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RHINE

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RHINE

Policies and Strategies of Information and Communication Technologies for Regional Health Administrations

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Contents

Dr. Helmut Brand
Introduction 7

Part 1 *Dr. Hans Sendler*
Welcome 9

Fieney Reimann-Pijls
Information Data Exchange in European Regions 14

Drs. Lambert van Nistelrooij
Policies of the European Regions to Enhance Public Health, Health and Social Care by IT 18

Part 2 **Setting the Scene, the Major Concerns 23**
Dr. Birgit Weihrauch
RHINE: Its Aspirations 24

Experiences of the Regions:
Bengt Blomberg
County of Stockholm 32

Loredana Luzzi
Lombardia 38

George Vakaros
Northern Greece 44

Ralph Menke
North Rhine-Westphalia 50

Dr. Ray Henry
Wales 56

Prof. Gary Coleman
Summing up: The Common Themes 61

Part 3 **Understanding Possible Solutions** 63
Business Process Re-engineering –
Practical Impressions from other CEC-Projects
John de Braux
COBRA 63

Zac Arif
Using BPR as a Tool for Survival 70

Dr. Gunnar Klein
Interoperability, Integration, and Standards 77

Prof. Albert van der Werff
Helping Re-inventing Health Systems with IT for
Better Health, Care and Performance 89

Owe Candow
Towards an Electronic Health Information Service at
Regional Level: Getting Things Done 103

Part 4 **Statements of the Roundtable** 115

Part 5 *Wim van Velzen*
The Way Forward 125

Part 6 **Annex** 127
- Programme of the RHINE EURO Conference 127
- List of Speakers 130
- Curriculum Vitaes of Speakers 133
- Publications and Presentations of RHINE AM 139
- Contact Addresses 141

Introduction

A representative group of European Regions had decided to collaborate on a trans-European basis in order to improve health and patient care, and to increase quality of care and performance by reforming their health systems through the application of "Information Technologies" (IT). In this respect "Technologies for Business Process" (TBP) are applied focusing on the improvement of health care and health care processes as well as on administrative and managerial processes by IT.

Technologies for Business Processes recognize that implementation of information systems is "not just about installing computers", but rather has to do "with changing the whole organization", with implications for everyone working in this organization. While IT cannot reform the system, health care cannot be reformed without it. Management of change is a key issue both for successful implementation and for obtaining value from IT investments.

Furthermore, innovations should be „social driven“ instead of purely "market driven" to have an ongoing and lasting influence on the performance of a health system. This is the reason why "Regions" play an essential role. The social, historical, and cultural diversity of its 250 Regions is one of Europe’s strengths. Regions provide their citizens with a deep sense of identity. According to law, the coordinating responsibilities for particular sectors – including health – has been delegated to the Regions in most countries. This joint initiative of the European Regions is called "RHINE", which is an acronym for "Regional Health Information Networks in Europe", symbolising through the reference to the name of the river, the evolution towards European unification. The RHINE-Initiative should be considered within the context of Article 129 of the Treaty of the European Union 1192 – now Article 152 after the Amsterdam Summit – and related programmes of Community action in the field of health information and communication.

For two years the project partners of RHINE had worked together to create awareness about the availability and benefits of advanced IT for the improvement

of efficiency and effectiveness of administration and management in public health and health care at regional level, and the establishment of an on-going "European Forum" of the European Regions for exchange of knowledge and support to IT users.

The results of RHINE were presented to an European audience on the 25th of January 1999 in a conference on "Policies and Strategies of Information Technologies for Regional Health Administrations" in Brussels. The documentation of this symposium is presented in this book to make this information widely available to those Regions who were not able to attend. The conference can be seen as a major success since at the first time beside IT-specialists regional administrators discussed the benefits of IT and TBP for management of health and health care on regional level.

In addition through this conference the RHINE consortium got a positive feedback from the participating Regions to continue the beneficial work of RHINE.

The RHINE Consortium thanks the European Commission for financial and technical support for this conference. Especially we are grateful to Mrs. Fieny Reimann-Pijls and Hilde de Smedt who helped to make the conference a real success.

Dr. Helmut Brand
Project Director of RHINE AM

Part 1

Welcome

Dr. Hans Sendler
Ministry of Women, Youth, Family and Health NRW

Ladies and Gentlemen,

It is a real pleasure for me to welcome you all today here to Brussels at our conference on 'Policies and Strategies of Information Technologies for Regional Health Administrations'.

We are very pleased to see that you were able to accept our invitation to join this event today. I am sure that the expert knowledge and the experiences from a diversity of European regions represented here will guarantee a vivid and fruitful discussion which will be the starting point of forward-looking developments.

In particular I would like to welcome *Wim van Velzen*, Member of the European Parliament, *Fieny Reiman-Pijls*, project officer responsible for ESPRIT projects in the domain of Telecommunications, Information Technologies' market and exploitation of reseach in RTD, *Lambert van Nistelrooij*, Member of the Provincial Executive of North-Brabant and President of the Committee IV of the Assembly of European Regions, *Gunnar Klein*, Chairman of CEN TC 251, Committee of Health Telematics of the European Standard Organization (CEN) as well as *Gottfried Dietzel*, German Federal Ministry of Health.

We would like to express our gratitude to the European Commission for being kind enough to support our today's event and to host it in the inviting and pleasant rooms of the Centre Borschette.

Also we are most grateful to the Assembly of European Regions for their support and collaboration in the preparation of this conference.

Ladies and Gentlemen,

European unification is now well under way. This process of convergence has to be based on mutual awareness of the diversity of its Member States by sharing experiences and learning from each other. This is true of health care as well, a subject concerning all of us deeply and which the process of European development cannot afford to neglect.

Article 152 of the Amsterdam Treaty is paving the way towards integrating European health systems in a reasonable and responsible way. And in addition the European Court of Justice, with the DECKER and COHL Legal matter, forcing cross-border provision of treatment, will draw public health into the European integration process, led by the fundamental freedoms, not by Article 152. In the European Union, the first signs of a European health policy are now beginning to take shape.

To give you an example, the *EUREGIO* movement exposes in a highly practical way a number of matters yet to be settled between the Member States. A number of social and health care systems across Europe sets significant legal restrictions to new ways of access to health care across borders. But there is a necessity to take the just mentioned fundamental freedoms into account, to meet the expectations of populations for pragmatic approaches and to provide a chance for optimizing resource management, for improving efficiency and effectiveness in health care. In cooperation with North Rhine-Westphalia the EUREGIOS started practical work by launching common health conferences in order to start discussions on common ways in health information and health planning processes (e.g. hospital planning across borders). In this way the EUREGIOS may be regarded as a laboratory for local and regional policies of a cross-border and transnational development of European dialogue and European policy instruments. Also INTERREG and other related projects increasingly establish transnational facts.

Ladies and Gentlemen,

In August 1994, a number of European organizations came together under the umbrella of the *„European Public Health Centre“*. They set themselves a series of tasks for the promotion of various measures required in pursuit of European integration:

1. Increase in efficiency, quality, economic viability, and innovativeness of health care. Given the ever scarcer resources available, efficient health care can be regarded as a contribution not only towards the securing of European jobs but also to an improvement of care and reasonable utilization of resources. The steps geared to the interests of patients, insurance contributors and financial stability are indeed compatible. To achieve concrete results, however, health care systems must be made more adaptable.
2. Underlining the importance of preventive measures by promotion of health and combatting of infectious and chronic diseases and addiction avoidance. The existing structures must be overhauled. The promotion of health must start even before what have traditionally been considered the responsibilities of a health care system.
3. Measuring the efficiency and economic viability of health care systems by their qualitative influence on the health of the population at large and not by quantative factors. Health care systems throughout Europe have to be diverted from their preoccupation with "input" and geared to "outcome". The re-integration of the various specialist fields and care units must be enhanced to this end.

The EPHC regards it as its future job to support the numerous contributions of the European Union to the stimulation and support of processes to reach these tasks by:

- creating links between researchers at institutions in the various Member States
- staging pan-European conferences and other events in the above-mentioned fields
- stimulating the necessary methodological and technical initiatives, and by
- integrating public health studies, important parts of health administrations and health policy bringing these together.

Ladies and Gentlemen,

Europe as a whole and most national systems of the Member States of the European Union and of future candidate countries have arrived at the threshold of important decisions and processes on their way to an increasingly integrated European health system. The European integration process will call for answers how to organize social security systems in future also with regard to health care. Approaches referred to in the individual Member States as "restructuring of the welfare state" or as the financial and functional stabilization of their social security systems in the course of globalization and European integration processes, from the EU point of view lead to questions on how a reasonable convergence process could be encouraged. Thus the European health systems are confronted with a series of similar challenges. The contribution of the differently structured national systems towards finding solutions should be identified and analysed together with the chances these contributions will offer for learning and adopting strategies from others with the aim of recognizing potentials which can be optimized.

Therefore the North Rhine-Westphalian Ministry of Women, Youth, Family and Health has taken the initiative to launch a practice project on a European comparison of health care structures at regional level. I would like to invite European regions to join this initiative.

Ladies and Gentlemen,

Health care makes by its nature intensive use of information. The application of advanced technologies for the collection, storage, retrieval, and communication of this information will be one of the critical factors of success for European

health services. Health is standing at the doorway towards its integration into the ‘information society’. The application of Information Technologies in health contributes to providing solutions for better transparency, for managing quality of care, and improvement of coordination, integration and networking on both clinical and administrative levels.

Application and evaluation of IT at the clinical level during the last years were mainly induced by health insurances with the aim of improving transparency in the fields of health supply and costs. A rising awareness of the common need for information gathering and exchange at the administrative level for purposes of health monitoring and health planning could pave the way for an initiative of Europe’s regional administrations. The RHINE initiative already picked up this issue and provides a good example for an inter-regional attempt to improve the future work and performance of regional health administrations by the application of new IT.

Ladies and Gentlemen,

Looking forward to these new common challenges ahead I appreciate that today we will have the opportunity to establish a greater awareness of common concerns and to pave the way for a future cooperation among European regions by exchanging practical experiences. All that remains is for me now to wish us all a vivid and instructive discussion.

May I now hand over to Mrs. Reiman-Pijls from the European Commission for her contribution.

Thank you very much.

Information Data Exchange in European Regions

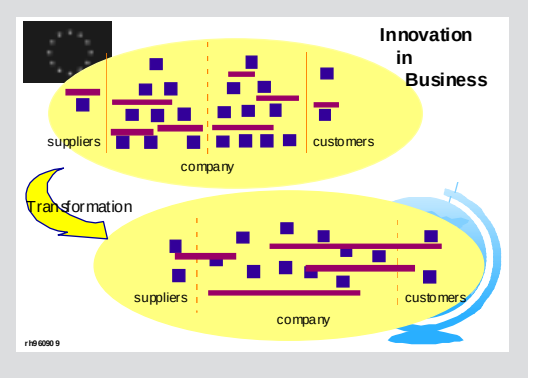
Fieney Reimann-Pijls
European Commission

Ladies and gentlemen,

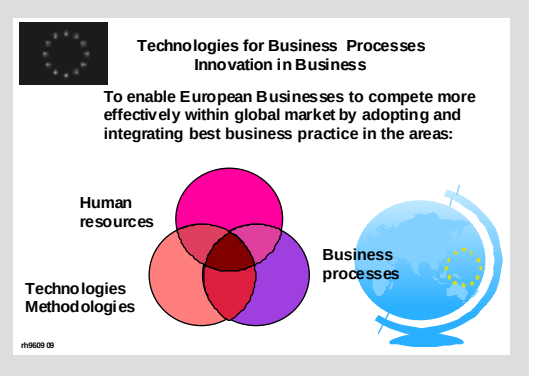
On behalf of my Head of Unit, Mrs. Rosalie Zobel, I would like to welcome you. It is a great honour for the European Commission to host today's conference. We are at the beginning of the 5th Framework Programme for Research and Technology, in which we will try to bring technology and policy-making much closer together, using technology forecast in policy definition. The Rhine-AM Project, although it started two years ago under the 4th Framework Programme, is contributing to this goal.

Rhine-AM began within the ESPRIT programme, in the area of Technologies for Business Processes, called TBP for short. I will give you a short overview of the goals and background of this area, which will help you to understand better some of the issues that will be raised today.

The goal of TBP is to make European companies more competitive through the engineering or re-engineering of their business processes and optimal use of human resources. Technology is seen as an enabler in this process, enabling more efficiency in existing business processes, or, above all, enabling to define new and better processes.



If you look at a traditional company model, which is the top structure on the slide, you see an organization or company locked within its own walls, and divided into functional departments. These departments have an internal hierarchy. In each department information travels from the bottom to the top, and is communicated to other departments at top level only. So information has a long way to go before it reaches other departments, and by then is filtered, either accidentally or on purpose. Communication with the outside world is characterized by the customers or suppliers having to deal with many different contact persons for different queries, long waiting times, without access to the information they need.



The modernized enterprise, the second structure, shows a flatter model, less hierarchy; it is organized along business processes, not according to functionalities. People in the organization are responsible for processes. This kind of organization requires that every person in the organization from every place at any point in time can access information. This has only recently been enabled by modern information technology. Also the outside world, i.e. suppliers and customers, can access the information, with of course limitations on access rights. In this latter case we talk about electronic commerce, either between the company and its suppliers, or between the company and its customers. For the outside world, the second model implies one contact point for all queries; or customers and suppliers can even find the answers themselves. Think for instance about the Federal Express example: via the Internet you as a customer can find out exactly where your package is.

You can apply these models of traditional and modern organizations to your own, and to hospitals and other health care providing organizations. Traditionally, hospitals are organized according to functionalities. You, as a policy-maker, have to wait a long time before each department can make the required data available, and you can only begin to combine and analyse them after. You probably deal with many contact points and get your information in different formats. Given the modern hospital organization model, you would get the information more or less directly out of the information systems, and you would be able to use and analyse it very quickly and easily. So, modern organization in health care institutions is important for you as a policy-maker, because it can help you to have your data available much quicker, which helps you to better design policy. This in the end could lead to improved health care, and improved health in Europe. And today you will be shown how that can happen.

The work you will be informed about today doesn't come out of the blue. It is exactly 10 years ago, that within the ESPRIT Programme we started RICHE, a project developing an architecture for open health care information systems. The project was innovative in two ways: in technology, because the concept of open systems was something the world had just started to think about at that time; but is was above all innovative in its view on the user. Not the hospital's functional departments were put central, but the patient processes. The RICHE architecture forms the base for patient centred applications, which as such enable re-engineering of hospitals and other health care institutions.

Some concrete examples of re-engineered hospitals will be given to you in the presentations later today on Cobra and Thesis. But today's conference above all is about the opportunities for the policy-makers and those responsible for health. The benchmarking done in the Rhine-AM Project is not meant to prescribe you what you have to do: it is meant to trigger your thinking about your own organization, to help you in re-organizing it.

All the work discussed today in fact is the result of many years of hard work. Hard work by visionary and risk taking business men like Albert van der Werff and Brian Ennis, by open minded hospital managers like John De Braux and Zac Arif and their enthusiastic staff, and by forward looking policy-makers like Hans Sendler and Birgit Weihrauch.

I would like to conclude with a personal note. I've been working with the European Commission for exactly ten years now and in those years I had the opportunity to follow closely the work done in this field. Work, that will be presented today. And therefore I also feel a personal pride and satisfaction with respect to today's conference and I hope you will enjoy it. Thank you very much.

Policies of the European Regions to Enhance Public Health, Health and Social Care by IT

Drs. Lambert van Nistelrooij
Assembly of European Regions

Being one of the vice-presidents in the Assembly of European Regions and in that function specially entrusted with the (improvement of) relations with other regional and local institutions, I think it interesting to inform you about the most import aims of the health care policies and strategies, as they are being developed nowadays in the different regions.

A lot of developments are going on: on the one hand most countries see health care as a closed system of input and outcome, keeping a careful watch on the costs and benefits of the health care area. This is, I would say, a general aim in most of the European countries but actually, it's not a real political topic.

For example in my own region of North Brabant, where the elections of the members of a new provincial council ("Provincial States") will take place on March, 3 this year, the most important (direct) questions on the field of health care are: accessibility of the health care system and of care provision, the problems of the eternal waiting lists, the quality of products, the location of new institutions, hospitals and functions, and, last but not least, the funding of the health care system. In other words, problems in society have to be tackled first. As you may understand, the decisions politicians have to make on these questions are extensively dependent on the information available. So, within the frame of today's conference, the question is: what could be the contribution of Information Technologies to relevant issues politicians work on every day. In what way and by which means can you support the decision-making processes.

Everyday Political Practice in North Brabant

To illustrate what I actually mean, I would like to take you with me to the everyday political practice in my region of North Brabant.

One of the main political issues in the North Brabant policy is care for the elderly in a strongly ageing society. Between 1996 and 2015 the number of persons in the age group 65 and over is expected to increase by 62 %.

For some decades institutional care had been thought of being the best answer to the needs of elderly people, mentally retarded people and psychiatric patients. Of the age group 65, over 9 % still live in institutions.

Nowadays the main concept guiding care for these categories is that a person shall be able to continue in his or her home (or in a smaller setting) as long as possible.

- Finding new methods to enable elderly people to continue living in their own home and environment
- developing adapted housing to maintain and enhance the quality of life for the elderly in society

are my favourite political goals!

But as far as these aims are concerned, we need future-oriented information about people's needs of specially adapted housing, new methods of care, technological equipment, welfare programmes and so on. A particular obstacle on the way to integration and socialization is the funding of these new approaches and programmes.

At the national level, where the money comes from, they have always supported regular forms, that's to say intramural forms of care; we are fighting for the change of flows of money to alternative forms of care, in particular home care.

And of course, trying to tip the balance on behalf of home care and primary care, we need more secure and solid information that will help us in the decision process of allocating (spending) money.

Actually we have got the possibility to spend (on a structural level) 73 million guilders (35 million ECUS) intended for growth and the stimulation of new developments.

And to spend these funds in a reliable, acceptable way we need information about demographic trends, about the level of care in certain areas and the products we should deliver. I think Information Technology can contribute more than it does now to our political process of trial and error at the moment. Although I expect there will be total consensus in the end !

The European Level

At the level of the European regions I discriminate the following relevant political interests:

1. Prevention

Reform of cure and care systems may be seen as a European priority - but an additional topic which is increasing in importance is prevention. Not only how to cure and how to care is on the political agenda but also how to prevent. This is especially important at a time when health care costs are dramatically increasing!

2. Strengthening the Consumers' Roles

Everywhere in the European regions you can notice a growing interest in the position of the consumers, the clients in the care systems and the encouragement of clients' participation in the care systems themselves.

Also in my region we promote the so-called demand-oriented approach by stimulating cooperation between the health care organizations, insurance offices and patients' associations in different areas of care.

We enable the patient associations to take part in the planning of health care strategies in their own region; we named this approach "changing by turning around".

So we want to build on a more flexible care system in accordance with people's real demands.

I think Information Technology can also mean a lot for this particular priority. For example, the consumer organizations of the disabled people want to gain

more information about technical equipment to facilitate their daily activities, about housing facilities, about welfare programmes.

Let this be my message to this conference: Information Technology should not only empower the regional governments, it should support and empower the regional people as well!

Then you penetrate the political processes, not only providing more and more knowledge to politicians but helping them directly to answer the core questions: who is getting what, and why and when and where ???

Looking Forward Together

Ladies and gentlemen, if I may speak for my fellow politicians here as well, I think we are in the middle of a changing process, moving on from an old fashioned offer-oriented care system to the new client-oriented care system with client-oriented budgets!

The period now to come is the period of more responsibilities for the citizens themselves and of making it easier for them to maintain their responsibilities and power.

We also consider people's needs by improving the quality of new products we develop; here for example the so-called "smart homes" should be mentioned, in which a large number of sensors and activators are connected to each other, making the home look like being intelligent: remote control of several functions as optimal processing of temperature/passive alarm if the inhabitant is not moving after a certain amount of daytime and so on.

We think of new systems and forms of care, as short, light and easy as possible.

At the eve of a new age the Assembly of the European Regions sees it as her duty and task to give new power and strength to the regions, to the health care organizations and, last but not least, the clients and patients.

And I challenge you to help us finding and solving the political core questions by putting your Information Technology into action in a way the Assembly could make best profit of it.

I thank you very much.

Part 2
Setting the Scene, the Major Concerns

RHINE: Its Aspirations

Dr. Birgit Weihrauch
Ministry of Women, Youth, Family and Health NRW

Ladies and Gentlemen,

I am very pleased that two years after our efforts on RHINE started this conference is now taking place. In this way a new step towards European integration will be taken.

Regions play an essential role in the construction of Europe. The social, historical, and cultural diversity of its 250 regions is one of Europe's strengths. Regions provide their citizens with a deep sense of identity – a feeling increasingly apparent in the different European countries. According to law the coordinating responsibility for particular sectors – including health – has been delegated to the regions in most countries. And this process of decentralisation is even going on. Looking at recent developments with regard to the formulation, implementation, and evaluation of intersectoral policies and strategies for health, much of the excitement and progress was at the subnational level.

In this context it is important that organizations of European regions have developed such as for example the Committee of the Regions which is an important political organization within the EU, and the Assembly of European Regions (AER), Strasbourg, which is playing an important role, assisting the regions to actively develop action plans for carrying out European policies at the regional level and for initiating various projects in different economic and social sectors, including health care. And I will later come back to the WHO Regions for Health Network North Rhine-Westphalia is actively involved in.

Ladies and Gentlemen,

A widespread diversity of health care systems, of financing, of legal or even cultural or geographic basic conditions across Europe results in a great variety of requirements on regional health administrations.

Nevertheless, all European regions face a great number of common problems, just to mention a few examples:

- Optimization of resource management as the main problem. Numerous efforts are focused on this.
- The need to improve transparency in the fields of health supply and costs for better efficiency and efficacy.
- The need for improvement of cooperation and coordination in health care.
- There are persisting inequalities between and within European regions.
- We need more emphasis on health promotion and prevention of diseases – Dr. van Nistelrooij already mentioned the consequences of the ageing population.
- Health promotion requires community participation and action and requires more empowerment of citizens and patients.
- The need to improve health monitoring and health reporting.
- And last but not least there is a need for evaluation and implementation of new technologies in health care.

It is the common challenge of the European regions to look for possible solutions and to exchange experiences. They are many-sided and in his introduction this morning Dr. Sendler pointed out to the North Rhine-Westphalian initiative on a common project on how to make the health systems comparable. Referring to the RHINE Project, I would like to emphasize the importance of Information Technology in this context. On the threshold of the 21st century future health care will be marked by the potentials and radical changes induced by the application of new Information Technologies in health. Telematics, telediagnosis, and telemedicine will have a key function in questions concerning the quality of health supply, and the efficiency and efficacy in health care.

1. I would like to report about some of North Rhine-Westphalia's experiences and try to focus on the aspects of Telematics in the health sector, the importance of developing modern health administrations, and in this context of health monitoring and of putting this into the context of a region. With 18 million inhabitants North Rhine-Westphalia is representing the state with the highest population in Germany and is at the same time one of the largest European regions. Formerly marked by its "coal and steel" image, it has undergone a thorough structural change. New industries, like environmental technologies or the growing "health industry" have taken the lead characterizing the future economy of our region. In particular, North Rhine-Westphalia is expected to become a region of multimedia: Within the health sector, a study on behalf of the state government was able to trace more than 100 ongoing or planned multimedia projects in 1997, most of them in the area of hospitals and research institutions. However, it was also pointed out by the authors of this study that inspite of the fact that many of the intended multimedia applications have a comprehensive character, these projects were run in isolation. Therefore the experts recommended to bundle up all these activities in order to improve the exploitation of economic and medical-scientific potentials and to coordinate future activities.

To tackle these problems the North Rhine-Westphalian government, under the lead of the Ministry of Women, Youth, Family and Health, decided to launch a 'Center for Telecommunication and Multimedia Applications in Health Care'. Its responsibility will be to

- provide advice for management and policy
- support ongoing and planned pilot projects
- give advice for the development of online-information systems
- offer trainings and further education.

Its intention is to bring together both all relevant protagonists in health care as well as multimedia technology suppliers. In addition to this cooperations will be established with other institutions in research or across Europe. We plan to start with the work of the centre in the second half of this year.

2. In North Rhine-Westphalia exciting developments are taking place in the public health services. A new act which was passed in 1997 has brought about

fundamental changes giving the local health authorities much more responsibility in the field of local coordination in health and social care especially by the foundation of local health conferences and emphasizing at the same time health reporting and health monitoring at municipal as well as state level.

In a comprehensive pilot project we have established health conferences in more than half of all counties, initiating new management processes in the health and social care sector. To support this a telecommunication network has been set up between municipalities and the state in order to promote an exchange of data and experiences. There is no doubt about the increasing importance of a solid database as a basis for decision making in health policy, especially at the regional and local level which need further development. North Rhine-Westphalia has by the way extended these projects to the Euregios along the Dutch and Belgian border as we need cross-border developments.

3. In order to strengthen regional developments in the health fields across Europe the 'Regions for Health Network' was founded. North Rhine-Westphalia is one of the founding members of this network which started in 1992. In cooperation with the WHO Regional Office for Europe it has taken considerable steps to promote transparency in decision-making, visibility, and a flow of information between and within member regions. It was recognized that

- the WHO 'Health For All' programme is a strategy crossing political, geographical, and professional borders
- there is an urgent need to provide an effective channel for sharing information and know-how within a Europe of the regions.

With regard to the realisation of the HFA programme the member regions agreed to strive for a concentration on the regional level through cooperation within the network.

The RHN is a hopeful and growing community, so far 21 member regions are taking part.

4. But also at the national level European activities have been initiated strengthening health monitoring by using new technologies. The 'ENS (European Nervous System) Care Statistics Pilot' represents a European telecommunication

network of 9 European countries providing data from population and hospital statistics. Different sets of indicators such as for example HFA 2000, for the ENS CARE Statistics pilot or the one for the North Rhine-Westphalian state health report are compared and analyzed in order to solve problems of methodological differences and problems of classification and compatibility on account of differing health care systems. These activities represent one first step towards indicator standardization and towards the international compatibility of German health statistics.

And of course you will know that besides that – and closely related to the ENS project – there are activities and discussions on the implementation of the health monitoring programme of the EU in which also North Rhine-Westphalia is actively involved and which is supposed to lead to a health monitoring system for Europe.

Ladies and Gentlemen,

Taking into account the above-mentioned factors and trends, a representative group of European regions decided to collaborate on a trans-European basis in order to improve health and patient care by increasing quality and efficiency of care and performance by the application of Information Technologies. The ultimate task of this initiative was to investigate and evaluate possible solutions to improve information on health supply in order to be used as a basis for health planning by regional health administrations. In this respect 'Technologies for Business Processes' should be applied focusing on the improvement of health care and health care processes as well as of administrative and managerial processes.

This joint action of the European regions is called RHINE which is an acronym for 'Regional Health Information Networks in Europe', symbolising by its name the evolution towards European unification. A first step towards achieving its objectives was the launch of a General Accompanying Measure (RHINE AM) which is co-funded and supported by the European Commission and includes five European regions serving as an example, each of them representing different tax-based and insurance-based health systems in Europe. The core group which every region is invited to join consists of:

- North Rhine-Westphalia, Germany as the Coordinating Partner
- Northern Greece, Greece
- Lombardia, Italy
- Stockholm, Sweden
- Wales, United Kingdom.

A two-year project was started at the beginning of 1997 and is now coming to an end. It is aimed at creating awareness about the availability of benefits of advanced information technologies for:

- improvement of efficiency and effectiveness of administrations and management in public health and health care at the regional level
- establishment of an ongoing European Forum for the European regions for the exchange of knowledge and support to IT users.

Without intending to anticipate the results of the RHINE initiative which will be presented afterwards I would like to stress that inspite of the diversities of the health systems represented by the RHINE partners, the two-year activity has proved the importance of awareness for common challenges faced by all European regions. To give just one example: A continuation of the RHINE project could deal with an old and new cross-European problem, the control and prevention of infectious diseases by health monitoring and reporting.

Ladies and Gentlemen, thank you very much for your attention and I would like to hand over now to the RHINE project partners to present the experiences of the regions in greater detail.

Thank you very much.

Experiences of the Regions – County of Stockholm

Bengt Blomberg
Stockholm County Council

Patient-related Reporting

Stockholm County Council is responsible for providing health care and public transportation for the inhabitants of the region. Health care is the dominant activity, it takes about 70 % of the global costs.

- The region has 1.8 million inhabitants.
- There are 45,000 employees in the health care sector.
- 99 % of the expenditure is publicly financed.
- 80 % of the providers are public, 20 % are private providers.

The health care system in the region is:

- comprehensive, we are responsible for all health care except for nursing homes
- we have a very strong emphasis on equity
- the organization is very decentralized, with very independent providers
- the political power is regional, with direct elections to the regional parliament
- we have a regional income tax as the dominant source of finance, the tax covers nearly 90 % of the expenditures
- we have a very strict provider – purchaser split.

The politicians are the purchasers, and they manage us mainly by objectives and economic restrictions. The message to our organization has for several years been the same. The message for the coming years is the same as well.

Actual Objectives

- Get more value for money, or actually get more value for less money
- Bring the patient into focus
- Foster promotive and preventive activities
- Improve health and reduce differences in health within the population
- Enhance the shift from inpatient care to outpatient care
- Create a seamless care that is more accessible in each step than today's care
- Create a contest between different concepts of care, a contest based on the quality and efficiency of care.

So we have targets that mainly focus on outcome for patients and inhabitants. Today we do not have a system that can monitor such objectives. In order to fulfill those objectives and strengthen the present development towards the targets, we want a new type of information, information that

- relates performance to objectives and health
- supports a process orientation
- guides both medical and administrative decisions
- promotes a learning process
- measures patient-related performance and costs
- gives a comprehensive view of the consecutive episode of care

The information is out there somewhere. We have the main tools for communication and collecting data. And we have a regional network for voice, video and data as well as a regional data warehouse with patient-related data. But the data available in those systems is not relevant to our objectives.

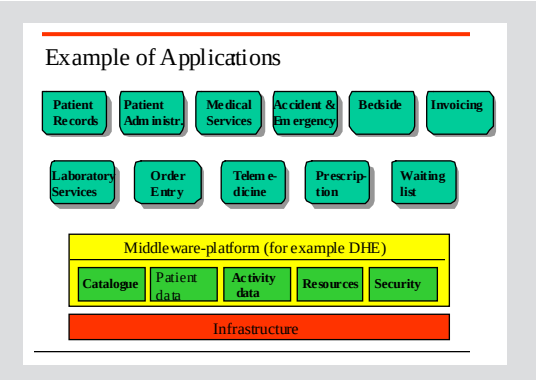
The problem is that the information which is easily accessible consists of:

- function-oriented, not process-oriented data
- records of activities, e.g. number of outpatients and bed days, almost nothing about quality
- the information is based on independent computer-supported reporting systems, which are an expensive way of collecting data
- and it's not extracted from patient records
- it's not based on a common standard.

The relevant information is hidden in a great number of patient record systems. For example, we have about 25 different patient record systems, not to mention all those complementary systems. None or almost none of those systems can communicate with each other.

To solve the problem in the short run, we are going to collect and rearrange existing data in "a patient-related reporting system". Technically, we are going to use a middleware approach that:

- as input collects information from existing applications, for example patient records, and applications for medical services, staffing, economy and so on,
- translates the information into a standardized form and at the same time arranges it so that it describes the processes of care
- uses the infrastructure we already have for communication.



Then, step by step, we want to expand the platform until we have a regional solution with a common architecture based on accepted and commonly used standards. A platform where data is mainly extracted from different local patient care supporting systems. A platform that enables a complete interoperability. We see this as a tool to initiate and support a radical change of the whole health care organization. A tool that will step by step enhance an improvement in the health care performance and costs. It will take several years and help from outside, but wish us luck and join us, we need your support.

Thank you.

Experiences of the Regions – Lombardia Region

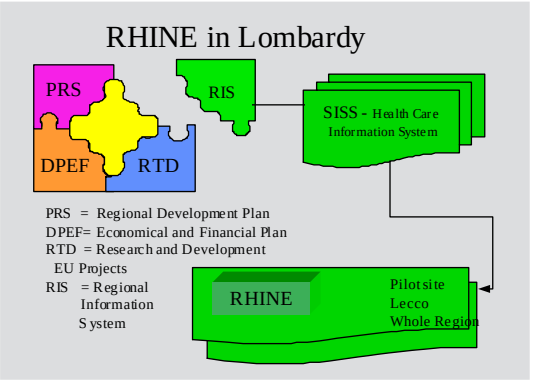
Loredana Luzzi
Regione Lombardia

Ladies and gentlemen, good morning,

First of all, I would like to give you the best regards from Mr. Borsani who is politically responsible for the health care sector, and from Mr. Amigoni who is in charge of the RHINE-AM Project. As you probably know, they cannot be here today with us, but they greatly appreciate and support our project.

In a seminar held at the Politecnico University in Milan, they underlined the relevance of technological innovations for a higher quality of health care and its importance to improve access to health services for the citizens. I would like to remind you that Lombardia is one of the largest Italian regions. It has almost 9 million inhabitants. In Italy the health care system is a tax based one. Health care is a delegated matter from the constitution and therefore the regions have full responsibility for this sector. The region has to plan and organise the health care services with its own law. The Lombard regional government devotes 75 % (seventy five per cent) of its budget to this sector.

With these few words I want to describe the scenario in which RHINE and the Research & Technological Development (RTD) projects are located within the Lombard activities and illustrate the opportunities offered by interregional co-operation in the area of the information society. In Rhine AM the regional industrial partner is Lombardia Informatica.



Regarding this scenario, as you can see in the slide, the strategic decisions of our regional government are based on planning documents called PRS (Regional Development Plan) and DPEF (Economic and Financial Plan). These documents are proposed by the regional government and approved by the regional parliament.

The European Union RTD and RHINE AM projects are strictly connected with the PRS which contains a project called RIS (Regional Information System). This is one of the major concerns of the regional government, and the Health Care Information System is a milestone for this project.

In this context, the European accompanying measure and projects on telematic applications have a great relevance, and particularly the experience gathered in RHINE and in other R&D projects, co-funded by the European Union in which Lombardia is involved.

In this scenario, our users' networks are thus trying to use these new applications, but only a day-by-day use will permit dissemination on a very large scale. I strongly believe that the possibilities the information technologies offer are going to improve the level of the services offered to the citizens and their quality of life. They are also going to permit, at the same time, a rationalization of the available resources and also a reduction of the costs.

The Problem

- to build a new HC System saving what has been done until now
- to integrate the different systems
- to share the information collected
- to make interoperable regional and hospital Information Systems

This slide shows the real problem for the Regional Health Care Information System in Lombardia.

By now we have gained a great deal of experience in collecting and elaborating health and administrative data but the real problem is that we need an integrated system which allows to exchange data among health care structures such as hospitals and local health care units and the regional administration. The purpose is to give the best services to the citizens and to control the expenditure in real time.

For this reason there is a great project called New Regional Health Care Information System that mainly consists of building a regional network, using a public net in a private way.

Experiences in RHINE: Selected Processes

- Management of Health Care Information:
  - the identification code of the citizen
  - eligibility criteria
  - prescriptions management (drugs - examinations - diagnostic tests…)

The technical tool: smart card

Moving to the experiences gathered in Rhine, as you can see we selected three main processes, strongly connected to the management of health care information. These processes are the acquisition of the identification code of the citizen, the eligibility criteria and the management of the prescription. The challenge consists in the tool we think we have to use and to give this

information: it is a smart card, an electronic card with microprocessor but you will learn more details about this later in the afternoon as well as about the whole new regional Information System.

In the end I'd like to underline the opportunities for the region in participating in the accompanying measure and European RTD project in terms of: *contents, organization, interaction among projects, economic and social assessment.*

Experiences to share and opportunities

- **contents** of different solutions in IS
- **organisation** - selected process
- **interaction among projects** - AM and RTD
- **economical aspects -** Cost benefit analysis

Future:
from accompanying measure to a RTD project to the best practices

In terms of *contents* we have had the opportunity to test innovative solutions related to wider investment programmes to improve them.

In terms of *organization* we involved the users in a new way of working together with a good level of self-monitoring and learning.

In terms of *interaction among projects* – we shared cooperation & knowledge among different projects with a common technological approach, Lombardia is involved in other RTD project, as I said before.

In terms of *economic and social assessment* – we distributed the pilot sites aiming at the creation of synergies and we are activating cost-benefit analyses on the applications produced.

We hope that the experiences gathered in RHINE could become the starting point of an RTD project to test the best practices selected until now.

Last, but not least, I'd like to underline that these projects, from the point of view of the Lombardia region, contribute considerably to the real development project, especially for the implementation of the regional infrastructure in health care.

Thanks.

Experiences of the Regions – Northern Greece

George Vakaros
Thessaloniki Technology Park

Population : 1.7 million inhabitants

Health Care Budget : 590 million EURO

Thessaloniki Technology Park-Coordinator

National School of Public Health

Infodomi

Current Situation

- Centralized Health Care Policy
- Data are randomly collected and difficult to link
- Limited Regional Health Care Information Systems

Decentralization Effort

- Gradual delegation of particular tasks to Regional Administrations
- Monitoring of data entry procedures at Regional level
- ISDN & ATM national infrastructure

RHINE Experience

- Awareness measures for Regional Health Networks through interchange of experiences and Technology Best Practices between Regions
- Dissemination of Results through the RHINE-Hellas Committee

RHINE-Hellas Committee

- Ministry of Health
- Ministry of Macedonia - Thrace
- Region of Central Macedonia
- Prefecture of Thessaloniki
- Aristotle University of Thessaloniki
- Thessaloniki Technology Park
- National School of Public Health
- Infodomi
- Biotrast S.A.

The Way Forward

- Implement Open System Architecture and enforce standards for Regional Health Care Information Systems having as starting point data entry operations
- Design & Implement Health Care Administration Procedures for Regional Authorities for Decision-Making

Experiences of the Regions – North Rhine-Westphalia

Ralph Menke
Institute of Public Health

Ladies and Gentlemen,
My presentation of experiences gained by the North Rhine-Westphalian project partner will mainly focus on two aspects:

- Integration of administrative data at the level of community health services
- Shaping conditions of IT-application under limited scope of influence for regional health administrations.

Characteristics of the Region

North Rhine-Westphalia is a densily inhabited region with a population of about 18 million people. During the last two decades the region has undergone a radical structural change. Traditionally the main German producer of coal and steel, nowadays the considerably increasing services sector and new industries are more and more marking the region's image. Meanwhile more people working in the North Rhine-Westphalian media industry than in coal.

Basic Elements of the German Health System

Compared to other European countries the German health care system is traditionally characterized by its pluralistic structure which means a juxtaposition

of public and private health sectors. Health suppliers and sickness funds are mainly organized in a system of self-governing corporate bodies. A more or less strictly institutional separation divides clinical level (health supply) and administrative level (health planning and managing).

These particular conditions of the German health care system have to be taken into account: regional health administrations have limited opportunities to control or directly influence the clinical level – which is in fact a situation totally different from e.g. the Swedish example.

Characteristic Elements of the German Health System

- Institutional separation between health supply (clinical level) and health planning (administrative level)
- Corporate structures in health: health suppliers and cost bearers mainly organized in self-governing bodies
- Restricted possibilities for the administration to control or influence clinical level

New Requirements for Health Planning and Health Management

Like most European regions North Rhine-Westphalia is facing a whole string of new requirements for health planning and health management:

- a rising awareness of efficiency and effectiveness in health care
- priority of health promotion and prevention instead of curing illnesses
- implementation of new instruments of health policy – like 'Round Tables' combining all relevant protagonists to facilitate continuous coordination and planning at regional and local level
- the enactment of a New Public Health Act in 1999 shifting more responsibility to cities and districts (esp. in the areas of coordination and health monitoring).

These new requirements for health planning and management also require new ways of information: Along with networking health care institutions (clinical area, rehabilitation, etc.) for a better description of ongoing health care activities there is a growing importance of processing and analysing aggregated data to achieve neccessary information for planning purposes of health administrations.

Current Situation of Health Information

Summarizing the current situation of health information in North Rhine-Westphalia it can be described as intransparent and heterogeneous. At present necessary information needed for administrative use as mentioned above is only accidentally and partly provided, e.g. as a basis for negotiations between sickness funds and health suppliers. Administrative requirements like analysis of structural interdependencies are impeded by the fact that information is mostly stored in isolated databases. With regard to technical aspects there is a basic lack of integration and interoperability between these already existing systems.

Resuming these findings it was recognized that in order to improve the integration of clinical and administrative data priority should be given to the integration of already existing data bases before formulating of new needs of supplementary sources of information.

Current Situation of Health Information

- Information needed for administrative use is only partly provided
- Isolated data bases do not allow analysis of structural interdependencies
- Lack of integration and interoperability
- Priority for integration of already existing data

Integration of Clinical and Administrative Information by Use of IT

The area selected to gain experiences with improved integration has been the level of community health services. In 1995 a pilot project named 'Local Coordination' was launched by the North Rhine-Westphalian Ministry of Women, Youth, Family and Health, implementing Round Tables as a new instrument of local health policy. It can be regarded as an example of the interdependence of 'policy re-engineering' by introducing new patterns of interaction through the Round Tables and of 'software re-engineering' to make these interactions comfortable and effective by setting up an Intranet information server called 'OKO Server' which will be extended to a network integrating all 54 community health services.

The core idea of the OKO Server has been that open access to all relevant information does not neccessarily require centralized storage of data.

Integration of Clinical and Administrative Information by Use of IT

- 'Local Coordination' as an example for interdependence of:
  - Policy Re-engineering ('Round Tables')
  - Software Re-engineering ('OKO Server')
- Core idea: access to all relevant information does not require centralised storage of data

Ways Forward – Lessons Learned from RHINE

After all there are two main experiences to be gained from the activities of the North Rhine-Westphalian project partner within RHINE AM:

- in order to shape the conditions of IT application, regional health administrations have to become a part of the practical solution – by creating

awareness at all institutions involved, on the other hand by support of pilot projects and research

- significance of the awareness of interoperability and of the consideration of cross-European-standards at the launch of future applications. This requirement will be realized within the current preparation of a new regional register for infectious diseases in North Rhine-Westphalia.

Ways Forward - Lessons from RHINE

- Participating in the practical solution - Promises a way for Regional Health Administrations to shape the conditions of IT application
- Use of experiences from the RHINE Project at launch of a new regional register for infectious diseases:
  - Awareness of interoperability
  - Considering cross-European-standards

Thank you very much for your attention.

Experiences of the Regions – Wales

Ray Henry
Public Health Laboratory Service

Description of Region

Wales has been part of the United Kingdom for hundreds of years, but the sense of independence from England has survived and the Welsh language is still widely spoken. The population of Wales is about 3 million. Unfortunately there are now many areas of high unemployment and poverty as a result of the closure of heavy industry, and this has also left a legacy of ill health and higher than average mortality. Wales is administered as part of England, with regional administration provided by the Welsh Office. However, during 1999 the Welsh people will elect members to a new Welsh Assembly, which will take authority over much of the regional administration.

Regional Administration of Health

Health care is delivered through the National Health Service, which is tax funded. The management of the Health Service is divided across three tiers:

- The Welsh Office/National Assembly – with authority over policy-making and funding,
- Health Authorities – providing local planning and commissioning of services, and
- Service providers – such as hospitals and general practitioners.

Also, in addition to infectious diseases, public health is widely defined to include environmental issues, which are the responsibility of 22 local authorities (Environmental issues: air pollution, water quality, contaminated land, food poisoning, and insanitary housing).

Future Needs

Central to the new government's strategy for health is the tackling of inequalities in health, with a new focus on the determinants of ill health. Before these new regional health targets can be achieved, it will be necessary to first understand the causes of problems. This will require access to a wide range of reliable and up-to-date data. For this purpose it will be necessary to link health data and environmental health data, which is held by separate organizations. Also data from veterinary sources may be required to deal with increasing concerns about infections crossing from animals to humans. It will also not always be possible to predict the needs of new and unforeseen data requirements. For instance, to investigate claims of ill health associated with industrial activity requires data from many different systems – GPs, hospital admissions, air pollution etc.

Future Needs

- New health strategy
    - inequalities in health
    - determinants of ill health
- Understand cause of problem
    - need reliable up-to-date data
    - link health, environmental, animal data
- Cannot predict information needs
    - National Assembly for Wales

Telecommunications

NHS Wales is fortunate to have in place an integrated telecommunications infrastructure encompassing data, voice, and multimedia services, and this provides the main vehicle for electronic communication. This is now an IP (Internet Protocol) network and as such is able to provide ready access to many bureau-type services using interactive screens. Reports are printed remotely and files are transferred to and from operational systems. Information in the form of email also makes use of DAWN. More recently, the use of Intranet services is becoming increasingly important and the recent link to the Internet has shown a significant growth in Web and email services. Unfortunately, the local authorities do not have the equivalent of DAWN, nor do they have access to DAWN.

Telecommunications

- NHS Digital All Wales Network
  - integrated links for all health organisations
  - data, voice, and multimedia services
- based on IP (Internet Protocol)
  - interactive bureau-type services
  - email and file transfer
  - intranet / internet

Information Systems

In Wales, the responsibility for the provision of IT services is at the local level. This means that hospitals benefit from greater product choice and tailoring to their needs, but it also means that a large variety of systems have been introduced across Wales. These systems have not been designed to share information, and as such can be referred to as legacy systems. Therefore, ever more complex arrangements are being put in place to overcome these difficulties. Understandably the

requirements of regional data has tended to be allocated a low priority. To cope with this problem, the overall strategy for regional information requirements in Wales has been to define minimum data sets and standard formats. However, this has not tackled the issue of data exchange between systems, so that not all data needs have been, or can be met. The inability to exchange data, or inter-connect health care systems is now one of the major problems facing regional public health policy-makers in Wales.

Information Systems

- IT services provided at local level
  - many systems, all tailored for each site
  - systems not designed to share information
  - complex arrangements for data exchange
- Regional needs given low priority
  - minimum data sets were defined
  - but only predefined data can be collected
  - future data needs are difficult to meet

Experiences in RHINE

The planned creation of a Welsh Assembly later this year has sharply focussed attention on the information needs of the regional policy-makers in Wales. Clearly the replacement of existing operational health care systems to solve the information requirements of the regional policy-makers cannot be achieved within reasonable time-scales and budgets. The partners in Wales have come to realize through RHINE that they need to adopt a platform that will allow these systems to be interconnected, and also one that will facilitate migration to the health care information systems of the future. A pilot study has already begun in Wales to test the validity of using middleware concepts in the health care environment of Wales.

Through the RHINE project we intend to construct a demonstrator that will collect health and environmental data at the regional level, and allow it's cross-connection in order to produce new information. The data sources will be various legacy systems currently used to store hospital data, communicable disease reports, air quality, and animal infections. The project will aim to show that these data can be made inter-operable, and in so doing change the business processes.

Experiences in RHINE

- Need a new technology platform
    - to interconnect legacy systems
    - to allow migration to open systems
- Exploring use of middleware for
    - new Health of Wales Information Service
    - data access at microbiology laboratories
    - regional communicable disease reporting
    - links to air, water, animal infection data

Summing Up – The Common Themes

Professor Gary Coleman
University of Wales Institute Cardiff

The Rhine regions range from an insurance based system to a tax based system for health care; from a population of approximately 17 million people to approximately 1 million; from a system which has well developed communication links between hospitals and regional governments to a system that has no links at all; from a system which uses the latest "smartcard" data systems for patient record keeping to a system which uses paper records.

Thus the Rhine partners are well placed to examine the problems facing regional governments and their policy-makers in making the best decision for improving the health of the people they serve.

All of the regions have identified a pressing need for accurate, validated information on the health or ill-health of their peoples. This need for "real time" information is required at all the levels of health and public health management with the region e.g. at the hospital level for accurate patient costs and treatment records to regional epidemiological information for infectious disease control.

Existing information systems have not been developed generally in a strategic way, i.e. with common standards in mind, due to the reforms in the management of their health services over the last decade. Thus the problems of information gathering and processing at the regional level have become a major problem as all the regions have been made responsible for the running of their health services.

The general common problems found were:

1. the collection of data and subsequent use of information
2. the quality of information systems
3. growing public expectation from their health systems
4. the security and confidentiality of personal health data
5. the lack of standards
6. the procurement and the implementation of information systems.

Some of the regions are experimenting with a product called "Middleware" and other similar solutions. These solutions are capable of using existing systems i.e. legacy systems. Thus obviating the need for spending of large sums of money on new computer systems.

The overriding strategic problem identified is the need for interoperability, common standards and open systems in the design of new regional management information systems.

These collaborating regions have identified common problems facing all their regions and maybe all regions of the European Union when regional health and public health policy-making is being made.

They have also began the means by which their policy-makers are better able to make decisions where the "best value" of the huge sums of money spent on protecting the health of their peoples is assured.

Part 3
Understanding Possible Solutions

Business Process Re-engineering – Practical Impressions from other CEC-Projects – COBRA –

John de Braux
West Middlesex University Hospital

New Health Care Environment

- NHS in West London
- The new NHS - The White Paper
- Opportunity for redevelopment

The NHS in West London

- A & E attendance's increasing
- Pressure to reduce waiting lists
- Service reductions at Ashford/ Queen Mary's Roehampton
- Recognition for junior doctor training
- Collaboration with Ealing Hospital

The new NHS - The White Paper

- Modernising the NHS
- Improving quality and efficiency
- Harnessing new technology
- Partnership
- Develop primary care

Redevelopment of West Middlesex

- Widespread dilapidated site
- Approval process for PFI scheme
- Scope of rebuilding project
- Opportunity to design buildings around service provision
- 2 year time scale

What is required in the modern Hospital

Three key principals:-

1. Understanding our Business Objectives
2. Meet the needs of Patients from GP to discharge
3. Ensure the most efficient and effective care

Business Process Re-engineering

- Combine to review our key process
- Combine BPR with Technology
- Develop integrated care solutions

CEC Projects

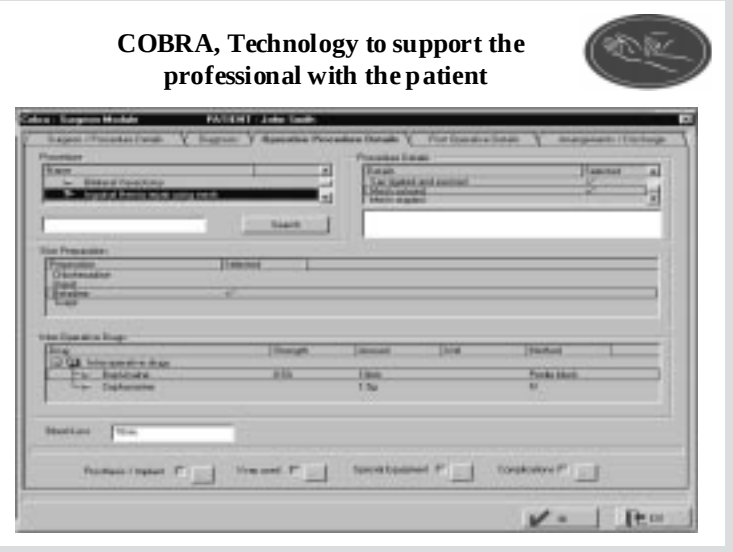
STAR: **S**eamless **T**elematics **A**cross **R**egions

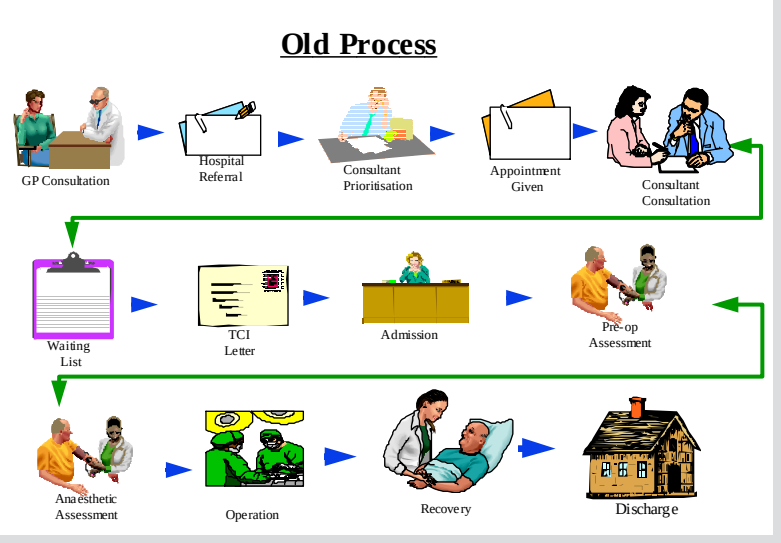
AIDA: **A**ccident & Emergency **I**mplementation of **D**istributed RICHE **A**rchitecture

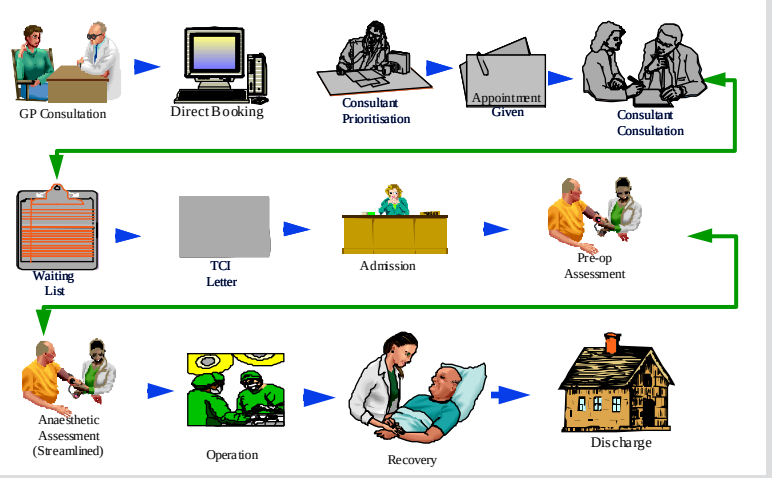
COBRA: COre **B**usiness **R**e-engineering Using RICHE **A**rchitecture

STAR, To link the patient process from GP to Hospital

AIDA, Develop an application to meet the demands of a critical care area


COBRA, Technology to support the professional with the patient


Old Process
GP Consultation
Hospital Referral
Consultant Prioritisation
Appointment Given
Consultant Consultation
Waiting List
TCI Letter
Admission
Pre-op Assessment
Anaesthetic Assessment
Operation
Recovery
Discharge



The Practical combination of BPR and Technology

- Understand the process of care throughout the wider organization
- Technology that supports the care process
- Data that captures the work undertaken
- Information that reflects the business activity
- The ability to move forward in a complex organization with confidence

Using BPR as a Tool for Survival

Zac Arif
Teddington Memorial Hospital

Introduction

This paper is a summary of the presentation given at the RHINE conference in Brussels on the 25 January 1999. It describes the experiences of Teddington Memorial Hospital (TMH) in using the Business Process Reengineering (BPR) approach in implementing the European Commission funded THESIS project (Transformation in Health Excellence Strategy and Information Systems).

The paper focuses on three aspects

- the strategic context and environment in which the project was started
- using BPR as a tool to achieve change
- the lessons learnt from using BPR.

Background

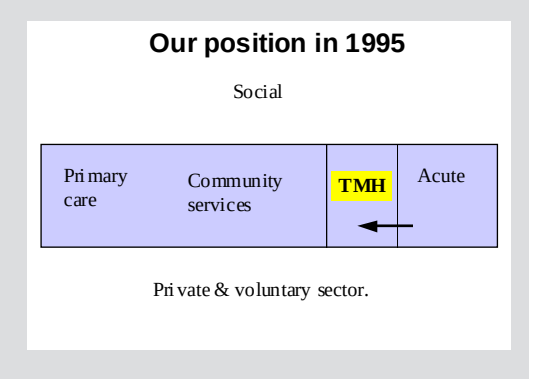
TMH is a General Practitioner (GP) and community hospital providing a range of low tech; intermediate care services supporting the work of GPs and the local district general hospitals. As such, it acts as a "bridge" between primary and secondary care.

The Hospital was until the early nineties a satellite of a local district general hospital. Due to competing priorities and a lack of available funds, the hospital

had a history of poor investment in its people, services and fabric of the building. There was no technological infrastructure and information and processes were manually driven. However, there was a history of very strong support from the local community and long serving loyal staff.

In 1995, the hospital became a self managed unit (or NHS Trust) operating as part of the National Health Service but with its own board of directors (executive and non-executive) responsible for shaping its strategy and future direction.

The Hospitals strategic position in 1995 can be summed up from the following illustration. This is a continuum used to describe the various providers of care in the UK. Broadly speaking on one end there is the acute providers such as specialist hospitals and district general hospitals. As you move across to the left you have GPs providing a range of primary care services from their surgeries working together with other agencies providing a network of care for their patients. TMH can be seen as moving towards occupying middle or *intermediate care* position.



Need for a Clear Vision

As part of the THESIS project, the Hospital revisited its strategic direction through a process of discussion and debate. The changes in the health environment with a greater emphasis upon primary care offered new opportunities for the hospital. The hospital as a new organization had to position itself quickly in what was at the time a very competitive market place.

We had to critically examine everything we did from the patients experience or perspective. We developed the concept of the "Patients Journey" where all processes used would be viewed from this perspective.

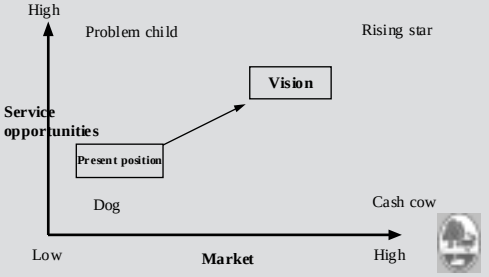
Need for radical change

- Had to critically examine what we did
  - need to increase activity but NOT costs
  - taking a look through the patients eyes
  - radical change can be threatening
  - developing momentum for change
- Using BPR to:
  - help gain competitive advantage
  - transform our management processes
  - reduce bureaucracy and respond to needs

We examined our present position as well as the ideal position using a number of scenarios.

Establishing the vision

- Where are we - where do we want to be?



A number of strategic objectives were agreed:

- To place the patient at the centre of the network
- Improve our services
- Diversify into new services aimed at GPs
- Keeping costs down to attract new business

- Better communications with GPs and patients
- Information and systems required for strategic and operational needs.

A clear vision for the future emerged, one of a "Hospital without walls" – where the hospital moves from being a small hospital providing a specific range of services to becoming a hospital providing an extended range of integrated services in the hospital and within the community.

Why Did We Choose BPR?

After careful consideration, we decided to use BPR. Although the technique has been the subject of criticism in some quarters, we felt that taking into account our position it was an appropriate tool to use in the project. There were a number of reasons for this:

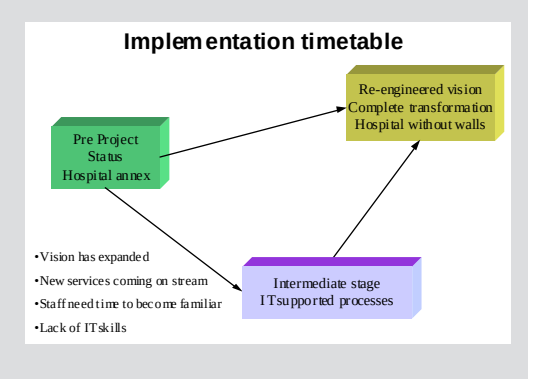
- BPR could be used across the organization
- User led and staff involvement was seen to be critical
- Encourages a critical review of all processes
- Encourages identification of tangible objectives and targets
- Provides benefits all round for:
- Staff – new skills
- Patients – faster, responsive services
- Hospital – secures future position.

BPR Is an Essential Management Tool

However, the world does not stay still for too long. Our own vision has not been static but has constantly been evolving as a result of feedback from all our stakeholders. We are strategically in a secure position and will from April be expanding the range of services we provide. Our income and staffing levels will double and with the new governments emphasis on primary care we believe that we will need to constantly review all our processes to stay ahead.

Don't Be Afraid of Changing the Course

Our experience has shown that the path you may have set out to achieve the vision is not as straight as you might have thought. For example we found that we have had to change our path to allow for the fact that, our vision has expanded, new services are coming on stream, staff need time to familiarise themselves with the changes, and finally staff need time to develop their IT skills. This has meant that we will achieve the vision in a staged way, but we will get there. Failure to have this flexibility will result in a half achieved vision because on the way, you have lost the most important ingredient – staff.



Lessons Learnt

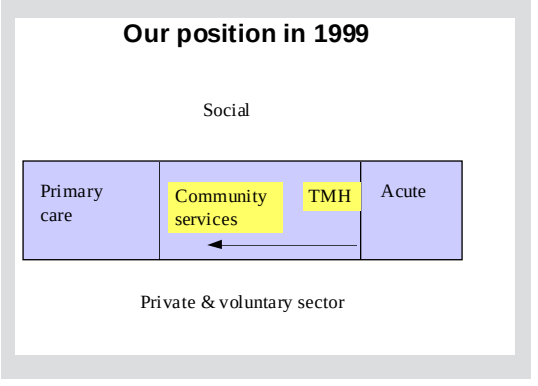
Four main lessons to be learnt:

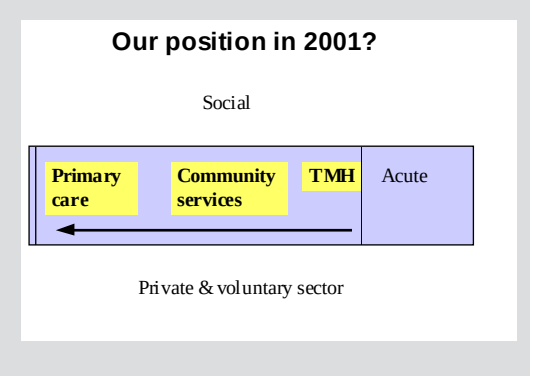
- One, we made the introduction of BPR non threatening by focussing on the superordinate goal i.e. how can we improve the services to our patients, and spending time on articulating the vision with our staff. You must show staff the route map no matter how crude. People want to see where you are leading them!
- Two, support staff through change. There are always anxieties and fears when introducing any change. Identify these and take steps to move them out of the way. For example we invested and continue to do so on training especially in

IT. We offered all staff job security by declaring that no one would be dismissed because of the results of this project!

- Three have a clear focus on the areas where you require change – and do not be put off it.
- Four do not be afraid to change course (as above). Remember you are in charge so ensure the pace is what you can handle and support. Be flexible.

Our Position in 1999 and in 2000

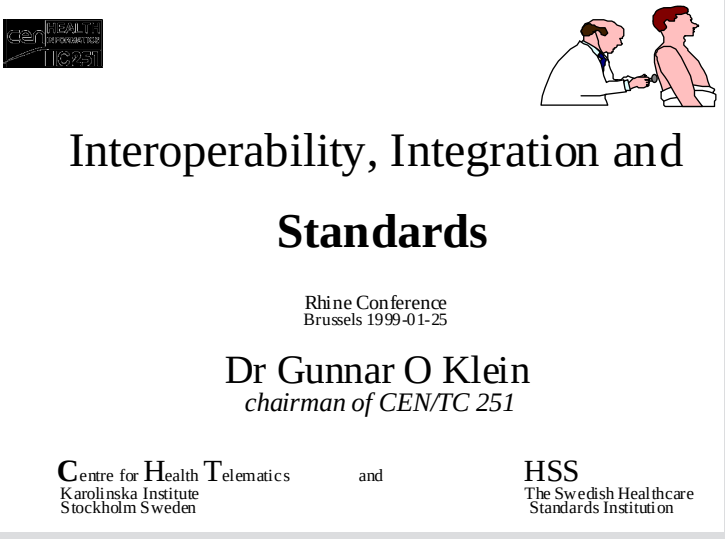




You can see from the above slides that we are moving along the continuum I mentioned earlier towards primary care. We hope by the millennium to be one of the first Primary Care Organizations in the country. Thank you BPR!

Interoperability, Integration, and Standards

Dr. Gunnar Klein
Swedish Healthcare Standards Institution



Topics of the presentation

- Standards - Key to interoperability
- The EU and EFTA mandate for Health Informatics
- How do we work in CEN
- Some results from 7 years of CEN activities
- Hot work to become formal standards in 1999
- Meeting the challenges of tomorrow : New technologies - New health care markets
- The European strategy vs the activities of ISO
- R&D and Standardization

Standards a Key to Interoperability

- A large number of different healthcare actors need to communicate in the interest of the patient
- Public and Private providers
- Community Care, Primary Care, Secondary and Tertiary Care
- Pharmacies, Laboratories, Insurance and other payers
- Today mainly a regional activity
- However, the size of a pan European and sometimes global market is needed for some systems developments

Major requirements for standards

- Efficient and secure totally interoperable transport of bits from A to B
- Heavy use of high resolution images including moving pictures and real time control for devices
- Particularly high requirements for privacy
- A large number of health specific clinical and administrative documents need to be defined as to structure and content
- A very rich and complex terminology requires advanced concept systems
- Highly complex interacting components

Healthcare provider expectations:

Standards will enable

1. **Interoperability of clinical messages**
2. **Interoperability of administrative messages**
3. **Interoperable middleware integration**
3. **Better quality of systems**
4. **Less expensive systems**
5. **Compliance with requirements for Safety**
6. **Compliance with legal requirements for Security:**
   - **Confidentiality**
   - **IntegritY**
   - **Accountability**
   - **Availability**

The Challenges in standardization of Health Informatics

- Produce standards that meet real market requirements in a very diverse area
- Increase the speed
- Largely voluntary work - less funding
- The relation to inter-sector activities
- European vs National and Global
- Starting **now** patients/citizens are becoming users of health care ICT solutions

A political mandate

and financial support from EU and EFTA

- From August 1997 we now have a new mandate from CEC and EFTA to produce standards for Healthcare Informatics
- 2 million ECUs mainly for project teams
- New way of cofinancing complete teams similar to the EU R&D projects
- European funding has been extremely important in speeding up the process

How does the European standardization system work

CEN - European Committee for Standardization
19 countries + affiliates

- European standards, prestandards ENVs and CEN reports are produced to meet market needs in Europe
  - When a specific legislation needs support of technical standards
  - When the internal market need fast European specifications and global work is too slow or infeasible for some reason

The CEN/TC 251 working groups and convenors

- I: Information models
  - Gerard Freriks, Netherlands
- II: Terminology and knowledge bases
  - Ann Harding, UK
- III: Security, Safety and Quality
  - Francois André-Allaert, France
- IV: Technology for interoperability
  - Melvin Reynolds, UK

TC 251 ways of working

- Producing relatively fast Prestandards to be updated within three years
- Taking successful examples from other fora
  - Common workshop like events for 3-4 days
  - All documents are distributed electronically
  - A central Web-site since 1995
    - www.centc251.org
  - A policy of openness where all drafts are completely publicly available and comments also from out of Europe are encouraged

Examples of Results

- A technique for development of message specifications that are syntax independent
- A number of messages implemented in large scale EDI use:
  - Laboratory requests and results
  - Patient referral and discharge
  - Images
  - Diagnostic services

Examples of Results 2

- A systematic work on terminology and concept representation with semantic links with e.g. Surgical procedures, Representation of measurements and Time
- A basic middleware architecture for health specific services (HISA)
- Guideline for security categorisation and management
- A digital signature standard

Hot work to become standards in 1999

- A set of standards for complete healthcare record communication
- Message for drug prescriptions
- Concepts for continuity of care
- Interfaces to Laboratory analysers
- Interoperability of ICU equipment
- Security for healthcare communication
  - Data object security
  - Data channel security

Global standardization in ISO - a threat or a blessing ?

- A new ISO committee TC 215 for Health Informatics was started in September 1998
- Presently work programme is being defined.
- Particularly US healthcare ICT-industry can be a threat to European Industry and Users
- However, European results can also be exploited globally through ISO.
- Do not expect quick results.
  European work must continue

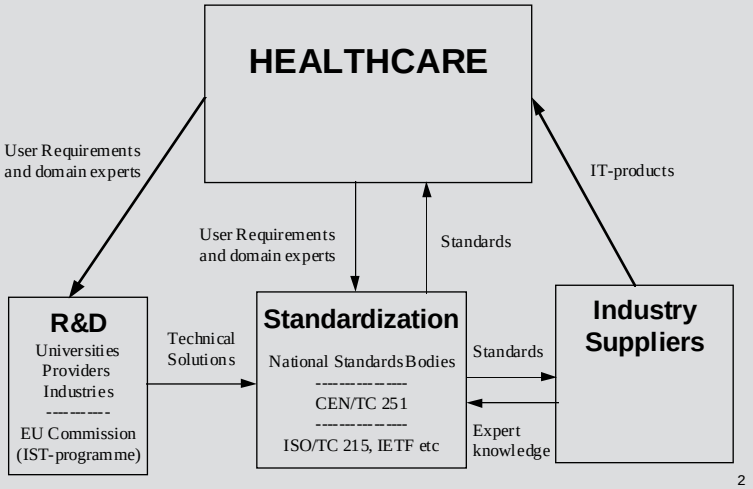
New Technologies and the Future of Health Care Communication

- Message handling systems will continue to be very important.
  - Internet and E-mail will be the dominant route of transport.
  - Different message syntaxes will be used
    EDIFACT, Strong move towards XML
- Connection oriented communication methods will grow
  - Standardized efficient ways of communication may be provided where network costs will be minimal
  - World Wide Web,
    Middleware services based on HISA such as demonstrated by the HANSA project, But probably also CorbaMED, and Microsoft (COM/DCOM)

Making maximum use of the R&D programme

- The Review Panel Report Oct 1996:
  - "The few European success stories on the global stage in the telematics field have been influenced by standardisation decisions"
  - "It is important to strongly support healthcare telematics standardisation within CEN to improve the likelihood of reaching a real market that can create more opportunities for the health care telematics industry"

Development of standardized IT solutions



R&D-projects

- New areas of applying ICT
- Developing principles and demonstrating feasibility
- One successful commercial consortium
- Results often not exploited after project

Standards

- Standards for mature fields of application with proven user requirements
- Techniques already validated
- Participation of all relevant actors
- Standards will be used. Public Procurement Directive.

SIREN

Security in Regional Networks

An accompanying measure to the Health Telematics program 1996-99

Dr Gunnar O Klein, project manager

Coordinator

Swedish Institute for Health Services Development

SIREN Objectives

- An accompanying measure assisting health care provider groups to establish necessary security services
  - To protect patient privacy
  - To provide legal accountability of medical professionals and administrative staff
- Educational activities in regional organisation
- Focal point for discussion on Security Problems and Solutions including legal issues relating to digital documents
- Support to Telematics projects that would like to test the cryptographic security services developed through TrustHealth

Conclusions

- The Health Sector requires standards that provide real interoperability now
- The formal standards ensures stability and fair involvement of all actors
- CEN/TC 251 has published 30 standards
- Some of these need additional specification on a national or regional level
- Fourteen new standards will be published 1999 incl. Electronic Health Care Record Communication and Security for Communication

Plenum RHINE EURO Conference, Brussels, 25.01.1999

RHINE
Helping to Reinvent Health Systems with IT for Better Health, Care and Performance

Professor Albert van der Werff
The Socrates Network

Looking for Solutions

RHINE based its findings on the experiences of the participating Regions: North Rhine-Westphalia/Germany, Northern Greece/Greece, Lombardia/Italy, Stockholm County/Sweden and Wales/United Kingdom. But at the same time results of Research and Technology Development initiated in collaboration with and co-funded by the European Commission have been analysed to select information technologies that are relevant for application by the European Regions. Moreover studies have been made of available international standards, in particular with regard to terminology, technology for interoperability, electronic patient records, including electronic patient data cards and security. On this broad basis basic principles of future solutions for European regions have been identified, and were presented.

IT: An Enabling Force

IT enables the provision of meaningful accurate information for:

- epidemiological surveillance and health monitoring
- health promotion and disease prevention
- environmental health

- early detection, diagnosis, cure and care of individual patients
- integrated health and social care of long-term sick people, elderly people, the disabled and socially less privileged persons
- analysis of and for policy, and
- administration and management at regional level, including allocation of resources and control of costs.

Such a regional health care information system is an electronic information services system with the capability of exchanging data between its constituent parts and presenting information consistently to support health professionals collaborating to improve the health of the regional population and to deliver patient care, while simultaneously providing accurate and timely information for policy-making, administrative, and managerial purposes. Interoperability of all information systems at regional level is therefore the ultimate goal. Regions that operate under the tax-based National Health Services Model may have full responsibility for health, including cure and care of patients. However, regions that operate under the regime of an Insurance Model have limited responsibility, usually restricted to health promotion and disease prevention. As a result health information systems and networks differ across European regions. However, under all circumstances the higher quality of data can be achieved at regional level, the better policy-making, the better administration and management will exist, and the better health, care and performance of regional health systems can be realized.

IT - An Enabling Force

IT enables the provision of meaningful accurate information for:

- Epidemiological surveillance and health monitoring
- Health promotion and disease prevention
- Environmental health
- Early detection, diagnosis, cure and care of individual patients
- Analysis and policy-making
- Administration and Management

Higher quality information means better health care and performance

The Basic Concept

RHINE recognises that implementation of information systems is not just about installing computers, but rather is concerned with changing the whole organization with implications for everyone working within it. This notion is reflecting very well the basic concept of RHINE. Therefore IT and computers must not drive the required process of change. This is the responsibility of top management: politicians, administrators, chief executive officers of the health services and hospitals, and senior managers. Therefore RHINE is further developing and applying Technologies for Business Processes. While IT cannot reform systems, health care cannot be reformed without it. Management of change is a key issue both to successful implementation and to obtaining value from IT investments. The improvement of health, care and performance by IT at this moment in time is a great opportunity. We should not fail to make use of it, and rethink, or even 'reinvent' health systems by IT to turn this opportunity into a reality.

The Basic Concept

- Implementation of Health Information systems is:
  - not just about installing computers
  - but rather is concerned with:
  - changing the whole organization with implications for everyone working within it.

Past and Future Trend in Europe

It may be helpful to understand the major IT policies and integration strategies and technologies for health care information systems since 1970. These can be summarized as follows:

1970 - 1980: National solutions initiated and supported by government IT policies and strategies, initially restricted to patient administration systems, billing and payments in hospitals

1980 - 2000: Free choice, resulting in 'fragmentation', which is characterizing the European health IT market, both in demand and supply
Beyond 2000: Free choice, based on common (European) reference architectures and international (and national) standards.

The disadvantages of fragmentation and small scale have first been recognized by the Commission of the European Union, and more recently also by national governments, notably: by the governments of the Nordic countries, UK and France, as well as by the governments of the Central and Eastern European countries. In the Nordic countries and the UK national policies are currently directed at the establishment of national and even international telematics services networks to connect health care provider organizations, payment organizations and administrations for 'open' voice, mobile, and data communications. At institutional level the development towards 'open' information systems on common architectures and national standards is promoted to facilitate the introduction of electronic patient records. Sweden is currently leading these developments.

In summary: the lack of interoperability, i.e. the inability to exchange data or interconnect health information systems at regional level, is currently one of the major concerns facing health policy-makers, administrators and managers in European regions. New ways of thinking and new solutions are required to solve these problems.

Interoperability of Information Systems in Health and Health Care

OECD, the European Commission, and CEN (the European Standards Organization) are recommending to solve problems of interoperability by means of 'open', i.e. standardized patient care based modular solutions. Such open information systems for health and health care are being built on common architectures. Specific applications, or software products, should fit such architectures that are 'public' standards, and therefore available for both users

and vendors. The applications are interconnected through interfaces that are also 'public' standards. It is important to clearly distinguish between 'quasi openness' claimed by vendors for their proprietary systems and 'real openness' of systems based on public standards. Such a public standard, offering a common approach as well as a common architecture for health care and hospital information systems, exists in Europe, i.e. the CEN Prestandard prENV12967-1: The Health Care Information Systems Architecture (HISA) since 1997. This standard introduced a layered architecture (in three layers), i.e.:

Interoperability of Information Systems in Health & Health Care

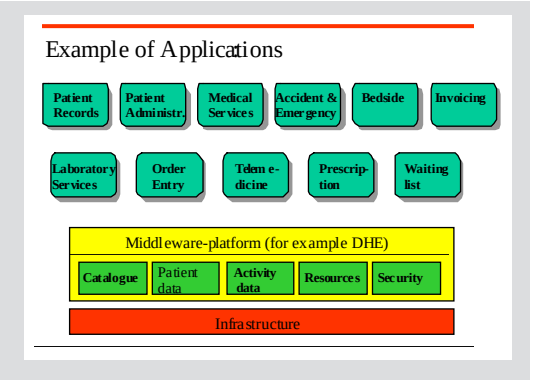
OECD, European Commission and CEN are recommending solving problems of interoperability by means of

"open" modular solutions

built on common architectures and connected through public standards

Such solutions exist in Europe!!

Applications layer:	consisting of a set of components responsible for interacting with the users, providing specific support to specific applications
Middleware layer:	providing a set of services which support the entire system for the management of common data and procedures. The middleware layer enables the integration or interworking of the individual applications at the top layer
Bitway layer:	Representing the technological platform, providing facilities that enable the various modules of the information to interwork through common mechanisms.



The middle layer provides an open infrastructure, capable of 'federating' multi-vendor, heterogeneous applications that interact through a set of common health care specific components. These in turn, rely on a technological (or communication) platform for the interaction of the whole environment. The middleware constitutes the basic functional infrastructure environment of any health care organization, fully independent of the technological requirements of the organization. The advantage of the application of this standard is that it provides a common base for consistent exchange of data, and for connecting different software and different hardware from different vendors, without restricting the free choice of the users. At the same time the competition between vendors is also not restricted, but even enhanced. In this way the indicated problem of interoperability can be solved. As this benefit is increasingly recognized in Europe, it is expected that 'open' systems on the basis of standard reference architectures and standard-, i.e. public interfaces will become the strategy of the next century.

Major Benefits of Open Sandard Middleware Based Information Systems

The major benefits of open standard middleware based information systems to health care are:

- Full functionality, through a vendor independent, free choice from the best of breed software on offer or through in-house development of application software at low cost
- Flexibility, by making the best use of already existing systems, and to replace or add components in accordance with needs, and budgetary possibilities;
- Stepwise implementation, incrementally integrating additional applications, taking into account time and money
- Interoperability within health care institutions and between primary health care services, hospitals, government and non-government institutions and agencies in health care, financing bodies and sickness funds through interconnectivity on the basis of common architectures and public interfaces, i.e. on the basis of international standards
- Integrated systems that provide value for money and are affordable. The cost of integration, average 30 % of the total one-time capital cost of a large integrated information system can be saved. The cost of developing new applications can be reduced by 50 %
- And, finally, the introduction of electronic patient records will be considerably easier and much cheaper than in traditional, proprietary information systems.

Shift from the Industrial Society to the Information Society

Shift from Industrial Society to the Information Society

- Tailor-made solutions instead of mass-production
- Highly educated staff rather than unskilled labour
- Individual responsibility and initiative replacing production line attitudes

Towards a Process-Oriented Networking Knowledge Society

To date, computers have only added new technology superimposed on old technology. Just as the first cars look like horse carriages, computers were first used as typewriters and calculators. In the same way computerized public health information systems were just 'digital statistical tables' and computerized patient records were basically 'electronic paper-based records', i.e. they introduced nothing new, nothing that could not have been done manually. The initial use of new technology was reflecting the conceptual world of the old technology. This is changing. Moreover IT has evolved beyond the status of a tool to become a working environment that determines organization and work. One of the most important advances in information technology is object-oriented development methodology that has resulted in a completely new view of how organizations work, and has evoked a revolution in the development of large complex software systems. IT increasingly governs how activities are conducted and organized. New technology produces new forms of work, which in turn produce new organizational forms. The differences between technological development in general and IT in particular are that IT manages information and thus 'knowledge'. It is not about computers but about globally interlinked collaborative information technology, which creates a networking knowledge society, applying Internet and Intranet. Was in the industrial society the emphasis on specialization as a base for mass production, the new information society is directed at:

- Tailor-made solutions instead of mass production
- Highly educated staff, rather than unskilled labour
- Individual responsibility and initiative replacing unskilled labour.

Information systems are also the main tools for producing today's goods and services. Information and knowledge also form an increasingly important part of the products themselves.

New Ways of Working in Health Care

The continuing technological and economic shift from an industrial society to an information society is affecting health care and the way health care is provided,

introducing new ways of working. The new paradigm for health care information systems constitutes progressing:

- From function-oriented to process-oriented health care
- From hierarchical to networking health care
- From paper-based patient records to Web-based patient records.

Process-oriented Health Care

To meet the demand for rapid change and adaptability of organizations and activities, Technologies for Business Processes (TBP) are applied, also referred to as Business Process Re-engineering (BPR). Traditional organizations and activities are generally function-oriented, to promote specialization. In particular health care is structured on this basis with specialization at all hierarchical levels. This is a view that is totally contrary to process-oriented thinking. Considered from the systems point of view a process is a dynamic flow in time, subject to continuous change. By fundamental rethinking and, if necessary, radical design of business (i.e. health and health care) processes dramatic improvements in critical performance measures may be achieved, such as input, cost, time, output, and quality. Modelling activities within health and health care information systems based on processes with a duration in time, a beginning and an end – input and output – makes it possible to exploit the same tools for developing organizations and activities simultaneously, and for analysing and shaping information systems. Priorities of making transformation a reality are the realization of open, modular health care information systems that offer flexibility and vendor independence, as outlined before. Much work on this basis is being done e.g. in Counties in Sweden.

Networking Health Care

The growth of information both in the field of public health as well as in the field of clinical knowledge is exploding. Single individuals are not any longer able to

Requirements, Opportunities and Benefits of an Electronic Health Information Service for European Regions

An Electronic Regional Health Information Service

- Comprehensiveness of purpose
- Integrated to provide interoperable systems within and across Regions
- Openness
- Mature, Secure and Future-oriented
- Application of process-oriented methodologies
- Internet-based
- Knowledge discovery from data available to all

Comprehensiveness of Purposes

Electronic Regional Health Information Systems should serve recipients (users) in a comprehensive manner, and in all sectors related to health.

Openness

Electronic Regional Health Information Systems should be 'open', i.e. built on public standards accepted and applied by as many European regions as possible, ideally by all regions. Such a common policy would enable regions to apply a common basis for their systems that will however differ through different sets of applications in accordance with regional needs. Such a common basis will allow regions to exchange data within and across regions, and, if they wish to do so, to interconnect application software that is developed, tested and in use in one region, also in other regions.

Anticipating the Future

Electronic Regional Health Information Systems should be based on mature, proven technologies, but at the same time be future-oriented, anticipating the major trends initiated by the information society towards process-oriented health

care, networking health care and electronic (and WEB-based) patient records. Open systems will pave the way to the information society, and enable to make the first steps without great risk as they offer process orientation, ease networking and facilitate introduction of the electronic patient record.

Application of Process-oriented Methodologies
Process-oriented methodologies may be evident in patient care. They are equally important in public health.

Reforming and Improving Health Care by IT

As organization and management are more important than technology, technologies for business processes (TBP) are recommended, exploiting the 'same' tools for 'simultaneous' development of organizations and activities and for analysing and shaping information systems. In this respect a well-designed regional information framework can be used as a change agent.

Internet-based Regional Information Systems

Future Electronic Regional Health Information Systems will be Internet-based, and operate within and across Regions, and be equipped with security management.

Data Warehouse at Regional Level

The electronic patient records, and all other complementary information systems should feed a specially designed distributed database or repository at regional level, i.e. a data warehouse for storage of data. Retrieval of information from the regional data warehouse should be made as easy as possible to the users, applying only very simple tools.

Regional Data Analysis and Knowledge Discovery

Owing to the enormous progress in storage hardware and database software, regions will be able to retain vast amounts of information. Particular attention should be paid to the interpretation of this information by specific software for (geographic) data analysis and knowledge discovery (data mining).

An Electronic Regional Health Information Service

- Stepwise realization
- Cost benefits
- Policy, administration, management and organization are crucially important

Stepwise Realization

First of all an overall vision, policy ,and a medium and long-term strategy is essential. The standard middleware approach, that is presented, provides a consistent guideline for policy-making and a transparent pattern for future development. Generally, budgets in public health and health care are inadequate to pay the high one-time capital costs of complete integrated systems. Moreover, installation of such systems are found to be too risky. Therefore it is recommended to choose open, modular solutions that can be introduced stepwise, incrementally integrating additional applications in accordance with expressed needs and budgetary possibilities. In most regions existing (so-called legacy) systems have to be preserved as much as possible in order to protect past investments and to guarantee continuity of operations. Preserving existing systems or components of systems may indeed become a first step. An integrated open solution that is gradually completed in this way consists of a ‘federated’, but coherent unity. This technology enables Regions to choose the ‘best of breed’ products in Europe from different suppliers, and to optimise simultaneously the

quality and price-performance ratio of Electronic Regional Health Information Systems.

Cost Benefits

The major benefit of an Electronic Regional Health Information Service is the enhancement of the services of regional administrations, and ultimately better health of the citizens. Cost savings for the region as a whole are difficult to calculate. Large scale integrated systems are generally not cost effective, due to coordination costs. As pointed out above, open, distributed systems however are cost effective and can be introduced stepwise and in accordance with regional needs, taking into account available budgets. Its many recipients may in particular enjoy the major benefits of an Electronic Regional Health Information Service. If the value of their time is included, savings of recipients may be substantial. Easier access to meaningful information may increase demand, so that from the viewpoint of regional administrations savings can be acquired in the long term. The largest financial benefits may therefore prove to be the indirect ones.

Collaboration between Regions

To enable the European regions to make use of the opportunities that are nowadays offered by IT and to achieve its benefits, Regional Administrations should avoid to invent the wheel, but share research and technology development, knowledge, education and training, management, cost and financing by collaborative action at European level.

"Getting Things Done"

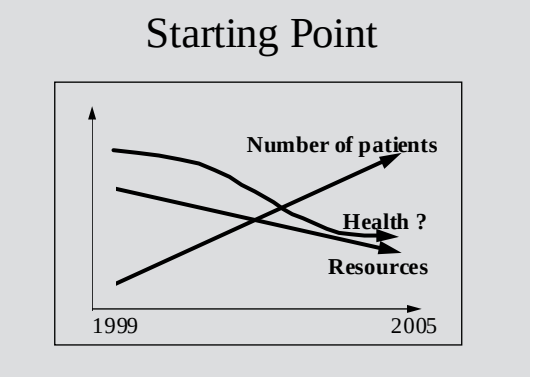
Owe Candow
Enator Trigon AB

Starting Point

It is an honourable task for me to be invited to this conference to express ideas on "Getting things done".

Ladies and gentlemen, it is with great respect for the subject that I will try to give you some thoughts about the vision to be realized.

Looking at the situation, we will find a pattern that is most common in most regions in Europe. An increased number of elderly people on the one hand and cuts in health expenditure on the other, and all of us are anxious about what will happen with health.

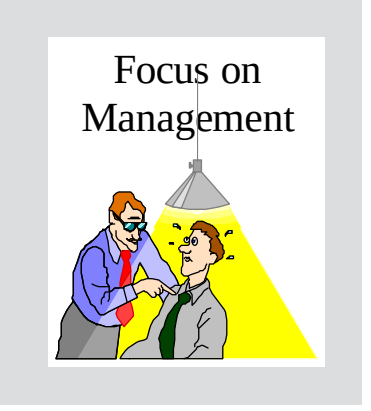


Focus on Management

It is my ambition to assign responsibility to all levels in health care and to focus on conditions to prevent an unexpected or unwanted development in health due

to an unsatisfactory utilization of resources. In other words, we are in no financial difficulties but productivity in health care is not sufficient and benefits and costs have not been looked at comprehensively.

Sometimes it seems that management has just delegated political decisions down to the bottom level of the health care sector.



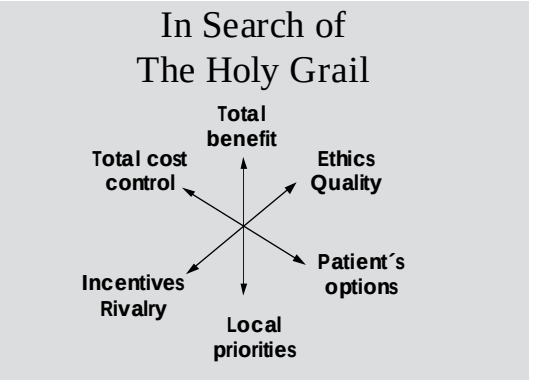
In Search ...

When focusing on present conditions in health care, we will find a lot of things which are contradictory.

Local priorities contradicting the overall benefit are among other issues examples of subjects which are to be dealt with in detail in order to establish a comprehensive view.

The local fight for a share in common resources might not support improvement of quality in health care.

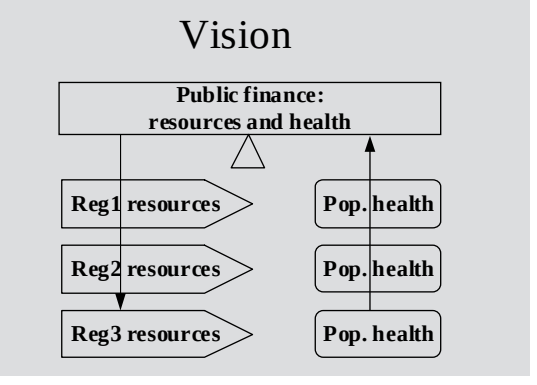
Naturally, the free choice of each patient will increase overall costs. How shall we get management to decide on conditions of comprehensive view and total effects?



Vision

I hope it is of current interest to focus on a common and accepted vision. As I have understood the previous work within the project, it is of common interest to be able to compare health and resources used to provide improved health.

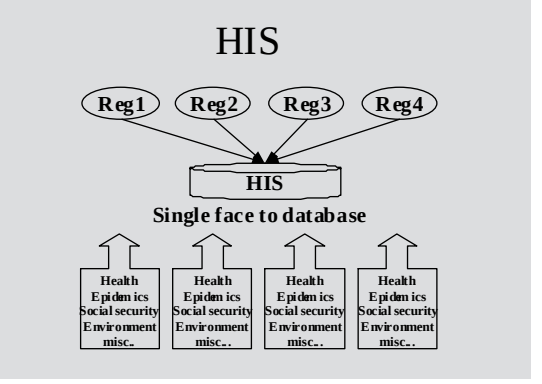
Utilize this information to achieve a balance of efficiency. Collected information is needed to identify improving or abortive performances.



HIS

It is not enough to compare health and resources. A lot of other influence factors have to be considered. Factors such as epidemics, social security systems, environment, and surely some others.

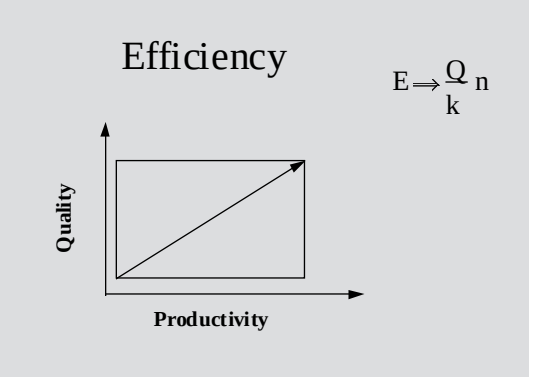
There must however be a decision on the parameters to be considered. The formula for integration into a common database must be considered. Some kind of a „single face database“ has to be developed, standardizing elements and forms. Common platforms such as DHE could be used.



Efficiency

What is efficiency? From my point of view efficiency should be looked at as a measure of quality, costs and numbers provided.

That means that improved quality in combination with reduced costs and increased numbers produced will support improved efficiency. But focusing on each item separately is not valid. A combination of all factors is most important to support increased efficiency.



Economy and Quality

How can quality and less expenditure work together?

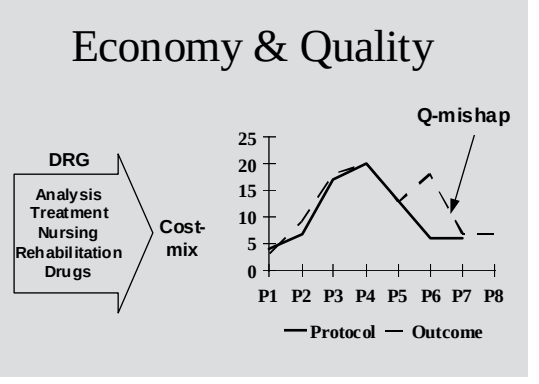
When discussing this matter, in my occupation as a hospital director my senior medical advising doctor explained to his staff his views on costs and quality in the following way:

He said: "When describing costs for hospital care in terms of cost per patient (DRG: diagnosis-related groups), we can use these figures for an accumulated performance of diagnoses for the provider in focus. We will then use our outcome for a comparison with the protocol of best practice for the hospital involved. Discrepancies with the protocol can for instance be explained with re-operations, prolonged length of stay".

This difference could then explain areas with a loss in quality, a result which would unfairly hit the patient. Can defects in quality increase costs?

The medical information from support in care can be used for the development of care. We can use DRG as a common basis for costs and provided effects on health for a certain provider and use this information for a comparison with others.

We will use this information systematically in comprehensive analyses. Change in total performance is then given a chance to be realized.



Capability

In order to change our behaviour we need competence, a combination of knowledge and ability. Initiating a change or development in health care or

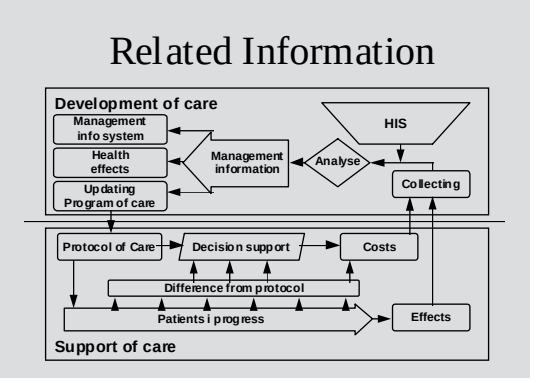
elsewhere sometimes seems to be a shot in the dark. Sometimes the most common way seems to be just the change itself. On the other hand, a lot of changes could have been implemented if capability had been supported.

Within ENATOR Trigon we have been working with process re-engineering and we have learned that improved knowledge in combination with systematic undertakings from a person or a team will necessarily create capability to get things done.

This method has been developed and licensed by ENATOR to fit into our public sectors in Sweden. We call our method "Better Processes – BPR".

We have successfully carried out projects which have improved quality and lowered costs. Cost reduction within the process will reach levels of 50 percent or more.

In a local hospital in the western part of Sweden, a 40 % increase in the capacity for surgical operations will be realized by the given staff in springtime.



Objectives of BPR

Let us look at the major objective in re-engineering:

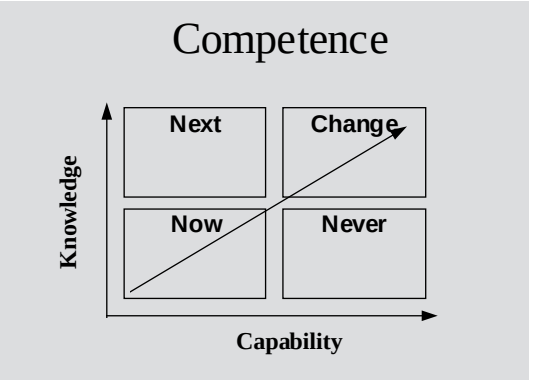
It is the renewal of workflow and performance which is important in order to:

- Improve customer value and quality,
- Reduce consumption of time and resources.

Some important keywords of re-engineering to be remembered:

- Focus on customer/patient
- Approach the process and describe its terms of activities
- Question the process by focusing on the results achieved by the activity and the whole process, resources used and time spent.

The objective is to achieve dramatical and measurable effects by creating radical goals. Process re-engineering will focus on *processes* instead of *functions* in the organization.



Steps in Re-engineering

A process orientation is carried out in steps:

In the first step called "Mobilizing & Strategy", management has to decide and fix guidelines for the issues to be re-engineered.

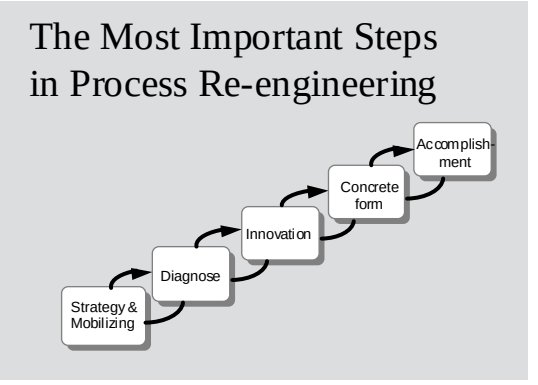
Management has to commission members of the staff, representing different elements of the workflow/process, to analyse, evaluate and suggest a goal for the next step in a "Diagnosis".

Management has to decide and accept a proposed goal for a new process and initiate a "Carry On".

„Innovation“ shall present a vision of a dramatically new process, where only actions of value for the client or for implementing the process will be maintained.

This vision, when accepted by management, will be the common vision in the entire organization of the process involved.

The next step for the team is to give the vision a "Concrete Form" by using enablers. This activity shall result in a plan of action.



Enablers in BPR

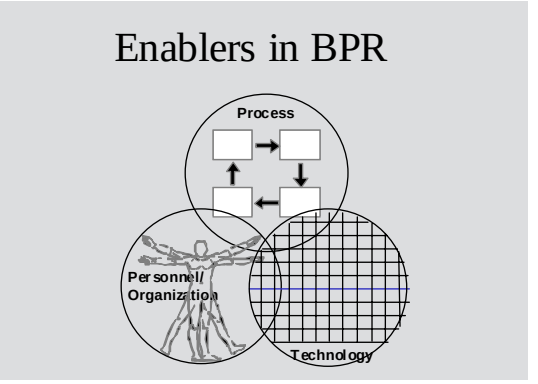
In order to develop a radically new procedure in our workflow, we must describe it by means of a process with activities involved to produce expected results. A major process supported by several subordinated processes will normally be the case.

In the chain of care we will find a lot of supporting processes, such as prevention, primary care, hospital care, local care by the community and so on.

Personnel with required qualifications will be needed, including further education and guidelines for taking care of the existing staff.

An organization supporting the process and involved competence can now be outlined.

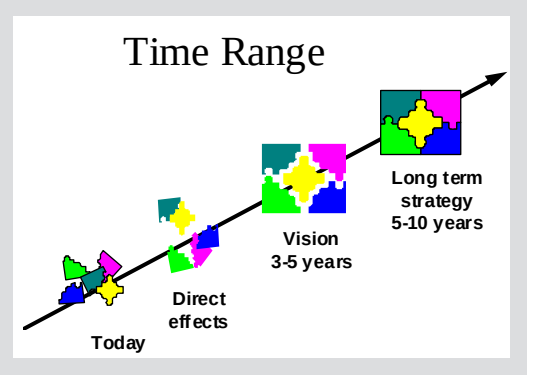
Elements of the process that can be carried out automatically require information technology and the use of open standards – as presented earlier – to support decision-making and visualize performance control.



Time range

Do not forget: These things will not be realized overnight.

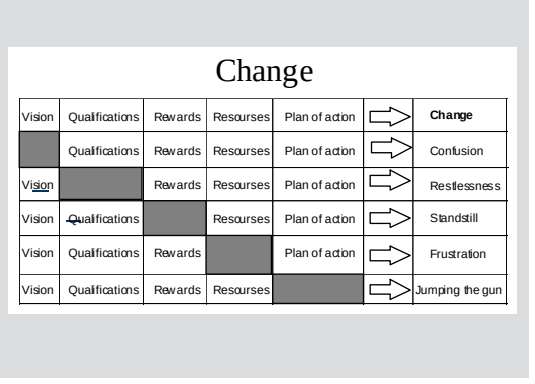
Within the steps of BPR it goes without saying that unsatisfactory performances will be instantly changed. But it will take some years to carry out a whole project to realize the vision.



Change

A combination of vision, qualifications, rewards, resources and a plan of action will pave the way for a change. If one of these elements is missing, something unpredictable will happen.

- If there is no vision, the staff will be confused: Where to go?
- If qualifications needed for the change to take place are missing, the team will be restless; they do not know what to do.
- If there are no rewards for the team, the process of change will stop.
- Lack of resources will create frustration.
- Starting without a plan, more or less stochastically, the team will surely be called back.



Suggestion

I would like to finish my presentation with a proposal. I will address the Rhine project, the regions in Europe and the European Commission.

The proposal is as follows:

- Select regional or local health authorities and their local care providers to cooperate.
- Establish the vision presented by the project. Providers will carry out the commission: Establish a re-engineering process for specified diagnoses, involving:

  - chain of care
  - distribution of care
  - costs for care
  - health effects.
- Based on local needs for support in decision-making processes concerning the development of health, build up a database to provide support.
- Evaluate results in different performances and establish a long-term strategy for Europe.

Thank you for listening and good luck for your important mission!

Part 4
Statements of the Roundtable

Participants in the Round Table were:
Professor Jeffrey Levett, National School of Public Health, Athens, Greece, presently responsible for international activities, with a special interest in the relations of Greece with the Balkan States in the field of public health,

Dr. Gottfried Dietzel, Federal Ministry of Health, Bonn, Germany, currently responsible for the coordination of all activities in health IT in Germany, as well as the relations in this field with the European Commission,

Drs. Lambert van Nistelrooij, Vice President of the Assembly of the European Regions dealing with public health, health care and social care, and elected member of the provincial executive of the Region of North Brabant, The Netherlands,

Professor Dr. Gary Coleman, representing the Public Health Laboratory Service, Cardiff, Wales, UK, and an expert in environmental health,

Dr. Claudio Beretta, representing Lombardia, Milan, Italy, i.e. the Lombardia Health Care Department, and responsible for health IT in his region,

Bengt Blomberg, representing the Stockholm County Council, Stockholm, Sweden, currently responsible for finance and budget at the Medical Service Board of the SCC.

The moderator of the panel, *Professor Dr. Albert van der Werff*, The SOCRATES Network, VanderWerff Consult BV, The Netherlands, who is the adviser to the RHINE Consortium, introduced the discussion by stating that implementation of health information systems is not just about installing computers but rather is concerned with changing the whole organization with implications for everyone working within it. The problems of 'lack of interoperability', i.e. difficulties of exchanging information within regions and across regions that have been

identified, can be solved by means of ‘open’modular solutions, built on common architectures and connected through public standards. Panel members were asked to give their opinion. The reactions of the representatives from Greece and Germany to this statement and their views during the discussion are summarized by themselves in the following text:

Jeffrey Levett
National School of Public Health

A Health Information System (HIS) is more than the sum of its elements. By extension a Regional HIS (RHIS) is much greater than the sum of its parts. To design, implement, and run a RHIS is therefore not a small undertaking. My perspective is that it should viewed as a socioeconomic tool for living standard improvement by promoting health gain of the population and the reduction of disparities within and between regions. A distributed set of interconnected RHISs throughout the regions could serve as a European wide umbrella for open system communications for health information, development of managerial infra-structures, and a prerequisite for "early signal" detection. The RHINE network if only an embryonic umbrella with limited European coverage, nevertheless it has proved so far to be a partnership of regions for an important sharing of experience.

All five regions within the RHINE Project have technical knowhow and can install computers varying complexity. Some have the capacity to quickly bring about organizational change, while some are much more limited in their capacity. Some have a well developed policy for both health and health informatics. Others are in the initial phase of such developments. Through the RHINE Project we have seen a striking variability in the five European regions with respect to information and communication technology use and basic infrastructure. This is probably the situation European wide. Consequently, each region has a different starting point. In parallel we have seen that through the accumulated experience, all regions can benefit from RHINE irrespective of baseline capacity.

Responding to the Chairman' s first question I would say that at the highest level for consideration or if you will the central issue, is one of culture, organizational culture. Therefore the way forward is by strengthening the organizational culture in some regions and setting the culture in others. This calls for better management and the conceptualization of management as a change agent. Management, acting as a change agent must set the culture. A management that does not address the culture issue is not management. We have seen examples of culture setting during this meeting in projects such as COBRA and THESIS. We have also seen from our Swedish colleague, that change emerges from the presence of several attributes. They include an overall vision, the

qualifications of the staff, incentives and motivation for them to produce, and a well worked out plan of action. At the turn of the second millenium, culture implies that we have open information and communications systems to improve accessibility of all actors (patients, citizens, professionals, politicians) to current information, that we have embraced the information society and that regionalization and global connectivity is a way of life. It also calls for standards. Standards are the prerequisites to interoperability which is raised in the chairman's second point. Without a rational policy for the health sector development which includes the use of informatics, the process of change can not be implemented. IT is a valuable tool and it should not in itself, be the driving engine of reform.

Northern Greece is one of the five RHINE Regions and the National School of Public Health is a founding member of the RHINE Consortium. The participation of the latter was based on local needs for development of the health sector and the need for the penetration of IT. Participation was made possible by the support of the Ministry of Health. What is though the starting point for Greece? In Greece we can install computers in hospitals with ease and indeed it has been done on several occasions over the last decade. There are also many IT related projects. Consequently there is no lack of talent in IT and many groups would have no trouble with the design, implementation and operation of a HIS for a hospital. There is not however, a designated health services research unit and all attempts to create one have failed. Teams of well qualified health professionals have on occasion been spontaneously assembled, but they have suffered from discontinuity since membership to a high degree is based on political criteria. Management behaviour in the public sector is reactive rather than proactive and the hierarchical apex for health development is not yet equipped with the conceptual tools or the expertise to support a contemporary organizational culture.

Nothing of the recent laws aimed at rehabilitation (1994) and restructuring (1996) of the National System of Health (NSH 1983) as yet have heen applied. Recommended measures by an external expert committee have however been assumed in the legislation process which is a demonstration of openness to external ideas. There has been provision for the establishment of a unified and uniform health fund, but participation of existing funds is based on choice and none of them have a contemporary HIS.

The Greek NSH functions within an outmoded organizatinnal culture and operates under conditions of considerable uncertainty. This situation results from a lack of continuity based on the application of 'party thinking' mainly with very little 'systems thinking'. The health sector is dominated by clinical medicine and the hospital sector consumes the lion's share of the national budget. Administrative control exerted at the input stage serves to promote resource waste, rather than as a check on management practices or a stimulus to action planning. Significant issues such as continuing medical education, management training of health professionals, developmenent of community oriented health centers and health promotion are edged into the corner. Process measures are few and far between and consequently the concept of business process reengineering is unknown. Outcome efficiency and effectiveness of health services are just making the agenda.

Hospitals do not have a modern medical record and information pathways are multliple, long and slow. System function is characterized by centralized decision-making and inertia and little has been done from a point of network integration based on IT. In reference to our baseline starting point we have to introduce management to the health sector, set a more contemporary organizationial culture and push towards decentralization. In all of these needs IT is a valuable support. Within the problem field of the Greek reality, George Vakaros told us this morning what the benefits from RHINE have been to Northern Greece. They have been significant. I'll go one step further and say that the outputs from RHINE have useful application in the test bed of Northern Greece. RHINE can be a useful tool for the Greek health care sector since it matches well with some local developments such as the establishment of a Concerted Action Committee for Health Policy, new payments criteria for reimbursement, productivity incentives and the introduction of hospital managers. All these proposed initiatives have cost-containment attributes. Without reinventing the wheel – point five – the experience of the RHINE can be used as the glue to bring about cohesion of the internal areas of Greece and a mechanism for connectivity with Europe and its some 300 regions. In responding to the sixth and final discussion point I can only agree that the RHINE Consortium is already a European level resource ably lead by the Institute of Public Health, NRW. It should maintain the momentum and move forward into the next phase of activity. It can continue to serve as a clearing house of knowledge important for regional

develepments and it has the capacity to evolve into a European wide training and technical support center in the field of information and communication technologies relevant health sector development. Form a personal and local perspective it can be an aid to both devolution of decision-making and network integration.

I will only add two further points in closing. The first is the suggestion from the floor that we should now enter the new phase of 'pulling things together' and that sounds about right. It was made by Birgit Weihrauch, one of the founders of the RHINE concept and should be taken seriously. The other is based on the observation of fellow panelist Gottfried Dietzel. He has abtly noted that in all the conference deliberations we have not once heard the term managed care used, even though Europe if seriously flirting with the American approach. This is something that should be part of the next phase of RHINE. Perhaps in this context we should make an in-depth study of market forces and their impact on health and examine how market forces effects the information society for health. European approaches and initiatives in IT for health could conceivably benefit. A European-American bridge for global health development passing over the RHINE may turn out to be useful for Europe.

Dr. Gottfried Dietzel,
Federal Ministry of Health

Network technology is a challenge for everybody who already used information technology in the promotion of the goals of his institution. In this respect there are two observations in regard to the development of regional networks:

- everybody defines the technology for his network by himself without taking into account the experiences of others and without securing interoperability with other networks
- due to the goals of the establishing key institution different sector oriented approaches are promoted (public health authorities assure the exchange of public health oriented knowledge, national health services focus on patient data exchange, regional cancer centres limit themselves to cancer related data; integrated and comprehensive networks are not achieved).

Despite of the acclaimed open architectures and business process oriented reengineering attempts – in real life the regional networks are still driven not by future needs of the whole region, but by the currently prevailing functionalities. They govern the network activities.

Taking into account the differences in information and data which are stored and transported according to the needs of the different network providers: what are the unifiers for regional health care information networks? Apparently we do not need so much harmonised regional health information networks but harmonized technology and components which assure interoperability and which can be chosen in the specific regional decision-making process. If possible these regional networks should combine and be based on the different driving forces in the region (physicians, hospitals, public health authorities). The vision are therefore integrating information systems with patient´ rights oriented selected access to data, not sector-oriented networks.

Components

- standardized communication processes (message standards as IDT, including different interfaces)

- standardized electronic patient records
- interoperable security architecture.

Challenges

Networks should contain administrative and clinical data. The collection of statistical and administrative data should no longer be an additional burdensome activity, but be the result of business processes and workflows. The organization and presentation of data in a meaningful way and the connection between network data and business processes are the real tasks.

Key Words

- development of a coherent information strategy within the health care systems (by using regional driving forces)
- systems integration
- harmonization of standards
  - technical, linking proprietary systems (based on EU-standards; a common and open information infrastructure has to be developed as common interoperable solution for regional networks allowing upgrading of data content in the same way as communication among them)
  - semantic harmonization

Subsequent to this the moderator summarized one of the major findings of RHINE by stating that computers and IT must not drive the required process of change. This should belong to the responsibility of top management: politicians, administrators and health insurance services and hospital chief executive officers. The leading officials must acquire a broad understanding of health information, openly acknowledge the importance of information and show a lead through active involvement. First and foremost, regions should have a policy, and strategies of information and communication technologies firmly rooted in their overall policies and strategies to improve the health of the people, the performance of the health system and the effectiveness of the regional administration. Speaking as a responsible politician on an individual basis and on behalf of his colleagues in Europe, *Mr. Lambert van Nistelrooij* answered this statement as follows: Politicians, as well as their administrators are confronted with health care reforms and a great number of new developments, including in IT. However, as the key decision-makers are elected, they have to respond to the urgent, daily problems in society. These have to be resolved first. Most of these problems are the issues of a greying society. Naturally the decisions that are being made depend on the available information. Ideally, such information should be meaningful and up-to-date. The current possibilities emerging from advanced IT are rather new for us and some of us understand indeed that regions should have an IT policy as well as strategies to achieve such a policy. However, a lot of missionary work still has to be done, and we expect from initiatives such as RHINE to help us to develop appropriate IT policies and strategies, and to implement these so that information is available for the right purposes, at the right place and at the right time. The European regions would certainly welcome RHINE as a Clearing House of Knowledge, Training Centre and Technical Support Centre in the field of IT for public health, health care and social care.

The view of Mr. van Nistelrooij was generally shared by the audience. In this respect the question about the coverage of information systems at regional level was raised. *Professor Gary Coleman* responded to this question and said that IT allows the provision of meaningful, timely and accurate information for epidemiological surveillance and health monitoring, health promotion and disease prevention, environmental health, early detection, diagnostics, cure and care of individual patients, analysis of and for health policy, and health administration and management. Professor Coleman also pointed out that the

extent of responsibility of the European regions for health is different in different national health systems, but environmental health, as well as health promotion and disease prevention are priorities in all regions and across Europe.

Speaking from the audience, *Dr. Birgit Weihrauch*, representing North-Rhine Westphalia, Germany said that she fully agreed with the conclusions drawn by Mr. Lambert van Nistelrooij and Professor Gary Coleman. Regions should indeed focus on regional information needs. However, Mrs. Weihrauch said that regions should also consider the exchange of appropriate information between regions and across Europe, using the Internet and in this way allowing comparative analyses.

And finally, *Mr. Anton Kilsdonk*, CMG, a large IT provider in Western Europe operating from its basis in The Netherlands, initiated a discussion to which extent the IT industry would be interested to support the RHINE initiative. *Mr. Guy Robinson*, representing Cable & Wireless, a large telecommunications industry and Internet provider in the UK, took a strong positive position, declaring that RHINE has started off the creation of a new market segment in which the uptake of IT has not been very advanced in the past. *Mr. Rolf Qwärnström*, speaking on behalf of ENATOR, the largest IT provider in Sweden, agreed to this view but stated that if the European regions would continue to separately re-invent the wheel by developing home-made systems, the market would remain fragmented offering only limited opportunity. However, in case the European regions would adopt a common architecture for regional information systems and apply public European standards (as is recommended by RHINE) a large, growth market would be created which would be of much greater interest for the European IT industry.

Part 5

Drs. Wim van Velzen: The Way Forward

Statement summarized by
Albert van der Werff
The Socrates Network

The Round Table, as well as the conference itself was ended by *Drs. Wim van Velzen*, representing the European Parliament.

Mr. van Velzen started off his closing address by congratulating the RHINE Consortium on its initiative. The regions should indeed play an important role in the construction of Europe, and the rapid development of IT will make it possible for the regions to establish region-wide, comprehensive information services to support regional health administrations. With access to information stored anywhere in the regions and in Europe, and above all the ability to combine and analyse this information and exchange it within and across the regions, it is possible to create new knowledge which has added value. Mr.van Velzen also said he has noticed that the RHINE Consortium collaborated with the European Commission on the basis of 30 % funding, which may express the level of interest of the participating regions and their willingness to invest for a better administration and better health by IT.

The information society is at our doorstep. This is a new era in which broad societal and organizational changes will occur, mainly caused by the information revolution. The European Parliament expects that Europe will gradually be transformed into an essentially new society, i.e. an information society in the most profound sense, as the individual citizen's relationship to information and knowledge will be quite different from the past. This 'revolution'will add new capacities to human intelligence and will constitute a new resource which will change the way Europeans work together and the way they live together. For these reasons, Mr. van Velzen said that the European Parliament is supporting the 5th Framework Programme of EU Research and Technology Development (RTD).

This programme has been formulated in the Commission's proposal for the Information Society Technologies (IST) Programme, that was agreed at the Council of Research Ministers on 22 December 1998. The RHINE Consortium should make use of this opportunity and consider developing new proposals for further development and co-funding from this programme.

Finally, Mr.van Velzen said to have read with great interest the RHINE Publication, entitled: RHINE: Policies and Strategies of Information and Strategies of Information and Communication Technologies for Regional Health Administrations. He hopes that this book will be widely distributed across Europe and ultimately land on the desk of politicians, administrators and managers in charge, and will motivate these decision-makers to look forward, and to apply IT for better health and performance as suggested by RHINE. Mr. van Velzen also pointed out that he himself is not in the position to speak about 'Ways Forward for RHINE'. This is the task of the RHINE Initiative itself. It seems that the present RHINE Group already has a clear plan for its future (as expressed in Chapter 5 of the above-mentioned publication, pages 53 and 54). He hopes that the European regions will avoid re-inventing the wheel, but collaborate instead, and benefit from common knowledge and experience. RHINE is offering assistance to European regions by complementary action, advice and services in the field of information and communication technologies on the basis of an on-going activity. Mr. van Velzen ended his closing address by recommending the European regions to join the initiative and offered his best wishes for the future of RHINE.

Part 6
Annex

Programme of the RHINE EURO Conference

RHINE

Policies and Strategies of Information Technologies for Regional Health Administrations

EURO Conference

Final Programme

Venue:

Centre A. Borschette
Rue Froissart, 36
B-1040 Brussels

This conference is funded by the European Commission

Programme

25 January 1999

8.30 Registration and Coffee

Chair: *Dr. Helmut Brand*
Institute of Public Health NRW

10.00 Welcome
Dr. Hans Sendler
Ministry of Women, Youth, Family and Health
North Rhine-Westphalia (NRW)

10.10 Information Data Exchange in European Regions
Director of the Information Society Technology
Programme of the European Commission
(to be confirmed)

10.30 Policies of the European Regions to Enhance
Public Health, Health and Social Care by IT
Drs. Lambert van Nistelrooij
Assembly of European Regions

Setting the Scene, the Major Concerns

11.00 RHINE: Its Aspirations
Dr. Birgit Weihrauch
Ministry of Women, Youth, Family and Health NRW

11.15 Experiences of the Regions

Lombardia:	*Loredana Luzzi*
Northern Greece:	*George Vakaros*
Wales:	*Dr. Ray Henry*
County of Stockholm:	*Bengt Blomberg*
NRW:	*Ralph Menke*
Summing up:	
The Common Themes	*Prof. Gary Coleman*

Order of speakers may change

12.30 *Luncheon*

13.00 *Press Conference*

Understanding Possible Solutions

13.30 Business Process Re-engineering - Practical Impressions from other CEC-Projects
COBRA: *John Le Braux*
West Middlesex University Hospital
THESIS: *Zac Arif*
Teddington Memorial Hospital NHS Trust

14.00 Interoperability, Integration and Standards
Dr. Gunnar Klein
Swedish Healthcare Standards Institution

14.20 Helping Re-inventing Health Systems with IT for Better Health, Care and Performance
Prof. Albert van der Werff
The SOCRATES Network

14.40 Towards an Electronic Health Information Service at Regional Level: Getting Things Done
Owe Candow
ENATOR Trigon AB

15.00 **Roundtable**

Moderator:	*Prof. Albert van der Werff*
Greece:	*Prof. Jeffrey Levett* *National School of Public Health, Athens*
Germany:	*Dr. Gottfried Dietzel,* *Federal Ministry of Health, Bonn*
The Netherlands:	*Drs. Lambert van Nistelrooij*
United Kingdom:	*Prof. Stephen Palmer* *Public Health Laboratory Service, Cardiff*
Italy:	*Dr. Claudio Beretta* *Lombardia Health Care Department*

16.00 The Way Forward
Drs. Wim van Velzen
European Parliament

16.15 Reception

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Curriculum Vitaes of the Speakers

Dr. Claudio Beretta

Claudio Beretta, born in 1950, married, one child. Doctor of Physics, 1981; Health Physics Specialist, 1982. Until 1985 he worked in the area of Health Physics at the Politecnico of Milano, publishing five works.

From 1985 on until today he is working on Medical Computer Science, producing twelve publications. In this area, from 1985 to 1998, he was a responsible for Health Information Systems and EDP Manager at the Hospital of Desio. From 1994 to 1998 he worked as a consultant for several health care institutions in Lombardia. At present, from late 1998 on he is working as office director in the Department of Health Information System of Lombardia.

Bengt Blomberg

I am an economist. I have been working in the health care sector for 30 years. The main issue running like a thread through all my work was the question of how to manage, in the word's most comprehensive meaning.

At present I am a Director of Finance and Budget at the Medical Service Board of the Stockholm County Council. I am representing the policy-makers and the regulators in the region. For the last ten years I have been one of the main architects of our purchaser - provider model in health care.

Dr. med. Helmut Brand MSc, DLSHTM, MFPHM

Dr. Helmut Brand is Director of the Institute of Public Health North Rhine-Westphalia. After medical studies in Düsseldorf and Zürich he earned an MSc in Community Medicine from London School of Hygiene and worked for several years in Community Health Services on District level. In the Ministry of Social Affairs of Lower Saxony he was responsible for the development of the regional cancer registry. At Hamburg Health Ministry he led the Department for Health Reporting and Analysis. He is an accredited specialist in Public Health Medicine in Germany and Memberv of the Faculty of Public Health Medicine in the UK.

Owe Candow

Owe Candow was born in 1946, did his Master of Politics (Economics) in 1972, and is a certified Process Re-engineering Consultant.

Started working as a Product / Division Manager (Mölnlycke AB), and as a Cosultant (Indevo AB). From 1981 to 1990 he worked as a Executive Managing Director (Luxor Consumerelectronics AB and Skylink AB resp.). Hospital Manager in Varberg from 1990 to 1994 (Hallander County Council). In 1995, he became a Deputy Managing Director at ENATOR IT-Tjänster AB and from 1996 on he is now working as a Management Consultant for ENATOR Trigon AB.

Gary Coleman

Prof. Gary Coleman studied environmental health, received a Bachelor of Law and a MBA. He is working at the University of Wales Institute Cardiff, Faculty of Community Health Services, he is the Director of the WHO Collaborating Centre for an International Clearing House for Major Chemical Incidents and Head of School.

He is an expert in environmental health with special interests in health monitoring and disaster management. He has broad experiences in international consultancy and research activities. As a member of the faculty's Board and Executive he has been involved in the development and management of the faculty since many years. His present employments also include Director of the Royal Society of Health Hygiene Accreditation Unit, Associate Director of the Welsh Combined Centres for Public Health, and Executive Manager Chemical Incident Management Support Unit - Llandough Hospital Trust.

Ray Henry PhD, MSc, BSc, CEng, MBCS
Head of Informatics, PHLS in Wales

Dr Henry is responsible for the management of IT for the Public Health Laboratory Service in Wales, which includes microbiology and virology laboratories as well as the Communicable Disease Surveillance Centre for Wales. For the last 10 years Dr Henry has specialized in the development of information systems for communicable disease surveillance and control. In that time he has

produced many systems to assist infectious disease management: electronic systems for the collection and delivery and data; systems for hospital infection control; and sentinel surveillance systems for infections identified by GPs. However, his main achievement has been the creation of a national system (CoSurv) for the storage, analysis and automated reporting of infectious diseases, which is widely used by laboratories, health authorities and local councils.

Dr. Gottfried T.W. Dietzel

Dr. Gottfried T.W. Dietzel studied law and economics, received a doctoral degree in administrative sciences and a L.L.M. at the University of Berkeley. He is working at the Federal Ministry of Health, Germany, and responsible for the coordination of all activities in health IT in Germany, as well as for the relations in this field with the European Commission.

He has proved as an expert in health telematics for years both at national and European level: Since 1996, he has builded up the Project Group for Telematics and Information Society at the Ministry of Health and the Health Working Party at the Forum Info 2000. Furthermore Dr. Dietzel is the German Coordinator of the G7-Health Project, evaluator in the Health Telematics Programme of the European Union and member of the working party.

Jeffrey Levett

Jeffrey Levett combines a unique set of attributes and strengths ranging from engineering, neurophysiology to biomedical technology management and public health. Significant research and teaching experience as well as management acumen and communication skills.

Currently Professor and Chairman of the Department of Health Service Management and Director for International Affairs of the National School of Public Health, Greece as well as Visiting Professor in International Health in several institutions. Past President of the 'Association of Schools of Public Health in the European Region (ASPHER)' a past member of the Executive Board of 'Europe, Society, Science and Technology (ESST)' a consortium of European Universities. Frequent consultant to Balkan institutions. Most recently elected to the Council of the Federation for International Cooperation of Health Services and Systems

Research Centers (FICOSSER), special advisor to a UN organisation and keynote speaker in the Vienna Symposium ‘A Society for all Ages!

Loredana Luzzi

Loredana Luzzi, born in Milano in 1966. Married, no children. Degree in Law on 1990 at the "Università degli Studi di Milano", working as a Job Consultant from 1990 to 1992.

In 1992 she started to work in the health care sector and specialised on laws and rules in health care at national and regional level. She worked as a General Manager’s Assistant at USSL 31 – Cinisello Balsamo (from 1992 to 1995)and as Administrative Assistant in the Regional Presidency. From 1996 on she is part of in the staff of the Director of the Department of Epidemiology and Information System – Health Care Directorate – of the Region of Lombardia. At present time she is involved in several RTD projects in the field of Telematics Application in Health Care.

Ralph Menke

Mr. Ralph Menke, born in 1957, studied sociology and political sciences. As a sociologist he was working in several studies on the assessment and evaluation of health technologies at the Institute of Medical Sociology, University of Münster (Germany), and participated in research activities on quality management in rehabilitation.

In 1996, he became affiliated with the Institute of Public Health NRW, Bielefeld (Germany), first as a trainee, since 1998 as the project manager of the RHINE-AM. As a member of the Department of Health Policy his area of responsibility is in the development of new ways of health monitoring and in the implementation of new health policy instruments like target setting. Furthermore he is involved in a project on reporting on health inequalities on European level.

Drs. Lambert van Nistelrooij

Drs. L.J.J. van Nistelrooij, married, four children, received a Master of Arts in Social Geography. He is a member of the Provincial Executive of North

Brabaant, The Netherlands, especially working in the areas of juvenile affairs, elderly care, health and social care, developmental aid, member of the board of the Inter Provincial Consutative Body.

Besides participating in several social organizations on provincial, national and European level Drs. L.J.J. van Nistelrooij is currently involved with the following institutions: member of the Assembly of European Regions since 1992, member of its presidium in Strassbourg since December 1994, deputy member of the Committee of the Regions in Brussels, Chairman of the National Epilepsy Fund in Houten, The Netherlands.

Fieny Reimann-Pijls

Fieny Reimann-Pijls has a University degree in (computational psycho-) Linguistics and a teacher degree in History and Language. After having been a project manager for several projects on "new technologies for language teaching" at the University of Nijmegen, and managing director of the university spin-off company Cognitech, she joined the European Commission's ESPRIT Programme in 1989.

The last five years she has been working in the Unit of TBP-Technologies for Business Processes (and electronic commerce), Multimedia and Open Microprocessor Initiative. She has been coordinating business re-engineering and electronic commerce pilot projects and projects for business process tools and methods in various industrial sectors (e.g. banking, insurance, health care, fishery, advertising).

George Vakaros

George Vakaros, born in 1964, did his BSc in Mathematics and his MSc in Computer Science (State University of New York, USA) specializing in artificial intelligence.

Several years of professional work in the Untited States before moving to Greece, broad experiences in the area of research and development of IT both at university and company level, before from 1993 on working as a Marketing Manager at Epsilon Software A.E., Athens. From 1996 to 1998 he has been working as a Director in the areas of management and professional training at the

Thessaloniki Technology Park. Currently George Vakaros is working as a Information Technology Consultant for DG 3,5,13 and 16 of the European Commision.

Drs. Wim G. van Velzen

Drs. Wim G. van Velzen received a graduate in education, policy, planning and management, postgraduate courses in planning and strategic planning. He is a member of the European Parliament since July 1994. He is a former President of the European Union of Christian Democrats and of the Christian Democratic Party and former Senator of the Dutch Parliament.

His current employments enclose: Vice-President of the European People's Party, Member of the Committee on Energy, Research and Technology, Member of the Economic and Monetary Affairs Committee, Chairman of the EEP-Working group Central and Eastern Europe, Coordinator of the EEP-group for Central and Eastern Europe, Member of the Joint Parliamentary Committee Poland, Chairman of the Robert Schuman Institute Budapest.

Professor Dr. Albert van der Werff

Dr. Albert van der Werff, The Netherlands, with 30 years of international experience, is currently working in all EU Member States, in Central and Eastern Europe, the Middle East and the Far East.

He is an economist, organization and management specialist by training, is holding a doctorate in medicine and was professor in policy sciences.

Dr. van der Werff had key positions in the international health care industry, public administration, and WHO, and is founder and director of the SOCRATES Network of Health & IT Consultants. He was involved in all initiatives and projects with regard to open health care information systems undertaken in collaboration with the European Commission since 1987, including the RHINE Project. His special field of interest is health care reforms and IT, and in this respect the application of technologies for business processes.

Publications and Presentations of RHINE AM

1. Poster presentation at 42. Annual Conference of Deutsche Gesellschaft für Medizinische Informatik, Biometrie und Epidemiologie, 15 - 18 September 1997, Ulm

2. Ketikidis P H, Ambrosiadou B V, van der Werff A, Maglaveras N, Pappas C. RHINE-AM: An inter-regional health information network for Europe, (Pappas C, Maglaveras N, Scherrer J-R, Edts) Medical Informatics in Europe 97, Health Technology and Informatics Series, vol. 43, IOS Press, pp. 94 - 98, 1997

3. Brand H, Menke R. Regional Health Information Network for Europe (RHINE-AM) - Project Description - In: Conference Documentation Competing in the Information Society - New ways of working and doing business, 24 - 26 June 1998, Genova/Italy, June 1998, pp 625 - 631

4. Poster presentation at Conference on Competing in the Information Society (CIS) - New ways of working and doing business. 24 - 26 June 1998, Genova/Italy

5. Brand H. Regional Health Care Reforms and Information Technologies - Regional Health Information Networks for Europe (RHINE AM), Gesundheitswesen 60, A34, 1998

6. Brand H. Regional Health Care Reforms and Information Technologies - Regional Health Information Networks for Europe (RHINE AM) Speech at the Wissenschaftliche Jahrestagung der Deutschen Gesellschaft für Sozialmedizin und Prävention (DGSMP) und der Deutschen Gesellschaft für Medizinische Soziologie (DGMS), Marburg 29 September - 01 October 1998

7. Brand H, Coleman G. RHINE: Regional Health Information Networks for Europe. Speech at: A Partnership on Social Health and Community Care. Committee IV, Assembly of the European Regions. Seminar and Workshop. Torino/Italy 29 - 30 October 1998

8. Levett J. Speech at XX ASPHER Annual Conference. Quality in Public Health Training: A Pedagogical and a Public Health Issue, Torin, 10 - 13 October 1998

9. RHINE Consortium. RHINE Regional Health Information Networks for Europe, EURO-Brochure. Institute of Public Health NRW. 1998

10. RHINE Consortium. RHINE Regional Health Information Networks for Europe. Policies and Strategies of Information and Communication Technologies for Regional Health Administrations. lögd: Wissenschaftliche Reihe, Band 1, 1999

11. Menke R, Brand H, Coleman G, Henry R. The Impact of Information Technology on Recent Health Care Reforms in Selected European Regions. submitted to "Das Gesundheitswesen". Issue February 1999. In print

12. Workshop on "Policies and Strategies of Health Information Technologies for Regional Administrations submitted for MIE '99 - Fifteenth International Congress, August 22 - 26, 1999, Ljubljana, Slovenia

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