



Development of eHealth in Europe Position Paper

**written by EHTEL Thematic Working Group
“eHealth” (T2)**

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Executive Summary

The present document intends to be a first draft of what could be the EHTEL Recommendations on Key Priorities for a European e-health Strategy.

This draft is intended to be published and submitted for comments to All Healthcare Actors at the European and at the Country level concerned with the implementation of e-health Solutions

Introduction & Vision

The Healthcare sector is experiencing a radical transformation as a result of the increasingly widespread deployment of information technology as a core component running across broadband communication infrastructures and networks which makes possible the delivery of ubiquitously available and enhanced healthcare services to patients.

Nowhere is this more apparent than in European member states, where telemedicine and more recently eHealth projects have been deployed in numerous countries driven by enthusiasts and early adopters of this technology.

This initiative has been set against a background of increasingly rising costs of delivering healthcare services associated with increasing demand driven partly by aging populations throughout Europe.

Patient expectations for quality healthcare services are higher with an almost limitless appetite for information on healthcare matters provided to an increasing extent through Health-on-Line Websites, sometimes of dubious content quality.

Over the last 10 years, telemedicine has been the term utilised to describe these initiatives and widespread deployment was held back by a number of different issues including lack of broadband communication networks, relative unavailability of computing and on-line connectivity, high costs of hardware and software, lack of political conviction and perhaps more importantly resistance from the healthcare professional body itself.

Telemedicine is now increasingly being thought of as only one of the components of eHealth, which is a much broader description of IT driven activities, which can become a power tool for healthcare transformation

The report produced by Silicon Bridge Research "Understanding the market for eHealth" (the management summary of which is included as an annexe) puts forward a definition as:-

"eHealth means applying new low cost electronic technologies, such as 'web enabled' transactions, advanced networks and new design approaches, to healthcare delivery. In practice, it implies not only the application of new technologies, but also a fundamental re-thinking of healthcare processes based on using electronic communication and computer-based support at all levels and for all functions both within the healthcare service itself and in its dealings with outside suppliers.

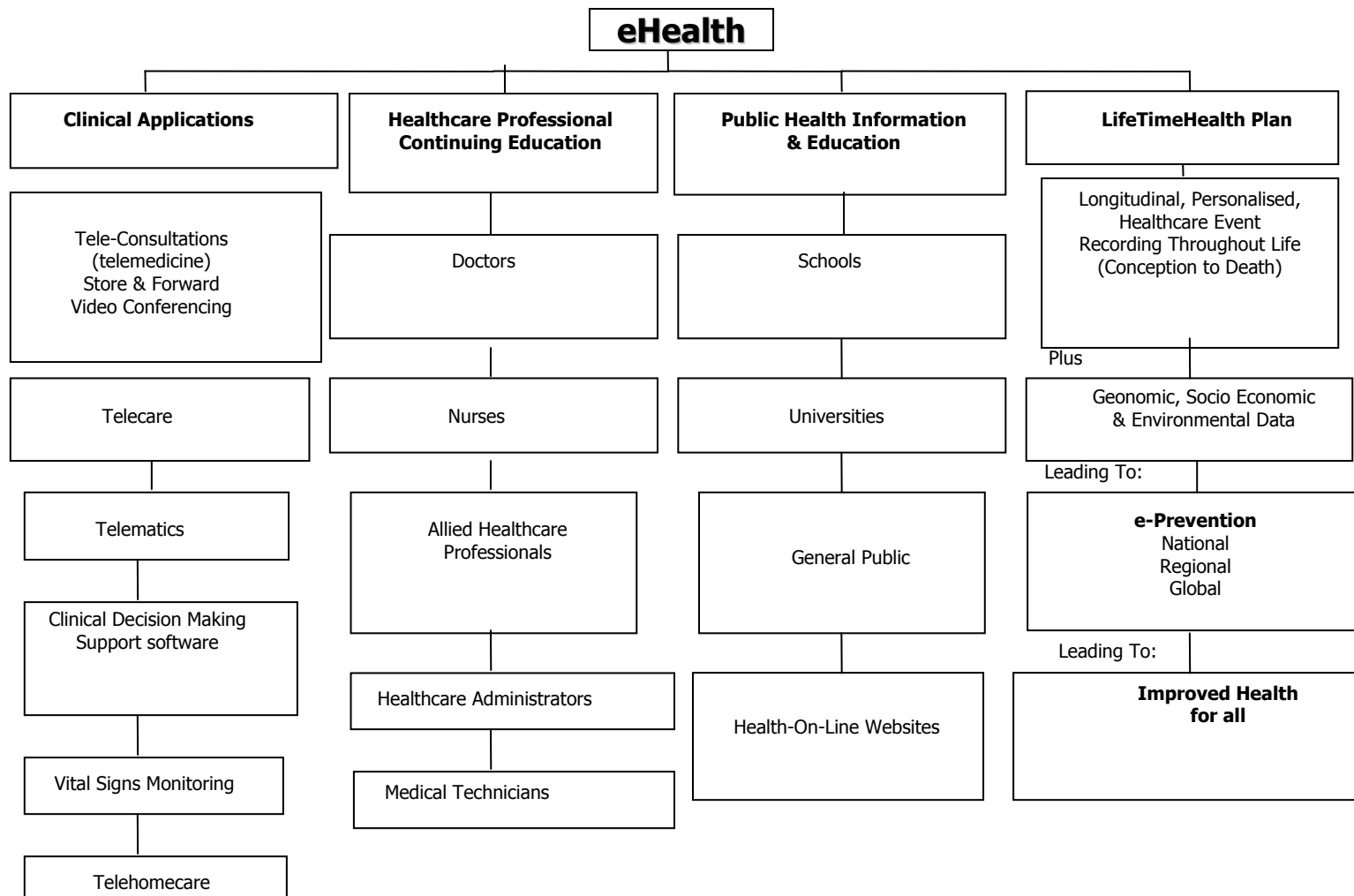
eHealth is a term which implies a way of working rather than a specific technology of application".

Thus although eHealth is a business based set of services, it is best defined in its direct focus within T2 eHealth as comprising four pillars:

- **Clinical Applications** - comprising Tele-consultations (previously referred to as Telemedicine) being the transfer of electronic medical records for the seeking of more specialist opinions sourced from a distant location and interactive video conferencing for group consultations. The clinical applications also include clinical decision making support software – surely the medical encyclopaedia of the modern age, telehomecare, telehealth and vital signs monitoring services.
- **eDissemination of Healthcare Professional Education** – to all members of the healthcare professional body (doctors, nurses, technicians and administrators) thus improving skill levels and raising standards of medical practice world-wide.
- **Public Health Information** - focused on raising the knowledge of the general public in healthcare matters such that they take on more responsibility for keeping well.
- **LifeTime Health Records** – involving a comprehensive recording and innovative usage of prospectively gathered healthcare event information, which enables a sea of invaluable information to become available for data mining. This data can be supplemented by genomic (Human Genome Project), environmental and socio economic information. Such data can be used for national, regional and even global, healthcare strategy planning leading to global ePrevention, which is surely the essential tool for human development in future generations.

The Ocean of eHealth Opportunity – is where the multiplicity of eHealth services, which now become possible through the creation of an eHealth enabled environment, reside. National ePrescribing Services linking hospitals, clinics and pharmacies, Homecare Monitoring for the more vulnerable (especially the elderly) members of our communities, eNursing services and linkage into the Social Services are all powerful steps towards an improved health environment for all.

(See diagram next page)



With candidate countries applying to join the European Community and where healthcare measurable outcomes may differ substantially from those of Western European member states, there is a need to adopt a Pan European strategy to deliver healthcare services in a more uniform manner to all European citizens and to provide the basis for effective comparison.

Wise and appropriate use of information technology and in particular eHealth as defined above, will reduce duplication of expensive healthcare facilities (hospitals, etc) within member states and will lead to a more coherent and ubiquitous delivery system for healthcare services throughout the European Community.

Already patients are crossing national boundaries to seek treatment in other European member states (reference NHS patients being operated on in France and Germany) and there is an increasing migration of healthcare workers within the European Community.

In the near future, European medical facilities and services will be made available to healthcare providers, colleagues and patients in countries overseas, who have historical links to Europe, either through culture, history or common language.

In this way, eHealth and its resulting impact on the reform of healthcare services, is set to transform the face of healthcare delivery across Europe, provide uniform and equitable access to healthcare services for all European citizens and to offer the promise of bringing European healthcare services to patients in developing countries, whose access to such quality health services has long been denied.

Implementation

For the past few years, telemedicine and eHealth enthusiasts have been fighting an uphill battle to motivate decision makers to adopt this technology and these solutions.

Much of the apprehension has come not so much from individual government members, but from the healthcare profession itself, who witnessed with justifiable alarm the early investment in IT within the healthcare sector much of which was wasted because these early systems were proprietary, non interoperable and thus became rapidly obsolete or disconnected.

These facts, combined with the narrow bandwidth availability at the time and the cost of communication supplemented by the need for heavy capital investment in software and hardware, brought a degree of caution and pragmatism to those healthcare professionals who had been early enthusiasts.

Notwithstanding the above, communication and computing costs have now reduced substantially and broad bandwidth networks have now been deployed, thus making the widespread deployment of such technologies and solutions timely.

The healthcare sector has traditionally invested very little in IT in comparison to the other major sectors, such as banking, manufacturing, etc, where investment levels run between 10-14%.

The healthcare sector in some countries has invested less than 1% in IT and it is this differential that provides one of the key market elements for eHealth in Europe.

The potential of this market for UK is well documented in research conducted by Silicon Bridge with number of others and entitled "Understanding the Market for eHealth". The general conclusions in the attached Management Summary are relevant throughout the European market for eHealth.

The Regulatory and Ethical Environment

Healthcare provision in each of the European member states is the responsibility of member state governments and is independent from the European Commission. One of the major barriers in the deployment of eHealth across Europe has been the complex regulatory environment and the lack of statutes, which allow for eHealth practices to be legal, ethical and reimbursable.

These issues are fully addressed in the White Paper entitled "Breaking Down Barriers" and authored by Ben Stanberry and colleagues from the T6 Working Group of the European Health Telematics Association, which is attached to this paper for ease of reference.

Another barrier has been ignorance by decision makers both in the healthcare professional body and also more importantly by senior government officials of European member states of the potential that could be delivered through eHealth.

This situation has been addressed by the activities of the eHealth Working Group of EHTEL - T2 eHealth – which, over the last 18 months, has been aggressively marketing the concept of eHealth & Telemedicine throughout Europe. This has been achieved by keynote addresses at prominent health and telemedicine conferences throughout Europe and also by scheduling face to face meetings with government ministers and like to make them aware of the possibilities of eHealth for Europe and bringing to their knowledge successful eHealth implementation experiences from countries outside the European Community, such as Australia, Canada, Malaysia, United States, etc.

The promotion and marketing of eHealth has gone beyond the early development stage and the members of T2 eHealth have successfully launched a Website, accessible through the EHTEL Home Page, on which there are in excess of 50 examples of best practice in eHealth drawn from different European member states.

This Website will be further populated over the course of the next year(s) and aggressively marketed throughout Europe, such that European institutions and healthcare organisations who wish to implement eHealth practices and solutions can draw on the experience of others and thus avoid costly mistakes.

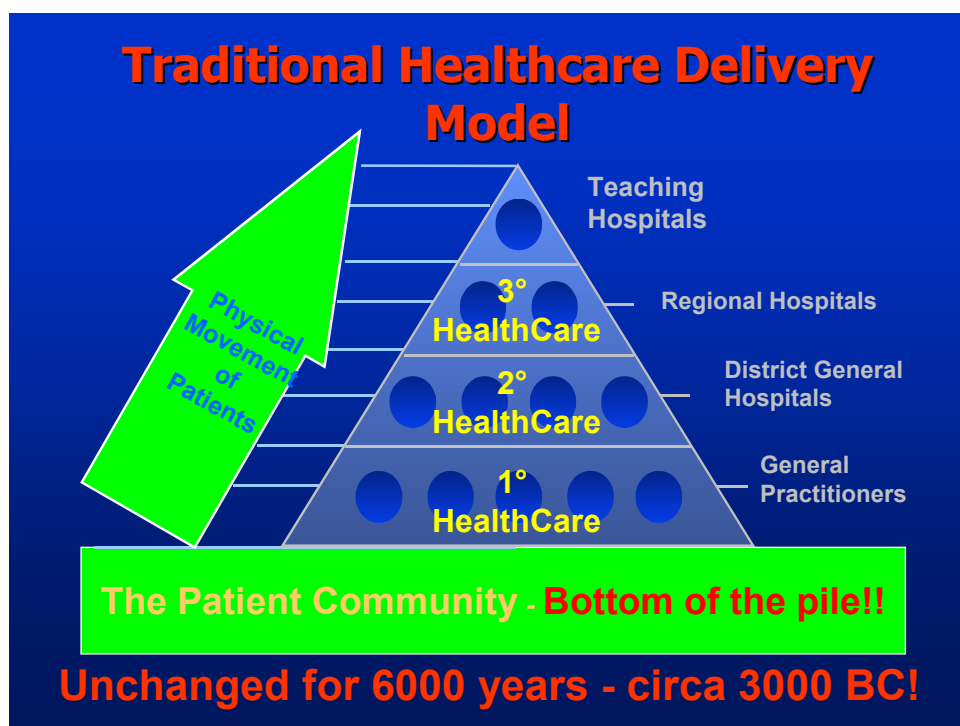
Many European member states have National eHealth Associations and indeed in the United Kingdom, the UK eHealth Association is a thriving organisation, which is growing rapidly and is attracting the attention of the Department of Health in the UK as the national resource on eHealth & Telemedicine and IT. The implementation of such eHealth practices and solutions have thus become a power tool for healthcare reform in the NHS (public sector).

Change Management

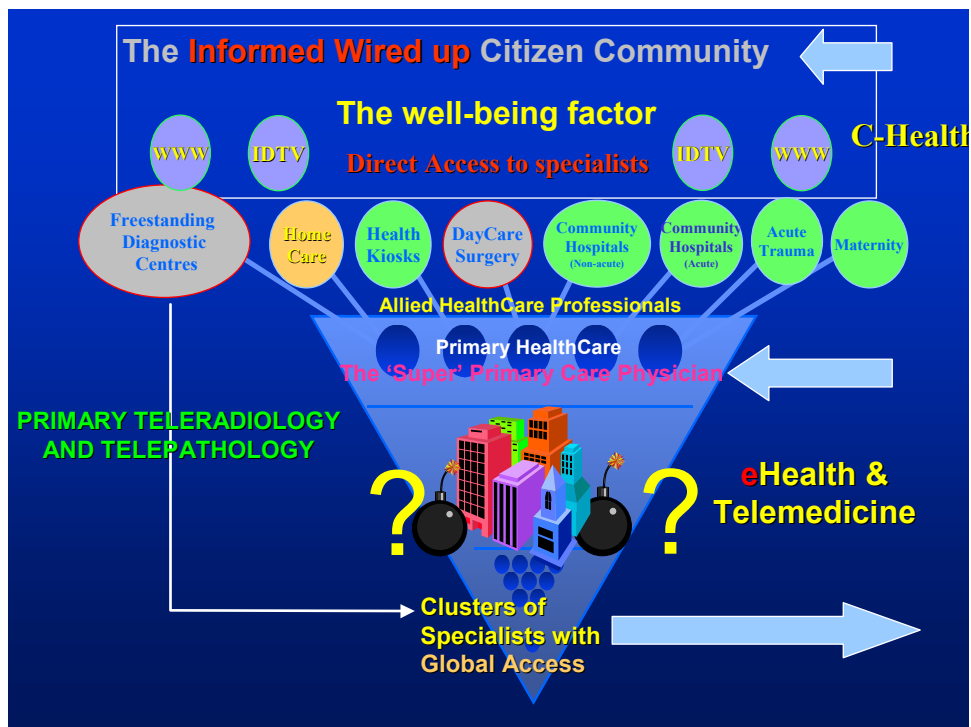
Perhaps the biggest challenge facing the healthcare sector is how to manage the change in practices and roles as a result of the widespread integration of IT and the resulting healthcare reform.

Medicine is an essentially traditional milieu and the healthcare professional body is deeply conservative and suspicious of change.

The basic and traditional models for healthcare delivery have changed little for 6000 years (see figure 2)



However, new models for healthcare delivery made possible by an eHealth environment look very different (see figure 3).



Already there is evidence that healthcare services traditionally only available within physical institutions such as hospitals and clinics are moving out of that space into the retail environment as evidenced by the reducing numbers of beds and the moving of services to make them accessible and deliverable in an ambulatory setting (day-care surgery, ambulatory diagnostic clinics, etc).

This trend will increase and will further accelerate with the deployment of homecare services or TeleHealth and with sentinel devices being fitted into homes, thus making them "smart homes" or safe environments for the more vulnerable members of our community (elderly citizens and the like) to live alone, but have instant access to appropriate healthcare services.

Over the next 5-10 years, healthcare services will increasingly be delivered into European Citizens homes through the use of video and home monitoring devices (Vital Signs Monitoring), linked to nurse led call centres (Health Contact Centres). This transformation covers the full spectrum of eHealth including the increasing demand led need for access to healthcare services via additional eHealth supported channels.

Healthcare Professional Continuing Education

Education in various forms is a vital pillar of eHealth.

All healthcare professionals require maintenance of their knowledge levels throughout their careers and this is achieved by the provision of continuing medical and nursing education. The European Lifelong Learning programmes apply equally to the healthcare professionals as they do to the traditional targets of these programmes.

Using web based technologies, such programmes can be personalised for the individual healthcare professional and delivered over the web, thus removing the requirement for time out from existing working patterns to seek education in another perhaps distant institution, which is wasteful in terms of human resource.

Public Health Information

Another important aspect is the education (in healthcare matters) of the general public. There is now good evidence drawn from Malaysia and other countries that by providing appropriate and widespread education on health matters to defined populations, it is possible to change radically healthcare demand patterns with patients self treating more conditions and thus providing a more focused demand profile for healthcare services when required.

This impacts directly on the burden of delivery from healthcare providers, whether public or private and leads to greater efficiency all round.

It is evident that with the rapidly increasing number of Internet users in Europe and with such information available on line, this will become an increasingly important resource of healthcare knowledge for the European Citizen of the future.

The content of such health-online websites needs to be accurate as well as informative and meeting the requirements of the patient population and conforming with individual member states' healthcare educational strategies.

Public Health & ePrevention

Healthcare trends are an important element in the decision making process for defining healthcare strategies for individual member states.

With the blurring of national boundaries which were a previous impediment for uniform healthcare provision, it is now important to develop a Pan European public health overview, such that healthcare trends can be predicted based on hard data. Pan European e-Prevention strategies can then be developed.

This process has already started with the gathering of Pan European public health information as stated by David Byrne, Commissioner for Health and Consumer Protection at the European Health Forum in Gastein in September 2001.

This initiative heralds the start of a Pan European perspective on healthcare delivery, which is strengthened by statements by David Byrne that health is now being placed at the centre

of other policies of the European Commission, such as nutrition, environment, food and agriculture, etc.

This represents a major shift in policy and again underscores the requirement for a Pan European perspective on health and a more coherent and uniform healthcare provision for all European Citizens, which is only possible through the ubiquitous usage of eHealth technologies, practices and solutions.

Standardised Electronic Health Records can and must be deployed throughout Europe as a means of recording personalised healthcare events from conception to death. This information must be provided on a standard platform, although there may be individual variations between member states (like with the Euro). In addition to longitudinal healthcare event recording, it will be possible to add personalised genomic finger print data, socio economic data accumulative throughout life and environmental data, etc. When such a dataset is de-personalised and clustered in different population groupings, the data makes a rich mine of information to predict healthcare trends and thus assist in the development of European e-Prevention strategies.

This information will be of vital importance to the pharmaceutical and the insurance industry as they develop their own research and programmes and activities.

Summary & Conclusions

European citizens are poised to benefit greatly from the more ubiquitous and widespread provision of quality healthcare services through a healthcare reform transformation powered by the widespread deployment of eHealth practices and solutions.

This process is already taking on a Pan European perspective with national borders between member states becoming less of a barrier both for access and also in the provision of healthcare services.

The regulatory and remuneration environment in respect of healthcare services is changing across Europe and will require further changes to facilitate this process.

European member states need to look at eHealth deployment in other countries around the world, where lessons can be learnt from existing successes (and failures).

A knowledge base needs to be established of domain experts within Europe, who can help European member state governments to take maximum advantage of these changes. Organisations such as the European Health Telematics Association (EHTEL) have been working in this field to provide the evidence base in eHealth for the last three years.

Various Thematic and Actor Working Groups representing the range of eHealth stakeholders under the umbrella of EHTEL are contributing greatly to this process and the

potential for eHealth solutions and services and the scope for market growth is now being better understood as a result of work already achieved.

During the first year of ProEHTEL, it is encouraging to see the growth of collaboration between EHTEL and other eHealth initiatives. The eHealth report in UK produced by Silicon Bridge for the UK DTI and NHSIA was triggered by discussions within EHTEL. The EC INFISO Health Information Network for Europe project (HINE) is another important step forward where close links with EHTEL and its Working Groups have been incorporated from the outset.

These and other initiatives will keep EHTEL at the forefront of an eHealth debate which is broadening to include the business transformation aspects as well as the clinical eHealth areas where EHTEL T2 is active. This process has been strengthened by the merging of the T9 Market information group with T2 into a joint working group. This will provide valuable links into the area of e-commerce / eBusiness for health, the opportunity for collaboration and synergy between the various stakeholder groups working in the eHealth space and the chance to maximise the contribution that can be made from within the EC INFISO Directorate.

Advances in technology and more especially in the provision of broadband communication networks allow for seamless transmission of medical data, which, in harmony with the widespread provision of public education on healthcare matters, makes it certain that the access and quality of healthcare services to the European citizens of future will be both uniform and ubiquitous.

This is especially important with candidate countries applying to join the European Community, whose healthcare provision is very different from that already achieved by other European member states.

The European Commissioner for Health and Consumer Protection is now in a position to drive this strategy forward with ultimate benefit for all European citizens.

ANNEX 1

Understanding the Market for eHealth

Study Report - October 2001

Study conducted in association with programme partners:

CSSA

Deloitte & Touche Health Centre of Excellence

EHTEL

Health Consultants Network

University of Sussex

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Management Summary

This project has sought to open up constructive dialogue about how eHealth can be realised for the mutual benefit of all stakeholders in the NHS. The study report is not just another NHS critique but an attempt to define the context in which eHealth can support evolution of a modernised NHS providing the health services required and expected by UK citizens - a context which is broadly common to the rest of Europe and beyond.

eHealth is a term which implies a way of working rather than a specific technology or application. In a general sense it means applying new electronic technologies to the healthcare delivery process. This report looks at the context in which this application can be undertaken.

Key points from the study can be summarised as follows:

- Potential for eHealth is huge and pervasive throughout UK healthcare
- A common strategic vision of eHealth needs to be shared by all healthcare stakeholders
- Patient or citizen centred healthcare is about access, choice, communication and service provision
- Successful eHealth implementation implies vision, encouragement, collaboration and commitment
- eHealth provides a key enabler for 'joined up' healthcare
- eHealth supports quantum change in service delivery mechanisms
- Legacy suppliers, already working to expand their portfolio with eHealth services, will be key evolution enablers

In analysing the detailed implications of eHealth, this report considers the subject from the point of view of all stakeholders in health, ie institutions, health professionals, businesses and citizens. Each chapter deals with one aspect of eHealth development and this summary is structured in the same way as the report as a whole.

Future Direction for eHealth

- There are many compelling reasons for adopting more efficient methods of delivering healthcare and eHealth is seen as a significant means of achieving these
- Not least of the reasons for adopting eHealth is enabling NHS staff to cope with providing the levels of service now expected by patients
- Long term objectives for eHealth can only be met by a coordinated programme of promotion which is supported by all stakeholders in health

- Each stakeholder in eHealth has a different interest and a different view of patient-related activities in health and it is the co-ordination of these views together with a supporting 'shell' of linking eHealth business systems that will produce joined up healthcare
- eHealth enables new forms of exchanging information that modify current relationships between institutions, citizens, healthcare professionals and external businesses
- Some of the emerging concepts of eHealth rely on regarding patients as consumers in marketing terms and this is difficult for healthcare staff unused to this approach
- Currently, the Government and NHS are taking the lead in promoting the need for eHealth followed by technology suppliers and telephone companies
- The strategic importance and potential contribution of pharmaceutical companies in the eHealth arena is currently underrated
- The implications of eHealth on healthcare delivery are far-reaching and require new approaches to information sharing and organisational boundaries
- Electronic patient/health records are seen as the highest priority for eHealth development followed by Internet and web-based technologies and integrated health networks
- Widespread use of Internet has spawned many health websites and applications in the categories of eContent, eCommerce and eServices
- Improved outcomes from healthcare interventions and better service to patients are the predominant potential benefits perceived for eHealth
- Although healthcare transactions are becoming increasingly standardised through the use of guidelines and protocols, healthcare is still a sophisticated, mission critical and information intensive business requiring fundamentally complex systems
- Economics dictate that healthcare systems be built as far as possible using standard products and a balance has to be struck between cost and system sophistication in establishing the key criteria for eHealth systems
- Owing to the high cost of developing application software and limitations on the scale of the healthcare market, Application Service Providers (ASPs), operating from centralised data centres are likely to be an increasingly important aspect of healthcare IT delivery

Current Progress Towards eHealth

- UK Government and NHS have established a number of frameworks for IT in health, ranging from the NHS IT Strategy, *Information for Health*, and *Building the Information Core* to Local Implementation Strategies (LISs)
- *Information for Health* lacks a clear consensus vision for eHealth, although *Building the Information Core* goes some way to locking the NHS information strategy into eGovernment objectives.
- Targets have been set for many of the activities which contribute towards eHealth without the overall vision having been established
- With its emphasis on wide-ranging integration, eHealth is often in conflict with the way the health service is currently run which includes a degree of local autonomy
- New models of integration and national standardisation are being introduced which will address both integration of services and elimination of social exclusion
- Procurement is likely to be an early adopter of eCommerce techniques because of the large potential savings to be made on a goods and supplies budget of £6.3 million pa
- The NHS Purchasing and Supply Agency has specific goals to improve purchasing and to oversee the introduction of electronic requisitioning and ordering systems
- 90% of Department of Health interactions are targeted to be conducted through eCommerce by 1994 and 75% of procurement staff to have achieved a degree level qualification in procurement practice by the same date
- At least 45% of the UK population has already used the Internet and further penetration in home access is likely as Government encourages deployment of Digital Interactive Television (DITV), cable and high speed broadband services
- Sampled over a three month period during 2000, 29% of UK Internet users searched for information concerning their health especially to understand an illness following diagnosis and to develop a healthier lifestyle
- New ways of accessing healthcare advice and information have been introduced through NHS Direct which has extended its telephone service to an Internet-based service and is now experimenting with service delivery via digital interactive TV
- European initiatives from the European Commission are based on an action plan entitled, *eEurope – An Information Society for All*, which recommends five key actions (with target dates) for health covering infrastructure, best practice and legal aspects
- Healthcare professionals are increasingly using Internet as a source of professional information but not to any extent for communicating with patients
- Applications such as the transfer of images which require high bandwidth connections are not yet widespread in Europe but are likely to become so as more bandwidth becomes available at progressively lower cost
- Telemedicine and remote learning technologies continue to develop albeit at a slower rate than expected

Gaps in Current Developments

- Current developments in eHealth are being held back by lack of confidence on the part of some specialist healthcare IT suppliers in the scope and stability of the potential NHS market
- Most importantly, what is lacking currently is an overall business model for eHealth that can provide the basis for individual business sub-models geared to citizen interaction and public health objectives
- All health stakeholders need to be involved in developing the overall business model so that, for example, business can start to look at how to develop the eHealth services to support it
- Parallels with joined up Government can be used both to provide experience and to bring eGovernment alongside as a proactive and positive force.

Blocks to Progress

- There are many different perceptions of eHealth among NHS staff, healthcare experts, specialist healthcare systems suppliers and technology/service suppliers, leading to a confused and contradictory view of eHealth
- Legacy systems and the lack of suitable infrastructure and integration are all barriers to progress in the absence of a clear consensus vision of eHealth and the necessary funding
- 'Political' barriers include lack of constructive dialogue between stakeholders and the view that, as far as systems are concerned, least cost is best
- Current risk averse and adversarial procurement procedures are also hampering innovative solutions for eHealth
- Ability of healthcare staff and health professionals to accept and manage change are seen as the major blockages to implementing eHealth
- A major problem for IT suppliers is that, to make significant progress in eHealth it is the healthcare delivery processes that have to change as well as the systems to support them and the NHS sometimes appears reluctant to make such changes
- Low returns on supplier investment, coupled with sub-optimal buying by the NHS, means that the healthcare IT market perpetuates poor quality, poor end user delivery and low innovation
- Many healthcare IT suppliers have neither the financial strength nor the strategic inclination to attempt development of new big bang or monolithic healthcare IT systems
- Much more work is needed on business issues such as matching benefits to costs at enterprise level and assessing and sharing risk to avoid supplier reluctance to participate.

Changes Needed

- In some respects healthcare is still run as a craft process when the rest of the world has moved on to the concepts of industrial automation

- NHS strategists face the inevitability of having to find some way in which to deliver more services of a more complex and technological nature to meet increased demands and expectations
- Radical transformation of the healthcare delivery process is needed making use of the latest information and communication technologies and recognising the reality of consumer influences
- Processes carried out by skilled healthcare staff resources need to be scrutinised to identify those parts that can be satisfactorily delegated to less skilled or more readily available staff through a process of substitution
- A second line of attack in improving service quality and efficiency will be use of intermediary services at different levels in the patient service chain - new style access and delivery organisations such as NHS Direct and walk-in centres
- In the new information intensive environment, a whole new range of essentially administrative applications are required to enable smooth working seamless care, including order communications, scheduling, care pathways, shared protocols, audit and governance
- Wherever possible, healthcare delivery systems will need to make use of the same technologies and components used in other industrial sectors
- In many cases an evolutionary approach, based on utilising existing legacy systems, will prove the safest and most cost-effective route for development of first generation eHealth systems
- In order to meet market expectations for low-cost commodity style products, healthcare system vendors must have the opportunity to sell their products in multiple markets
- Specialist healthcare suppliers are already preparing for the future and making sure that partnership arrangements in place as the European healthcare systems market continues to restructure
- More consolidation of the industry through mergers and acquisitions is likely and this process will be helped by the increasing degree of standardisation of healthcare delivery mechanisms across national boundaries
- As the supply side of healthcare IT responds with new approaches, users will need to adopt a more mature view of eHealth processes and the associated demands on retraining of staff
- Several leading pharmaceutical companies already have a significant presence in the healthcare software and services market, either directly or via joint ventures, and further activity in this area may be expected
- Although telemedicine is still in its infancy, substantial new opportunities are opening up for the technology through the development of new facilities such as high bandwidth communications infrastructure and personal sensor technology
- Continuing proliferation of telemedicine applications is likely to provoke moves towards providing shared access infrastructures as the strategic potential of eHealth becomes more widely accepted

- Growth of telecommunications infrastructure capacity makes more eHealth applications viable and, as a result, will increase the number of networked transactions to produce an explosive growth in telecommunications usage and an increasing rate of change of healthcare processes
- New Internet protocols are also likely to provide faster links and more addresses, allowing individual devices such as patient health monitors to be addressed individually
- Ability to articulate an effective business case, together with other business and process issues, are seen to be the major factors governing how quickly eHealth markets will evolve
- Ability to package eHealth as a single discrete product set is not seen as an important issue, reflecting the trend towards use of layered and component technologies in developing healthcare systems
- Prevailing expectations from interview respondents indicated that eHealth might be successfully implemented within a 3 to 10 year period, but this may prove a challenging objective in light of the 10 to 15 years taken for eCommerce to mature in other market sectors.

Conclusions

- Achieving modernisation objectives set by Government requires active engagement of top management and provision of very significant amounts of additional resource in the change process
- Current NHS information strategies do not yet adequately reflect the full potential for eHealth and the level of strategic debate needs to be raised between management and clinicians
- Unlike commercial organisations implementing eCommerce, there is no single board of directors in the NHS that can dictate operations through a coherent management structure and hence progress to eHealth has to result from a consensus of all health stakeholders
- In creating such a consensus, agreement must be reached on the ultimate eHealth scenario – and this is a key responsibility for the NHS, Department of Health and Government
- The shared application systems concept represents a major move towards centrally controlled business systems but does not as yet incorporate linking of core delivery processes within a business environment
- Missing elements are the systems that provide conduits to link clinical tools and medical information in a coherent business framework
- There is a risk of NHS staff expending all their energies on intermediate Level 3 EPR goals at the expense of more challenging objectives for eHealth - work on these crucial building blocks needs to progress within the strategic context of an overall vision for eHealth

- The magnitude of the systems implementation task for NHS staff is nothing less than daunting and will require substantial funding, plus deployment of high level IT project skills to supplement operational resources in the process of change
- In practice, Government is likely to find it easier and more cost effective to make use of the latest generation of managed services rather than undertake its own internal investment projects
- Healthcare IT suppliers have suffered badly over the past ten years and will require more positive encouragement if they are to take on significant risks and responsibilities for implementing eHealth in the NHS
- Over time, a market framework will evolve which may be expected to support innovative niche suppliers alongside existing healthcare IT companies and large established national players in the global market
- Long term opportunities for IT suppliers in eHealth are huge - provided they are prepared to invest in understanding the special needs of healthcare and work with health professionals to develop suitable systems.

ANNEX 2

**eHealth in Europe 2010:
High Level Strategy of the
European Health Telematics
Association (EHTEL)
For Patient-Centred Healthcare in
the Information Age**

January 2002

Paper written

By

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Executive Summary

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This draft is intended to be publish and submitted for comments to all Healthcare Actors at the European and at the Country level concerned with the implementation of eHealth Solutions

Introduction

Within the framework of the PROEHTEL contract the EHTEL T2 Working Group was commissioned by the EHTEL Board to prepare a European High Level e-Health Strategy (e-Health Europe). This strategy will provide the European Commission and policy makers on the European level, policy makers, healthcare actors and patients in the member states as well as for the IT-industry in Europe with guiding principles and concrete milestones for the establishment of e-healthcare all over Europe.

While deliverable D8 is due at month 12 and 30 of the project plan, we present herewith a short outline of the strategy paper, which will provide the structure and some issues of the complete strategy paper to be presented in midst 2003 (month 30 of the contract). The final strategy will be supplemented by a detailed step-by-step plan comprising individual realisation phases and milestones to evaluate processes and applications. Since the final strategy paper should be useful to it's audience and hence reflect the needs of all the stakeholders involved in the implementation of e-Health on a European level we would like to start an early discussion process on the contents and the actual recommendations provided. Hence the EHTEL Association will publish on its WEB site this outline to be able to collect comments and enhancements while this work is still in a relatively early and flexible state.

Goals

The high level strategy paper "eHealth Europe 2010" is intended to support or the establish

- ⇒ Worldwide opinion leadership of Europe in the field of eHealthcare
- ⇒ State of the art in eHealth in Europe and worldwide
- ⇒ Short and long term priorities for the transition to "eHealthcare" in Europe
- ⇒ Guiding Principles and defined Milestones for the European Commission as well as the Member states for the transition to "eHealthcare"

Audience

The recommendations of the strategy paper are directed, at the European level, to the European Commission and all health-related organizations (including the Health-IT-Industry) Furthermore at the global level to the supranational organizations that are active in European and international health politics.

Background and framework

Demographic and socio-cultural changes, progress in medical research and medical technology and, last but not least, globalisation and the European integration process confront the European

healthcare systems with new and growing challenges. Within this framework eHealth has the potential to become the central structuring factor for healthcare in the information age.

Much dynamic activity at the European level has manifested since the "eEurope 2002 Action Plan has been established by the European Council and the European Parliament. One of the most demanding features is the provision of a e-Health infrastructure in all the member States throughout Europe. This demands for co-ordinated actions on European-wide levels.

Despite of a variety of harmonisation processes already in place the status of European-wide or even national interoperability is still disappointing: Although world-leading technical components and system solutions for electronic data interchange are now available nearly everywhere in Europe, isolated national solutions still dominate the landscape. Thus the emphasis on European and international interoperability is crucial. Highly secure and yet interoperable cryptographic procedures ensuring confidential data transmission are an additional significant prerequisite for applying the afore-mentioned technologies in healthcare. The extensive and interoperable use of e-Health applications requires specific societal regulations and infrastructure measures. Hence a more intense promotion of the harmonised use of e-Health applications in Europe is necessary. This should involve the Health-IT-industry, health policy makers and health care actors in joint actions.

A logical consequence of this is, in particular, to determine a European High Level e-Health Strategy (eHealth Europe 2010) as a guiding principle for the European Commission and policy makers on the European level, policy makers, healthcare actors and patients in the member states as well as for the IT-industry in Europe.

Focus of the eHealth Strategy Europe 2010

Europe as a whole needs an explicit strategy for the introduction of e-Health applications. This strategy should be explicitly defined and be equally binding both for health policy makers at the European levels and for all healthcare actors and their organizations. A strategy ensuring long-term success should cover visionary perspectives and concrete steps on the way to implementation, which are agreed with all parties involved.

Research promotion and funding alone does not lead to a comprehensive application of e-Health. Research itself should be based on a stronger view to its practical realization. Even more important is the implementation– at European and national levels – of appropriate political, legal and financial regulations as a prerequisite for integrating eHealth into the organizational structures and workflows of the relevant healthcare systems.

Key Activities

Infrastructure

One of the central tasks of the next years will be the establishment of a "health telematics infrastructure". This implies not only establishing Internet connections of outpatient and in-patient healthcare institutions, but the systematic foundation of information, communication and security

infrastructures suited for the transmission for patient-related health data in compliance with European and national laws and data protection regulations.

Security and PKIs

The unprotected electronic transmission of personal patient data via networks is rejected internationally. Highly secure encryption procedures are deemed necessary elements of adequate security infrastructures for the healthcare sector. Accordingly, the use of digital signatures¹ and asymmetric encryption has been planned, whereby no country in Europe has a specific Public Key Infrastructure (PKI, which also comprises certification services providers and directory services) for the healthcare sector in place.

Electronic IDs for Patients and Health Professionals

The introduction of electronic IDs "Health Professional Cards" with cryptographic functions (digital signature, encryption, authentication) into European healthcare systems requires a Public Key Infrastructures and other measures that enable the use of chip cards. In addition the respective legislative bodies must clarify the situation with respect to the reliability of substituting paper-based documents by electronic ones. So, with respect to the European Directive on Electronic Signatures the conditions for the validity of electronic signatures in healthcare must be determined.

Good Practice for the Health Internet

The eEurope 2002 Action Plan did foresee that the Member States, the European Commission and the private sector (industry) should establish a set of quality criteria for Web sites offering health information². Since in Europe various parallel approaches exist on this topic, there is a need for communication and harmonization on a European level. The European Commission has already initiated significant activities and organised a European wide meeting at Brussels in June 2001. As a result Draft Quality Criteria have been written and a communication to the Member States is awaited. EHTEL actively joined these activities and supported a second meeting on this issue held at Paris in September 2001. Based on a firm interest of it's membership EHTEL is to take a proactive role in this field and will support the harmonisation of quality criteria and their implementation on a European wide level through its knowledge network.

International Interoperability

In view of the progressing convergence in the European healthcare sector and the freedom of providing and using healthcare services in Europe and worldwide, eHealth-based care approaches should be designed with the goal of their international interoperability. Otherwise, as opposed to the language barriers resulting from paper or film-based procedures, which can be overcome, at least in part, insurmountable technological barriers will emerge that completely prevent access to existing medical information. This might have considerable negative impact on the patients involved.

¹ Here used as the synonym for "qualified electronic signatures" in accordance with the EU directive and the new German Digital Signature Law.

² "Establish a set of quality criteria for health related websites."

When eHealth applications have been established in an internationally interoperable form, they may facilitate care across borders, since the language barriers of digital data can be overcome with comparably simple means (multilingual classifications etc.).

Legal Binding Data Transmissions, Privacy and Security

In Europe and worldwide, approaches for the electronic transmission of findings and other patient data can be recognized. Qualified electronic signatures in accordance with the EU Directive are an important element to give such transmissions a legally binding effect. Means for ensuring data protection and data security during data transfer and storage are secure cryptographic encryption procedures.

Promotion of eHealth-Standards by Implementation

European (CEN etc.) and worldwide (ISO etc.) standardization activities are often experienced as unnecessarily complex and are implemented insufficiently. Advanced EHR-standards such as the four-part European draft standard on Electronic Healthcare Record Communication (prENV13606-1-4) offer a conceptual basis for software systems without specifying these in detail. The potential benefit of these standards can only be exhausted by concrete realisation. Based on such implementations, valuable experience and qualified support of the European standardization activities.

The meaningful electronic collection, transmission and storage of patient-related health information must be based on minimum standards for medical documentation. In addition, standardized data formats are necessary to ensure that the patient-related health data can be integrated consistently in the relevant electronic patient records.

Collaboration between Healthcare Actors and the eHealth industry

Another key issue is the need for collaboration between Healthcare and the eHealth industry in order to ensure that solutions and implementation plans are available in line with the requirements, budgets, skills and transformation of the industry. EHTEL will support European wide developments through its unique position.

Further areas of high priority in the view of the EHTEL association

- ⇒ Legal Issues
- ⇒ Best Practices in e-Health
- ⇒ Organisational issues (like identification)
- ⇒ Infrastructure (Public Key Infrastructure, Cards, Security, Interoperability ...)
- ⇒ Evaluation, Auditing