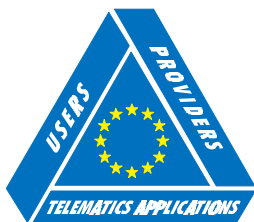


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# BUILDING REGIONAL HEALTH CARE NETWORKS IN EUROPE

**A European Strategy for Regional Health Care Networks**



**EUROPEAN COMMISSION - DIRECTORATE GENERAL XIII**

Centis, Portugal – Consorci Hospitalari de Catalunya, Spain – County of Funen, Denmark – Deutsche Telekom Berkom, Germany – Gesellschaft für Medizinische Datenverarbeitung, Germany - Health Information Management s.a., Belgium – Hospital de Mostoles, Spain – North Eastern Health Board, Ireland - Olivetti Sanità S.p.A., Italy – Saphis, France - Sema Group, UK – South and East Belfast Health and Social Services Trust, UK – Systems Team, UK

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# HEALTH CARE IS REGIONAL

*Modern health care is provided in close co-operation between many different institutions and many different professional groups.*

*Such intensive co-operation is impossible without the widespread use of modern IT systems. RHCN support co-operation, continuity and seamless care by providing modern IT facilities.*

Modern health care is not provided by one institution or by one group of health care professionals alone.

Modern health care is provided in close co-operation between many different institutions and many different professional groups.

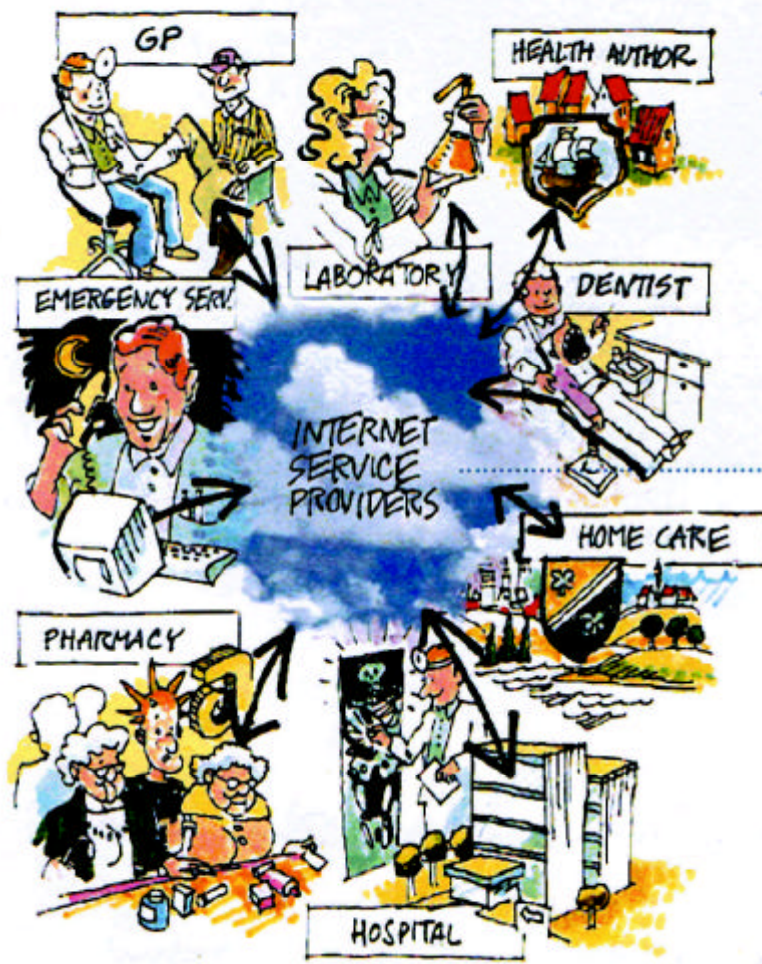
They work together and use their specialised expertise in a common effort in order to deliver the best possible quality, service and cost-effective care.

Without this specialisation it would not be possible to apply advanced techniques, and the many distinct functions provided by hospitals, consultants, laboratories, nursing homes, social care etc.

In the Netherlands for example, 300 million health messages such as prescriptions, laboratory results and discharge-notes are exchanged annually between hospitals, GPs and home care, and about 100 million messages for reimbursement. Moreover, information is needed in order to share patient records, and for delivering information to the public and professionals on how to use the health care system in an adequate and cost-effective way.

Such intensive co-operation is impossible without the widespread use of modern Information Technology (IT) systems.

Regional Health Care Networks (RHCN) support co-operation, continuity and seamless care by providing modern Information Technology facilities which connect hospitals, GPs, pharmacies and community carers in the region.



- Regional Health Care Networks (RHCN) , supported by Internet Service Providers, connect health care different institutions and many different professional groups in the region: Authority, Dentist, Home Care, Hospital, Pharmacy, Specialist and GPs.

# VALUE FOR MONEY

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Regional Health Care Authorities and health care professionals are committed to the objective of providing high-quality treatment and care to the patient they serve, on the basis of the available resources.

A significant fraction of staff time is spent on activities which must be performed in order to provide treatment to the patients, but which are not related directly to the actual treatment and care of the individual patient.

Under this heading are main areas such as administration, transportation, research, scheduling, communication, registration etc.

In terms of the day-to-day work, such activities are seen as inconvenient, but nevertheless necessary for treatment and care in a fragmented health care system.

These indirect activities go hand-in-hand with a high degree of specialisation that characterises modern health care.

It is therefore an important task to optimise the use of human resources dealing with information, with a view to increasing the efforts directed to taking care of patients.

Building a Regional Health Care Networks can help this process.

But as with other investments in Information Technology (IT) systems, the value for money to a high degree depends on the organisational and process reengineering tasks which are performed during the implementation process.

Only to a minor degree does it depend on the IT systems implemented.

*RHCNs can help move resources from processing information to treating patients. However, value for money depends on the organisational and process reengineering tasks.*



- **Telemedicine.**

*The RHCN provides a series of facilities for multimedia communication between health care professionals for tele-consultation. Regarding some dermatology, cardiology, otology and ophthalmology patients, the facilities make it possible for GPs to make a diagnosis or a suggestion for further treatment without referring the patient to the specialist. Because of the security in the RHCN, these facilities have been made accessible for communication of patient-related information.*

- **Building Regional Health Care Networks in a region has to be an integrated and vital part of the health policy in the region - the part that copes with cross-sector co-ordination and cross-sector co-operation.**

- **Building Regional Health Care Networks in a region is not about buying a turnkey-ready IT system. An RHCN is just a tool in the hands of the regional authorities in the continuing process of improving cross-sector co-operation between the health care providers in a region.**

# THE REGIONAL HEALTH CARE NETWORK

*The RHCN connects the different health care providers in the region by making it possible to exchange and access information regarding the individual patient, health information and information needed for administration issues.*

## The RHCN technique...

The RHCN combines three existing techniques into one regional health system:

- Internet and WEB techniques, making access to advanced communication functionality easy.
- Security techniques, making the Internet usable for patient-related information.
- Standardisation techniques, making integration possible with existing IT systems already in use by the professionals in the region.

## The regional node: The ISPs

The regional node is one or more Internet Service Providers (ISPs) who provide the RHCN services to professionals in hospitals, GP surgeries, laboratories, home care etc. The regional node is a health intranet protected by a common firewall and using encryption for patient-related information.

In order to create competition in the RHCN, several independent, but connected, ISPs could be chosen as nodes as entrusted third parties for the responsible regional health care authority.

## The regional nodes

The node of the RHCN consists of certified ISPs who provide the services on behalf of regional health authorities.

By using a standard Internet platform, it is possible for each health care provider to choose between the certified ISPs on traditional commercial conditions.

The main technological platforms are:

- Internet "store-and-forward" technique for Clinical e-mail, Clinical Messages, Telemedicine, Care Protocols, Reimbursement and Electronic Commerce.
- Internet WEB-sites for professional Guidelines, Public Health Information and Patient-ID.
- Internet WEB-applications for Clinical Booking and shared Record.

## The regional services

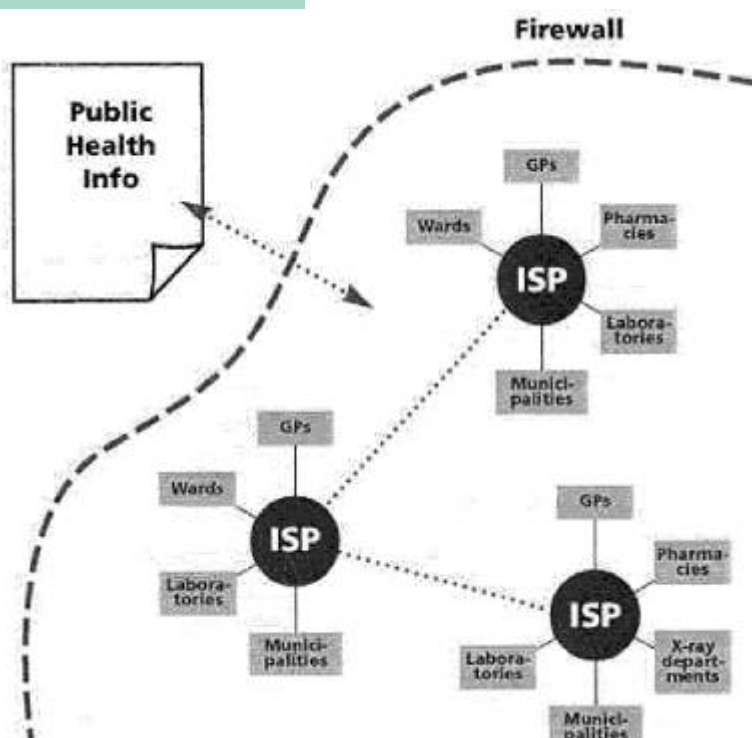
From the outset certain central services are needed:

- an RHCN Portal showing the services available in the region;
- a Key-Centre for encryption;
- a Support Centre;

The remaining services are implemented afterwards.

Some of them demand significant organisational changes before being implemented (such as booking appointments to hospitals) and some demand specific IT projects (such as EDI links to existing IT systems already in use in the region).

The remaining services are the Clinical Services, the Health Services and the Administrative Services.



The most important and most frequent communication flows in regional health care are the direct results of specialisation which occur when one health care provider orders a service from another provider, and then afterwards receives the result back. This patient-related information is well known in all European countries, and consists of information such as prescriptions, laboratory requests and results, referrals, discharge information, and other information that stems from ordering services as a part of the diagnosis and treatment of the individual patient - patient-related information. Danish investigations have shown that 1-2 % of total health care expenditures are being used in communicating about 40 million daily messages annually between the parties in health.

- Clinical Messages is a service making it possible to exchange form-based information such as prescriptions, laboratory results, referrals and discharge summaries almost automatically between different providers of health. When communicating Clinical Messages, a "store and forward" e-mail technique is often used because of the well-known technique and the opportunity to communicate 24 hours/day. Because such messaging is suitable for standardisation, national or regional standards make it possible to integrate Clinical Messages in IT applications already in use by the professionals in the region.
- Clinical e-mail is a secure, firewall-protected and/or encrypted e-mail service dedicated to transfer patient-related information. Today telephones are used very frequently to give short, but important, patient-related information; normal e-mail would be very adequate to use in these cases. Nevertheless, e-mail is not used much for cross-sector communication, among other reasons because of the need for special security in health.
- Clinical Booking is an IT service making it possible to book an appointment for treatment or investigation at other hospitals or specialist clinics. In Clinical Booking, an immediate answer is needed, and therefore on-line IT systems are normally used.

## Shared care communication

is needed in situations where several health care institutions participate in the treatment of similar groups of patients.

For example, in the treatment of diabetic patients and elderly people, hospitals as well as GPs and home carers are normally involved regularly.

- Shared Record is an IT service making it possible to share patient record data for the same patient between different professionals in different institutions in the region. Record Sharing demands a high degree of functionality and common structure, and such services therefore often use the same IT application, distributed to different professionals.
- Care Protocols is an IT service making it possible to transfer exact defined information between health professionals in cases where different professionals participate in the treatment of the same patient group. Before communication is possible, protocols and guidelines have to be defined and agreed by the participating professionals, stating who should provide what treatment.
- Mobile & Emergency are IT services dedicated to support mobile units like ambulances, doctors on duty and home nurses visiting patients at home. It makes it possible to transfer patient related information from systems at home-care units and in GP surgeries, in order to get access to the patient's journal and retrieve updated information or save new information.
- Home-Care monitoring is an IT service making it possible to look after patients located at home, often as alert systems making it possible for weak patients to call assistance.
- Telemedicine is an IT service used during the actual care of patients, making it possible to provide expert supervision to other professionals or directly to the patient. Telemedicine is the "classic" health telematic service, and is especially relevant if large geographic distances are a problem.

*The Clinical Services are the most important function in an RHCN. They support the exchange of patient-related information which concerns the treatment of the individual patient in daily routing communication and in share care situations:*

- Clinical e-mail
- Clinical messages
- Clinical booking
- Shared records
- Care protocols
- Mobile emergency services
- Home-care monitoring
- Telemedicine

# HEALTH AND ADMINISTRATIVE SERVICES

*Health Services provide non patient-related information to the public in general, to specific groups of patients, or to specific groups of health care professionals:*

- Surveillance information
- Yellow Pages
- Professional guidelines
- Disease Quality management
- Public Health Information
- Cont. Professional development

*Administrative services provide support for health professionals:*

- Reimbursement
- Electronic commerce
- Patient id
- Resource management

## Health Services

Health Services are WEB-based information which provide non patient-related information to the public in general, to specific groups of patients, or to specific groups of health care professionals. The information concerns general guidelines and procedures, surveillance statistics and possibilities for continuing professional development, but it does not concern information about the individual patient, and it is therefore not protected by the firewall system in the RHCN.

- Surveillance information is IT-systems dedicated to communicate epidemiological information to professional for medical surveillance. Such information is today typically gathered by national research-institutes and distributed regularly by means of newsletters etc.
- Yellow Pages is an IT service making it possible to get practical information about healthcare providers, often with advanced facilities to search data in large databases. The internet-based Web sites technology has in recent years resulted in the appearance of many such yellow pages from hospitals, health authorities, etc.
- Professional guidelines are services for healthcare professionals with general information and guidelines about cost, quality, protocols and procedures, making it possible for health professionals to improve their practice. The gatekeeper role of GPs in many European countries especially has crystallised the need for such information systems.
- Disease Quality Management are services with information making it possible for health professional to optimise care quality when making cross sector treatment of specific diagnoses.
- Public Health Information is a service to the public in general or to specific patient groups to inform and guide about diseases, prevention and services provided by the regional healthcare system.
- Continuous Professional Development is a service to the healthcare professionals, to make it possible to improve their education continuously.

## Administrative Services.

Administrative Services are facilities in the RHCN for professionals who deal with administrative issues.

- Reimbursement is a service making it possible to transfer bills from healthcare professionals to public or private insurance. Despite the fact that healthcare organisation differs between the countries in Europe, the reimbursement situation is important in all countries and is often the first regional telematic implementation in health. In Switzerland and Germany, electronic reimbursement is functioning on a large scale for many health professionals.
- Electronic Commerce is an IT-service making it possible to order, deliver and pay for goods and services to healthcare. In trade, the UN EDIFACT standards are used worldwide for this purpose; the developments are supported by the international EDIFACT and EAN organisations.
- Patient-id is an IT service making it possible for health professionals to access central databases for quick and secure identification of patients. Because of lack of well-known national ID-numbers, a secure identification of patients is a problem in several countries.
- Resource management are IT services providing information to health professionals making access to cost and quality information from other health providers in the region. Especially in countries which have introduced provider-purchaser systems in health, where knowledge of costs and quality has become important for healthcare professionals and administrators.

# THE EUROPEAN STRATEGY FOR RHCN

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Unfortunately, such comprehensive RHCN, as described in this leaflet, do not exist yet in Europe today. The main barrier to large scale implementation of RHCNs is the lack of standard industry products provided for a European market for RHCNs. Despite ten years of experience, all of the RHCN projects and programmes in Europe have so far mainly used local bespoke IT solutions, making the development costly and slow, and making it impossible to exploit the solutions on a large scale.

But focussing on a common vision of the future RHCN presented in this leaflet, it will be less risky for the European industry to develop and market the required IT services. But before being willing to invest significantly, industry needs commitment from healthcare authorities and healthcare organisations at regional, national and European level to move in the same direction.

## **...at regional level**

To facilitate the development of a market of standard products, the regional health care authorities should co-operate with other regions nationally and internationally, and make partnerships with industry to secure a co-ordinated and focused demand for the same main RHCN services. By making such a co-ordinated effort, the demand for products would rise significantly – paving the way for investments in standard industry products.

## **...at national level**

To facilitate the development of a market of standard products, the national health care authorities should create a national strategy for the

development of RHCNs, including common rules on security issues, investigations on cost-benefits, standards for communication and nationally funded co-ordination and support of the work in the regions.

## **...at European level**

To facilitate the development of a market of standard products, a narrow, well defined European IT programme is needed, funding and facilitating the development of the same main, specific RHCN services as described in this leaflet, all using a common Internet platform. Such a program could be a natural part of the overall Europe Information Society Technologies (IST) which in its Vth Framework Programme is aiming along the same lines as the vision for RHCNs.

*Central strategies and investments are necessary if Regional Health Care Networks are to develop on a large scale. Likewise, there is a similar need for outside investments in traffic infrastructure before a transport market can take shape.*

### About this leaflet

*This leaflet has been produced in co-operation between the European Commission, and the six European projects in the IVth Framework Programme aimed at RHCN problems participating in the WISE project.*

*The six RHCN projects have in the period 1995 – 1998 gained significant experience by piloting RHCN services in 45 different regions in 14 European countries; hundreds of healthcare professionals have been involved. This leaflet describes a common vision of the six projects for the future development in the area of RHCNs. The six projects are:*

- CHIN. Coordinated by Deutsche Telekom Berkom, Berlin. Contact Andreas Weser at [a.weser@berkom.de](mailto:a.weser@berkom.de)
- CoCo. Co-ordinated by County of Funen, Danish Centre for Health Telematics, Odense. Contact Knut Bernstein at [kbe@health-telematics.dk](mailto:kbe@health-telematics.dk)
- ITHACA. Coordinated by South and East Belfast Health and Social Services Trust, UK. Contact Bob Ferguson at [bob.ferguson@sebt.n-i.nhs.uk](mailto:bob.ferguson@sebt.n-i.nhs.uk)
- PRESTIGE. Coordinated by Centis, Lisbon. Contact Mario Veloso at [marioveloso@centis.pt](mailto:marioveloso@centis.pt)
- REMEDES. Coordinated by Olivetti Sanità, Milan. Contact Marco d`Angelantonio at [mdange@ibm.net](mailto:mdange@ibm.net) or John Oates, Sema Group at [john.oates@sema.co.uk](mailto:john.oates@sema.co.uk)
- STAR. Coordinated by North Eastern Health Board, Ireland. Contact Tony Reilly at [antony.reilly@nehb.ie](mailto:antony.reilly@nehb.ie)

### For more information:

Visit at our website at [b5www.berkom.de/wise/](http://b5www.berkom.de/wise/)  
Contact the project secretary at [nbelet@ibm.net](mailto:nbelet@ibm.net)  
or call Nathalie Belet at + 41 79 219 6440  
Buy the book "Regional Health Care Networks in Europe" from IOS-Press

