



MedCom8 > How things turned out

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Preface	3
MedCom8 – Dissemination and technological future-proofing	4
From MedCom8 to MedCom9 – Effective digitisation	5
MedCom's basic remit	6
MedCom8 project monitoring – How things turned out	7

Project line 1 · Chronic Patient project

1.1 Common Chronic Patient Data	8
1.2 Clinically Integrated Home Monitoring	9

Project line 2 · E-records and P-records

2.1 E-records and P-records	10
-----------------------------	----

Project line 3 · Municipal projects

3.1 Home nursing – hospital service	11
3.2 Rehabilitation plan	12
3.3 Doctor forms (LÆ forms)	13
3.4 Birth registration	14

Project line 4 · Shared Medication Record (FMK) at the general practitioner's surgery

4.1 Shared Medication Record (FMK) and Danish Vaccination Register (DDV) in the primary sector	15
---	----

Project line 5 · Telemedicine

5.1 Video interpreting	16
5.2 Telepsychiatry	17
5.3 Telemedical ulcer assessment	18
5.4 Telemedical mapping	19

Project line 6 · General practitioner and laboratory projects

6.1 Package Referrals and REFPARC	20
6.2 Laboratory medicine	21

Project line 7 · International projects

7.1 International projects	22
----------------------------	----

Project line 8 · Operation and technology

8.1 Standards, testing and certification	23
8.2 The Danish Healthcare Data Network (SDN) and video hub	24
8.3 Technological future-proofing	25

How things are doing: Overall traffic monitoring	26
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MedCom > An important player in the Danish health service



Astrid Krag
Minister of Health

MedCom plays an important role in the work of consolidating the Danish health service. As a result of many years of sustained commitment by the organisation, we have now digitised large amounts of message-based communication between hospitals and GP surgeries, thereby enabling medical records from hospitals to be accessed electronically across regional boundaries and from GP surgeries.

New areas have come under the spotlight. During the MedCom8 period, there has been a significant increase in the use of MedCom messages for communications between hospitals and municipal home nursing. For example, 70% of the municipalities now submit electronic hospitalisation reports to the hospitals. This helps to improve coordination in connection with hospitalisation and discharge, especially as regards elderly patients, thus offering greater continuity of treatment and care.

Another notable investment in endeavouring to make the health service more cohesive is the deployment of the Shared Medication Record (FMK). During the programme period, MedCom put in a great deal of work to implement FMK in GP surgeries. In the forthcoming MedCom9 programme, efforts will be directed towards the municipalities that will be adopting FMK during 2015. Thus, the system will really help to prevent mistakes with medication and ensure improved communication about a patient's medication.

With MedCom8, MedCom's role as a proponent of telemedicine in Denmark was also strengthened, for example through project management of telemedical ulcer assessment and the deployment of video conferencing in the field of psychiatry. This reflects MedCom's special expertise and extensive experience in developing and implementing specific projects across boundaries within the Danish health service - often involving a large number of partners.

In 2014, regions and municipalities have to enter into new healthcare cooperation agreements in the field of public health. For the first time, eHealth will be one of the mandatory fields addressed. This will help the parties to enter into clear agreements on how cooperation is to be supported by IT and how specific solutions are to be used. This includes solutions for which MedCom is responsible.

The forthcoming MedCom9 programme is formulated within the framework of a joint public-sector digitisation strategy for the health service announced by the Danish Government, Local Government Denmark and the Danish Regions in June 2013. The strategy will continue and strengthen efforts to fully roll out existing public eHealth solutions and encourage the proliferation of nationwide telemedical solutions. Thus, MedCom9 helps to underline MedCom's continued role in a coherent and modern healthcare service.

MedCom8 – Dissemination and technological future-proofing

The starting point for the MedCom8 work programme was the agreement between the Danish Regions and the Danish Government on public eHealth of June 2010, which states that:

» MedCom will be taken forward based on the politically established goals and milestones concerning cross-sectoral communication and with an unequivocal role as the implementing organisation.

MedCom solves problems with a focus on supporting efficient performance and a gradual expansion of the national eHealth infrastructure, which is necessary for safe and coherent access to relevant data and communication across regions, municipalities, and general practitioners.



eHealth contract
 RSI milestones
 KL digitisation strategy
 Health agreements
 NSI standardisation and architecture
 Telemedical strategies
 Sundhed.dk support

1. Chronic Patient project		•		•		•	•	•
2. E-records and P-records		•			•			•
3. Municipal projects	•	•	•	•	•			
4. FMK in general practitioners' surgeries					•			
5. Telemedicine	•	•		•			•	
6. General practitioner and laboratory projects	•	•	•		•			•
7. International projects							•	
8. Operation and technology					•	•	•	•

Unlike previous MedCom project periods, and in accordance with the applicable national governance structure in the eHealth field, MedCom's activities in 2012–2013 thus largely consisted of implementing tasks with pre-defined objectives and timeframes.

The chart above shows the overall relationship between MedCom8's eight project lines and various other national eHealth initiatives that have provided the framework for MedCom's work during the period.

From MedCom8 to MedCom9 – Effective Digitisation

In July 2013, the Danish Government, Local Government Denmark and the Danish Regions launched the national digitisation strategy for the health sector 2013-17 entitled “Effective Digitisation”.

The national objectives are very much an extension of the initiatives already set in motion in connection with MedCom8.

Based on the national strategy, three project lines will be implemented during the MedCom9 period:

- Realisation of the **national telemedicine action plan**, where MedCom is responsible for Clinically Integrated Home Monitoring, deployment of telepsychiatry and the deployment of telemedical ulcer assessment
- Full dissemination and implementation of the **Shared Medication Record (FMK)**, with MedCom involved in adoption by general practitioners and municipalities
- Full dissemination and implementation of **message-based communication** in regions and municipalities where, in addition to an ongoing focus on full dissemination and implementation of MedCom standards between hospitals, municipalities and general practitioners. Initiatives are also set in motion in the fields of psychiatry and social services.

The regions’ milestones and the municipalities’ strategy for tele-health

In addition to the national digitisation strategy for the health service, new Regional eHealth Organisation (RSI) milestones and the municipalities’ telehealth strategy also help define the work of MedCom9.

In May 2013, the Danish Regions resolved to implement 15 joint regional milestones in the period 2014-2017. Five of these 15 milestones are particularly relevant to the MedCom9 programme:

- **P1: Telepsychiatry**, where MedCom undertakes project management
- **P9: Teleulcer**, where MedCom undertakes project management
- **P11: Sundhedsjournal 2.0 (medical records)**, where MedCom contributes with the transfer of data from general practitioners (DAK-E) and laboratories, and collaborates with the North Denmark Region on the transfer of hospital data from all regions
- **P13: Telemedical platform**, where, via the Clinically Integrated Home Monitoring project, MedCom takes care of establishing a national database with associated standards for the collection and sharing of home monitoring data
- **P15: Health insurance system**, where MedCom maintains the standard for the electronic transmission of billing files from the general practitioners’ IT systems.

In April 2013, Local Government Denmark (KL) completed its “Municipal tele-health strategy”.

“Tele-health” is defined by KL as the use of IT and communication technologies to support preventive, therapeutic or rehabilitation activities remotely.

Specifically, KL expects telehealth technology to be used by the local health service for the following purposes:

- Early intervention – chronic conditions
- Patient-centric prevention
- Patients discharged for hospital care at home
- Follow-up after hospital discharge
- Rehabilitation.

Telehealth technology will thus often require cross-sectoral cooperation – and thus an exchange of data across the health-care sector through the work of MedCom.

Finally, MedCom is also expected to be involved as an implementing organisation in relation to other areas of interest to the parties behind MedCom, e.g. through collective agreements with general practitioners, with implications for IT support of collaboration between the general practitioner sector and regions or municipalities.

MedCom's basic tasks

MedCom was originally established as a temporary project organisation, but over the years it has evolved into a joint public executive competence centre for IT support of cross-sectoral cooperation in the health sector, gained through practical project implementation.

To a greater or lesser extent, all MedCom projects spawn permanent basic tasks within four main areas:

- **Cross-sectoral dissemination and expertise**
- **Standards, testing and certification**
- **Operation and further development of the Danish Healthcare Data Network and national data sources**
- **International activities**

The practical deployment of cross-sectoral IT collaboration is rooted in the regions and municipalities, mostly in connection with the implementation of the healthcare contracts.

MedCom's primary core activity is to provide support for this local work with national coordination of joint project plans and specific goals, in close cooperation with regions, municipalities, general practitioners and IT suppliers.

Cross-sectoral IT cooperation is based on technical core activities relating to standards, the Danish Healthcare Data Network and national data sources, and MedCom's international involvement provides inspiration for activities in Denmark.

Typical MedCom tasks within the four core activities

Cross-sectoral dissemination and competency

- Project coordination, healthcare support and information efforts
- Participation in national committee work, including preparation of new initiatives
- Statistical monitoring of deployment.

Standards, testing and certification

- Preparation and maintenance of documentation
- Courses, testing and certification of IT suppliers' implementation
- Support and advice regarding interpretation of standards.

Operation and further development of the Danish Healthcare Data Network and national data sources

- Specification of requirements, call for tenders and contract follow-up
- Monitoring and technical support (1st level, 2nd level or 3rd level)
- User group and further development.

International activities

- Preparation of application, participation and project management in connection with EU projects
- International promotion of Danish eHealth
- International standardisation work.

MedCom8 project monitoring – How things turned out

MedCom8's work programme consisted of 18 sub-activities. The overall results are summarised in the table.

The detailed status of the various sub-projects, as well as expectations for continued activities after the MedCom8-period are examined in the pages that follow.

Project	Status	Note especially:
1.1 Shared Chronic Patient Data		The project was put on hold in June 2013
1.2 Clinically Integrated Home Monitoring		The project is operational and patients are being included
2.1 E-records and P-records		Full data delivery and good usage
3.1 Home care-hospital		Full deployment pending in both regions and municipalities
3.2 Rehabilitation plan		Full deployment realised. Technical consolidation partially implemented
3.3 LÆ forms		Significant deployment of municipalities and general practitioners
3.4 Birth registration		Full deployment pending, but a significant increase
4.1 FMK and DDV in the primary sector		Full deployment pending
5.1 Video interpreting		Relevant departments in operation, but full deployment pending
5.2 Telepsychiatry		Spearhead testing delayed but high level of interest
5.3 Telemedical ulcer assessment		Shared IT solution chosen and good momentum as regards deployment
5.4 Telemedical mapping		National mapping realised
6.1 Package referrals and REFPARC		Full deployment of referrals, booking reports and attached files pending
6.2 Laboratory medicine		Full deployment realised
7.1 International projects		Focus on synergies with national projects
8.1 Standards, testing and certification		Not all vendors are fully prepared for FNUX and CPR lookups
8.2 The Danish Healthcare Data Network (SDN) and video hub		Stable operation and 100% uptime
8.3 Technological future-proofing		The project is awaiting national initiatives

1.1 Common Chronic Patient Data

Purpose

The purpose of Common Chronic Patient Data is to provide IT support for the implementation of the Danish Health and Medicines Authority's process model for patients with a chronic conditions. The dataset could constitute a shared professional healthcare frame of reference for cooperation between the general practitioner, the hospital, the municipality and the patient during a long-term illness. The project is developing and implementing a national standard for the sharing of chronic patient data, in close cooperation with the regions, municipalities, clinicians and IT suppliers. Furthermore, it is expected that a shared national chronic patient infrastructure will be created as part of the National Health Service Platform, in close cooperation with the National eHealth Authority and Sundhed.dk (the Danish e-Health Portal).

RSI milestones: The regions will coordinate IT support of efforts on behalf of chronically ill patients. The regions will implement a large-scale IT support project for a selected group of chronically ill patients by the end of 2014.

Participants

- All regions and selected municipalities
- The Danish Health and Medicines Authority, the National eHealth Authority, the Danish Regions, the Regional eHealth Organisation (RSI), KL and Sundhed.dk.

Vendors

- Relevant IT vendors, including medical-record system suppliers, in participating regions, municipalities and general practitioners' surgeries
- Sundhed.dk for patient access and to provide access for healthcare professionals who do not have access via their own systems
- KMD as a testing and pilot operation system supplier.

Milestones	Planned	Attained
1. Project organisation and contract	27.02.12	Partially attained
2. Chronic Patient Standard Version 1, validated in terms of healthcare professionals and technically validated	01.07.12	01.07.12
3. National Service Platform and national infrastructure	31.12.12	Not attained
4. IT system development and integration completed in participating projects	31.03.13	Not attained
5. Chronic Patient Standard Version 2, validated in pilot operation within the projects	01.07.13	Not attained

How things turned out



Version 0 of the standard for sharing common chronic patient data was validated by health professionals during the spring of 2012 with a focus on COPD, diabetes and cardiac failure. At the same time, KL provided input for the municipal part of the chronic patient dataset in terms of assessment of what data the municipalities can contribute to the dataset and what data is relevant to the municipalities from other healthcare parties. The content thus clinically validated was documented technically in OIO-XML.

Thus, the present Version 1 of the standard is submitted for assessment to the National eHealth Authority and to the Danish Health and Medicines Authority for evaluation.

The standard has not been tested as planned in regional and municipal Chronic Patient Projects, and due to the lack of agreements regarding national infrastructure for sharing chronic patient data, the project has not resulted in the planned pilot testing of the common chronic patient dataset in everyday operation.

After MedCom8

Experience gained from the project is available for future projects. Version 1 of the standard is available and can be used by interested stakeholders.

The standard has the status of "Planned".

1.2 Clinically Integrated Home Monitoring

Purpose

Clinically Integrated Home Monitoring (KIH) is a coordinated project in the context of the Danish Public Welfare Technology Fund.

The project tests and demonstrates IT solutions with the main emphasis on integration between existing IT systems and telemedical home monitoring as well as other solutions that support active patient involvement in the patient's own care pathway.

Joint public-sector digitisation strategy 2011-2015:

From 2012, a number of hospitals will make it possible for patients to receive part of their treatment at home. The project seeks to test, on a large scale, how telemedical solutions can ensure consistency in the patient care pathway.

Participants

KIH comprises eight sub-projects:

- Evaluation (the University of Southern Denmark (SDU) and the National Board of Social Services)
- Pregnant women with complications, diabetes (Central Denmark Region)
- COPD (netKOL), pregnant women without complications (My ePregnancy), Gastroenteritis (eGastro) (Capital Region of Denmark)
- Standards and Technologies, Programme Management (MedCom)
- Silverbullet A/S (KIH database and collection platform).

Vendors

Silverbullet A/S (KIH database and collection platform).

Milestones	Planned	Attained
1. Technical preparation and pilot testing (completed)	29.11.2012	01.09.2013
2. First operating phase (started)	30.11.2013	14.09.2013
3. Mid-term evaluation (concluded)	30.05.2013	Not attained
4. Second operating phase (completed)	01.11.2013	Not attained
5. Evaluation of sub-projects	06.03.2014	Not attained

How things turned out

The Clinically Integrated Home Monitoring project has had a longer preparation period than anticipated. This has extended the total project by approximately six months.

The delay is due in part to an extended period of preparation for the clinical sub-projects, and also to the technical components being delayed. The project became operational in September 2013.

A collecting platform, OpenTele, has been developed to handle the collection and management of clinical measurements in the patient's home. OpenTele also offers video support that allows direct dialogue between the patient at home and the relevant healthcare professionals at the hospital and in the municipality. Furthermore, a cross-sectoral database for sharing patient data across the entire health service has been established. The OpenTele solution has been developed trans-regionally in cooperation with the North Denmark Region (TeleCare North project).

The technical components have been developed as open source and are available on Softwarebørsen (the public sector software exchange platform).

OpenTele and the KIH database have been implemented in relation to the reference architecture for collecting health data from patients via National eHealth. Integration with the National Service Platform has been implemented.

The KIH database is part of the national infrastructure using OIO/XML interfaces and is being made ready to support international standards (PHMR/HL7) and for inclusion in an IHE/XDS environment.

Patients can access their own data via a tablet device at home or by looking it up at sundhed.dk.

Due to its complexity (five clinical sub-projects, two regions, the National Board of Social Services and the University of Southern Denmark as well as MedCom), the KIH project has had to deal with challenging tasks relating to communication and coordination. These have been dealt with by establishing weekly coordination meetings via video link between all parties. The programme management (MedCom) has used these meetings to strengthen coordination and identify problems promptly, as well as to implement corrective action.

The KIH Project is accountable to the KIH steering committee and reports constantly to the Portfolio Steering Committee under the National eHealth Authority and the Danish Public Welfare Technology Fund.

The KIH project expects to include just over 1,000 patients altogether, including the control group and the intervention group. As of October 2013, 364 individuals are included.

After MedCom8

The KIH project delivers clinical, organisational and technical aspects of telemedical solutions. These solutions provide input for work with regional and national telemedical analyses and strategies which, in the long term, will point towards national implementation measures.

The technical solutions – including standards and profiles – are included in the overall national IT infrastructure. In the long term, decisions need to be made concerning how to make these solutions permanent.

It should be envisaged that MedCom will take care of maintenance, technical support and development tasks in relation to the standards and infrastructure components developed.

2.1 E-records and P-records

Purpose

The objective of the continuing development, operation and deployment of the E-records and P-records is to provide access to electronic medical record data supplied by hospitals and general practitioners, with a view to ensuring consolidated data sources for the future national health record and the forthcoming National Patient Index (NPI).

Objectives

- Implementation of a call for tenders for operation and development of the E-records
- Quality assurance of data from individual data providers
- A number of electronic medical record (EPJ) systems are to be phased out, and here the E-records system has been selected as an archive solution to ensure that data can be preserved, thus offering value in terms of historical data
- The Danish State Archives have selected E-records as the data provider for the preservation of medical records
- Sundhedsjournalen (national medical record)/NPI is in the process of being established by sundhed.dk/National eHealth and E-records and P-records will provide data to both.

RSI milestones 2010:

- The Danish Regions will work with the Danish Government to ensure that general practitioners and medical specialists are able to make data available to the national medical record (2012)
- The regions are expanding the E-records system, making it into the national health records (2013).

Participants

North Denmark Region, Central Denmark Region, Region of Southern Denmark, Region Zealand, Capital Region of Denmark, the Danish Regions, Sundhed.dk, Regional eHealth, National eHealth, DAK-E and MedCom.

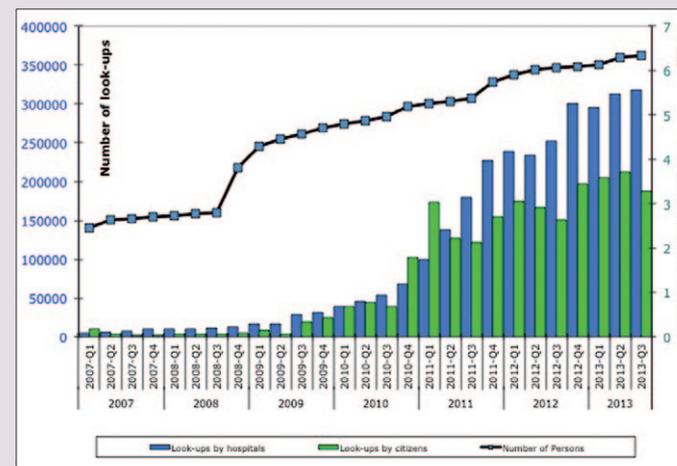
Vendors

- Current: North Denmark Region, CGI and IBM
- Going forward: North Denmark Region and Netcompany.

Milestones	Planned	Attained
1. Call for tenders for E-records implemented	31.03.2013	01.06.2013
2. Deployment kit for hospitals, general practitioners, emergency doctors and individual users	30.09.2013	01.01.2013
3. Successful delivery of E-records	31.03.2013	01.12.2013
4. Cooperation agreement with NPI and Sundhedsjournal (national medical record) regarding data delivery	31.03.2013	01.09.2013

How things turned out

- The E-records now contain 9 million medical records from all public hospitals and data from 80% of general practitioners
- The E-records are used in all public hospitals, where each year 9-10% of the population are looked up. Each year, 6% of all individuals/patients use E-records
- The E-records act as the regions' archive in relation to obsolete electronic medical record (EPJ) systems. This keeps historical data available.
- The Danish State Archives receive archive data from the E-records through a single integrated solution, thus saving countless one-off integration processes.



After MedCom8

E-records system administration is passed to North Denmark Region, and is overseen by the RSI Domain Steering Committee. MedCom supplies a Joint Regional System Administrator (FSA) for this.

3.1 Home care-hospital

Purpose

The purpose of the project is the certification, implementation and deployment of XML home-care-hospital standards, including admission reports, planned care pathways, notification of completion of treatment, and discharge reports.

Healthcare and cooperation agreements provide the framework for communication in the context of the admission and discharge of patients.

The project supports an easier and more structured description of the patient's level of functioning, as the level of functioning status contributes to the healthcare employee's overview of the ability regarding self-care. The project also contributes to a framework of shared cross-sectoral documentation and understanding.

Financial agreement 2010: By the end of 2012, all MedCom standards will be fully deployed in all regional hospitals.

KL digitisation strategy: Existing MedCom messages must be deployed in all municipalities.

Action plan for the joint municipal digitisation strategy 2011–2015, KL:

It is expected that the majority of MedCom messages in communications between municipalities and hospitals will be implemented in the municipalities in 2012.

Participants

Regions: Capital Region of Denmark, North Denmark Region, Region of Southern Denmark, Central Denmark Region and Region Zealand

Municipalities: All municipalities.

Vendors

Regions: CGI Denmark, CSC, IBM and Systematic

Municipalities: KMD Care, Uniq Omsorg Avaleo and CSC Omsorg

VANS suppliers: KMD, Evenex, (CSC).

Milestones	Planned	Attained
1. All regions must approve an implementation plan with all municipalities	01.03.2012	Ongoing
2. Testing and certification of vendors	01.06.2012	Ongoing
3. KL and MedCom host information roadshows	01.07.2012	27.02.2013
4. 60% implementation in regions and municipalities	01.10.2012	20.05.2013
5. 100% implementation in regions and municipalities	31.12.2012	Not attained

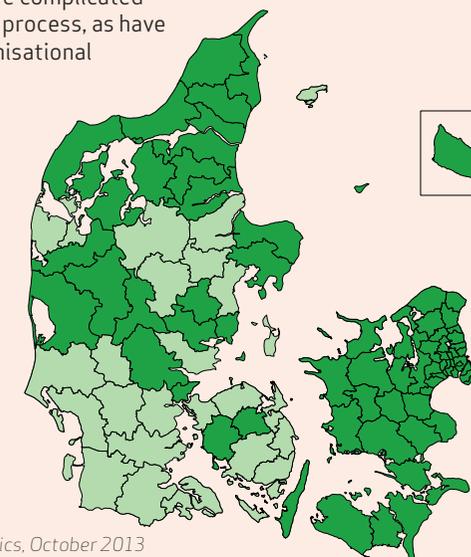
How things turned out

As of November 2013, home care-hospital standards are technically disseminated to slightly more than 70% of home care providers in Denmark. Three regions are fully up and running.

The Central Denmark Region has some hospital areas and municipalities up and running, while the rest of Central Denmark Region, as well as Region of Southern Denmark, are in the process of implementing this.

Version updates have complicated the implementation process, as have differences at organisational application level.

■ Operational, or at least technically implemented



Source: MedCom statistics, October 2013

After MedCom8

- Technical deployment of Version 1.0.2 in all municipalities and all hospitals
- Focus on full organisational use in 2014
- Technical optimisation of flow and display of changes, and linking of notifications
- Testing and certification of suppliers in relation to Version 1.0.2
- Clarification of governance for updates
- Technical clarification process concerning the content of Version 1.0.3, particularly as regards attached files.

3.2 Rehabilitation plan

Purpose

Full deployment regarding Electronic rehabilitation plans is required whereby all regions and hospitals send them and all municipalities receive them.

Objectives

- To ensure that all municipalities and regions receive rehabilitation plans via specific MedCom standards
- To provide a means of including medical notes as well as descriptions of operations and X-rays instead of using attached files
- To consolidate what general practitioners receive in correspondence format
- To support the use of electronic rehabilitation plans in private hospitals and by physiotherapists in private practice
- To establish citizen access to rehabilitation plans.

Financial agreement 2010: By the end of 2012, all MedCom standards will be fully deployed in all the regional hospitals.

Action plan for the joint municipal digitisation strategy 2011–2015, KL:

The majority of MedCom messages in communications between municipalities and hospitals will be implemented in the municipalities in 2012.

Participants

All Regions and all municipalities.

Vendors

Regions: Logica, CSC and Systematik

Municipalities: CSC Sundhed, Avaleo Caseflow, KMD Care and Casalogic

VANS suppliers: KMD, Evenex and CSC.

Milestones	Planned	Attained
1. Free text fields are expanded in the new version	31.03.2012	Postponed indefinitely
2. Vendors are tested and certified on the new version	30.06.2012	Postponed indefinitely
3. Regions/municipalities agree about using the new version	30.06.2012	Postponed indefinitely
4. Patient access	Not planned	No longer relevant

How things turned out

All five regions are submitting electronic rehabilitation plans, although only partly in the case of Region of Southern Denmark. All 98 municipalities are able to receive electronically, either in the specific format (76) or in correspondence format (22).



Working with a task force in mid-2012, MedCom prepared a new version of the standard for rehabilitation plans as it was desirable to modify some fields in the existing standard. A technical update was recommended at the same time, as the presentation layer was not being used.

On 9 February 2012, the Danish Government appointed a committee to evaluate the municipal reform. MedCom has been waiting for evaluation reports with a view to linking up initiatives from the evaluation work. In the course of MedCom8, MedCom was in dialogue with a number of stakeholders who want digital support for complex rehabilitation pathways. An evaluation report was released in March 2013, with subsequent follow-up of the evaluation of the municipal reform in June 2013, in which the need for training was described.

After MedCom8

The evaluation material recommends stepping up efforts in the area of training. By extension, it may be appropriate to have three levels of rehabilitation plans: simple, existing and complex versions, where the complex version, for example, could operate via a shared care solution or similar technical solution.

3.3 LÆ forms

Purpose

To deploy electronic communication of LÆ forms in the context of cooperation between municipalities and general practitioners in the medico-social cooperation between municipalities and general practitioners.

Objectives

- Completion of implementation in all GP systems: The Good LÆ service, DDB 1.0 framework standard and attached files
- Deployment to general practitioners and relevant specialist practices concurrently with municipal deployment
- Transfer of follow-up and monitoring tasks into operations
- Support for additional municipal form vendor implementation of the standards
- Support of municipal deployment
- Distribution of DDB editor.

Electronic communication of LÆ forms is part of **KL's joint municipal digitisation strategy** in relation to the deployment of MedCom communication to the municipalities by the end of 2013.

The Danish Medical Association's collective agreement as of April 2011 contains a common framework agreement covering the exchange of electronic LÆ forms between municipalities and general practitioners.

Participants

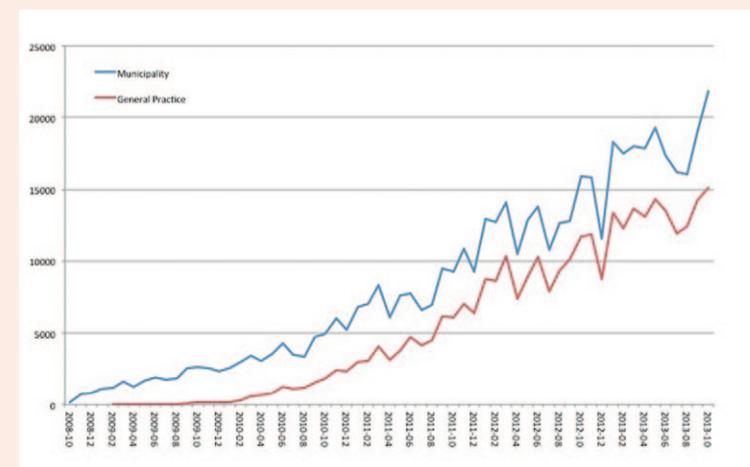
Municipalities and general practitioners in all regions.

Vendors

EG Kommuneinformation A/S, EG Datainform, CompuGroup Medical, Novax, Lægernes EDB Central, A-Data, EMAR, Multimed, PC-ide and Ganglion.

Milestones	Planned	Attained
1. DDB editor distributed	31.03.2012	31.01.2012
2. All medical administration software systems ready for deployment	30.06.2012	One supplier still pending
3. Monitoring the transition to operation	31.12.2012	31.07.2012
4. Deployment to general practitioners and specialists	31.12.2013	In active municipalities
5. Deployed to all municipalities	31.12.2013	Not attained

How things turned out



The standards for communication of LÆ forms (health statement forms) has been implemented in all but one GP system, and deployed to all relevant GP surgeries in municipalities that have adopted this solution. The last GP system vendor expects to deploy the solution before the end of 2013.

During the project period, new forms - unfamiliar to GP systems - have been introduced in Dynamic Form format, which the systems have been able to receive and send without further development or testing.

Seventy-six municipalities submit electronic LÆ forms, with 100% deployment in the vast majority of these municipalities. Each month, Udbetaling Danmark (the benefits disbursement authority) submits more than 1,500 electronic requests for certificates of sickness in connection with pregnancy.

After MedCom8

Commissioning in the municipalities continues and is supported by MedCom with deployment to general practitioners. Any new forms prepared in Dynamic Form format are to be tested before implementation.

In the hospitals, pilot testing of LÆ forms is under way, with the possibility of also extending the use of the Dynamic Form, e.g. to driving licence certificates

3.4 Birth registration

Purpose

- By the end of 2012, all regional maternity units will send electronic birth registrations to all municipal healthcare services capable of receiving this
- By the end of 2013, all municipal health services will be able to receive birth registrations electronically.

Objectives

Financial agreement 2010: By the end of 2012, all MedCom standards will be fully deployed in all the regional hospitals.

Action plan for the joint municipal digitisation strategy 2011–2015, KL:

The majority of MedCom messages in communications between municipalities and hospitals will be implemented in the municipalities in 2012.

Participants

All regions and all municipal suppliers:

- **Regions:** Logica, CSC and Systematic
- **Municipalities:** NOVAX, TM Care and Aalborg Municipality
- **VANS suppliers:** KMD and Evenex.

Vendors

Regions: Logica, CSC and Systematik

Municipalities: CSC Sundhed, Avaleo Caseflow, KMD Care and Casalogic

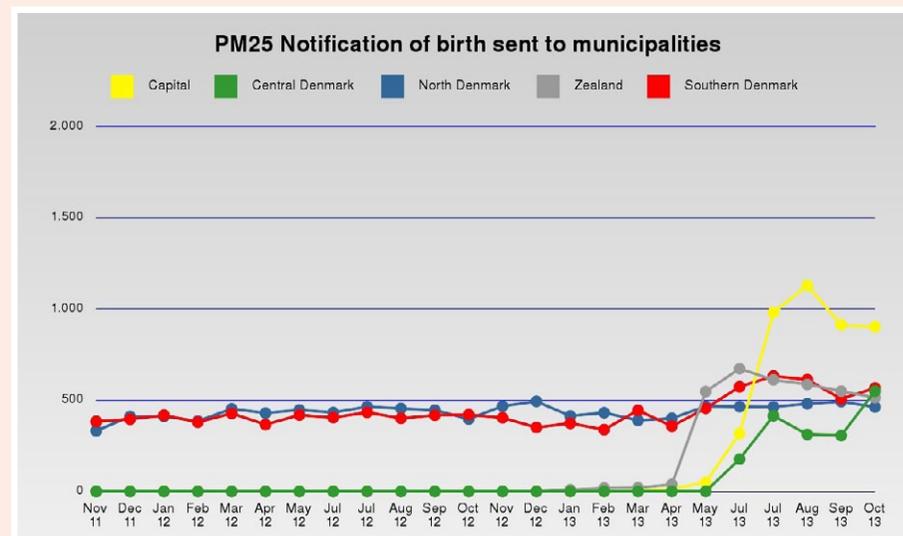
VANS suppliers: KMD, Evenex and CSC

Milestones	Planned	Attained
1. Relevant systems tested/approved	30.06.2012	31.01.2013
2. Everyone should have acquired the module	30.09.2012	31.05.2013
3. All regional maternity units are sending	31.12.2012	31.07.2013
4. All municipalities have acquired the module	30.06.2013	Not Læsø or Samsø
5. All municipalities to receive		31.12.2013

How things turned out

MedCom8 implements electronic birth registration for sending from the regional maternity units, and they can be received in the municipal child records in most municipalities.

Deployment to all the municipalities is not complete, as it has been necessary to implement corrections to the implementation of birth registrations in municipal child health records. A subsequent update is now in progress in all municipalities.



The City of Copenhagen is in the process of replacing its child records and will be operational at the beginning of 2014; Læsø and Samsø do not have any electronic child records.

There is strong demand for electronic birth registration, which replaces posting and faxing.

After MedCom8

There will be a need for continued coordination of deployment to the municipalities as child health records are updated. Transmission from maternity units to municipalities outside their own region is not fully deployed as yet – this will happen once operations within regional boundaries have been consolidated.

Several municipalities have adopted additional electronic communications in the paediatric area. The issue here is the correspondence notification, for example notification of births and receipt of discharge letters following the admission to hospital and outpatient treatment of children.

4.1 FMK and DDV in the primary sector

Purpose

- Deployment of Shared Medication Record (FMK) for daily operation in all consultations with general practitioners and specialists
- Development of the Danish Vaccination Register (DDV) in doctors' systems, including pilot testing by selected general practitioners.

Objectives

- Preparation of information and user guides aimed specifically at the individual medical records system
- Regional/local user-oriented information roadshows
- Meetings open to all relevant users. Arranged system by system for users of the same system.

Financial agreement: FMK is rolled out in all regions by the end of 2011.

DMA collective agreement: FMK is to be adopted in GP surgeries by the end of 2011, as and when the hospitals in each region are ready.

Participants

All 5 regions.

Vendors

CompuGroup XMO, Novax, Win PLC, MedWin, EMAR, Docbase, Ganglion, MyClinic, Multimed Web and Web-Praksis.

How things turned out

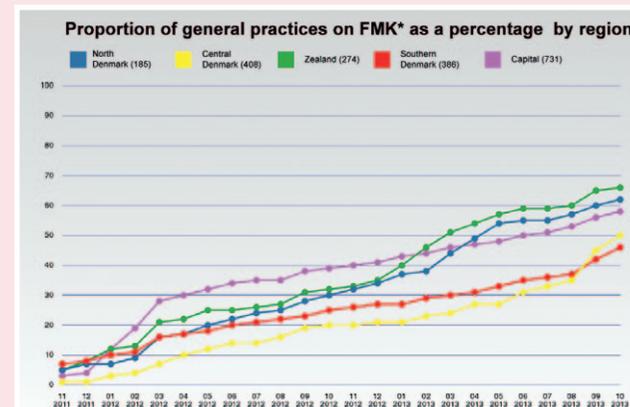
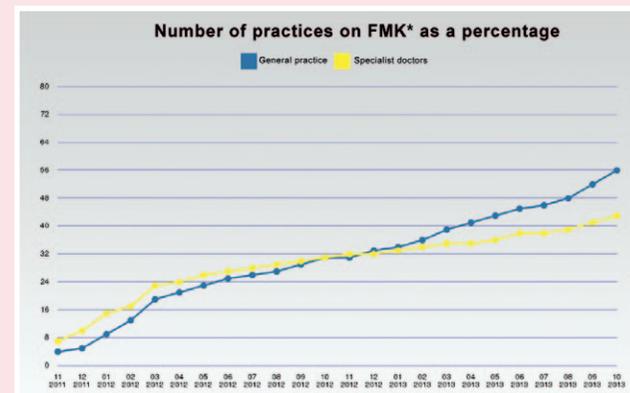
MedCom8 has been steadily increasing deployment of FMK in the primary sector, but has faced challenges involving technical, organisational and professional policy issues.

In particular, the potential for conflict in the Danish Medical Association has been a contributing factor in the failure to achieve 100% deployment of FMK because doctors have been very reluctant to order FMKs from their vendor.

Additionally, doctors are also waiting for the last two regions to start using FMK in hospitals.

It is expected that 65% of practices will have implemented FMK by the end of 2013.

Seven out of ten GP software houses have entered into an agreement on development of DDV in 2013. Of these, five systems have been tested and approved as of 1 November 2013.



*Shared Medication Record

Milestones	Planned	Attained
1. Entering into agreements with the regions on information roadshows and follow-up meetings	31.03.2012	31.03.2012
2. FMK rolled out in GP and specialist practices in line with the regional deployment of FMK in hospitals	31.12.2013	Not attained
3. DDV in EMAR tested in pilot surgeries	01.04.2013	Partially attained
4. DDV developed in GP systems and tested	31.12.2013	5 out of 9 software houses

After MedCom8

The FMK Project in the primary sector will continue under MedCom9 in 2013, in the first and second quarters of 2014, in order to achieve 100% deployment in surgeries. This is further justified by the municipal deployment of FMK in 2014-15 and their dependence on doctors also using FMK.

The DDV project has entered into an agreement with another 2 systems on the development and testing of DDV so that 9 out of 10 systems have an integrated DDV solution.

5.1 Video interpreting

Purpose

- To deploy video interpreting in the secondary sector and also to learn about the potential for its use through pilot projects in 10 municipalities and 10 GP surgeries
- The video conferencing equipment is regarded and used as a standard tool in everyday clinical practice, and the method also serves to increase the availability of interpreters.

Objectives

- For video interpreting to be in use in 90% of all relevant hospital departments by 31.03.2013
- For pilot projects to be implemented in at least 10 GP surgeries and at least 10 pilot municipalities
- To set up a national video hub (VDX) – a national infrastructure
- Video interpreting is the preferred choice for interpreting as of December 2013, where applicable
- Achieved an uptake rate of 50% of the estimated number of interpreting sessions in December 2013.

RSI milestones: Tele-interpreting deployed to all relevant hospital departments by the end of 2012.

Participants

Regions: North Denmark Region, Central Denmark Region, Region of Southern Denmark, Region Zealand and Capital Region.

Municipalities: 10

General practitioners: 19

Vendors

- NetDesign is responsible for operation of the video hub
- Interpreting agencies provide video interpreting services
- The Public Health and Quality Improvement Centre and Central Denmark Region are responsible for the final evaluation.

Milestones	Planned	Attained
1. Video interpreting to be in use in 75% of all relevant hospital departments	31.03.2012	01.02.2013
2. Booking sub project implemented	30.06.2012	30.06.2012
3. Experience gained from pilot municipalities	30.10.2012	01.12.2012
4. Video interpreting to be in use in 90 % of all relevant hospital departments	31.12.2012	Ongoing
5. Evaluation report	31.03.2013	17.04.2013

How things turned out

The original project period was scheduled from 2009–2012, and an evaluation report was prepared for this period. The project was extended by one year to increase the rate of use of video interpreting.

The regions were also very keen to start up in GP surgeries.



The project has entered into cooperation agreements with all the regions to implement video interpreting in 4–8 GP surgeries in 2013.

Nationally, there are 341 relevant hospital departments, 323 of which have conducted their first video interpreting session, equivalent to almost 95%. Capital Region has implemented video interpreting in 87% of its relevant departments, and is the only Region not to have achieved 90% deployment as yet. They expect to reach this target by the end of 2013.

The uptake ratio (number of video interpreting sessions relative to the total number of interpreting sessions) is generally low. The exceptions are the Region of Southern Denmark, which has had a year-round uptake rate of 55–63%, and Region Zealand, at 35% as of 30 September, which is in line with the project milestones for uptake rates.

The other three Regions have an uptake rate of between 11 and 19%.

To ensure implementation, agreement has been reached with the Danish Regions that each region will report its figures for the total number of interpreting sessions every month, with a breakdown by face-to-face interpreting, video interpreting and telephone interpreting, at hospital and regional levels.

After MedCom8

When the project is completed, tasks will need to be performed, going forward. There will still be municipalities and GP surgeries wishing to adopt the method. There will still be a need for forums where the Regions can pool their experience, e.g. to do with procurement and uptake ratios.

In addition, operation and technical support will be required for the video hub, and information will be needed about video interpreting and the use of video conferencing in general, as well as statistics, going forward.

5.2 Telepsychiatry

The MedCom telepsychiatry project follows two tracks when it comes to video conferencing:

- The use of video conferencing is deployed between psychiatric wards and outpatient psychiatric units
- The use of video conferencing between psychiatric hospital wards and municipal areas is being tested in pilot projects.

Purpose

The project will support interdisciplinary and cross-sectoral cooperation to ensure continuity and high quality patient care pathways.

It also supports the Regions' eHealth telemedicine strategy, which identifies telepsychiatry as a priority area for the purpose of optimising the way hospitals are run.

Objectives

- By the end of 2014, all relevant adult psychiatric wards will be using video conferencing to coordinate patient care
- Lessons will be learnt from demonstrations of cooperation between adult psychiatric wards and municipal areas
- Video conferencing will be used for other purposes such as assessment and treatment conferences.

RSI milestones: Video conferencing will be deployed to all relevant adult psychiatric wards and outpatient units.

Participants

All regions and selected municipalities.

Vendors

The tendered contract for operating a video hub was awarded to NetDesign A/S.

After MedCom8

The project is deployed to all relevant adult psychiatric wards in 2014. A report is prepared to evaluate the experience of cooperation between adult psychiatric wards/outpatient departments and municipalities.

How things turned out

Deployment project

The project has identified all relevant departments and outpatient psychiatric units where transportation time is at least 30 minutes.

North Denmark Region sites have not geographical distance between their wards and outpatient psychiatry units. Instead, they will be implementing video conferencing between the doctor on duty and nursing staff in connection with the handover of a hospitalised patient at Brønderslev, Thisted and Fredrikshavn, starting in January 2014. This trial is being spearheaded in three regions. Capital Region has not started yet, due to both technical and organisational challenges.

Overall, very few complete discharge conferences occurred via video link during the spearhead period; accordingly, the period has been extended to 31 December 2013 to obtaining better data for evaluation.

This means the evaluation of spearhead testing has been postponed until 14 February 2014. However, this will not change deployment to other relevant departments, which will go ahead as planned in 2014.

Psychiatry managers have been briefed on the status of the project and the challenges, as well as on the focus on deployment in 2014.

The demonstration project

The plan is for at least one municipality per region to get involved. KL will support the municipalities identified by the project.

Thisted Municipality is participating with Områdeceneret Vestergården district centre. The process at Vestergården lasts four weeks, and during this period the next steps will be coordinated and established for the individual patient.

The project commenced on 1 September 2013.

Lolland Municipality is participating by offering triage. They start on 1 December 2013. A kick-off meeting has taken place and a video meeting has been scheduled with the Region's spearhead department to clarify the work processes.

Odense Municipality: The Tornbjerggård home is participating. A kick-off meeting will take place and baseline measurement will be established. They are technically ready for start-up. Start-up expected in December 2013.

The Capital Region of Denmark has indicated Dragør, Tårnby or the City of Copenhagen.

The Central Denmark Region has yet to designate a municipality.

Milestones	Planned	Attained
1. Video conferencing project kick-off	31.12.2012	15.01.2013
2. Regional implementation plan prepared	01.03.2013	Ongoing
3. Cooperation agreement with municipalities	30.06.2013	Started
4. Spearhead testing conducted (ward - outpatient psychiatry)	30.09.2013	31.12.2013
5. Gathering experience from spearhead testing	31.12.2013	15.02.2014

5.3 Telemedical ulcer assessment

Purpose

The project aims to deploy telemedical ulcer assessment to all Regions and municipalities by the end of August 2015.

Objectives for the period September 2012 – December 2013

The project has five phases – this report focuses on the objectives of Phases 1-2:

- Establishment of a national project organisation
- Qualification of a national business case for telemedical cooperation between home nursing and hospitals on the care and treatment of patients with diabetic foot ulcers, venous leg ulcers and mixed ulcers
- Coordination and start-up of national deployment of the same concept of telemedicine in all regions and municipalities
- Common quality recording among regions and municipalities defined and described
- Preparation of tender documents and choice of technical solution.

Agreements as part of the national action plan for the deployment of telemedicine: Telemedical ulcer assessment will be implemented nationwide during the period 1 September 2012 to 31 August 2015. DKK 30 million is granted for the implementation process and for the telemedical ulcer assessment deployment project.

Participants

All 5 Regions and 98 municipalities.

Vendors

- PlejeNet by Dansk Telemedicin A/S
- Relevant hospital and municipal systems vendors.

Milestones	Planned	Attained
1. Preparation of proposals for cooperation agreements	05.10.2012	20.05.2013
2. Kick-off for regional and municipal project organisations	15.11.2012	27.11.2012
3. Baseline validation completed	15.12.2012	12.12.2013
4. Quality parameters and training tools developed	31.12.2013	Ongoing
5. Procurement implemented for a supplier solution	31.12.2013	15.02.2013

How things turned out

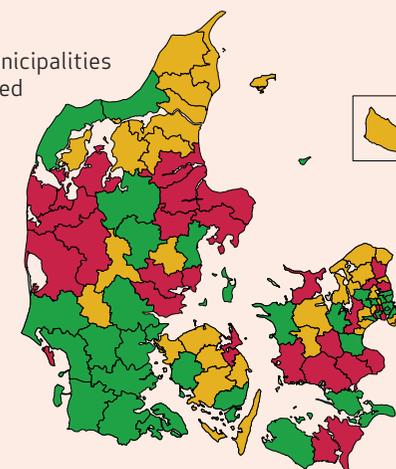
After SKI procurement, the “PlejeNet” solution by Danish Telemedicine A/S was selected in January 2013 as the national solution for telemedical wound assessment. National statistical tools and civil registration number services have subsequently been developed. There are plans to improve correlation between medical records and the specialised EPJ/EJ systems currently being planned and developed.

Regions and municipalities are working intensely to establish and implement regional ulcer treatment courses, training in how to use the common ulcer record as well as the organisation of ulcer treatments and coordination with the national project for measures initiated in relation to telemedical ulcer assessment. The national project has a group of clinicians who made recommendations in relation to

- Ulcer competences
- User profiles in the shared ulcer records
- Reference flow and ensuring timely medical guidance for municipal ulcer nurses.

As of 15 November 2013, 82 municipalities have been registered in the shared ulcer records:

- 19 municipalities currently have patients in telemedical ulcer assessment
- 31 municipalities have a limited number of patients undergoing telemedical ulcer assessment
- 32 municipalities have no patients undergoing telemedical ulcer assessment.



■ No patients showing activity in October 2013
 ■ 1-4 patients showing activity in October 2013
 ■ More than 5 patients showing activity in October 2013

After MedCom8

The project has a total of 5 stages, and after MedCom8, Phase 3 will be initiated, focusing on development, implementation, municipal and regional deployment.

5.4 Telemedical mapping

Purpose

The purpose is annually to collect and publish a summary of the deployment of telemedicine in the health service.

This initiative is in response to the national action plan for the deployment of telemedicine, which states that MedCom, as part of MedCom's working plan for 2012-2013 (MedCom8), is to create a unified, consistent overview of the use of telemedical technology.

Targets for the period September 2012 - December 2013

- Building on existing and ongoing mappings, a small number of crucial parameters will be defined in order to categorise existing and future telemedical activities in Denmark
- Mapping is updated continually via proactive outreach efforts by MedCom
- This mapping serves as the basis of a brief annual statement on telemedicine, anchored in the National eHealth advisory committee on telemedicine
- The mapping and statement were drawn up for the first time in 2013.

Participants

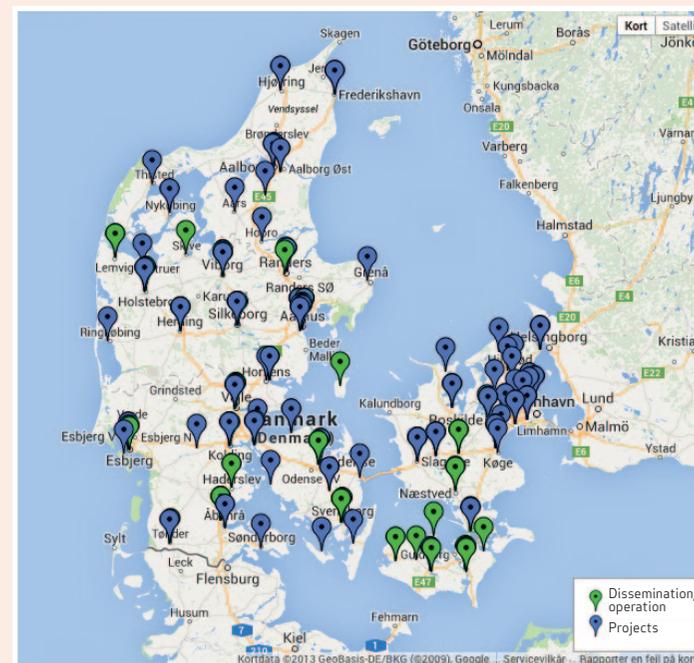
The mapping work is anchored in a small task force comprising representatives appointed by National eHealth, KL, Regional eHealth and relevant research environments under MedCom's project management.

Milestones	Planned	Attained
1. Task force set up	31.03.2013	KL rep. pending
2. Mapping parameters established	01.06.2013	30.08.13
3. National database acquired	01.09.2013	01.07.13
4. First national mapping implemented	31.10.2013	01.12.13
5. Telemedical statement for the year 2013 published	01.12.13	02.12.13

After MedCom8

Starting in 2014, mapping of telemedical activity will be a basic activity of MedCom, embedded in the national telemedicine coordination group. Based on experience gained from the first mapping in 2013, the data model has been adjusted, and the potential for data extraction and presentation has been improved in close cooperation with the Regions and municipalities.

How things turned out



There is broad support for the establishment of a joint regional and municipal database for the registration of telemedical activities. Designation of municipal representatives will be anchored in the KKR digitisation network, following agreement with KL. Regional support for the first version of the mapping parameters, covering:

- Master data
- Parties
- Results
- Financing
- Specialist medical fields
- Activities
- Pathway programmes
- Locations
- Technologies

KL's mapping of telehealth from 2012 has been transferred to the national mapping database, and all five Regions input records to the mapping database. More than 300 telemedical activities had been recorded as of the end of November.

6.1 Package referrals and REFFARC

Purpose

To implement improved, dialogue-based e-referrals so that all referrals to hospitals, radiology and municipal preventive facilities are electronic. To establish a central referral hotel, REFFARC, through which all referrals are routed. Attachments are handled by the hotel if the region does not have the facility to receive these.

Objectives

- By the end of 2012, all referrals from GPs to hospitals are to be electronic
- All referrals forwarded (even to private clinics) from hospitals are to be electronic by the end of 2013
- Attachments can be used in hospitals
- Package care pathways are supported in the referral
- Full use of booking responses.

Participants

All regions, the Danish Regions and all GP surgeries and specialist practices.

Financial agreement 2010: All MedCom messages fully deployed in 2012.

Vendors

- REFHOST/REFPARC and Multimed
- All hospital, radiology, VANS and clinical system suppliers are included.



Milestones	Planned	Attained
1. Referral module implemented in regions	31.03.2012	31.12.2012
2. Package referral module implemented in GP systems	31.12.2012	7 out of 10 (65%)
3. E-referrals and booking responses fully deployed in regions	31.12.2012	Not attained
4. REFFARC development/commissioning/roadshows	30.06.2013	31.12.2012

How things turned out

Implementation of the package referrals was completed in the hospitals of all five Regions, and more than 90% of referrals are now electronic. In the field of radiology, all referrals are now sent electronically.

MedCom has developed a referral table containing all the information needed for packaging and general referrals.

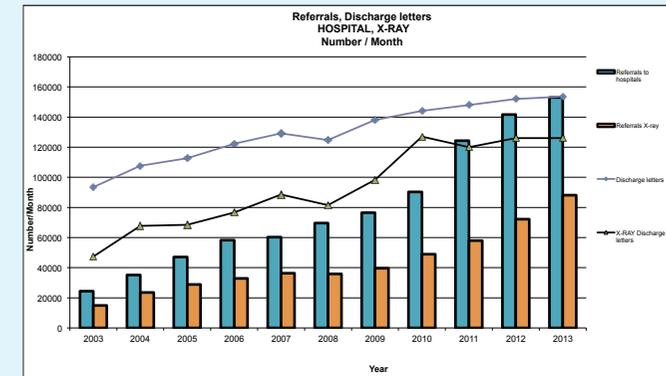
Three GP systems have not yet developed package referrals. These are MedWin, Docbase and MyClinic.

The REFHOST/REFPARC referral hotel has been established and is now used for all referrals except for radiology; the Regions are not expected to be ready for that until 2014.

Forwarding referrals from hospitals via assessment units was tested in a single Region, and is expected to be adopted in all Regions from 2014.

The Regions have given lower priority to implementation of booking responses for referrals, and this has only been partially implemented.

Receiving files attached to referrals has been implemented, so they can be received, but automatic linking with electronic health records (EHR) in hospitals is not yet up and running.



After MedCom8

Since not all referrals were electronic in MedCom8, a major initiative is being planned to accomplish the following:

- Remaining referrals from doctors to hospitals to be done electronically
- Full use of MEDBIN file attachments for referrals
- Booking response developed and deployed so they are sent for all elective patients and package referrals
- Mandatory development package referrals in the “residual” GP software systems
- Forward assessment of electronic referrals
- Consider handling of internal hospital referrals.

6.2 Laboratory medicine

Purpose

- To ensure full national deployment of MedCom medical laboratory projects
- To comply with legal requirements, refine and exploit new opportunities based on access to laboratory data.

Objectives

- All MedCom7 laboratory projects are fully deployed
- Doctors' own analysis results displayed on the laboratory report portal
- Streamlining of all laboratory codes in doctors' systems and in the doctor's own analyses in WebReq
- Mandatory introduction of National Short Names from Labterm for use in WebReq and medical administration software systems
- New link to the lab manuals of the medical handbook in WebReq and GP software systems
- Message receipts for laboratory tests ordered for medical practices
- National disease-specific/symptom-specific standard profiles in WebReq and GP software systems.

Financial agreement 2010: By the end of 2012, all MedCom standards will be fully deployed in all regional hospitals.

Participants

All five Regions, Statens Serum Institut (SSI) and Københavns Praktiserende Lægers Laboratorium (Copenhagen General Practitioners' Laboratory).

Vendors

CSC, Logica, MADS, ADBakt, Misys, Københavns Praktiserende Lægers Laboratorium, Databyrå, CGM and DMDD.

Milestones	Planned	Attained
1. Project manager meetings, regions	1st and 4th Q 12, 2nd and 4th Q 2013	4 out of 4
2. User meetings	1st and 4th Q.12, 1st and 3rd Q 2013	4 out of 4
3. Full implementation of old lab projects 100%	31.12.2012	95%
4. New developments, consensus	30.09.2013	1.12.2013
5. Implementation of system changes	31.12.2012/31.12.2013	2013 proj. 95%

How things turned out

All MedCom laboratory projects were completed; however, the National Sample Number (NPN) will only be implemented across the board in Q1 of 2014.

The doctors' own analyses can now be seen in the laboratory report portal.

Uniformity for all laboratory codes, National Medical Analyses (NLA) of medical systems and WebReq have been developed and implemented on an ongoing basis so that comparisons can be made across systems.

National Abbreviated Names have been introduced in WebReq and GP systems as well as in most Regions.

Several GP software systems lack implementation of the new tasks, scheduled for 2014.

The Medical Handbook is now in WebReq and the GP software systems.

To ensure that test results are not overlooked, and to avoid failing to pass them on to the patient, message receipts are described and ready for adoption.

National draft standard profiles of selected diseases and diagnosis scenarios have been prepared and are now available in WebReq.

WebPatient has been developed for collecting home monitoring data and is now available in WebReq with responses for GP software systems and the report portal.

The laboratory report portal is enhanced with a laboratory database to collate reports. Quick access to reports has been developed and adopted. The Regions signed up in 2013. They are sources of data feeds to Sundhedsjournalen electronic health records, Shared Care, the Biobank and WebReq report data.

Laboratory medicine 31.12.2013	RNJ	RMIDT	RSD	SJÆ	HOV	RHEL/KP	SSI
WebReq deployment	100%	100%	100%	100%	100%	100%	100%
Electronic transmission note	100%	100%	70%	100%	75%	100%	
Requisition hotel	100%	100%	100%	100%	95%	95%	
Lab reports between laboratories	90%	90%	90%	80%	80%	100%	
Manufacturer/producer code in response	100%	100%	100%	100%	100%	100%	100%
National Abbreviated Names	100%	100%	100%	100%	100%	100%	100%
Guidance notes at Sundhed.dk	100%	25%	50%	100%	50%	100%	100%
National trial number system	Q1/14	Q1/14	100%**	100%	Q1/14		100%
WebQuality	100%	100%	80%	100%	100%	100%	
Impr. display of KKA response at sundhed.dk	100%	100%	100%	100%	80%*	100%	100%
Webservice response on WebReq	100%	100%	100%	100%	80%*	100%	100%

* blood bank lacking ** microbiology lacking

After MedCom8

- Further developing, maintaining and advice on the use of laboratory databases. Operation of user groups
- Linking immunology system for recycling of laboratory data between blood banks
- Follow up on implementation of NPN in the regions
- Full implementation of Abbreviated Names and profiles in medical systems
- Implementation of laboratory manuals in the regions that do not yet have them
- Development of datasets and code sets for the field of genetics
- Maintain and implement codes and tables for Point-of-Care testing devices.

7.1 International projects

Purpose

Development of the international dimension of MedCom's other projects in order to:

- Strengthen Denmark's position in the international arena as well as position Danish eHealth
- Raise the level of awareness about the projects, both in Denmark and internationally.

Objectives

- Establish a consortium jointly with other Danish and foreign partners
- Identify other project lines, such as municipal projects, as well as Danish and foreign partners
- Harness experience gained and results from current and completed projects
- Implement existing projects.

Participants

Stakeholder regions and municipalities.

Vendors

Stakeholder vendors.

Milestones	Planned	Attained
1. Meeting with MedCom project managers	31.03.2012	30.04.2012
2. Demonstration of PatientVille at WoHIT 2012	10.05.2012	10.05.2012
3. Applying for project (identification of CIP partners)	31.12.2012	01.05.2012
4. Evaluation	31.12.2012	Not realised
5. Demonstration of PatientVille at MedInfo 2013	23.08.2013	23.08.2013
6. Project conclusion	2.Q 2012 Dreaming	01.06.2012
	4.Q 2012 ICT 4 Health	31.12.2012
	4.Q 2013 UniversAAL	

How things turned out

For many years, MedCom's international unit has been conducting international projects – largely on behalf of and in cooperation with the Region of Southern Denmark. Region of Southern Denmark has decided to repatriate the international projects, and MedCom therefore now only gives priority to entering into projects offering potential synergies with existing MedCom activities, and which can be financed 100%. Based on this model, MedCom is participating in two EU-funded projects:

- Make-it-ReAAL, in which MedCom and Odense Municipality are testing a technically open platform for the development and distribution of welfare technology services to support people in their own homes.
- Antilope, a thematic network for the exchange and deployment of recommendations for common European methods for the testing and certification of eHealth solutions. MedCom is the main coordinator.

In addition to project development and execution, MedCom has been promoting Danish eHealth at international conferences, including WoHIT 2012 and MedInfo 2013. Along with the state, Regions, municipalities, sundhed.dk and representatives of the business community, MedCom has developed the PatientVille concept, which uses practical demonstrations to illustrate how the Danish health service is interconnected through IT solutions. PatientVille has attracted keen interest both in Denmark and internationally. The concept is being pursued in cooperation with the partners involved and in tandem with HealthCare Denmark.

MedCom is participating in European cooperation with sister organisations through the EHTEL network, and there is a corresponding Nordic network.



After MedCom8

MedCom's international unit continues to execute the projects already under way.

Horizon 2020, the new EU funding instrument, offers good potential for new projects; attempts will be made to realise these in closer cooperation with the Regions and municipal partners. This applies to assistance with identifying European partners, preparation of applications as well as participation in project execution. The focus has to be on projects capable of creating mutual value in relation to MedCom's other activities.

Sharing lessons learnt at Nordic and European level will continue, as will the work of promoting Danish eHealth, particularly in the context of cooperation with PatientVille partners and HealthCare Denmark.

8.1 Standards, testing and certification

Purpose

- To ensure nationwide uniformity of professional and technical implementation of electronic communication
- To provide technical assistance and support in the development of new standards in the individual project lines as well as ongoing maintenance of existing standards
- To support testing processes for new IT systems by providing test protocols
- To implement the FNUX PLO file exchange format including self-validation
- To implement the National Service Platform (NSP), including E-CPR in medical systems.

Objectives

- Introduction of the Antilope (Connectathon - Gazelle) testing and certification system to improve the quality of testing and approval procedures
- Handling change management in standards
- Consolidation and updating of test tools, including EDI-XML converter
- Integration of EDI-XML converter with VANS network to support live testing. Ongoing preparation of test protocols
- FNUX developed and deployed to all doctors
- National Service Platform implemented in all medical administration software systems, including e-CPR.

Participants

National eHealth, Regions, municipalities, general practitioners, etc., acquiring new IT systems.

Vendors

System vendors and National eHealth.

Milestones	Planned	Attained
1. Analysis	31.03.2012	01.04.2012
2. Development of FNUX (Fælles Nordisk Udvekslingsformat i XML - "joint Nordic XML exchange format")	30.09.2012	31.03.2013
3. Testing FNUX	01.10.2013	5 out of 8
4. Documentation, Antilope	31.03.2013	Not realised
5. Deployment of FNUX	01.04.2014	Pending

How things turned out

The FNUX project for the development and testing of FNUX (PLO XML) format is still in progress. The GP test of the FNUX format will take place during the remainder of 2013, with subsequent customer implementation by 01.04.2014. The format has proved very successful, but it had to undergo a number of technical tests before it could be approved.

FNUX development Status 01.11.13 MEDICAL SYSTEMS	CGM /Æskulap/KMO version 7	CGM /Æskulap/KMO version 8	NOVAX	Web-Praxis	Win PLC	MedWin	Multimed Web	EMAR	Docbase	Ganglion	MyClinic
Implementation agreement											
Development and testing											
Approved technically											
Approved by users											
Distributed til users 01/04/2014											

The NSP solution was prepared late in the MedCom8 period, and not all medical systems have implemented civil registration number (CPR) look-up. Development of the E-CPR solution has been initiated and will follow in 2014.

VENDOR TASKS 2012-2013 testcamp 2013 version 23.09.2013		Approved	Implemented	NOVAX	Web-Praxis	Win PLC	Multimed Web	EMAR	Ganglion	CGM_XMO, ver 8.0	MedWin	Docbase	MyClinic
4	National Service Platform (NSP)												
4a	e-CPR	K	1:10.13	1:13									
4b	CPR	K	1:10.13	1:13									
4c	Cross-border commuter												

Test tools have yet to be implemented and consolidated; nevertheless, a testing tool has been created for FNUX format, and this has been very useful for the medical systems.

The test/documentation and versioning pages (SVN) pages have been reorganised.

Test protocols have been created on an ongoing basis for the test tasks completed.

All hospital systems covered by regional eHealth's milestones are regularly tested.

Preparation of HL7/CDA/PHMR profiles has been initiated.

After MedCom8

Ongoing work on the Antilope testing and certification system is still being planned, as is the consolidation and updating of testing tools.

Follow-up is required for the residual group of medical systems that have not been approved for FNUX so these too can be tested and approved.

Start-up of FNUX format for dentists.

8.2 The Danish Healthcare Data Network (SDN) and video hub

Purpose

- To secure continued reliable operation of the Danish Healthcare Data Network (SDN) and video hub (VDX)
- To ensure any necessary further development and adaptation, including handling new requirements imposed by the Danish Data Protection Agency
- To support the secure exchange of data in the health service, including telemedical solutions.

Objectives

- To develop SDN's appointment system to support IP version 6 (IPv6) and the latest browser versions
- To enhance VDX to support streaming and to offer better handling of statistics
- To establish a national VDX video directory
- To enable IPv6 in SDN and VDX devices to support both IPv4 and IPv6 functionality
- To undertake IPv6 migration projects undertaken in cooperation with relevant organisations
- To examine SDN security models in relation to IPv6, and to implement suggestions and draw up practical safety guidelines, including for GP surgeries
- VDX made to support mobile video conferencing and integration with other platforms.

Participants

Regions, public/private hospitals, medical practitioners within the public health insurance scheme, municipalities, pharmacies and private laboratories are pre-approved for connection. Foreign business partners require approval by the MedCom steering committee prior to connection.

Vendors

- The tendered contract for the provision of SDN and VDX was awarded to NetDesign A/S
- IT vendors with customers in the Danish healthcare sector.

Milestones	Planned	Attained
1. Operation and development of SDN/VDX and agreement system (continuous process)	31.12.2013	03.12.2013
2. Shared directory (structure and platform)	30.06.2012	30.06.2012
3. IPv6 (all affiliated organisations focus on IPv6)	31.12.2013	Not attained
4. Security (implementation proposals and guidelines prepared)	31.12.2012	Not attained
5. VDX integration with other video conferencing platforms	30.09.2012	31.12.2013

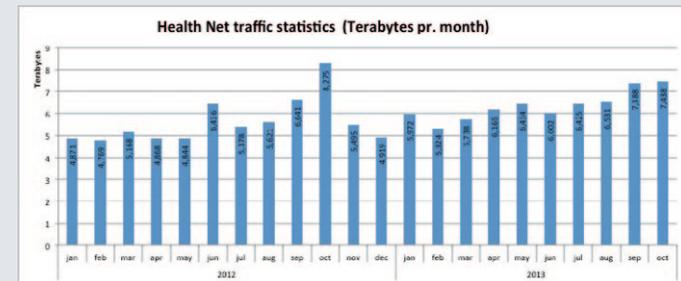
How things turned out

SDN/VDX has 100% uptime. Conclusion of data processor agreements awaiting the Danish Data Protection Agency's decision regarding practical handling.

The agreement system has been upgraded to IPv6 version 3.12.2013, but IPv6 migration projects have not launched because none of the member organisations have found it imperative.

VDX delivers accurate call statistics for affiliates, and integration is possible between conventional video conferencing, MS Lync and Vidyo.

Mobile video conferencing is supported, but the quality is limited by poor upload capacity of mobile networks.



After MedCom8

The handling of data processor agreements and IPv6 will require follow-up during the MedCom9 project period. Video Services will be consolidated around usage statistics, the directory and virtual meeting rooms as elements of deeper integration between the various video-conferencing platforms.

8.3 Technological future-proofing

Purpose

The purpose of the project is to analyse and describe the overall existing MedCom infrastructure, including the message standards, the VANS network, the SDN network, referral solutions and other types of “hotel” solutions and logistics problems.

Objectives

- Mandate and organisation
- Proposal for technological future-proofing
- Decision on future technology
- Clarification of technical and organisational matters
- MedCom9 project plan.

Participants

The MedCom8 coordination group, including National eHealth, Regional eHealth, municipalities, the Danish Regions, KL and the Danish Medical Association.

Vendors

Representatives of EPJ, EOJ, vendors of laboratory systems and medical systems, as well as sundhed.dk in the MedCom8 coordination group.

How things turned out

- A detailed description of the current infrastructure has been developed and finalised by Deloitte consultants based on a series of interviews among the parties
- The description has been presented to the MedCom8 coordination group and the MedCom steering committee
- A number of different future scenarios there have also been prepared, and these were discussed at a strategy meeting of the MedCom steering committee
- The MedCom steering committee decided that the implementation of technological future-proofing should be discussed in relation to the upcoming digital strategy for healthcare
- Technological future-proofing has now become part of the 22 digitisation strategy initiatives.



Milestones	Planned	Attained
1. Mandate and organisation (MedCom and NSI)	31.03.2012	26.04.2012
2. Proposals for technological future-proofing (MedCom8 group)	30.09.2012	Ongoing
3. Decision on future technology (MedCom steering committee)	31.12.2012	Not attained
4. Technical and organisational clarification (MedCom and NSI)	30.09.2013	Awaited
5. Part of the MedCom9 project plan	31.12.2013	Awaited

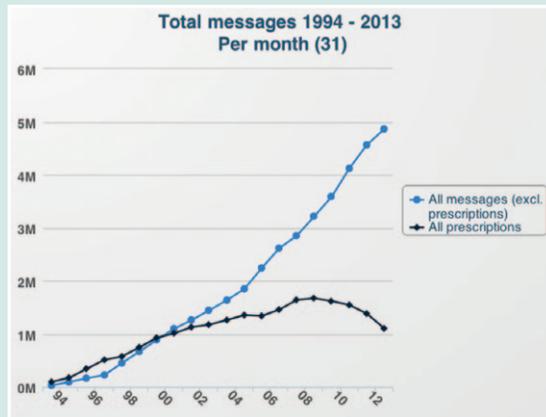
After MedCom8

MedCom is awaiting the parties' initiatives now that the project is part of digitisation strategy initiative 3.3:

“Digital support for relevant processes across the health service, including the clarification and description of technological future-proofing of MedCom communication.”

How things turned out > Overall traffic monitoring

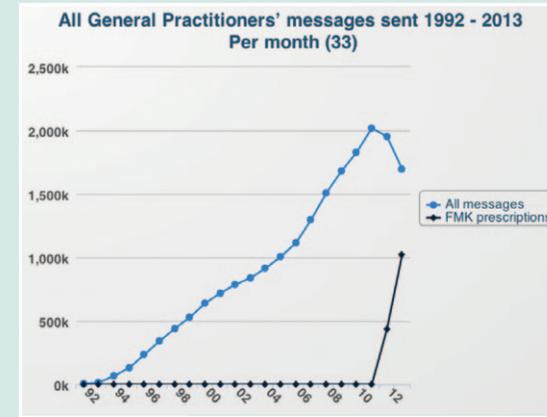
Message communication 1994–2013



Message communication is growing steadily year by year, and, since 2003, has grown from 1.4 million messages per month to 4.9 million per month – on average, equivalent to an increase of just over 10% per year.

Since 2008, communication about prescriptions has decreased as planned concurrently with the introduction of the Shared Medication Record (FMK).

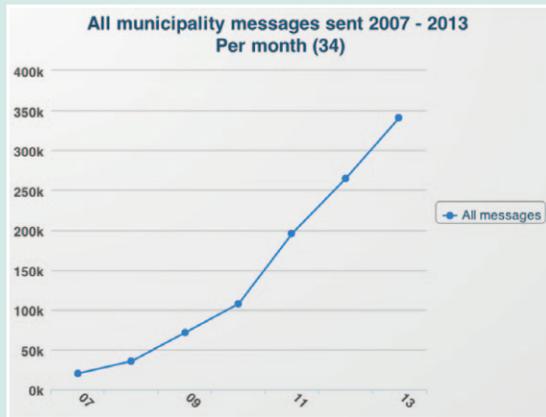
Doctors' messages and FMK



Messages sent by doctors (GPs and specialists) excluding FMK prescriptions fell by 194,000 messages from 2012 to 13, reflecting the transition from traditional prescriptions to FMK prescriptions. The number of FMK prescriptions has thus increased by 490,000 over the same period.

It must be assumed that more than twice as many FMK prescriptions (single prescriptions) as traditional prescriptions will be issued, as these may contain multiple prescriptions.

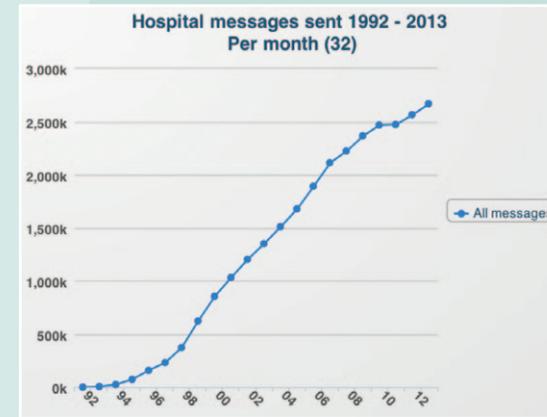
Municipal communications 2007–2013



The number of communications sent by municipalities soared by 150,000 from 2011 to 2013.

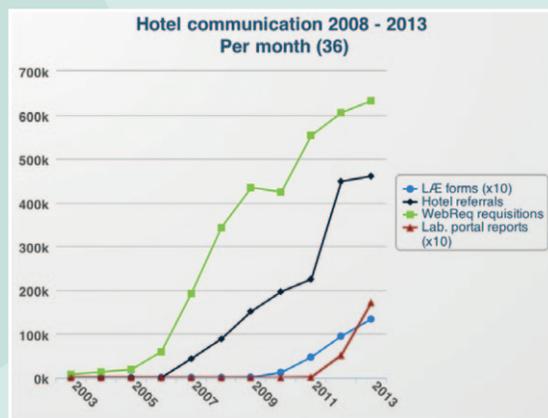
Strong, continued growth reflects the fact that there is significant untapped potential for municipal communications.

Hospital communications 1992–2013



The number of hospital communications sent increased by 4% from 2012 to 2013, to a total of 2.7 million per month.

Web service hotel communication 2003–2013



Communication via the four “hotels” – the Referral Hotel, WebReq, Laboratory Portal and LÆ forms – topped 1.2 million look-ups per month in 2012, of which 605,000 were lab requisitions, 448,000 were referrals, 95,000 were doctors’ certificates and 51,000 were laboratory reports.

Overall, hotel communication increased by 45% between 2011 and 2012. LÆ form transmissions of health certificates from general practitioners to municipalities is approaching full deployment.

Danish doctors are the best at IT...

In 2012, the European Commission conducted European benchmarking of the use of IT by general practitioners. Countries were divided into three types: Publicly funded, insurance-funded and “transition countries” – i.e. Eastern Europe.

The survey was conducted by means of telephone interviews with nearly 2,000 general practitioners in Europe.

The doctors were asked what their IT system could handle based on different indicators.

Denmark, with a total score of 2.6, occupied the number one spot in the group of publicly funded health services – and the number one spot overall.

Table 24 Composite index by country and health system

Country	Total CI	Country	Total CI
NATIONAL HEALTH SERVICE			
Denmark	2.60	Netherlands	2.13
Norway	2.22	France	1.86
Spain	2.13	Ireland	1.82
United Kingdom	2.08	Germany	1.79
Finland	2.05	Turkey	1.79
Sweden	2.04	Austria	1.75
Italy	1.95	Belgium	1.74
Iceland	1.90	Luxembourg	1.60
Portugal	1.86		
Greece	1.58		
Malta	1.48		
Denmark	2.60		
TRANSITION COUNTRIES			
Estonia	2.16	Bulgaria	1.58
Czech Republic	1.83	Slovenia	1.57
Hungary	1.79	Poland	1.52
Croatia	1.67	Latvia	1.49
Romania	1.67	Slovakia	1.49
Cyprus	1.63		

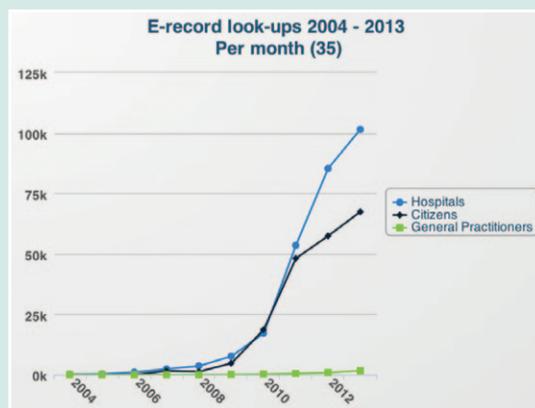
E-records online lookups 2004–2013

E-records provides Internet access to data from hospitals’ patient records via Sundhedsjournalen in Sundhed.dk.

The number of look-ups per month amounted to approximately 170,000 in 2013.

Of these 170,000, hospital look-ups accounted for 101,000 and look-ups by private individuals for 67,000, while the number of GP surgery look-ups was a rather modest 1,600 per month.

In the E-medical records, data is held on approx. 85% of the Danish population. In 2012, 450,000 unique hospital patients have been entered in the E-medical records of approx. 50,000 unique hospital employees. This corresponds to approximately 8.2% of the entire population or 20-25% of all hospitalised patients and outpatients. Entries in the P-records for practice data amounted to the 8500 in May 2013.



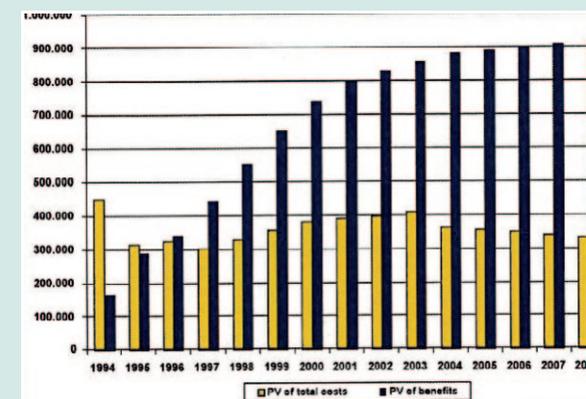
Study of the Economic Impact of eHealth

Annual costs and benefits of MedCom communication 1994–2008. EUR 1,000.

The European Commission and the German consulting firm Empirica undertook a comprehensive evaluation of 10 selected European eHealth projects, including MedCom, 2007–08.

The study shows that the net benefit from MedCom communication was estimated at EUR 80 million for the year 2008 and that the total cumulative gain since the establishment of MedCom in 1994 amounted to EUR 1.4 billion.

As MedCom communications have increased by two-thirds since 2008, annual net profit today is expected to have increased by at least a comparable amount. The complete study, “Study on the Economic Impact of e-Health”, can be downloaded at www.ehealth-impact.org.





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