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Impact of an EPR on Patient Care, the Norwegian Experience

IHRIM (Institute of Health Records & Information Management) stream HC2012

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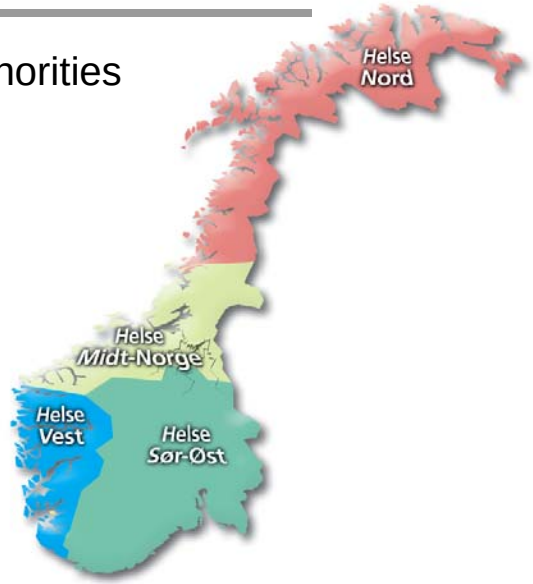
Diakonhjemmet Sykehus

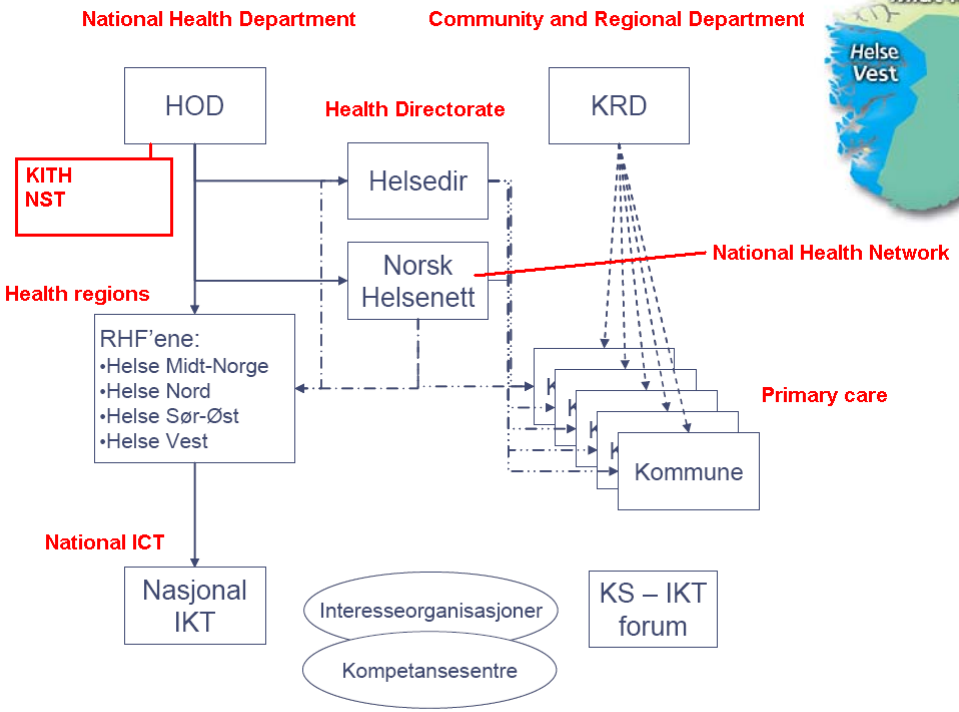
Presentation overview

- Short information about the Diakonhjemmet Hospital
- A general picture of EPR and EPR technology in Norway
- A timeline of implementation in our hospital
- From EPR to paperless EPR
- Challenges
- Data access and protection
- Benefits
- Conclusion

The Health System in Norway

- Hospitals are funded centrally through 4 Regional Health Authorities
  - Regions: South-East, West, Mid and North
- Primary Health Care is funded by local government
  - In Oslo by ”Bydel” - city wards





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Diakonhjemmet Sykehus

Diakonhjemmet Hospital

- City centre Oslo Hospital
  - ✧ Local hospital status
  - ✧ Emergency department
- Private - charity owned – non-profit – fully publically funded
- 205 beds (2011 – 234, 2010 – 244, 2009 – 270, 2008 - 290 beds)
- 7 clinical department (orthopaedic and general surgery, rheumatology, internal medicine, psychiatric acute ward and district centre, elderly psychiatry and child psychiatry)
- 1500 employees
- 12800 inpatient and 96000 outpatient visits
- 43000 radiology and over 1 mill lab tests
- Budget: £125 mill.

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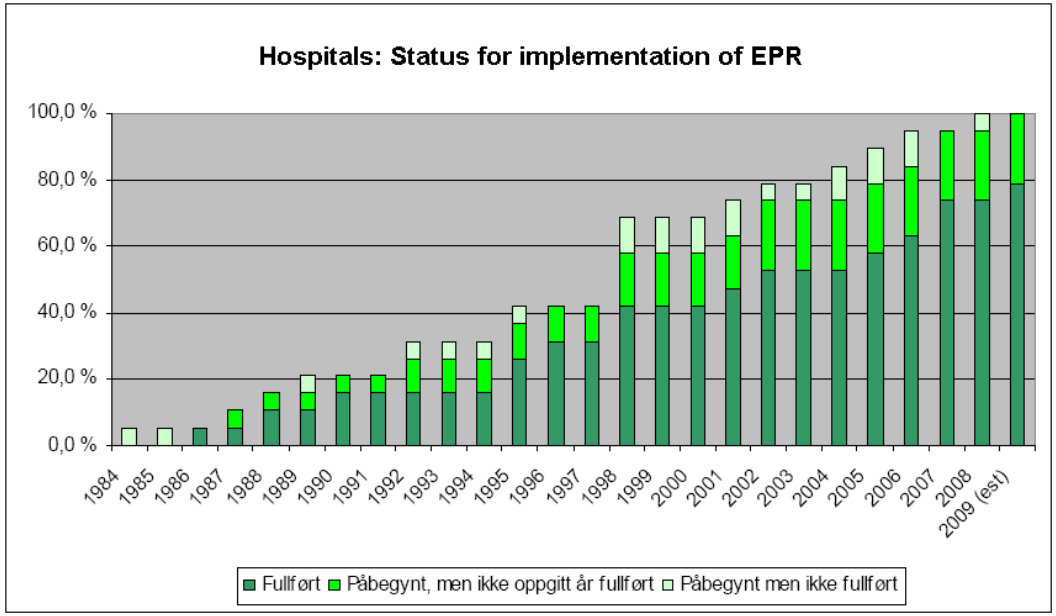
EPR and EPR technology in Norway

- First serious EPR used in more than one hospital in 1994 – DIPS (1986)
- Since 1994 only three main EPR systems for hospitals
  - DIPS
  - DocuLive (Siemens)
  - InfoMedix - Tietoenator – IMX lege
- Now only one !

- Primary and community healthcare
  - Two systems
    - *InfoDoc (1979)*
    - *ProfDoc (1983)*

Hospitals: implementation of EPR



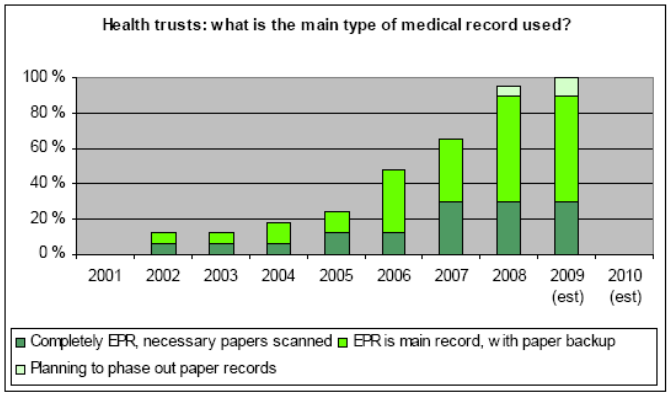


Figure 13: Status for main record type in health enterprises

Source: EPR Monitor 2008: Annual report 2008 - Overview of prevalence and use of ICT in healthcare services

A timeline of implementation in our hospital

- 1989 Lab (electronic messaging in 1992)
- 1994 DIPS PAS/EPJ DOS version
- 2000 DIPS PAS/EPJWindows version
- Radiology (RIS / PACS) in 1999
- Paperless in 2005 (1010^{05}101010)
- GoTreatIt 2008
- Electronic Messaging
  - Lab – 2006
  - Treatment documentation 2010
  - Messaging between the hospital and community healthcare 2011
- Reporting quality indicators electronically from DIPS ?

From EPJ to paperless EPJ #1

Before 2005

- Patient administration – digital
- Doctors and nurses notes – digital
- Lots of ”data collection” - paper.
  - *patient evaluations*
  - *Lab results (electronically externally – paper internally!)*
  - *Curves*
  - *Vital signs etc etc.*

- i.e. two parallel systems
  - EPJ
  - paper archives
    - *current*
    - *historic*

From EPJ to paperless EPJ #2

The Implementation Project

- Scanning or structured data entry
  - Simple choice. DIPS only offered scanning as a solution
- What to scan
  - Historical data
    - *Tough choices – realistic choices*
    - *Nothing was ever not available*
    - *Too much can be a problem*
  - Current data
    - *Still using paper data collection*
    - *Scanned ASAP locally on the ward*
- Only ”*Active*” journals to be scanned
  - Simulated the number of journals scanned in the first 12 months with historic data
    - *Reduction was greater than anticipated.*
- How long to keep scanned journal information before destruction

From EPJ to paperless EPJ #3

Consequences for patient treatment

- Almost don't need to repeat them here!
  - Availability of information
  - Improvements in patient safety
  - Readability
  - Quality control
  - Storage space
- No doubt that an EPR gives benefit
  - Does it give cost benefit
    - *Can that really be measured?*
- The question is
  - Does scanning give better results and better cost benefit than structured data entry?
  - Does voice recognition gives better cost benefit than the alternatives?

From EPJ to paperless EPJ #4

Consequences for personnel

- No reduction in personnel
  - ✧ An important decision
- Alternative tasks for clinical support staff
  - ✧ Not finding and fetching paper journals but scanning
  - ✧ No reduction
- Alternative tasks for administrative support staff (archive)
  - ✧ Scanning sources that the wards can't handle
  - ✧ Quality control
  - ✧ Other archive tasks
    - ▪ *Post opening and distribution*
  - ✧ No reduction

Challenges (not problems)

- Too much data
  - 6.2 million journal records
    - *(77 trees @ 80500 A4 sheets per tree = 1000 miles CO2 production from a single car per year)*
  - Maximum number of documents for a single treatment period
    - *2118 (Psychiatry)*
    - *1180 (Surgical dept.)*
    - *100 patients with over 300 documents for a single treatment period*
  - Maximum number for a single somatic patient 4297
    - *528 somatic patients with more than 500 documents (a ream of paper minimum)*
  - Quickly finding the most relevant information is reported by doctors as an issue
- Dependence upon the technology
  - How dependent are you?
  - Do you need 99.9% up-time (44 minutes down-time in a month)
  - 11 hours a month = 99% up-time.
  - We have a maximum single-period down-time of 4 hours before it is defined as a crisis
    - *Routine maintenance can take 4 to 6 hours or even more*
      - Full system update once a year!
- Complexity
  - Number of unsigned documents (ca 18 000)
  - Number of open referrals with no new contact planned (ca 5500)

What we haven't done (yet)

- Operating theatre real time data collection
- Vital signs and fluids in/out on the ward
- Voice recognition

Data access and protection

- Patients don't have access to their records electronically
  - The law grants access to all data on a patient. Must submit a written request. Records delivered on paper.

- All patients receive a paper copy of their treatment summary
- All referring physicians receive a copy of the summary and other relevant notes
  - ca. 60% are nor exchanged electronically

- The law prevents the transfer or direct access of information between hospitals !!

- Recent mergers highlight incompatibilities in technology.
  - Three Oslo hospitals merged. Radiology data and other patient information exchanged on paper and CD. Transported by taxi.

- Journal systems allow sealing of records.

Other benefits

- Enormous amounts of data for hospital management and quality management
- Data mining, data warehouse, business intelligence, business discovery etc etc....
- Diakonhjemmet Hospital has a fully integrated Management Information System
  - ✧ Last 5 years great improvements in measured quality parameters
  - ✧ Significant increase in patient satisfaction in the national survey
    - ▪ *4th best hospital in Norway* *(excluding specialist hospitals)*

For me as Director of Quality Management this is the greatest benefit

Improvements in quality don't just come from better treatment but also from better hospital management

Conclusions and afterthought

- What is the purpose of implementing an EPJ system – What is the *business* objective?
  - Save money?
  - Document in case of litigation?
  - Improve patient treatment?
  - Enable and support better hospital management?

- Many ways to Rome
  - Research and new medical technology give better treatment methods
  - EPR improves patient management and patient safety
  - Better hospital management improves both

- Are we better off with an EPR?
  - No doubt
  - BUT the complexity is growing and that needs to be controlled

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Thank you

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Join me in the Afterthoughts Lounge ☺

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