialogue-based messaging between hospitals and GPs
- Electronic prescriptions

National infrastructure

- Some hospital regions on a consolidated database/EPR across hospitals
 - Locally no or small degree of freedom, focus on governance
- E-prescription fully rolled out (except nursing homes)
- Summary Care Record sharing «alert information» and medications for all inhabitants
- National Patient portal – different services regionally



International comparison of content in summary care records in a master thesis



	KJ (Norway)	NPÖ (Sweden)	SJ (Denmark)	KP (Finland)	SCR (England)	ECS, KIS, ePCS (Scotland)	IHR (Wales)	ECSR, NIECR (Northern Ireland)	DMP (France)
Personal information						*			
Patient's GP			*						
Medications					*				
Alert information					*	*	*	*	*
Appointments/visits									
Received treatments									
Treatment Plan									
Vaccination									
Problems and issues									
Diagnoses									
Diagnostic Imaging									
Clinical Chemistry									
Activities of Daily Life									
Functional Condition									
Extra information: translation, next of kin, etc.									
Living will, death preferences									
Preferred place of care									
Attitude to organ donation									
Palliative care									
Referral and discharge letters									
Clinical Documents									
Health Helpline									
Health personell's access with consent from patient (! emergency)									
Patient's web access									
Audit log									
Blocking									
Elimination									
Opt in/out	Opt out	Opt out	Opt out	Opt out	Opt out	Opt out	Opt in	Opt in	Opt in

Source: Based on information obtained by mail from contact persons working in organisations responsible for each SCR and analyses of following resources (Boman, D. & Magnusson C., 2013; Direktoratet for eHelse, 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, 2015a; Resjeringen, 2011; Småttid, 2016; Tieto, 2016).

**Line Danser**

040986 05660

Kvinne (27 år)

Kjernejournal opprettet 08.01.2012

[Skriv ut kjernejournalen \(PDF\)](#)

OM PASIENTEN

LEGEMIDLER

KRITISK INFO

BESØKSHISTORIKK

ADMIN

Utvid alle rader

Kopier til utklipp

Verifikasjon ▲

OM KRITISK INFORMASJON ?**Overfølsomhetsreaksjoner****Hypersensitivity**

Legg til



Fenoksymetylpenicillin

Anafylaktisk reaksjon

Bekreftet

Endret: 19.02.2014

**Komplikasjoner ved anestesi****Complications in anesthesia**

Legg til

**Kritiske medisinske tilstander****Alert medical conditions**

Legg til



Marfan syndrom

Diagnosen omfattes av definisjonen av kritisk tilstand

Endret: 19.02.2014

**Pågående behandlinger/implantater****Ongoing treatment and implants**

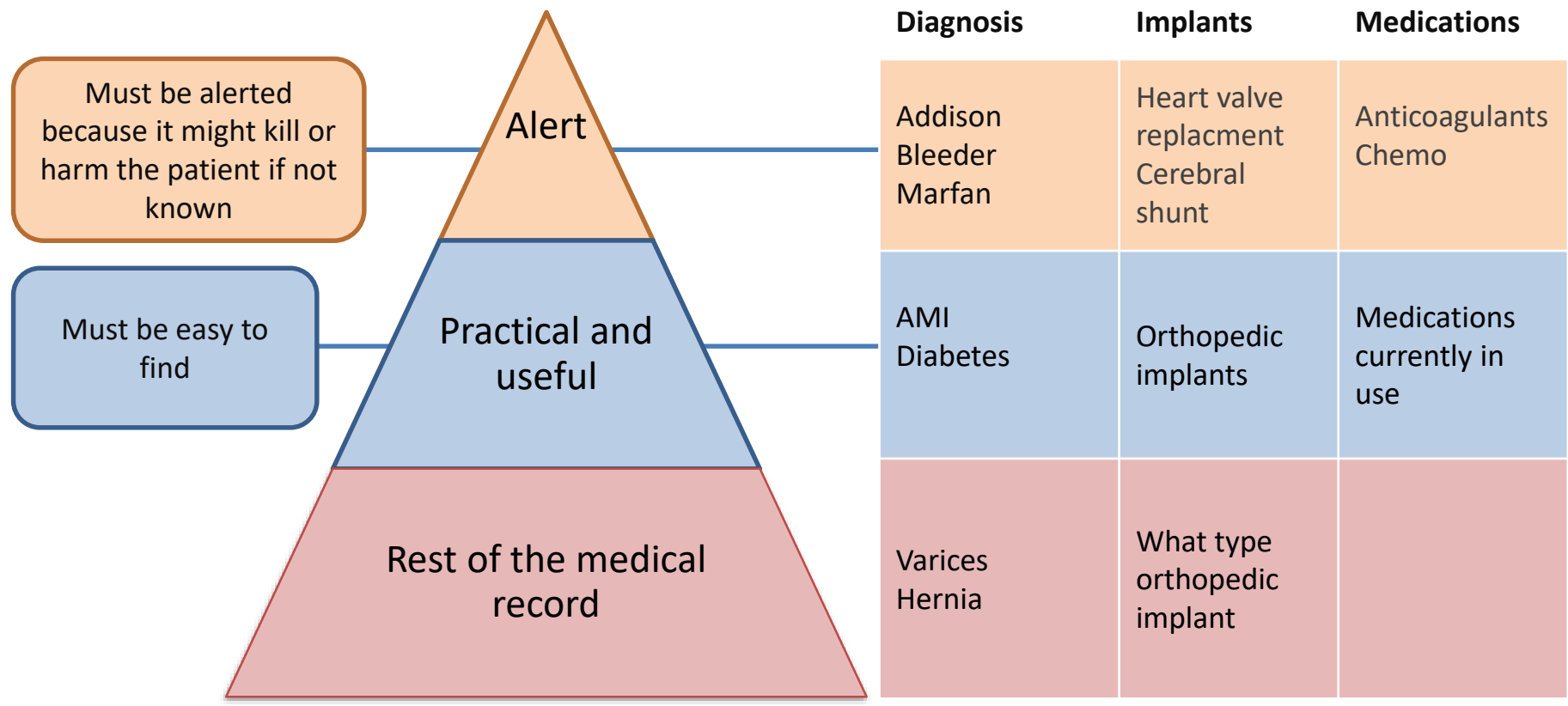
Legg til

**Smitte****Contagious**

Legg til



- KJ Patient do not have a summary care record
- KJ Summary care record without alerts
- KJ SCR contain info registered from patient
- KJ Alert information exists



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 anesthesia
 6. Risk of severe complication during surgery
 7. Risk of life threatening complication if medication is changed

Current list of conditions meeting these terms

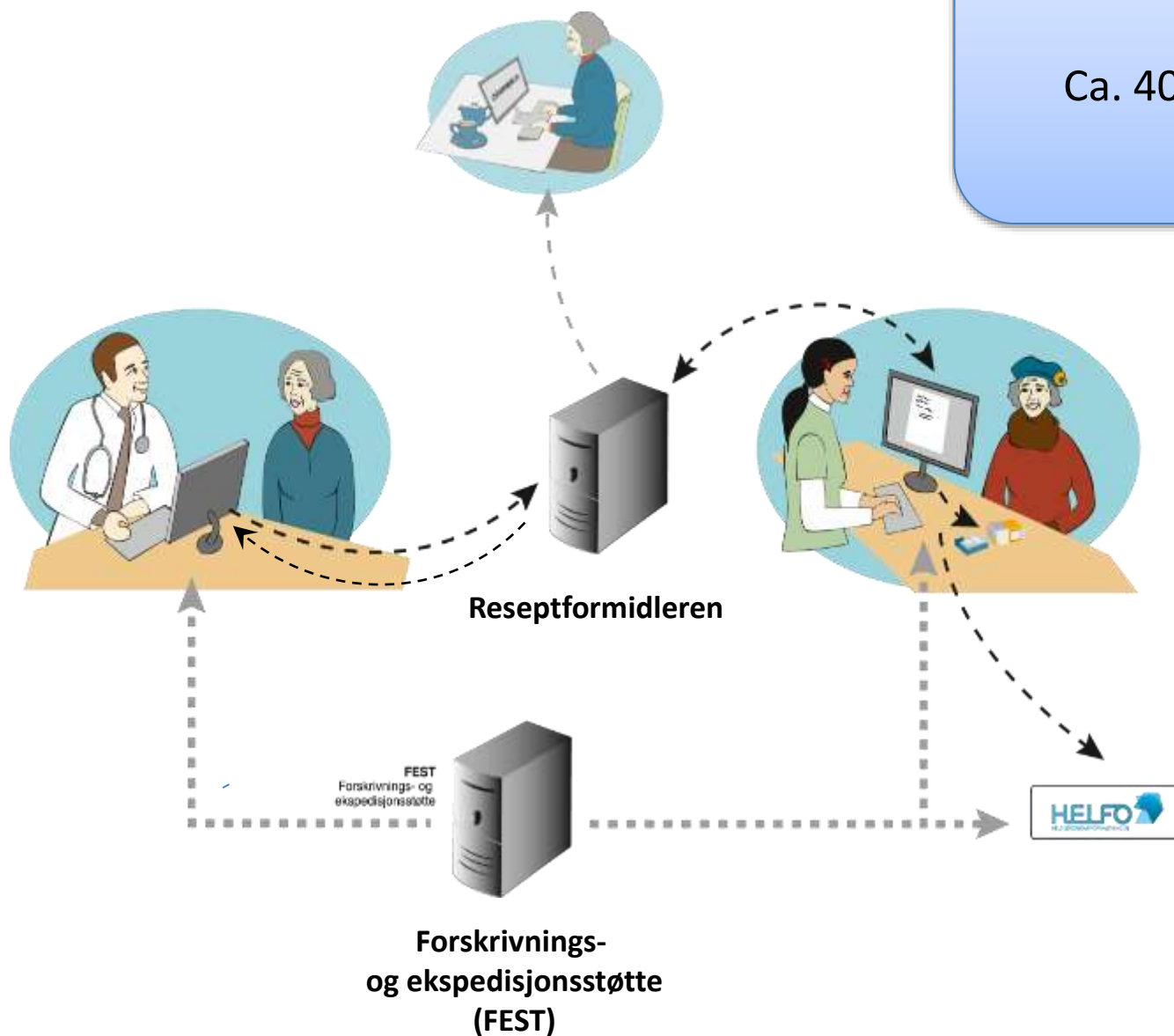
- Amyloidose
- Angioødem
- Aortaaneurisme
- Bartters syndrom
- Binyrebarksvikt
- Blodgruppeantistoff påvist
- CADASIL
- Dravet syndrom
- Døvblindhet
- Ehlers-Danlos syndrom
- Fabry sykdom
- Fenylketonuri
- Feokromocytom
- Fettsyreoksydasjonsdefekt
- Fibrodysplasia ossificans progressiva
- Galaktosemi
- Gitelmans syndrom
- Gjennomgått subaraknoidalblødning
- Glycogen storage disease
- Hemofili
- Hydrocephalus
- Hypofysesvikt
- Hypoparatyreoidisme
- 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
- Paroksysmal 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

Begrep	Synonyme søkeord	Samsvarende ICD-10 koder	Begrunnelse
Malign hypertermi	Ondartet hypertermi Hypertermi under anestesi	T88.3 Ondartet hypertermi som skyldes anestesi	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.
Fibrodysplasia ossificans progressiva	Myositis ossificans Stone Man Syndrome FOP Progressiv fibrodysplasi Progredierende myositis ossificans	M61.1 Myositis ossificans progressiva/Fibrodysplasia ossificans progressiva	En bindevevssykdom der skadet muskelvev omdannes til benvev i stedet for å tilheles, eksempel ved intramuskulære injeksjoner og kirurgi. Det kan være intubasjonsvansker og hjerte- og lungeproblemer.
Hypoparatyreoidisme	Hypoparathyreoidisme Hypoparathyreoidismus	E20 Hypoparatyreoidisme E20.0 Idiopatisk hypoparatyreoidisme E20.1 Pseudohypoparatyreoidisme E20.8 Annen spesifisert hypoparatyreoidisme E20.9 Uspesifisert hypoparatyreoidisme	Mangel på parathormon, et hormon som vedlikeholder korrekt nivå av kalsium i blodet. Kalsiummangel kan blant annet gi alvorlige hjerterytmeforstyrrelser og respirasjonssvikt i tillegg til en rekke andre symptomer.
Marfans syndrom	Morbus Marfan Marfans sykdom Mb Marfan	Q87.4 Marfans syndrom	Marfans syndrom er en bindevevssykdom som kan gi svekkelser i hjerteklaffer og aorta i tillegg til en rekke

E-Prescription since 2010 (pilot start)

80% of all prescriptions

Ca. 40 millions each year



Secure log in with national e-ID or Bank ID to «My Health»

Self service

- Change GP
- Ask for rescheduling
- Reimbursement of expenses

Self access to personal information

- Vaccinations
- E-prescriptions
- Summary care records
- Hospital record

The screenshot shows the helsenorge.no website. At the top, there is a dark header with the logo 'helsenorge.no', a menu icon, and a search bar. Below the header is a large banner image of a woman and a child. A purple overlay on the banner contains the text: 'Søk om å få dekket en pasientreise' and 'Som regel gjennomfører du reisen på egenhånd, og søker om å få dekket reiseutgiftene i etterkant.' Below the banner, there is a section 'Innhold A-Å' with a grid of letters from A to Z, and a 'Min helse' section with a description of services and a 'LOGG INN I MIN HELSE' button. At the bottom, there is a grid of eight service tiles: 'Bytte fastlege', 'Pasientreiser', 'Kjernejournal', 'Reseptar', 'Frikort for helsetjenester', 'Europeisk helsetrygdkort', 'Velg behandlingssted', and 'Mine vaksiner'.

helsenorge.no

MENY

Søk

Søk om å få dekket en pasientreise

Som regel gjennomfører du reisen på egenhånd, og søker om å få dekket reiseutgiftene i etterkant.

Foto: Dag Nordsveen, Pasientreiser HF

Innhold A-Å

Alt A B C D E F G H I J K L M N O P Q R S T U V W X Y Z Æ Ø Å

Min helse

Når du logger inn får du tilgang på tjenester som hjelper deg å følge opp egen helse. Flere tjenester er under utvikling. Du ser også tjenester som er under utprøving i utvalgte områder i Norge. Etter hvert kan du benytte flere tjenester på vegne av dine barn og de som har gitt deg fullmakt. [Les mer om Min helse.](#)

LOGG INN I MIN HELSE

Bytte fastlege

Pasientreiser

Kjernejournal

Reseptar

Frikort for helsetjenester

Europeisk helsetrygdkort

Velg behandlingssted

Mine vaksiner

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Privacy/regulations

- EMR:
 - Mandated
 - Patient can ask to edit or delete information
 - A right to access the record (both paper and electronically)
 - A right to access the audit log
- National Registries
 - Opt in OR opt out OR mandated
- SCR: opt out
- E-prescriptions: mandated
- Patient portal: opt in
 - A right to view the information
 - A right to view the audit log



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THE NEXT LONG TERM STRATEGY



ONE CITIZEN– ONE RECORD (2012)

- ✓ HEALTH CARE PROFESSIONALS SHALL HAVE EASY AND SECURE ACCESS TO PATIENT- AND USER INFORMATION
- ✓ CITIZENS SHALL HAVE ACCESS TO USER FRIENDLY AND SECURE HEALTH CARE SERVICES ONLINE.
- ✓ DATA SHOULD BE REGISTERED AUTOMATICALLY AND MADE AVAILABLE FOR QUALITY IMPROVEMENT, MONITORING, GOVERNANCE AND RESEARCH.

Different concepts was evaluted against – conclusion spring 2016

- One common solution for the primary care sector
- A vertically integrated solution for specialist care and primary care in Central Norway
- (But the project adviced on a common, vertically integrated EMR for all Norway)



HELSEPLATTFORMEN

for pasientens helsetjeneste

- The Central Norway Regional Health Authority (HMN) and the City of Trondheim and all other municipalities in the Central Norway Health Region
 - a competition to deliver a new electronic health record solution with adjacent systems and services
 - for the specialist and primary health services

The candidates (in alphabetical order) that will compete in the dialogue phase are:

- Cerner Norway AS
- DCX Technology AS (prev. CSC Scandihealth AS)
- Epic Systems Corporation
- Tieto Norway AS

Whats next?

- Politically concerns about state finances.
- A government organization that struggle to find their role between hospital regions.
- Focus on governance and rationalizing IT services, not better tools for clinicians?
- To much belief in the hype – welfare tech and wellbeing tech.
- Sentralized solutions – a shared aquisition for all municipalities?
- A new registry for municipal health care – no opt out option.



