

# Health communication in development



WISE  
PrimaCom MedCom  
CoCo Nordic Network  
Propractition JUST  
HC Interest  
cITTI's Picnic Open ECG

## Synergy across borders

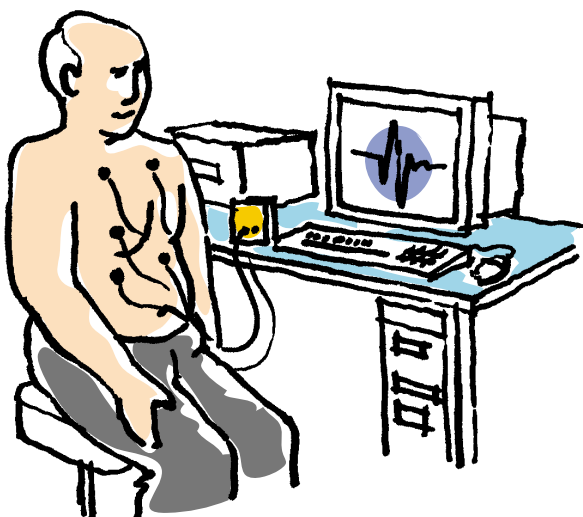
# International correlation

For a number of years, the Danish healthcare sector's use of information and communication technology has witnessed a near explosive development. From the initial tentative experiments of electronic communication between general practitioners and pharmacies till today, where millions of messages are exchanged electronically between all healthcare sector's players and where numerous other forms of electronic communication are developing. Nationally, planning and co-ordination of these activities are joined in the project organisation MedCom, which, along with the International Section and FynCom, form the Danish Centre for Health Tele-matics.






Very early in the process, the Danish development work took on an international dimension. The background was a Danish desire to enter into close teamwork with related communication projects abroad to gather inspiration and to be inspired. In short, to reach a synergy effect in the correlation between these projects across borders.

Experience has shown that aiming at international teamwork was both right and necessary. Numerous examples show how national project experience has been an advantage internationally – and the other way around.

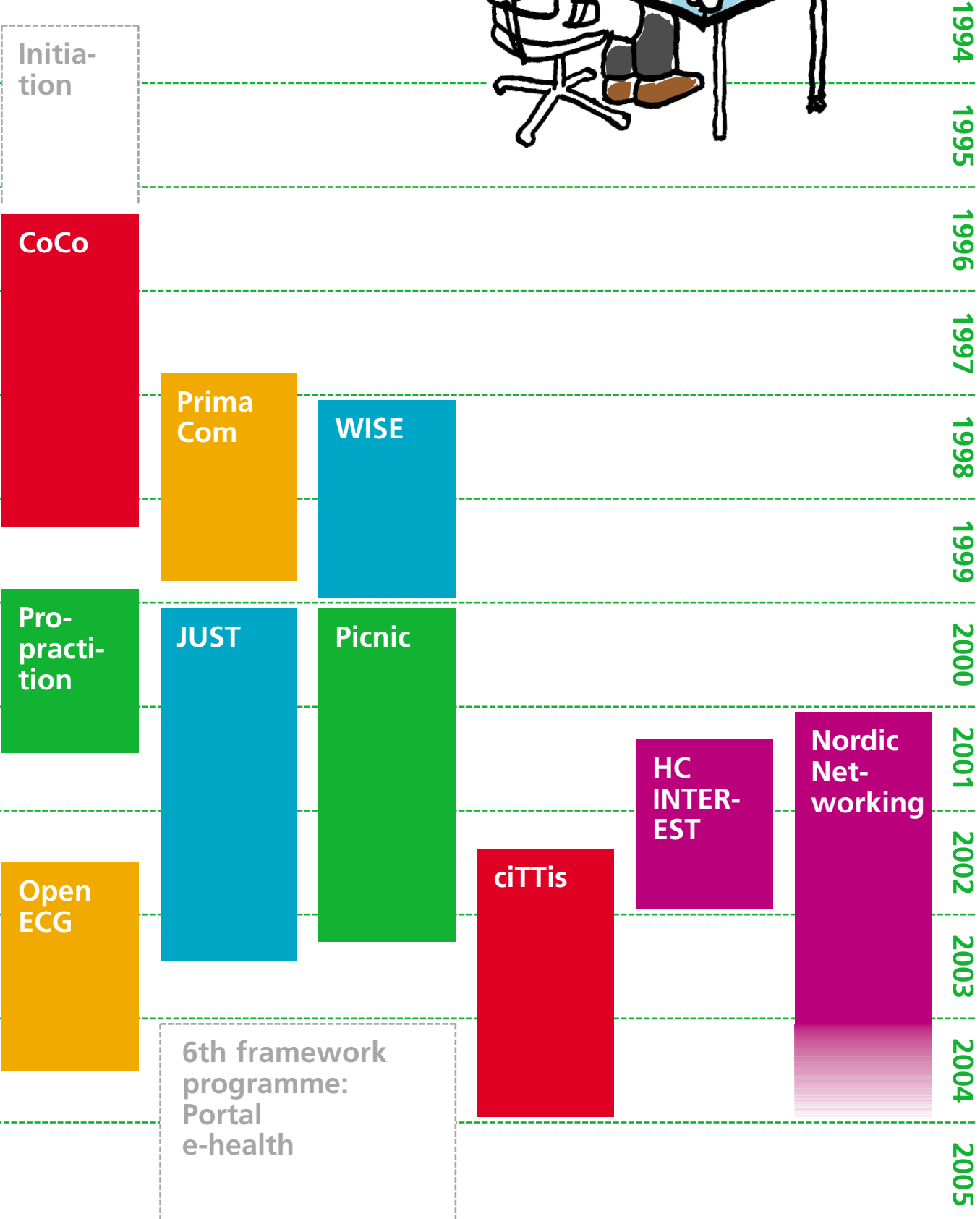
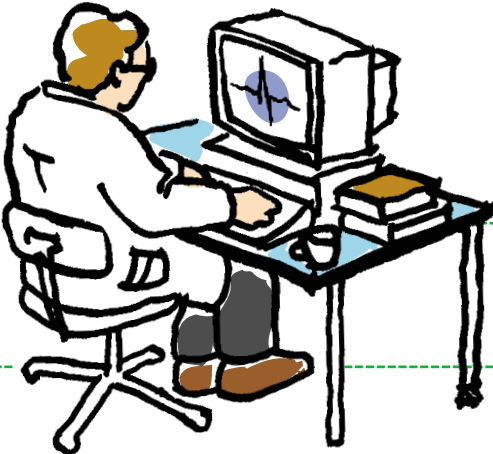
To a great extent the situation and perspectives for the use of information and communication technology in the Danish healthcare sector are characterized by ideas and experience from similar projects in practically every EU country. At the same time we are witnessing that also the Danish development work has left vestiges in the way other countries have chosen to use the opportunities of the new technology.



# National projects

1994	MedCom 1	
1995		
1996		
1997	MedCom 2	
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1999		
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2002	MedCom 4	
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# International projects



## International projects 1996-1999

### CoCo

Coordination and Continuity in Health Care was the headline for the CoCo project, which gathered 11 regional health providers in 10 countries. The projects focused on communication to and from the GP in the form of electronic messages – prescriptions, discharge letters, requisitions etc. CoCo also included projects about multimedia communication between the primary and the secondary sectors.

The building stones in CoCo were regional projects. CoCo was instrumental in bringing standards, guidelines, test systems and other services to the regions. Real communication was established and validated in pilots. The pilot projects underlined that regional health networks could vary widely with regard to size and purpose, but that they should be built on the basis of the same standards and the same architecture.

### PrimaCom

PRIMACOM – PRIMARy Care Physicians COMMunication Network established and evaluated pilots in Hungary and Slovenia in co-operation with European partners. These work included:

- development of necessary tools and support (handbook, implementation guidelines, training, guidelines, expertise)
- establishing links between software companies in Denmark, Italy, Hungary and Slovenia
- electronic links between health care professionals
- structured messages communication to ensure re-use of data in different systems building on European standards and existing infrastructure and systems in the regions

### WISE

13 organisations in 10 EU countries joined in the WISE-co-operation – Working in Synergy for Europe – to exchange knowledge and experience in the effort to establish and disseminate regional health networks in Europe. WISE was an umbrella for a number of EU projects including CoCo. The idea behind WISE was to look at the regional and national effort within health communication and to disseminate the experiences and solutions at a European level. WISE focused on User Group Support, Synergy Promotion, and External Promotion. An important output from the project was the book “Building Regional Health Care Networks in Europe”, published by IOS press.

## International projects 2000-2002

### Propractition

The project Propractition focuses on the continuing education of Health Care Professionals using the advantages of Internet and Web sites. The aim of Propractition is to educate physicians for a co-operative work style, as for example in the case of two doctors, located in different hospitals that can reach consensus on diagnosis and treatment of difficult cases.

### Picnic

PICNIC – Professionals and Citizens Network for Integrated Care. The EU project includes regional health providers, technology centres, industry and universities in nine EU countries.

The aim of PICNIC is to support the regional health care providers in the implementation of the next generation, secure, user-friendly health care networks and to make the European market for telematic health care services less fragmented. PICNIC is providing Open Source components for web services for health care networks along with an architecture for regional health care networks. Components have been implemented in pilots providing

- telemedicine collaboration services
- shared record services
- reimbursement services

Regional health care providers, who are developing health care networks to support their new ways of providing health and social care, have initiated PICNIC. The regional health providers (regional health care authorities) in PICNIC have undertaken this development in a public-private partnership with industry and telecom providers

### JUST

The JUST project includes 15 partners in 7 EU countries. JUST is delivering IT-support to education in emergency care. An interactive multimedia CD training course and a web-site has been produced. These are aimed at teaching volunteers how to assist when encountering emergency situations as heart attacks, asthma attacks or unconscious persons. The content of the CD has been produced in line with recommendations from the European Resuscitation Council, and are used by several organisations in Europe training volunteers. The content has also been implemented an advanced Virtual Reality Installation.

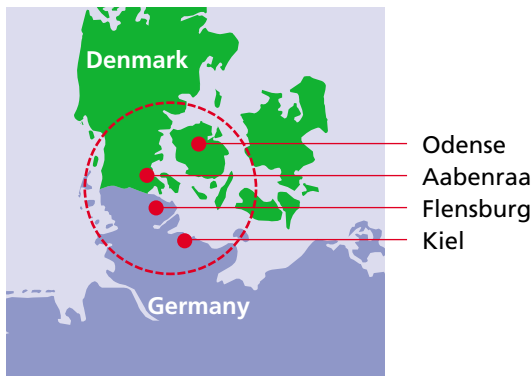
## International projects 2002-2004

### ciTTis

The objective of this INTERREG project is to develop a framework where all kind of telemedicine application can be interconnected to perform collaboration between health care professionals. Telemedicine collaboration will include a protocol, which specifies the flow of data in a session between health care professionals. The clinical documents and images will be transferred using European standards.

A major part of the INTERREG project will focus on the organisational changes which will follow, when “collaboration” can take place across organisations and cross borders. The project will develop best practice guidelines on how to implement the new collaboration IT service.

The IT collaboration service is an environment for the provision of examination, monitoring, treatment and administration of patients through immediate access to expertise and patient information regardless of where the patient or relevant information is geographically located. The components will be used to inter-connect applications in a medical “messenger” environment where collaboration can be performed between health care professionals.



### Open ECG

The objective of OpenECG is to raise awareness and disseminate the use of computerized ECG standards. OpenECG brings together representatives from National Cardiology Societies, Hospital managers, ECG equipment manufacturers and resellers.

An Open ECG Portal will assist and support manufacturers and integrators in creating interoperable equipment and software for seamless exchange of electrocardiograms. In the portal, health managers and users can locate the necessary information to make appropriate and clear specifications when buying new IT-systems.

## Nordic projects 2001-

### HC-INTEREST

The Nordic project HC-INTEREST (Health Care record INTERoperability and Record Structure) has created a first basis for interoperable Electronic Health Care Records in the Nordic countries. The aim is that the information in different EHR systems can be communicated and thus re-used.

The project built on European standards for EHR models and messages, and combined these with national developments. The result was EHR models and messages adjusted to the Nordic needs. The medication was used as the test case, building on the model from the National Board of Health in Denmark.

HC-INTEREST have

- proposed key components of a harmonised EHR architecture
- developed operational EHR messages based on the proposed key components of the architecture and terminology standards
- validated the EHR messages through a pilot project, where medication messages was generated based on the key components and the models

### Nordic networking

In 2001 a Nordic co-operation was initiated between organisations working with health networks at a National level. Since then, KITH from Norway, CareLink from Sweden, STAKES from Finland, The Icelandic Ministry of Health and MedCom from Denmark has met two times per year.

The purpose is exchange of experiences and establishment of cross-border projects. In several cases knowledge about communication solutions or health network infrastructures have been re-used in another Nordic country.

### Web-sites

MedCom:	<a href="http://www.medcom.dk">www.medcom.dk</a>
CoCo:	<a href="http://www.medcom.dk/dansk/coco">www.medcom.dk/dansk/coco</a>
PrimaCom:	<a href="http://www.primacom.dk">www.primacom.dk</a>
Picnic:	<a href="http://www.medcom.dk/picnic">www.medcom.dk/picnic</a>
JUST:	<a href="http://www.justweb.org">www.justweb.org</a>
ciTTis:	<a href="http://www.cittis.dk">www.cittis.dk</a>
Open ECG:	<a href="http://www.openecg.net">www.openecg.net</a>
HC-INTEREST:	<a href="http://www.hc-interest.dk">www.hc-interest.dk</a>

## Pioneer spirit and beginning professionalism 1994-1996

### MedCom 1

The background for the MedCom project was local and regional projects, which to a large extent were launched by enthusiastic initiators within the healthcare sector. In recognition of the need for securing communication across individual projects, MedCom was established. MedCom is neither user of nor supplier to the health network; it functions as an impartial prime mover, negotiator and coordinator in the development work.

One of the first efforts became the establishment of national communication standards on the basis of international CEN standards. The five EDIFACT standards were: MEDREQ for requisition, MEDRPT for reporting laboratory results, MEDREF for referrals, MEDDIS for discharge letters and MEDRUC for reimbursement claims.

The developers of systems for General Practitioners (GPs) and other system providers were involved in the standardisation process. The aim was to build up and support a market for software solutions for IT communication in the healthcare sector. Standards were tested in local pilot projects. Additionally, extensive effort were made to secure dissemination of IT communication, not least through an intensive information flow.

#### Experience for better or for worse

Several barriers must be overcome in the early stages, where no one yet knows the potential of IT communication in practice.

It is necessary to commit a lot of resources to the consensus process to reach a standard for each message type. Both users and developers must be involved.

Considerable investment and close teamwork between authorities and private companies are necessary. Support from all-important players – authorities, system providers, health professional groups and associations, hospital owners etc. – is crucial.

The teamwork between clinicians and engineers demands a lot of attention if IT solutions are to live up to the needs of the users.

## Dissemination and consolidation 1997-1999

### MedCom 2

After the initial stage MedCom aimed at massive dissemination of the health network. A cornerstone in the dissemination process were co-operation agreements with regional and local projects – more than 200 projects were carried through in the second of MedCom's project stages.

As a part of the dissemination MedCom worked consistently with making the extent of the communication visible by using the so-called EDI-top. The EDI-top showed the number of messages communicated for each county and message type. This was done both as a part of the information and as a motivating factor for the regional health networks. Another part of the effort was clear and precise information about which software suppliers had been certified for which communication forms.

Parallel with the dissemination of the health network, focus was directed at the need for organizational development in the clinic. Without this element it would be difficult or impossible to harvest the advantages of the new technology. At the end of MedCom 2 all Danish hospitals, pharmacies and laboratories, 66% of GP clinics and 16 local authorities were using the health network. In total 1.3 million messages were exchanged monthly or 44% of all messages. The original aim of MedCom 2 was to reach 68% of all messages.

As a new group of players, dentists were connected to the health network and also local authorities were involved due to the nature of their assignments in the primary sector. Communication of text messages was supplemented with tele-medicine, e.g. transmission of images and X-rays.

#### Experience for better or for worse

The development was characterized by both victories and defeats. The experience gained at this stage was, that persistent and consistent project management is a key word in the development work. If the local projects did not live up to expectations and goals, they were phased out. If the system providers did not live up to demands and obligations, this was made visible through the website to the players of the health network. In the same way the results of each individual region was made visible month by month.

It also turned out that several and large forums for the exchange of experience were of great significance for the development work.

## Quality, dissemination, development 2000-2001

### MedCom 3

With approximately five years of existence, the health network had proved its worth but also shown its weaknesses. One challenge was that the actual standards were not precise enough. There was a need for quality assurance. In close co-operation between health professionals and developers, consensus was reached on new, accurate standards documented in "The good EDI letters", which comprise both technical and health related recommendations.

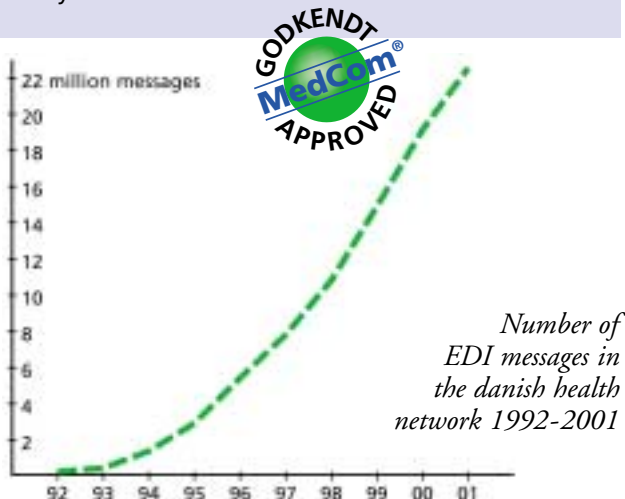
An actual test function is established with a number of tasks primarily in the form of validation of standards and counselling for software suppliers. The test function is the impartial party resolving interpretations and disagreements. Such a party which is impartial in relation to other players is simply a condition for many-to-many communication.

Suppliers to the health network now had to be approved and certified. Local dissemination projects continued and the overall objective for dissemination of electronic communication of a long row of standardized electronic messages was no less than 100%

New pilot projects were established for communication between hospital departments and laboratories. Web technology pilots were carried through, for example in the form of e-mail consultation and web access to patient data in laboratory and radiology systems.

#### Experience for better or for worse

Standards have to be 100% unambiguous. A close co-operation between health professionals and developers is necessary to reach consensus on perfect standards. Test and certification of software solutions and providers is a condition for many-to-many communication.



## Network and new technology 2002-2005

### MedCom 4

So far, significant parts of the health network have been based on traditional EDI communication. However, development and dissemination of the internet has made it clear that parts – and in the long run all – of the health communication should be made web based.

Some of the new options are: Web access to the patient records, large scale dissemination of web access to laboratory and radiology systems, tele-dermatology, EDI-FACT via secure mail, web requisitions of laboratory test from GP, etc.

The future web based health network makes large demands on security, infrastructure, certification, user administration etc. The health network is established by connecting existing intranets. The vision is to open up for many-to-many communication across certified networks. In relation to the internet, an effort has been put into developing a technical platform and a common structure of information of a future national internet health portal.

In the hospital area the Danish health network will apply XML standards instead of EDIFACT. New information and streams of communication was also integrated in the health network and an adaptation to the National Basic EHR model, was carried through. In general, communication to and from EHR systems plays an increasingly larger part and the development and implementation of EHR in the Danish health sector is considered a strategic matter for the entire health sector.

Local authorities play an ever-larger part as player on the health network. New messages have been developed with more health specific contents for example for use by admission to or discharge from hospital, and in the form of nurse report to and from home nurses.

#### Experience for better or for worse

It is possible to establish closed national networks based on the VPN technology. By establishing closed, secure networks, possibilities has been created for new projects within tele-medicine, tele-monitoring etc. without health professional players having to solve security problems themselves.

XML – eXtensible Markup Language – does not minimize the need for precise standards, but open up new prospects.

# Danish Centre for Health Telematics

The centre was established in December 1994, by an initiative from the County of Funen. Projects under the same management are sharing facilities in the centre, all having implementation of Health Care Networks as the focal point. The centre is giving advice and project support to national authorities, county councils, municipalities, general practitioners (GPs) hospitals, IT service providers, etc. in the field of health telematics.

It is a main objective for the centre to use the expertise of the centre to contribute to development of the health network locally, regionally, and internationally.



## The Partners behind MedCom – the Danish Health Care Data Network

Ministry of Interior and Health  
Ministry of Social Affairs  
National Board of Health  
Association of Danish Regions  
Copenhagen Hospital Corporation  
National Association of Local  
Authorities in Denmark  
Copenhagen Local Authority  
Frederiksberg Local Authority  
Danish Pharmaceutical Association  
Dan Net

*Danish Centre for*

**Health Telematics**

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