

HEALTHCARE IT MANAGEMENT

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THE OFFICIAL JOURNAL OF THE EUROPEAN ASSOCIATION OF HEALTHCARE IT MANAGERS

Healthcare IT MEGATRENDS

Healthcare
Reforms in the US

Highlight: IT@N 2010

Security Considerations
For Mobile Communications


Evidence Based Design

Driving Operational Efficiency

Patient Data Safety

Country Focus: France





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Dear Reader,

We are all creatures of today, carrying the legacy of yesterday and the vision of our tomorrows. The term 'Megatrend' would then be the red rope which binds the chronology of our lives and all that happens within.

Recent years have seen an increase in the already-massive attention given to healthcare. In the Western world at least, healthcare is largest sector for spending – yes, higher than even the military, and in most cases, rising faster than the latter. It is, therefore, hardly surprising that a clutch of experts have sought to decipher long-term trends – Megatrends – to get a glimpse of realms beyond.

How healthcare will look in the Year 2020's or even 2050 was the subject of a Harvard Business Review feature earlier this year. Other experts, too, have made similar efforts and, on our part, we found a surprising level of commonality in their views. In the face of this, our Cover Story makes a selection of what we see as the Top 10 Megatrends in Healthcare. For the sake of convenience, we broke these up into three broad groups. We then sought to look in our own rearview mirrors, and assess what we at Healthcare IT Management have had to say about them over the past 3-4 years.

This issue also highlights another unfolding saga, about the ambitious healthcare reforms underway in the US Healthcare reform, readers may recall, was a pillar of President Obama's vision during his electoral campaign, and soon after, acquired legal and financial substance in the American Recovery and Reinvestment Act (ARRA) 2009.

As Mr. Obama crosses the midpoint of his presidential term, we believe it opportune to revisit ARRA. Based on its track record so far, ARRA may not meet its key goal - « widespread use » of electronic health records (EHRs) - by the year 2014. However, it has begun to make its presence felt in the US, and backed by no less than 26 billion dollars in healthcare IT outlays, such an impact will inevitably grow.

One of the key challenges for ARRA is something familiar to Europeans: whether to implement new and (yet) untested technology, or be locked into available technology – and limit the ability to ben-

efit from innovative solutions that arise in the coming years. We provide an overview of this debate.

We also make an appraisal of one omnipresent but ever-vexing undercurrent in the healthcare IT debate, namely security.

This challenge is highlighted by an industry expert in the feature 'Promoting Patient Data Safety with No Headaches'. For the author, "it is not good enough to have an excellent security policy if you cannot assure patients and the regulators that this is understood and applied by everyone, everywhere, all the time." The increased automation of security procedures may be one plank, he believes, for a meaningful solution, not least because this can provide "very concrete" returns for healthcare IT organisations.

Another feature on the same theme, written by the inventor of a mobile security solution, notes the ubiquitousness of smart phones and personal digital assistants (PDA) as well as the plethora of programmes that can now be instantly downloaded to these devices – along with unending updates. This, in the author's view, presents an ever-growing threat to security, and patient data privacy. Though there are no simple solutions, standards and certification plus robust organisational practices may offer a way out. Meanwhile, one common excuse – the 'ignorance' of non-technical users – is becoming out-of-date; increasingly, experts too are victims of hackers and phishers.

This issue of Healthcare IT Management is the final one for 2010. We wish all our readers a happy season of festivities and count on your support and participation for the forthcoming IT @ Networking Award in January 2011.

Christian Marolt

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References

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HEALTHCARE IT REFORMS IN THE US

Healthcare reform was a pillar of candidate Barack Obama's vision during his presidential campaign, and passed into law as the American Recovery and Reinvestment Act (ARRA) 2009. Barely weeks ago, one key obstacle to ARRA – a rout by the opposition Republicans in November's midterm elections to Congress and a block on federal healthcare IT funding – was removed. Though it may not meet all its deadlines, ARRA has made an impact on the US healthcare IT stage, and is here to stay.



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SECURITY CONSIDERATIONS FOR MOBILE COMMUNICATIONS

The plethora of programmes that can now be instantly downloaded to mobile devices such as smartphones and personal digital assistants presents an ever-growing threat to organisations seeking to comply with their obligations to keep network assets secure and patient data private. What can be done to cope with such vulnerabilities?

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DRIVING OPERATIONAL EFFICIENCY: HOW TO MAKE 'IT' WORK

It has long been an axiom that IT systems, and their efficient use, can help control escalating healthcare costs. An industry expert who has worked on a variety of projects for the National Health Service (NHS) in the UK offers his insights.

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PROMOTING PATIENT DATA SAFETY WITH NO HEADACHES

Good information governance is a particularly important area for the healthcare profession where large amounts of personal information about employees and patients are handled every day. Ensuring that access to patient data is secure while also ensuring its availability for relevant clinicians and managers, is critical. Nevertheless, it seems that information security at this fundamental level of access presents serious difficulties for many healthcare organisations.

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France



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MEGATRENDS IN HEALTHCARE IT

What are the key drivers of healthcare IT, as seen by experts, for the next 5-10 years ? And what was Healthcare IT Management's take on these, over the past 4 years ?



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COUNTRY FOCUS: FRANCE

At the beginning of this decade, France was judged to have the world's 'best' healthcare system by the World Health Organisation. Barely four years later, French government experts judged it to be in a state of general confusion and on the edge of a crisis. How is it faring today ?

READER'S COMMENTS



Accepting Chaos

Sir,

Jim Quiggle's feature on 'Enterprise Architecture' (Issue 3/4, 2010) needs to be showcased because of two factors, both of which are rare in the IT world: to make a case for the fact that our business is still more art than science, and secondly, that like good artists, we must understand and accept chaos. After all, one of the most cutting-edge areas of modern science is called 'chaos theory'.

Indeed, his opening paragraph – on the massive differences in definition by IT professionals about just what enterprise architecture is – demonstrates this truth.

Actually, I wonder if the story would not be similar with any other conceptual framework, or buzzword – how about Medicine 2.0, or Software as a Service. How about opening up the pages of your magazine to have readers give their definitions of either ?

In reality, we IT professionals are called nerds, and nerds do require something neat and sexy to tell just what they are doing, for example to impress someone at a dinner date. I, for example, work at a hospital network support centre. Many of my calls are for people who have, for example, forgotten their log-in passwords. Now guess what I told a girl I took out for dinner – that I am a call centre techie, or an encryption firefighter?

The only issue I have with Mr. Quiggle is that of technology lifecycles.

In healthcare, mainstream hospital-directed areas, technology lifecycles are completely disconnected from market forces – and of course, often, from common-sense. This is not the case with the consumer goods he cites. What we healthcare IT have is a serious problem of being permanent first movers, with no signposts, no lighthouses, but still dealing with a very serious business – one where life and death go hand in hand.

Max Macfarlane
Aberdeen, Scotland



Asset Management Systems

Sir,

Swiss law, you state in your Country Survey (Issue 2, 2010), provides "for the State to support health-

care only when the private sector cannot produce 'satisfactory results'.

I believe some European governments should now seriously think about State support for private hospitals when public sector facilities cannot produce 'satisfactory results'.

Isabella Butterworth
Rome, Italy



Barcodes

Sir,

The article on what you call the 'humble' barcode ('Can Bar Codes Revitalise The NHS? Issue 3, 2010) leaves out one major issue.

Substantial momentum had been building up to promote barcodes, as far as healthcare technology (medical devices) were concerned until late 2004, when the industry group Eucomed released its position paper. This tried to attain a consensus on several advantages (adverse event identification, tracking and traceability, post-market surveillance etc.) as well as standards challenges (technology neutrality). But the most important question – on whom the costs of implementation would fall – was left open. Small companies, in particular, had resisted these costs as being too heavy. However, Eucomed had made a case for the fact that once implementation was on a sufficient scale, unit costs would drop.

In the meanwhile, the case for barcoding pharmaceuticals was moving much more quickly as the case for it (anti-counterfeiting) was far stronger.

As a result, there were several different approaches – ranging from France (which wanted compulsory use in medical devices), to the UK, which wanted a voluntary system – which, in the final analysis, meant next to nothing. How can you have some devices bar-coded and others left out?

And then, came the hoopla about RFID, which overlapped and continues to overlap barcodes. But RFID, too, faces, exactly the same questions about costs – and technology neutrality.

This is, alas, all too common a problem in the healthcare technology area – the promises of a new technology disturbing progress to a more-proven one, before it makes its own case. As a result, we have this hotch-potch of systems, sub-systems and technologies – and the only casualty is patient safety.

Alain Mayeur
Brussels, Belgium

We invite comments from readers at editor@hitm.eu. Please keep your letters to below 150 words. Healthcare IT Management reserves the right to edit letters for space or editorial reasons.

THE EUROPEAN ASSOCIATION OF HEALTHCARE IT MANAGERS (HITM)

The European Association of Healthcare IT Managers

The European Association of Healthcare IT Managers (HITM) is a non-profit pan-European umbrella association of all relevant national healthcare IT associations in Europe.

Believing in the fundamental importance of unifying healthcare IT professionals at European and global levels, HITM is committed to increasing the professional authority and responsibility of healthcare IT managers and representing their interests to international institutions and associations.

HITM is strategically based in Brussels, for easy access to the European institutions and associations.

HITM's Mission

- To establish common healthcare IT standards, best practices, cross-border collaboration, unifying policies and strategies at EU and international levels
- To increase the visibility, role and importance of IT management in healthcare facilities
- To educate key policy-makers, industry players and the general public about the benefits of healthcare IT
- To promote cross-collaboration in different healthcare sectors
- To promote the efficient, cost effective use of IT

For more on HITM and information about membership, please contact: **Aleksandra Kolodziejka, office@hitm.eu**

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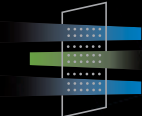
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The European Association of Healthcare IT Managers (HITM) is proud to invite you to the *IT @ Networking Awards 2011*, a global healthcare IT and medical technology competition.

IT @ 2011 will recognise and promote outstanding healthcare IT and medical technology projects. 25 nominees from across Europe and beyond will compete in the *IT @ Networking Awards 2011* on January 19 – 20 2011. This high-level competition will see candidates go through two rounds of presentations in an effort to convince the expert audience and panel of judges why their solution deserves to win. If last year is anything to go by, attendees will not hold back in cross-examination of each presenter during the Q&A sessions before placing their vote for their favourite solutions.

WHY ATTEND THE IT @ NETWORKING AWARDS 2011?

This event will give you the possibility to expand your general and in-depth knowledge on IT solutions. Every presentation is strictly structured according to our presentation cri-

GENERATION



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teria. Such criteria allows for a cross-departmental understanding of each solution.

Uniquely, *IT @ 2011* requires all presenters to talk about the key problems they have encountered in creation or implementation. By highlighting honestly the problems and obstacles encountered, they provide the audience with an excellent tool for advancing similar issues in their own institutions.

IT and medical technology is of key importance to hospital management, especially considering the current financial constraints and increasing pressure our healthcare systems are faced with. Intelligent IT solutions increase cost-effectiveness, productivity and safety.

HOW IT WORKS

IT @ 2011 is a two-day event comprising two rounds of presentations. During the first day, 25 projects will be showcased in a Mindbyte presentation. Mindbytes are short and straight to the point. In just five minutes, each presenter will highlight the main advantages of their project and convince the audience they want to know more. After each presentation you, the expert

audience, and our panel of judges will place their votes. The top nine presentations make it through to the second day of competition where they are given the opportunity to present their projects in detail. This Workbench presentation has an allocated time of 30 minutes followed by 15 minutes of cross-examination.

WHAT SETS US APART

What differentiates *IT @ 2011* from other congresses? The main difference lies in the element of competition. Yes, *IT @2011* features presentations from across the world. But these are presentations with a difference, competitors are presenting to win; they have a completely different mindset. Each presenter will do the best to secure the top prize, to persuade the audience and judges that their solution deserves to win. The Q&A sessions also take on a new dimension with presenters having the opportunity to cross-examine their competitors.

HOW TO REGISTER

HITM members are eligible for a reduced rate. For this special fee you can enjoy two days of

informative presentations of fully implemented and running IT and medical technology projects. Moreover, you will have a say in who will win the trophy. Refreshments, lunch and evening entertainment are also included, giving ample opportunity for networking.

To register, please visit:
<https://www.conftool.net/itawards2011/>

LOCATION

IT @ 2011 will take place in the famous Theatre de Vaudeville, a most stimulating environment in the Gallerie de la Reine, the centre of Brussels.

Hotel reservations can be obtained through www.booking.com.

For more information please visit our website www.itandnetworking.org or contact us on +32/2/2868501 or send an email to office@hitm.eu

We look forward to seeing you in Brussels in January!

MCKESSON

AWARDED BCS IT SUPPLIER OF THE YEAR

McKesson UK, a healthcare IT solutions and services specialist, has been awarded 'IT Supplier of the Year' by the British Computer Society (BCS) & Computing UK IT Industry Awards 2010. The award recognises McKesson's outstanding achievements and contributions in delivering innovative IT solutions and services to healthcare organisations across the country.

McKesson has devoted itself to advancing the success of its customers and partners, by delivering workforce, enterprise medical imaging solutions, clinical and patient information management and evidence-based clinical decision support systems. Underpinned by essential IT managed services, HR and payroll shared services and professional services, McKesson's solutions are designed to make a difference to the business, quality and productivity of healthcare.

The British Computer Society (BCS) & Computing IT Industry Awards are the leading hallmark of success amongst practitioners in the IT industry today which recognise, promote and acclaim excellence, professionalism, innovation and the outstanding achievements to which individuals and groups contribute. Judges commented on McKesson winning IT supplier of the year stating, "McKesson demonstrated that it has made a major commitment to the NHS and its products and services have made a real difference to healthcare in the UK."

For more information, please visit:
www.mckesson.com

CARESTREAM

HEALTH LAUNCHES NEW CLOUD-BASED EHEALTH PORTAL SERVICE

Carestream Health launched a new eHealth portal service at RSNA last week, which will be available in Europe and the United States in early 2011. The new service, which is part of Carestream's portfolio of cloud-based eHealth Managed Services (eMS), enables healthcare providers using the company's remote eHealth Archive Services to access data by any authorised user through a simple Internet connection.

The new service provides cost-effective data sharing and collaboration among healthcare providers, imaging centers, radiologists, referring physicians, and other clinicians

or staff. Large healthcare institutions with multiple sites can send images and other information to one of Carestream Health's data centres and use the eHealth portal to enable viewing of patient information by authorised users at all sites. It allows radiologists to perform cloud-based reading of exams using advanced diagnostic tools and to access patient information, including previous exams.

The service also allows small to mid-size hospitals, imaging centres and physicians to easily share data between the providers involved in a patient's diagnosis and treatment and provides viewing of reports and key images for referring physicians, eliminating the need for the expensive an inefficient distribution of CDs. It helps streamline radiology workflows and eliminates obstacles created by outdated technology that restricts radiologist and clinician access to off-site imaging studies.

For more information, please visit:
www.carestreamhealth.com

AGFA

AGFA HEALTHCARE INTRODUCES IMPAX KIOSK

Agfa HealthCare, a leading provider of diagnostic imaging and healthcare IT solutions, is introducing IMPAX Kiosk, its latest workflow enhancement, designed to streamline check-in and improve the patient experience. IMPAX Kiosk is an interactive system that enables patients to register with, and check-in to hospital services without going through the traditional administration desks.

The system is intuitive and very easy for patients to use. The patients identify themselves directly on IMPAX Kiosk, view and confirm demographic and insurance information, and electronically sign consent documents. IMPAX Kiosk includes multi-language options; clinic messaging of important announcements to all patients; and personalized messaging, for example, if a specific patient is due for a blood pressure check. For optimum security, the patient data is not held in IMPAX Kiosk itself, and a privacy filter can be added that prevents others from viewing the screen. IMPAX Kiosk is fully integrated into Agfa HealthCare's IMPAX radiology information system (RIS), which allows for real-time updates of patient status. It also easily integrates within external systems, with minimal implementation work and no programming.

For more information, please visit:
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SLOVAKIA

EPSOS PROJECTATHON

An epSOS Projectathon was held in Slovakia to test whether the interoperability of country's healthcare systems meets epSOS specifications. The conclusion was a positive one with epSOS determining that 10 pilot sites can begin sharing real patient data from early next year.

epSOS, a large scale European pilot of patient summary and electronic prescription, held the four day Projectathon to test content documents. These documents included patient summaries and e-prescription exchanges.

The projectathon was an opportunity to address the key issues surrounding the sharing of electronic information including security, semantic interoperability and patient safety issues. Both developers and testers also had the opportunity share knowledge and experience.

In addition it saw nine countries - Austria, Czech Republic, Germany, Spain, France, Greece, Italy, Sweden and Slovakia - successfully test cross-border patient data exchange. epSOS has now announced that the pilot sites will start sending and receiving patient data and eprescriptions in early 2011 for a 12 month period. More than 30,000 health professionals will be involved in the pilots in 183 hospitals, 2149 pharmacies and 1113 GP practices.

ESTONIA

ESTONIAN STUDY ON PATIENT VIEWS ON HEALTH DIGITISATION

The Centre for Ethics at the University of Tartu is conducting a study analysing the effects of the digitisation of health data and of patient-doctor communications.

In the last few years, Estonia has gradually digitized much of its healthcare system with health information moving to the Internet. Paper prescriptions have been replaced by digital prescriptions and patient data are collected into a single national information system. This system allows patients to view and monitor their own health data through the Patient Portal. Launched in October 2009, the portal also allows patients to control access to their records, placing restrictions if they wish.

The Centre for Ethics is inviting all those who have visited the Estonian Patient Portal during 2010 to check their health records, to participate in focus group interviews. During these interviews the experiences of both patients and doctors will be analysed. Questions will include: What is your opinion, both in terms of digital opportunities and challenges, on digital prescriptions? On the patient portal?

The study was based on electroencephalogram (EEG) results measured directly at the cortex from eight patients. The scientists found that on average for all patients, a com-

bination of methods yielded an increase in prediction performance by more than 50 percent.

"In our study, about every second seizure could be predicted correctly," Hinnerk Feldwisch-Drentrup from the Bernstein Center said, admitting however that the results from this study alone were not enough for the technique to be applied in real situations.

For further information, please visit: www.epilepsiae.eu

THE NETHERLANDS

VENDORS TEAM UP TO IMPROVE INTEROPERABILITY OF RADIOLOGY IT SYSTEMS

November saw the second Dutch eRadiology test event take place at St. Antonius Hospital in Utrecht. The objective was to bring together pre-competitive vendors to iron out any integration problems with IT systems and to foster interoperability between them.

The specificity of the Dutch system is the provision of a personal unique service number for citizens, which is sent in messages. The results demonstrated that radiological examinations can be sent from one digital system to another in a vendor-independent way. The St. Anthony Hospital is in favour of increasing interoperability in healthcare through the consistent application of open standards and open source software.

The Dutch eRadiology test event is an interoperability test where various health IT systems are connected together and tested on their interoperability. For vendors, it is an efficient way of testing, since any deficiencies are quickly identified and can be solved. The advantage for users is that interoperability is demonstrated in advance and thus setting up and managing system integration becomes easier.

BULGARIA

PUBLIC DISCUSSION ON DEVELOPMENT OF E-HEALTH

The Bulgarian Ministry of Health has released a call for ideas and comments on how e-health should be implemented in the country. The government's main objectives for e-health are to create an integrated information system to communicate and exchange data among existing institutions such as the National Health Insurance Fund, the National Social Security, the Ministry of Health and the National Revenue Agency and to develop electronic patient files, records and telemedicine services.

A working group has been set up to work on these objectives and create a foundation for the implementation of e-health strategies in Europe.



FEBRUARY 20–24, ORLANDO, FLORIDA

HIMSS 2011- ANNUAL CONGRESS AND EXHIBITION

HIMSS is a cause-based, not-for-profit organisation exclusively focused on providing global leadership for the optimal use of information technology (IT) and management systems for the betterment of healthcare. Its annual congress and exhibition is taking place in February 2011, in Orlando, Florida

The event is sure to provide high-level healthcare IT and management systems education. The programme was created by the Society's Annual Conference Education Committee (ACEC), which includes 12 members and is designed to provide attendees with the latest information on the latest news and developments in the healthcare IT sector.

The congress will include 200 education sessions. The topics were chosen from the information obtained from

their call for proposals. The event will include case studies that discuss the best practices, innovation, vision, and advantages of using healthcare IT solutions.

The keynote speech will be given by former Secretary of Labour Robert B. Reich, one of the US's leading thinkers about work and the economy and a member of President Barack Obama's economic transition board. He will present, "The Great Slowdown and a Five-Year Look Ahead," on Monday, Feb. 21 at 8:00 a.m. Now Professor of Public Policy at the University of California at Berkeley, Reich has served under three national administrations, most recently as Secretary of Labor under Bill Clinton. In 2008, Time Magazine named him one of the 10 most successful cabinet secretaries of the past century.

In his presentation, Reich will address:

- What does the economic slow-down mean for the future?
- How can the American and global economies right themselves?
- And what's the economic outlook for the next five years in America and abroad?

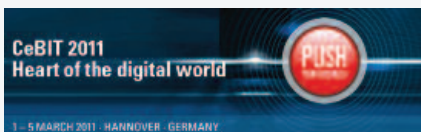
HIMSS 2011 is also a great opportunity for networking. This will range from sharing knowledge and best practices to making business connections and even new friends. It is for this reason that the congress includes a packed social programme. Networking events will include the Opening Reception, the friendly and competitive 5K Fun Run/1 Mile Walk, a Wednesday evening event and other social programmes.

For more information, visit: www.himssconference.org



1-5 MARCH, HANNOVER, GERMANY

CEBIT 2011 - HEART OF THE DIGITAL WORLD



The overall motto of CeBIT 2011 is "The power of creativity and innovation". In just five short days, the CeBIT Global Conference provide a panoramic view of the digital world's mainstay markets: IT, Telecommunications, Digital Media and Consumer Electronics.

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around the globe get together to address hot trends across sector borders and spotlight promising innovations and how they are likely to affect the working world and society at large. In 2011, the discussion will centre on innovations and creative approaches in the realms of Cloud Computing, Intelligent Networks, Real Time Business, Augmented Reality, Mobile Apps and more.

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- More than 30 high-caliber speakers;
- The key ICT trends covered, and
- Roundtable discussions.

Speakers include:

Hamid Akhavan, Chief Executive Officer, Siemens Enterprise Communications

Peter Biddle, Head of AppUp Products and Services, INTEL Corporation

Jean-Philippe Courtois, President Microsoft International

Neelie Kroes, EU- Commissioner for the Digital Agenda, Vice-President of the European Commission

For more information, visit: www.cebit.de



25–26 OCTOBER, HAMBURG, GERMANY

GLOBAL E-HEALTH FORUM

The Global e-health Forum highlighted best (e-)practices for sustainable health-care delivery. Approximately 250 delegates from more than 30 countries followed the invitation to the inaugural Global e-health Forum on October 25 – 26, 2010 in Hamburg. In presentations, workshops and discussion forums, the attendees learned about e-health strategies, solutions and services from all over the world. Since recent demographic shifts, the impact of globalisation and an increased burden of chronic diseases and expensive treatments challenge healthcare systems, the development of new cost-efficient, reliable and interconnected systems becomes crucial. The significant contributions e-health can make were presented at this cross-sector forum.

Ljubisav Matejevic, Founder and Director of the Global e-health Forum was

frank in addressing attendees about the future of our healthcare systems and the role e-health will play, “We need to develop the concepts for our future health-care delivery now. The Global e-health Forum is meant as an invitation to all stakeholders: Get involved in developing the right strategies, the best solutions and the services needed!”

The conference delegates, including CIOs and CEOs from hospitals and clinics, representatives of health insurance institutes/companies, governmental bodies, e-health associations, universities and research institutes as well as solution providers and journalists were confronted with manifold questions and diverse answers. Innovative and intelligent approaches to connecting, extending and improving healthcare mainly focused on telemedicine solutions, knowledge man-

agement tools and the development of patient-centric services. In an accompanying exhibition, solution providers presented state-of-the-art concepts, technologies, and services.

The primary aim of the organisers of the Global e-health Forum, the Hamburg Chamber of Commerce, IBM and the European Health Telematics Association (EHTEL), was to present a unique opportunity to exchange visions, ideas, views, know-how and experience and to develop collaborative working relationships cross-sector, cross-border – these objectives will also be on next year’s agenda of the Global e-health Forum, which is scheduled for October 11-13 in Hamburg, Germany.

For more information, visit:
www.global-ehealth-forum.com



17-20 NOVEMBER 2010, DUSSELDORF, GERMANY

MEDICA

Yet again, MEDICA was a success with an enormous turnout of both exhibitors and visitors proving that the manufacturers of medical technology and medical products have successfully weathered the phase of economic and financial crisis.

German Chancellor Angela Merkel and Federal Health Minister Philipp Rösler took a tour of the congress on the opening day, Merkel explaining, “MEDICA is an impressive shop window on the health industry. However, our leading role in the medical business is not known everywhere. For this reason it is important for this sector to feature centrestage”.

This year saw 137,200 visitors and a record attendance of 4,400 MEDICA exhibitors from 64 nations. In terms of the innovations presented by exhibitors “process optimisation” was the most fre-

quently heard buzzword in the halls over the four days. For example, innovations from numerous suppliers focused on increased efficiency and flexibility in the operating theatre. In so-called “hybrid” operating theatres surgeons can operate and use imaging processes at the same time. This makes it possible to perfectly combine diagnostic and surgical procedures in one place.

At the same time, an increasing number of computer-based support systems are finding their way into the operating room. The range here spans applications for the planning and simulation of operations through to navigation during operative interventions. Also providing greater efficiency in the care process are innovations in the field of medical IT and telematics. In particularly high demand at MEDICA 2010

were solutions for smooth dataflow between the in and out-patient sectors.

Held in conjunction with MEDICA was COMPAMED, the international trade fair for the upstream suppliers of the medical industry. 575 exhibitors from 37 nations presented to the over 16,000 visitors a wide spectrum of technology and service solutions for use in the medical industry – from new materials, components, primary products, packaging and services through to complex micro systems and complete contract manufacture.

Next dates for MEDICA in Düsseldorf:

16 – 19/11/2011

Next dates for COMPAMED in Düsseldorf:

16 – 18/11/2011

For more information, visit:
www.global-ehealth-forum.com

MEPs DISCUSS EHEALTH INTEROPERABILITY AND THE ROLE OF ICT TO ADDRESS HEALTHCARE CHALLENGES

On November 16 2010, Member of the European Parliament (MEP) Milan Cabrnoch hosted the 'Crossing boundaries in e-health: the CALLIOPE think tank and collaboration platform' at the European Parliament. The meeting began with opening remarks by Mr Cabrnoch and a presentation on the European strategy for e-health. Zoi Kolitsi, CALLIOPE Project Coordinator, outlined the main outcomes of the 30-month project in the presentation 'CALLIOPE Thematic Network: Lessons learned', which explained the work of CALLIOPE, a multi-stakeholder platform on e-health interoperability launched in 2008 and highlighted the different boundaries in e-health. The CALLIOPE network was also launched in order to analyse the Member States' responses to the EC Interoperability Recommendation and has produced the 'EU e-health Interoperability Roadmap for Sustainable Health', 'the Roadmap' to accelerate e-health Deployment, which was presented by Michèle Thonnet, CALLIOPE Leader e-health Roadmap.

Clemens Auer, from the Austrian Ministry of Health presented the project structure of the e-health Governance Initiative, which is planned for launch in January 2011 and will be the turning point from analysis and consultation to Member States' steering e-health. The possible workplan includes:

- Developing key actions for cross border e-health deployment in Europe
- Development of common patient IDs and authentication
- Availability of basic patient information to all MS (to facilitate cross border operability of services such as ePrescription)
- Clarification of legal issues (for cross border data exchanges etc)

Mr Auer also strongly underlined the need for a consolidated approach and a strong political commitment to governance at policy, strategy and operational levels.

The panel discussion on 'The Role of ICT to Address Healthcare Challenges' highlighted some of concerns and opinions of important stakeholder groups. Michael Wilks, representing CPME (Standing Committee of European Doctors), emphasised the need to stay realistic and support the changes, which are already in the process of developing. One of the

problems is that everybody wants to be treated locally but some things need to be centralised for better results and telemedicine, including services such as tele-consultation, can help to break down some of the borders and improve patient access to cross border services. Paul de Raeve, from the EFN (European Federation of Nurses) explained that nurses do see the benefits of ICT but need to understand the specific benefits for them and how e-health can support them in their work. There is also a need to adapt to the older workforce, who needs more investment in training. Liuska Sanna, from the EPF (European Patients Forum) explained that ICT solutions mean a lot of change, including the role of patients and an increase in patient involvement and continuity of care. However, transparency is needed for security and patient safety and the roadmap needs to take into consideration the users' needs. Niels Rossing from MedCom (National Competence Centre in Denmark) was happy that the discussion has reached the political level however it is necessary to solve problems with regional governance and find a way to link regions and the European level. Pascal Garel, representing HOPE (European Hospital and Healthcare Federation), highlighted the need to continue with a 'bottom-up approach' and stay in contact with all stakeholders. Mr Garel also raised questions about the standard gaps between hospitals in Europe and stressed that not all hospitals are ready for implementation of common standards.

During the Q&A session, which followed, representatives from the health industry highlighted the need for more common standards in and solutions for the fragmentation of the European healthcare market, which would not only increase competitiveness but also reduce costs.

Concluding the event, Mr Cabrnoch referred to the ongoing negotiation between the European Parliament, Council and the Commission on article 13 of the Commission proposal for a directive on patient's rights for cross border healthcare and prompted stakeholders to provide their input to the parliament to ensure that the provision on e-health in the Directive is strong enough to ensure proper and needed implementation.

For more information, please visit:

www.calliope-network.eu

2011 EHEALTH WEEK FOCUS ON BENEFITS OF IT SOLUTIONS IN HEALTHCARE

The European eHealth sector's 'event of the year', jointly organised by the European Commission, HIMSS Europe (Healthcare Information and Management Systems Society Europe) and the Hungarian Presidency of the Council of the EU has announced that eHealth Week 2011 will focus on the cost and quality benefits of IT solutions in healthcare.

The four-day event, taking place in Budapest from 10 to 12 May 2011 will bring together key stakeholders and political, hospital and IT leadership from across Europe in order to advance the continent's digital health infrastructure. The programme will feature educational sessions, an exhibition, workshops, many networking opportunities and for the first time symposia on innovation-rich subjects such as Ambient Assisted Living; Health 2.0 and a Leaders in Health IT (LHIT) symposia for hospital IT Director. The eHealth Week will also host the eHealth Government initiative, a formal body of healthcare state secretaries aimed at aligning national eHealth systems in Europe. Last year, the eHealth Week 2010, which was held in Barcelona, was attended by more than 3,000 del-

egates and over 100 industry exhibitors, making it the largest pan-European eHealth event ever.

The role for eHealth in times of austerity will also be a central topic of eHealth Week 2011 – to be addressed at the Integrating the Healthcare Enterprise (IHE) Showcase and at the World of Health IT industry exhibition. The European Commission has funded e-health research with more than 1,182 billion Euros for more than 20 years and has supported more than 450 projects through its different framework programmes, establishing Europe as the global leader in the field. The European eHealth market is currently estimated at around 15 billion euros and growing at an annual rate of 2.9%. Among the companies that have already confirmed their participation in the eHealth Week 2011 industry exhibition are AGFA Healthcare, EPIC, Hitachi Data Systems, InterSystems, Microsoft and Oracle.

For more information, please visit:

www.worldofhealthit.org

RENEWING HEALTH PROJECT: PAN-EUROPEAN TELEMEDICINE DATA EXPECTED IN 2012

RENEWING Health (REgions of Europe WorkINg toGether for HEALTH), a European pilot project aimed at implementing large-scale real-life test beds for the validation and subsequent evaluation of innovative telemedicine services, will have all of the participating nine regions running their trials by February 2011, with final results expected by autumn 2012.

The project, officially launched in February 2010 and co-financed by the European Commission's Competitiveness and Innovation Framework Programme and the nine regions involved, is scheduled for 32 months in total and seeks to generate data for European healthcare systems so that telemedicine can be adopted as part of regular care for chronically ill patients. It is one of the largest ever telemedicine clinical trials, involving up to 8,000 patients in the intervention groups with cardiovascular disease, chronic obstructive pulmonary disease or diabetes from nine regions in different parts of Europe. The Veneto region in Italy is leading the project. Other regions involved include Southern Denmark, Northern Norway, Norrbotten in Sweden, Catalonia in Spain, South Karelia in Finland, central Greece, Carinthia in Austria and Berlin in Germany.

Although integration of the service solutions at regional level is the highest priority for the Project partners, the use of international standards and the progressive convergence towards common interoperable architectures will be equally sought to prepare and facilitate their subsequent scaling up at national and European levels.

Renewing Health will attempt to quantify the benefit of telemedicine in terms of health economic outcomes by including various indicators such as the number and length of hospital stays and access to the emergency department. According to Marco d'Angelantonio, Project Manager of Renewing Health on behalf of the Veneto Region, this data should make it easier for healthcare systems to invest in personal health systems and telemedicine infrastructure. Renewing Health also differs from conventional telemedicine trials as it works with existing telemedicine services and does not seek to simultaneously develop new technologies whilst the scale of the project will enable it to fulfill the European Commission's explicit demands to provide a critical mass in order to produce convincing data.

For more information, please visit: www.renewinghealth.eu



PROPOSED HEALTH PRIORITIES OF HUNGARIAN EU PRESIDENCY

Miklós Szócska MD, the Hungarian Minister of State for Health outlined the priorities of the upcoming Hungarian Presidency of the European Council at the European Health Forum Gastein (EHFG) in October 2010. The overarching theme of the proposed health programme of the Hungarian Presidency will be 'Patient & Professional Pathways in Europe'. Planned legislative priorities include carrying on the legislative process of the draft directive on patients' rights to cross-border healthcare and promoting enhanced cooperation among Member States to prepare the implementation of the directive. The promotion of the European Union's pharmaceuticals package, which aims to ensure that EU citizens have access to reliable information on medicines, the grounds on which they have been authorised and how they are monitored.

The proposed health priorities of the Hungarian Presidency, which begins 1 January 2011 include:

- Investing in the healthcare systems of the future. This includes facing the challenges of ageing populations, technology development, trade-offs between quality, accessibility and financial sustainability. There is a definite need for new models of efficient healthcare and scarce investment resources must be used efficiently and to serve new models.
- Mobility of health professionals. This includes balancing free movement and equity in access to high quality health care and improving the retention capacities of national health services. Need-driven training is to be promoted as well as enhanced cooperation at EU level to address health workforce shortages across the EU and the motor-ing of the movement of health professionals.
- Public Health. Including special focus on mental health, in particular the evaluation of the outcomes of thematic conferences under the European Pact on Mental Health and Well-being, cross-border aspects of childhood vaccination and health promotion especially disease prevention and

the effectiveness of national public e-health programmes.

- eHealth. Focusing on an IT supported, evidence-based, health policy decision making process. Also using telemedicine as a tool for better, more efficient and more accessible care and promoting cross-border healthcare related IT aspects, including data protection and health data reuse & research

The eHealth Conference taking place 10-13 May 2011 in Budapest was also highlighted as an important forum on European Health and IT.

The Spain-Belgium-Hungary Trio Presidency identified 'Health Inequalities' as an overarching theme, with specific to focus on:

- Innovation and solidarity in healthcare (prioritising the ageing population, chronic diseases and eHealth);
- Cross-border healthcare;
- Quality and safety of healthcare, and
- Health professionals.z

Dr. Miklós Szócska explained that during the Hungarian Presidency "We will certainly move ahead with several of the core areas taken on by the Belgian presidency, but we'll do so with a special Hungarian flavour" and the Hungarian Presidency will be advocating a basic approach of "More pragmatism and efficiency in health care policy". "Solidarity within and between the countries, efficiency and sustainability are the adequate answers here. There are a lot of issues that a nation simply cannot handle with its own resources. We need a common framework for efficient pathways for both, patients and health professionals. This is a debate we want to initiate," Szócska said.

For more information, please visit: www.eutrio.hu



MEGATRENDS IN HEALTHCARE IT

AUTHOR

Tosh Sheshabalaya,
HIT

As we turn the corner towards a significant staging post (Healthcare Information Technology Management's fifth year of publication), we thought it worthwhile to attempt a snapshot of the key drivers of healthcare IT, as seen by experts, for the next 5-10 years.

Opinions on the fine points vary. However, a meta-analysis of several leading sources yields an impressively-convergent list of 10 megatrends which seem to be shaping the look and feel of healthcare (and healthcare IT). The sources, from which we derived our final list, are:

1. Stephen C. Schimpff M.D, *The Future of Medicine: Megatrends in healthcare That Will Improve Your Quality of Life*, Thomas Nelson, August 2007.
2. *Megatrends in Global healthcare*, Harvard Business Review, April 2010.
3. Sampling of reports and articles from consulting firms such as
 - a. The Gartner Group
 - b. McKinsey & Co.
 - c. Frost & Sullivan
 - d. IDC

On our part, we have organised our Top 10 Trends into three groups – medicine, politics and society, and technology. The following section provides a look back at our own commentaries and insights into each of the above.

Telemonitoring of Patients

Our study identified significant benefits for both patients and healthcare providers in several key areas. These included delivering improved patient services by enabling cardiologists, GPs and nurses to identify changes in conditions and providing a prompt and appropriate medical response, a reduction in cardiology-related GP visits by as much as 90 percent, a reduction in hospital in-patient admissions of 35 percent and a reduction in out-patient visits of 12 percent.

'Cost-Benefit Of Telecardiology'

HITM interview with Dean Westcott, Member of the Board, Association of Chartered Certified Accountants, Issue 1 HIT, 2007.

Personalised Medicine

Indeed, even as e-health programmes seemingly flourish across the globe, they may simply be concealing a more powerful and pervasive phenomenon.

This concerns the emerging era of personal and individual healthcare, or what can be termed i-health. It will be driven digitally for you, me and everyone else....

The differences between e-health and i-health are significant. While e-health is largely about concepts, policy and infrastructure, i-health will be about use. The first is pushed on the technology supply side, while i-health is going to be demand-

led, pulled by need and finessed by experience. Most crucially (if subtly), i-health is more about patients than physicians

'From e-health to i-health: Traversing Tomorrow's Healthcare Frontier' Editors, Issue 1 HIT, 2009.

Customising Clinical Research with EHRs

There is no question that e-health systems including the EHR could and will be an important data source for clinical research, supporting clinical studies, testing clinical hypotheses and, even more important, generating hypotheses (e.g. about possible causes for diseases or different responses to treatments) from a linked analysis of so far unrelated data in particular including genomics and proteomics.

On a small scale, EHRs could mean an alert to a physician that patient data suggests a contraindication to a prescribed drug or on a national or even international scale an alert to health authorities.

'e-health / EHR and Clinical Research'

Prof. em. Günther Gell, Medical University of Graz, Austria, Issue 5 HIT, 2009.

Aging Populations in the West

Predictions that information technology would become a critical element in the elderly health and homecare setting of the future have proven to be true as healthcare systems grapple with the challenges of implementing and expanding IT-based services for an aging population. There are great expectations about how IT can and will provide benefits in this area.

'Elderly Health, Homecare and Information Technology'

Vivian Vimarlund, Linköping University, Sweden, Issue 3 HIT, 2008.

Rising Costs: The Need for Embedding Value

The complexity of today's healthcare systems is increasing with large numbers of specialised actors cooperating in novel organisational forms and networks. At the same time, stakeholders in healthcare need to innovate in order to manage changes in social attitudes, economic conditions and the potential of medical technologies. In order to meet the challenges of complexity and innovation, healthcare organisations need to design new forms of collaboration as well as novel service offerings.

'Value Based Service Innovation in healthcare'

Prof. Paul Johannesson and Dr. Martin Henkel, Royal Institute of Technology, Stockholm, Sweden, Issue 3 HIT, 2009.

Medical Tourism, Innovation and Globalisation

Several Indian firms have focused on niche technologies, especially those which adapt Western state-of-the-art technologies to rural India and to the challenges of the wider developing world....

Some Indian firms (develop and test) health sector applications in India and sell them to the US (an early case here was the WebMD portal, via its Indian-developed predecessor Healthon). Michael Nerlich, President of the International Society for Telemedicine and eHealth, noted in March 2007 that low-cost, Indian-designed e-health products could transform the future of the industry...

In today's India, hundreds of gleaming private hospitals, equipped with state-of-the-art technologies and manned by top physicians, cater to affluent Indians and tens of thousands of so-called 'medical tourists', many of them British and Americans - faced with growing waiting lists back home. Consultants McKinsey & Co. estimate medical tourism in India as a two billion dollar business by 2012.

'Healthcare IT in India'

Editors, Issue 2 HIT, 2009.

Cloud computing

It has been more than 40 years since the Internet was invented. Over the years there has been an exponential increase in the amount of information and complexity of IT infrastructure. This is the era of supercomputing with usage widespread from universities and healthcare organisations to life sciences companies and governments worldwide. There has been constant pursuance across the globe to use computing powers to the fullest. A product of those efforts is the concept of cloud computing....

Cloud computing could be seen as a boon to healthcare IT services as a number of hospitals could share infrastructure with vast number of systems linked together and reduce operational costs but increase efficiency. This also means real-time availability of patient information for doctors, nursing staff and other support services not within the country but possibly across various countries as medical professionals can access patient information from any internet enabled device without installing any software.

'Cloud Computing:

Will It Rain Benefits for Healthcare Organisations?'

E.Sujith, Frost & Sullivan, Issue 4 HIT, 2009.

Medicine 2.0

The Internet's impact on healthcare is ever more evident, with over 80 percent of US citizens searching online for health matters, and 33 percent of EU citizens using internet health sources every three months. Medicine 2.0 partly drives this increasing use, providing new sources of information and new access models for various healthcare stakeholders. The simplest interpretation of Medicine 2.0, or the closely related term Health 2.0, is the use of Web 2.0 for Medicine and Health....

For the healthcare IT manager, two main opportunities present themselves. Firstly, Medicine 2.0 enables improved exter-

Medicine

1. Telemonitoring of patients
2. Personalised medicine
3. Customising clinical research with EHRs

Politics and Society

4. Aging populations in the West
5. Rising costs: the need for embedding value
6. Medical tourism, innovation and globalisation

Technology

7. Cloud computing
8. Medicine 2.0
9. Mobility in healthcare service provision
10. Robotics and nanotechnology

nal collaboration, either with patients, through shared clinical knowledge management, or with specific external organisations. Secondly, Web 2.0 may be applied to internal processes, to create new sources of information or improve collaboration.

'Health 2.0 and Medicine 2.0: Promises and Challenges'

Benjamin Hughes, Researcher, ESADE Business School and Consultant Healthcare Practice, McKinsey & Co., Issue 2, 2010.

Mobility in Healthcare Service Provision

The promise of mobile solutions for healthcare has some parallels to the US Bill of Rights; its truths are self-evident. They are also the result of three convergent trends. The first is the explosion of hospital data. The second is the increasing requirement for specialist advice and care. Last but not least is the demand that healthcare intervention be delivered as close to a hospitalised patient as feasible.

Taken together, it is clear that there is now a growing mobility of specialist physicians within a modern hospital, alongside a need to remotely access data at all times, from anywhere.

'Mobile Healthcare and Information Technology:

Gathering speed, slowly but surely'

Editors, Issue 2 HIT, 2008.

Robotics and Nanotechnology

In spite of a variety of implementations since the 1980s, the field of healthcare robotics remains experimental and largely nascent. However, the long-term promise that it holds are acknowledged to be immense. This means that not only researchers and healthcare practitioners, but policy makers, too, are involved in bridging the gap between potential and reality....

Down the horizon is an inevitable increase in the spectrum of applications for healthcare robotics, galvanised by synergies and cross-fertilisation with other fast-emerging (and in some cases, related) disciplines, such as nano-technology and artificial intelligence.

Healthcare and Robotics: Miles to Go Before it Sleeps

Editors, Issue 3 HIT, 2010.



HEALTHCARE IT REFORMS IN THE US

AUTHOR

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Healthcare reform was a pillar of candidate Barack Obama's vision during his presidential campaign. In HIT's analysis of his plans (Issue 1, 2009), we speculated that, in spite of huge challenges, the Obama reform package – known as the American Recovery and Reinvestment Act (ARRA) 2009 – would trigger fundamental structural changes in the US healthcare system. As Mr. Obama now crosses the midpoint of his presidential term, it is an opportune moment to revisit ARRA.

Healthcare IT Creating Jobs

Just a few weeks ago, one key obstacle to ARRA – a rout by the opposition Republicans in November's midterm elections to the Congress and a block "federal healthcare IT funding – was removed".

« It's not on the radar », said Jennifer Haberkorn, a healthcare policy expert with the influential US news bureau Politico, at a press briefing on November 5. The attitude in Congress, she concluded, « is that health IT funding is creating jobs».

Though the Republicans gained a majority in the lower House of Representatives, President Obama's Democrats still control the Senate. In the final analysis, it is also important to note that the US President retains veto power.

In other words, in spite of inevitable ups and downs, ARRA is here to stay. Based on progress to date (discussed below), it may not meet its key goal - « widespread use » of electronic health records (EHRs) - by the target date of 2014. However, ARRA has clearly made an impact on the American healthcare IT arena, and this will grow.

The Industry Response to ARRA

Given such an inevitability, it may be useful to look at how the US healthcare IT industry has been responding to ARRA, not least in terms of e-health initiatives.

In February 2010, executives from more than 160 US healthcare organisations participated in a survey on ARRA conducted by leading healthcare management consulting firm Beacon Partners.

The Beacon survey found that most hospitals were well on their way to implementing « some form of EHR solution. "Nevertheless, given the plethora of choices available and an incessant shift in technological goalposts, the bulk of hospitals were also having a hard time « finding the best solution."

Most hospitals stated that they sought an integrated enterprise system. However, they generally faced multiple barriers, of which the most common was a lack of internal resources. Another serious problem was the challenge of staying abreast of ever-changing regulatory requirements.

Strong plans for hiring

Nevertheless, the good news for the US government (and Mr. Obama personally) was that almost two-thirds of the executives stated they would be hiring or outsourcing to compensate for their lack of internal resources.

Soon after the Beacon survey, a report from the Board of Governors of the Federal Reserve System ('Fiscal Spending Jobs Multipliers: Evidence from the 2009 American Recovery and Reinvestment Act') found that the ARRA programme had already resulted in two million jobs "created or saved" by March 2010.

This perception reverberated through the November Congressional elections, by when most analysts were in tune with the verdict of Ms. Haberkorn cited above – that health IT funding, according to the US Congress, was « creating jobs. »

The Meaningful Use Roadblock

Nevertheless, between ARRA's potential and reality lie several roadblocks. One of the most serious is the condition of "meaningful use" of certified EHRs.

Meaningful use requirements are meant to address key health goals – based on 24 criteria. These include improved quality (seen by industry as the toughest), safety and efficiency, enhanced care coordination, the ensuring of privacy and security protections, and patient empowerment.

For critics, access to meaningful use information may allow government officials to steer doctors toward making cost-effective – instead of health-conscious – practices.

Serious Disparities in E-Health Readiness

In the months ahead, one of the biggest challenges will be to obtain more homogeneity in US hospitals, as far as e-health and healthcare IT is concerned. Otherwise, there is a risk that disparate levels of e-health readiness result in a minimal level of e-health infrastructure.

In its latest release, 'The Most Wired Survey and Benchmarking' study on US hospitals (conducted annually by Hospitals and Health Networks), found that the use of electronic medical record functions remains relatively rare, even with

independent physicians practicing within hospitals. For the 'Most Wired' hospital category, a mere 43 percent of independent physician practices have the ability to electronically document medical records, 41 percent have computerised physician order entry and 44 percent have decision support.

And this is only the tip of the iceberg, since the 'Most Wired' hospital category consists of those which have the best e-health infrastructure.

In the wider US healthcare market, only 14 percent of hospitals have so far implemented even an entry-level e-health system such as CPOE.

The Standards and Certification Challenge

The other substantive challenge is political. While meaningful use is one face of ARRA, standards and compulsory certification of ARRA-eligible systems are another.

Like Europe, the question of healthcare IT standards has long been a vexing one in the US, given the rapid pace in the evolution of technology, its increasing complexity (especially for lawmakers and regulators), and the incessant growth in expectations from the public at large about e-health.

A related question is about the certifying body : one or many, and if so which one/ones. Most experts believe the consensus candidate for certification would be CCHIT (the non-profit Certification Commission for Health Information Technology). This has so far been largely responsible in setting basic standards for the healthcare IT industry.

Technology Does Not Stand Still

The ever-transitional state of high technology makes the need for a certification body a pressing issue. Many healthcare providers believe there is a need for vendors to get certified in a timely fashion. Indeed, for some, the issue of access to certified vendors is a bigger concern than meaningful use requirements.

As one source told HIT : « Technology does not stand still. If hospitals are required to implement major upgrades to their healthcare IT systems, based on solutions which may be certified only several months down the line, it would make no sense at all. But this is how it is, at the moment. And yet, we all do need the funds which ARRA provides. Or our competitors will get ahead. »

The problem is especially acute for vendors of niche sub-systems, for example, security modules. Many such players have not even thought about certification, until recently. Most Big League players, on the other hand, have been ready for a while, but are waiting for the certification body (or bodies) to do so, too.

From Meaningful Use to Optimal Value

Some vendors are taking the initiative to give customers the requisite training to ensure they are consistent with the meaningful use criteria.

A few have even created a niche in moving beyond 'meaningful' to 'optimal' ; others are replacing 'use' with 'value'. In spite of some commercial and competitive hype, such edu-

cation does play a useful role in catalysing receptiveness from users, above all physicians. This is one of the biggest barriers to a higher speed of healthcare IT modernisation, in spite of the ARRA largesse.

Physician Resistance Versus Patient Satisfaction

A variety of surveys in the US over the past six months have revealed a near-even split between hospitals which have managed to get their physicians to actually use new technologies, against those faring very poorly in adoption.

Nevertheless, hospitals reporting the highest physician adoption rates have also noticed better patient customer satisfaction scores.

If anything, such a direct linkage is one of the most powerful weapons in the arsenal of ARRA proponents.

Lobby Groups Step in

The Americans are pragmatic. Lobby groups have stepped up the pressure to accelerate healthcare IT modernisation via ARRA, by targeting some of its more-evident shortcomings. Recently, the powerful American Hospital Association (AHA) urged the US government to relax its rules on meaningful use and remove the requirement that EHRs be certified against all 24 criteria – especially since only 19 need to be reported upon, for a transitional period.

In a November 30 letter to Health and Human Services Secretary Kathleen Sebelius, AHA President Rich Umbdenstock wrote : « The AHA asks that the department take a consistent approach to meaningful use that requires hospitals to have EHR technology certified against only those 19 objectives they will use to demonstrate meaningful use. »

Otherwise, he argued, hospitals would be forced to pay for the acquisition of unnecessary technical capacity and additional functionality. This, in turn, would mean a delay in the achievement of meaningful use, « because they will have to negotiate contracts with their vendors for additional functionality and wait for the vendor to schedule implementation. »

It is urgent to Wait

More pertinently, Mr. Umbdenstock pointed to two factors which also bedevil efforts by hospitals to implement e-health solutions and EHRs :

- To buy relatively new/untested technology that has not yet been widely used, and may not be effective or best meet their needs.
- To be locked into technology currently available on the market, limiting their ability to benefit from innovative solutions that arise in the coming years.

Such a dilemma – of gambling on the best-to-come versus settling for the good-enough-that-is-available – is also known to decision makers in European hospitals.

One may do well here to recall French diplomat Talleyrand's advice: "Il est urgent d'attendre" (it is urgent to wait).



IT @ NETWORKING AWARDS 2011

25 projects from across Europe and beyond will compete in the IT @ Networking Awards 2011 on January 19 – 20 2011. This high-level competition will see candidates go through two rounds of presentations in an effort to persuade the expert audience and panel of judges why their solution deserves to win. If last year is anything to go by, attendees will not hold back in cross-examination of each presenter during the Q&A sessions before placing their vote for their favourite solutions.

Once again, the depth and breadth of candidate submissions for the awards convincingly demonstrate that European healthcare IT is second to none in its innovative capabilities. Nor do its researchers lack the zeal and drive to deliver solutions that address the ever-growing, real-world challenges of spiralling healthcare costs and an aging population in Europe. What is required is the will to get such a message known, in Europe's healthcare IT community – and beyond. This is indeed one of the over-arching goals of *IT @ 2011*. This article introduces you to each competitor in the running for the award.

EUROPEAN UNION

OLDES - An Affordable and Customisable Telecardiology System

Marco Carulli

An ageing population is considered to be one of the biggest challenges facing healthcare financing and delivery in Europe. e-health has long been seen as offering at least some solutions. But not all old people are the same. Neither are the diseases. Nor are the clinical conditions of each specific disease. The challenge is to fine-tune e-health offerings, and do this cost-effectively. The EU-funded "Older People's e-Services at Home" (OLDES) project has been deployed in the Czech Republic and Italy.

SIEMENS Soarian clinicals – The Workflow Driven and Web Based Hospital Information System Implemented in a European Hospital

Janine Zeilner

Soarian clinicals enables healthcare organisations to quickly and cost-effectively respond to the demanding needs of today's healthcare environments and to adapt quickly to change. The workflow driven design addresses the dynamic nature of patient care. As a result, healthcare organisations are positioned to manage processes as well as clinical data to help improve operational efficiencies and the business of healthcare. The project presented will show the advantages of workflow support and web based technologies of clinical systems.

EUREQUO: Web based Disease Registry for Quality Outcomes in Ophthalmic Surgery in Europe

Rainer Waedlich

Cataracts and refractive surgery are not only the most frequent interventions in the world, but also have a percepti-

bly high impact on the patients' quality of life. EUREQUO seeks continuous improvement in treatment, via interconnection of 18 European registries reporting clinical outcomes in standardised templates. This, in turn, permits exchange of best practices between practitioners on the basis of local, regional or pan-European comparisons. The next step is the development of evidence-based European Quality Guidelines. The project also promises replicability for other practices.

AUSTRIA

HIS/CIS for process optimization

Franz-Georg Pichler

Process optimisation (and the accompanying cost-saving) is the Holy Grail of IT. Given the huge challenges accompanying legacy systems, new hospitals remain the ideal test bed for optimised applications in areas such as patient appointments, bed-planning, surgery-scheduling and documentation, automated ordering across the supply-chain, as well as out-patient follow-up. Klagenfurt, Carinthia's largest hospital, used a new (700-bed) facility to upfront design, adapt and interface its medical, nursing and supply processes in order to optimise patient treatment and costs. Its experience may hold lessons for the spate of other new hospitals being planned in Europe and beyond.

BELGIUM

Clinical Workstation (CWS), the GPS of every medical user

Prof. Rudi Van de Velde

Based on a component-based, multi tier J2EE architecture, UZ Brussels, a teaching hospital has developed a Clinical Workstation. The key innovation is an application server, which provides depth embedding of the complex business logic of a medical environment at the back-end. This provides smart/holistic insights to users of all patient and hospital-related information and processes. The architecture allows evolution and is thus future proofed. One major challenge was to also simplify the user experience, to minimize training and manage change more efficiently. In spite of a massive increase in data, as many as 95 percent of physicians are satisfied with the system.

BULGARIA

Integrated automated system for remote diagnosis of patients

Dr. Kiril Karamfiloff

This project, at the "St. Ekaterina" University Hospital of Sofia, aims at automated remote diagnostics of cardiovascular patients, with critical, decision-support information transferred in the shortest period after an event. As ambulance crews know, a response within the first so-called 'Golden' hour of a cardiac event usually makes all the difference. The GPRS-based system transfers key data (ECG, heart rate, SpO2 and blood pressure) in real-time from a patient's home or another non-medical facility during transport by ambulance, while storing the information at the hospital (as well as relayed data on any actions taken by the ambulance/emergency teams).

GERMANY

From 'Micro-' Towards 'Macro-' Mobility – building efficient clinical processes by using a hospital-wide, standardised and 'near-' patient communication platform

Dr. Carl Dujat

Current HIS systems face a lack of functionality in integrating patient and clinical data, documents and reports, which are stored in special, often-proprietary clinical applications. Such a problem, in fact, underlines the challenges of setting up an Electronic Patient Record, to give an 'over-all patient-centric view' of all relevant clinical data within the HIS. This project took a best-practices approach to several overlapping issues – namely migration and consolidation of proprietary clinical data collections, the design and implementation of a hospital-wide Master Patient Index (MPI), the development of a standardised/IHE-based patient and clinical data repository and the use of unified object identifications (OIDs) for all patient and clinical data objects. Its goal is to simplify systems complexity, enhance standardisation without compromising flexibility and reduce vendor lock.

IT Meets Medical Engineering – process optimization in medical documentation

Dr. Andreas Bess

This project aims to optimise both IT and medical engineering and achieve cost savings. It has selected two specialist hospital test sites. In the first, current treatment processes are first analysed - without medical devices. This is followed by integration of the latter and a re-evaluation of the treatment processes. A comparison is then made to evaluate their pluses and minuses, both with and without device connections. In the second test site, treatment processes are analysed without electronic requirements management. This is followed by a prescriptive establishment of the parameters of electronic requirements management – from both an organisational and technical perspective, as well as their implementation and comparative evaluation.

INDIA

Healthcare for the Rural Poor - WHP's Initiative

Prachi Shukla

The project combines technology with village entrepreneurs acting as facilitators to connect rural communities with formally qualified urban doctors, enabling them to access timely and quality healthcare close to their homes. It is done through VSAT/ADSL connectivity coupled with a device – ReMeDi – that runs on two watts of power. The Remote Medical Diagnostic, integrated with audio-video conferencing software, enables getting real time diagnostics such as BP, Auscultation, Temperature and ECG. This runs at 64 Kbps and can be run over a telephone line as well.

ITALY

Open Source Clinical Portal to Integrate Care Processes and Research

Paolo Locatelli

This project draws on experience with an open-source/open architecture Clinical Portal for HIS access and seeks to become a reference case of software reuse inside the Italian healthcare environment. The Portal covers most features of an EHR. Alongside compliance with syntactic and semantic standards, parameterisation of new vocabularies and system modularisation, it allows networking of diagnostic subsystems and digitalizing of information streams between clinical processes. The unifying of clinical and administrative patient data, in turn, enables physician decision support.

Telecounselling Service for Ischemic Stroke Management

Claudio Saccavini

Ischemic stroke is a major cause of death and disability. Intervention via thrombolysis can only be done in a well-organised hospital, due to a high risk of haemorrhage. This teleconsultation project is based on a proven interoperability infrastructure and IHE Integration profiles, as well as consolidated clinical evaluation tools such as the SITS-MOST protocol and NIH Stroke Scale. It enables sharing of documents and CT images and secure videoconferencing. It aims at a five-fold increase in the number of thrombolysis treatments, within three hours of the start of symptoms.

ICTs System to Support Healthcare Logistics in Friuli Venezia Giulia Region

Paolo Forza

This project creates an end-to-end logistics platform for managing the pharmaceutical and medical devices supply chain in Friuli Venezia Giulia Region. The project has proceeded in two phases: firstly, to integrate warehouse and stock management, along with the procurement and delivery of the goods to local health authorities using a standardised format;



secondly, to monitor and regulate all aspects after the arrival of a product (traceability from warehouse to the final patient, verification of patient-to-drug association, stock control in hospital wards etc).

NORWAY

Inventing Digital Hospital Infrastructure at St Olavs Hospital Arve-Olav Solumsmo

The new 800-bed St Olavs Hospital has entailed a wholly new ICT infrastructure (5000 PCs, 5500 IP phones, 150 servers and 1100 wireless access points), utilizing a single converged IP network with over 100 completely separate VLANs, each with its own service level and rules for authorisation and access. The mantra of IP overall/all-over IP has involved integration of several disparate networks (data, paging, television, telephony, video, mobile, and clinical systems such as PACS and nurse calls) to one IP multiprotocol label switching (MPLS) medical-grade network with a reliability requirement of 99.999 percent. A digital EHR system is now in place, with speech recognition, alongside a hospital-wide drug dispensing system using automated pill pick machines.

Speech Recognition at St. Olavs Hospital Arve-Olav Solumsmo

In the deployment of Speech Recognition at St. Olavs University Hospital in Trondheim Norway, 550 doctors went from training to full use in 15 weeks. 62 medical typists were made redundant and the typing pool was reorganised and moved. All doctors' notes are now expected to be made using speech recognition. The project reduced the typing pool by 70 percent, makes nearly 20000 notes per month available as text earlier than before (68percent of doctors have noticed this improvement), has stabilized the output of discharge notes around 65 percent within one week (stabilized but not increased), while the text of notes has become shorter and more factual (doctors are divided over whether this is positive or not).

POLAND

3-Dimensional Telediagnostic System for Postural Deformities Detection and Monitoring Dr. Wojciech Michal Glinkowski

Detecting postural deformities usually requires on-site subjective examination. This project focuses on telediagnostic analysis of a patient's trunk surface for detecting and monitoring deformities, based on structured light which measures the body in 3D via projection of a set of raster images on its surface. One unique feature is the system's ability to operate remotely, carrying out interpretation by telemedicine, and utilizing a data warehouse. The system comprises independent modules which deal with measurement, data archiving and analysis, communicating over TCP/IP (with two channels, respectively for text and images). Telerehabilitation videocon-

ferencing services are delivered for patients located in distant schools, outpatients clinics or homes where physiotherapy programmes are unavailable.

RUSSIA

Modern Technology for Distance Interactive Tele-education: Our 12-Year Experience Valery Stoljar

Real, cost effective technology for distance interactive tele-education. For the past 12-years, physicians in Russia, UK, USA, Germany and France have utilised this video-conferencing technology for lectures, training courses, tele-symposiums, as well as real-time transmissions of operations and investigations– in paediatric cardiology, endovascular and cardiac surgery (point-to-point and multipoint videoconference). Every week specialists of Bakoulev Centre of Cardiovascular Surgery conduct regular training for doctors from the Russian regions, including interactive real-time transmissions of cardiac and endovascular operations (>4200 hours per year).

SPAIN

Web 2.0 to Share Medical Knowledge and Improve Care: The Scientific Social Network of Madrid Health Region Manuel Vallina

Madrid Health Region has launched a Social Network to allow physicians to share clinical and scientific knowledge, including medical images, videos and cases. The project aims to validate Web 2.0 tools for clinical collaboration and improve clinical outcomes via better communication among clinicians.

Medical Image Repository for physicians and citizens Carles Rubies

The development of a Medical Image Central Repository (MICR) is one of the fundamental pillars of the ICT strategy of the Catalan Ministry of Health. The MICR already integrates radiological images and is being extended to imaging from other specialties. Its design and technical qualities are state-of-the-art, allowing healthcare professionals to access images through the Catalan Shared Medical Record (HC3), with a unique patient identification (as required by law). Furthermore, it offers similar access to all Catalonian citizens through their Personal Health Record.

Catalan Health Personal Folder Joan Guanyabens i Calvet

The Government of Catalonia has introduced the Personal Health Folder (PHF) in order to offer its' citizens access to personal health information, through a virtual secure portal on the Internet. The PHF is currently being used and provides citizens with access to information on active prescribed medication and vaccines, medical reports and results of tests and examinations, as well as various e-services, such as conduct-

ing online transactions through the Virtual Office, communicating with health professionals and participating in social networks.

SWEDEN

System Feedback: If You Do Not Learn from Your Mistakes, You Are Doomed to Repeat Them (Santa Yana, 1863-1952)

Dr. Nina Margareta Lundberg

Medicine lags behind safety cultures in other walks of life, e.g. aviation, in applying a systems approach to error. An ICT technology, System Feedback, has been developed and used since 2002 for automatic radiological discrepancy detection, independent of local RIS- and PACS vendors, and providing feedback within and between sites. In turn, the project has led to new ideas from clinicians about functionalities needed to support daily learning and teamwork. In spite of challenges (such as the subjective nature of feedback and the design of a diagnostic error scale), these have been implemented in an iterative process over time, resulting in both continuous learning and knowledge sharing, as well as greater patient safety.

Infobroker – an ICT Healthcare Solution: Reflections and lessons based on a four years experience, building an Enterprise Infrastructure for image and text information

Dr. Nina Margareta Lundberg

The Västra Götaland (VGR) region of Sweden has data shared by 29 X-ray departments, 170 dental clinics, two clinical physiology departments and four cardiology departments through the Infobroker solution – Sweden's (and possibly the world's) first enterprise data storage centralizing patient information regardless of different sites' local EPR, PACS and RIS systems. Text from EPR systems are stored as DICOM-Structured Reports objects, together with the images. Interoperability is based on IHE. Infobroker has improved treatment and diagnostic quality, clinical quality, provided better load balancing of clinical and diagnostic resources, and enabled team working across traditional departmental boundaries.

UKRAINE

Tele-ECG for the Newborns

Dr. Anton V. Vladzimirsky

Cardiac pathology of infants is a major challenge. A new mobile, wireless digital tele-ECG system has been developed and implemented in Ukraine. The system consists of an ECG device with embedded telemedicine module (block for ECG transmission, in-built SIM-card, block for audio contacts, headphones with microphone) and call-center (PC with GSM-modem and special software which additionally allows to perform ECG analysis and automatic interpretation). In 2009, a wireless tele-ECG system was implemented in the neonatology unit of a Donetsk hospital. The project team assesses this as the world's first wireless tele-ECG for intensive care

in neonatology, with significant benefits, including a high level of diagnostic accuracy and a positive influence on clinical strategy and outcomes.

UNITED KINGDOM

McKesson – Electronic Staff Record (ESR)

Melanie Thorpe-Smith

In April 2008, McKesson successfully completed the implementation of the NHS Electronic Staff Record (ESR) – the world's largest single integrated HR and Payroll system. Based on Oracle HRMS, ESR replaced the NHS's 67 different systems with a single, national solution to modernise HR processes, improve administrative efficiency, provide accurate strategic information, and empower every member of staff. The challenges of rolling out ESR to 586 organisations and 1.4 million users made this one of the most ambitious and complex IT projects ever tackled.

Telehealth in Hull: Saving Lives, Improving Care

Paul Atkin

Telemonitoring equipment, installed in the homes of heart failure patients, allows patients to record pulse, blood pressure and weight – in addition to any symptoms – on a daily basis. Data are transmitted to a server, and viewed by a telehealth nurse. The system alerts the nurse to any substantial changes in the patient's condition, who then contacts the patient directly or arranges intervention by the community health team. Over 200 patients have benefited from this service since 2008, and evaluation of the service – one of the first of its kind – suggests that a large number of hospital admissions have been averted.

Increasing Clinician Productivity and Quality of Care with Mobile Clinical Computing

Maria Burpee

This Mobile Clinical Computing (MCC) Solution running in the University Hospitals Birmingham (UHB) NHS Foundation Trust is designed to increase clinician satisfaction and productivity and at the same time increases patient safety and quality of care. Through unique features like single-sign on and session transfer, clinicians have been able to save time. Doctors and nurses are now able to move around the hospital and log-in at any device with their applications following them. The MCC solution was integrated using a structured methodology, to plan, manage, monitor and analyze the results.

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SECURITY CONSIDERATIONS FOR MOBILE COMMUNICATIONS

AUTHOR

Louis Leahy
Inventor,
Armorlog™ VPCSM™

Smart phones and personal digital assistants (PDA) are fast replacing the desktop, laptop and notebook computers as the primary access device of digital network users. In some developing economies that rely on mobile phones primarily for communications they are already the dominant device.

An Ever-Growing Threat

The plethora of programmes that can now be instantly downloaded to these devices presents an ever-growing threat to organisations seeking to comply with their obligations to keep network assets secure and patient data private. Some of what is discussed here regarding Authentication topology is newly developed technology that is not yet in common use. However, some proactive experts are actively studying these matters.

There are also a myriad of threats in existence at various layers in digital networks and communications. However, these are beyond the scope of this article.

Here we address the common garden-variety scams that are used to dupe users in to revealing network access to attackers. I would suggest however that if proper end to end encryption is used on networks much of that risk could also be eliminated. Again, there appear to be many enlightened industry figures pushing for standards.

No Simple solutions

There are no simple solutions for network protection, only an ever increasing number of steps that need to be taken to try to ensure the organisations obligations are met. Firstly I will address authentication which I think is the primary issue that needs to be attended to. Then I will address application testing and lastly, I will outline the other aspects of protection that are worthy of consideration; if used in conjunction with an enhanced authentication topology and application testing, they will go a long way toward deterring the current crop of attacks.

'Foolishness' is no Legal Excuse

It is network owners who primarily need to address their methodology for authentication as a first step. At a basic level the system should protect the user from being tricked into revealing their network access credentials.

Currently, simple scams involve telephoning users and pretending to be from their IT departments and talking them into loading software or changing settings on their device to allow the attacker access or simply asking for their access credentials to the network concerned. Many IT professionals argue that people are foolish if they fall for these traps.

That may be true but the issue is that the ever increasing legal compliance obligations do not make provision for the stupidity or otherwise of an organisations' members – be they employees, associates or volunteers. Personally, I think that this approach is a poor excuse for defective services and products being sold to organisations. The level of sophistication of network attacks is getting so good that even seasoned power users or IT professionals could be tricked.

Some systems are, in fact, so poorly designed as to allow an attacker to reset the access credentials to a set of their choosing.

Experts also Vulnerable

There was a recent case of a test of government department members run by its own hierarchy and to which the members failed dismally. They were warned of an upcoming departmental inspection of their computers and that they should provide their access details so the computers could be checked before the inspection to ensure they were not breaking any rules. Something like 35 percent of the participants fell for the scam.

These were well-trained people with access to sensitive network assets. I give this example not to embarrass anyone but to simply demonstrate that anyone who suggests networks can be protected by observation is really perpetuating a flawed security architecture.

Designing robust authentication routines

Programming routines for authentication need to be designed so that it is made difficult for the user to be tricked into revealing their credentials.

In addition to phishing scams is a huge library of software used to attack networks to secure the user name and password details. Consequently, I recommend credentials should not be in the public domain (this includes the user name). Nor should the logon address – this would make it difficult for an attacker to know which user logs on where and as a result makes it more difficult to launch an attack.

At present, most companies tell everyone where their users logon. In addition, their user name is often in the public domain, since it will be their actual name, email address, network operating system username, or a username pseu-

donym – used, for example, in a social networking site. Such a structure means that only one item is required for an attacker to identify to get network access.

It is important that a network authentication system compels the user to use credentials that have not been used elsewhere to prevent weakening security through duplication. This can be achieved by forcing the use of an extended set of graphics keys outside the traditional key sets.

Deterring Malware

Furthermore, in order to deter malware, it is important that the underlying number sequence is proprietary to the organisation and not a system in common use. It is also preferable that the device be used as a pointing device and that any keyboard interaction by way of keyed input be disabled during authentication to prevent logging of credentials by malware (keyboard logging) or timing attacks.

Equally important in the design of the authentication topology is the need to deploy time outs and lockouts to prevent sustained attacks to guess the user name and password. The design deployed should be such that the user is not inconvenienced by the use of the lockouts. If the correct design is instigated it is possible to frustrate hacking attempts without annoying the user by having him or her locked out of their account for no apparent reason from their perspective.

Vulnerability Test and Certification

In addition to the above generic steps, which we advocate as part of our technology, we believe other methodologies also need to be taken by network owners. Many of these are already common practice. However, we believe they all need to be put in place to provide the necessary level of protection for organisations to meet their obligations for protecting data and assets.

Firstly it is important that any applications that are to be used on the network or on devices used to access the network have been tested and certified for vulnerabilities. There are now companies online that test at binary level.

This means testing is now more thorough and can be automated, which keeps the cost relatively low for developers. However while this is primarily the responsibility of the software vendor, the network owner needs to ensure that policies and procedures are in place to ensure that the certification has been undertaken for any products introduced to its network so as to limit known vulnerabilities in code.

The Specific Challenge of Mobile devices and Diverse OS

Virus and malware scanning is yet to be fully developed for mobile devices. However, it is a necessary component to mitigate risk of attacks.

One of the barriers to implementation by vendors is the increasing number of operating systems to contend with. Obviously these should also be deployed on the network to-

gether with appropriate intrusion detection software.

There is also a major issue for network owners having to contend with differing access standards of various cellular network providers for the devices.

“Users should not be required to resort to observation in order to try to keep networks safe. That is a job for professionals, and the responsibility of the owners of a network.”

It may therefore be necessary for the organisation to have policies limiting the scope of supported devices and cellular networks, to keep costs in check. There are also considerations as to whether approved cellular networks are complying with provisions that mirror those required by the organisation to meet its obligations for data protection and privacy.

Certificate or token arrangements can also significantly improve network security. The main factors for consideration are the costs of implementation and maintenance for a user base.

Costs for licensing are dropping as more vendors come into the market. Costs, in fact, appear to have dropped by up to 90 percent overall compared to some years ago.

Nevertheless, as always, there is the caveat of quality verses price and the trade off there to be taken into consideration. There also are single sign on arrangements. However, I would caution against the use of any purely automated access process that does not challenge a user trying to access a network. This has specific dangers as the risk of unauthorised access from a compromised client device, undetected for an indefinite period, greatly increases the scope of anyone alleging breaches in an attempt to bring a class action.

Monitoring Data Traffic

Firewall management and data traffic monitoring are critical to successful network security management. A key concept that should be implemented is two way port management: networks often block incoming traffic on ports; however, all outgoing ports are open. This means that if a rogue piece of software is installed, it may not be picked up if it uses a port that is not being monitored.

Thus, it is important that ports which are not being monitored are disabled.

This poses many headaches for network administrators when it comes to getting applications to work for users, and consequently there is a reluctance to run tight controls.

It is true that many attacks are now on the most popular port types, such as port 80 used for computer browser software. Nevertheless, we would insist that it is important to

limit the risk of undetected infiltrations occurring for extended periods, given the reasons outlined above.

At the moment, there also are a range of software options under development for managing the output from protection mechanisms to highlight areas of possible risk and assist the network administrator. As more vendors roll out such solutions, competitive forces will decrease costs.

The Need for Standards

As mentioned previously, encryption is clearly a good way to protect network assets. There are various facets here, including data encryption on storage devices and encryption of communications and connections between devices. Encryption is considered to be more effective if the encryption occurs without the receiver knowing the senders encryption method. However, as there are ongoing difficulties with standards, these issues are subject to difficulties in implementation. In addition, the absence of end-to-end standards means that there also are risks that the data may become unencrypted depending, for example, on the routing of traffic.

Updates: The Inherent Vulnerability

One area of security which is getting a lot of media attention (with good reason) is that of keeping software on computers up to date. This is a dangerous issue. I believe that it is only a matter of time before attackers start to exploit automatic updates as a way to trick users into installing malware.

Once again, fortunately, new vendors are coming on to the market with software to monitor a network computer or user device and automatically update any components that are required. I think this is a really useful development: by controlling the update process via one application, the risk of a rogue process masquerading as a legitimate update is greatly reduced.

This would also relieve general users of the responsibility of trying to decipher complex technical processes and determine if something is real or not. Once again, this is a return to my original premise that users should not be required to resort to observation in order to try to keep networks safe. That is a job for professionals, and the responsibility of the owners of a network.

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EVIDENCE-BASED DESIGN

A Key to Collaborative Innovation of Business Models in European Healthcare

How the built environment in healthcare influences output in terms of patient safety, efficiency, quality of care, staff turnover, total economy etc, is often overlooked. Perhaps this is because hospitals are different to “normal” companies; the building and the operation in public owned institutions in complex welfare models is often organised in separate political, managerial and budget systems. But in the present state of massive resource scarcity added to increased globalisation, we need to rethink and redesign the concept of healthcare and hospitals as extremely complex and dynamic systems.

It is pivotal to learn how to catalyse all available determinants if we want the future state of healthcare in Europe to be signified by cutting edge business models of maximum quality and efficiency. This need might explain the increasing interest in evidence-based design (EBD). The purpose of this article is to explain and discuss how EBD can contribute developing a European language and shared methods to innovate healthcare.

The European attitude towards EBD can be described as ambiguous at least. I am concerned that this ambiguity towards EBD – as we experience in Scandinavia - is consuming focus and energy that instead could be used for more structured and open-minded debates leading to a development of a European concept of EBD. Such a concept could be a tool to benchmark various governmental models and systems of healthcare aiming towards innovative and sustainable solutions for modern healthcare. The discussion on EBD seems to be more focused on terminology than on substance. One risk related to such a discussion is that while we discuss whether we believe in EBD or not patients die, staff get injured and money spent on healthcare does not offer optimum payoff in terms of quality and efficiency. Another risk is that the trend towards generic global standards will threaten a dynamic development of national, context-based and innovative solutions necessary to cope with the ever-changing environment of healthcare.

The Pros and Cons

The topic of EBD is an inviting battlefield for hospital managers, architects and consultants with their often, strong opinions. Some say “old wine in new bottles” – we have always done it the EBD-way although we do not write research reports, guidelines and manuals. Others refuse to use evidence that is still young and to some extent scientifically premature. And then there are those who – using strict logic – claim, that design and architecture is tied to the context and culture that it is embedded in and therefore it is impossible to use what is considered to be proven evidence from another country like the US. The latter argument is often stated in the local Euro-

pean debate on hospital innovation due to the undisputed large diversity between national models of healthcare.

Those who claim to embrace and perform EBD often fail when the magnifier of methodology and scientific investigation is set to assess the strength of the conclusions and the possibility for generalisations. Many perform EBD as if it is only a matter of healing gardens that can be seen from the bedside of the patient, single patient-rooms and famous artwork in the lobby. Most often pre- and post-occupancy data are completely missing, making it impossible to compute the actual result of the change in design. Finally, many EBD processes have a total lack of coherent, multidisciplinary and transparent methodology in design, making it difficult to navigate and impossible to assess universal perspectives.

“The balance between efficiency and quality must not be “either/or”, but work as twins in a coherent sustainable system.”

Stop the Battle – it Kills Patients and the Business

I say: stop the theoretical discussion and jump to a higher level of debate. The fact is many patients are hurt and killed by safety issues in the built environment due to the negligence of relations between the physical environment and what goes on in-between the walls. Many patients and relatives have bad experiences of the buildings and rooms. However, they choose to accept and silently adjust to the circumstances as if a hospital stay is something that must be endured and survived – and not be enjoyed in a healing, meaningful and comfortable way. On their part, staff often struggle with stress, and the challenge of delivering high-performance care despite bad design and a chaotic organisation.

Common to all of the above scenarios is that neglecting the consequences is damaging on several levels. First: irrespective of your position in healthcare – as owner, manager or staff – you are in a business that can either heal or hurt others in your custody. Herein lies a responsibility to contribute with whatever works from a combination of available resources and methods for the individual patient – this is the ethical part of the game. Second: it's pivotal that money – often in EU countries the tax payer's money – spent on healthcare is invested in a way attributing most value in terms of health and healing patients. The balance between efficiency and quality must not be "either/or", but work as twins in a coherent sustainable system.

The New Paradigm

The new paradigm of healthcare innovation and hospital business models is that hospitals consist of five main components: building, equipment, human activity, infrastructure and logistics – understood as handles on the machine or keys on the keyboard. These must be constantly kept in optimum synergy in an ever-changing context of scarce resources, shifting demands and technological developments. This new paradigm will catalyse the potential for optimum health and efficiency; the methods of evidence-based design can serve as tools.

But a theoretical paradigm is not enough. What we need to address, from my Scandinavian position, is the structure and sense of ownership that works as a secondary foundation of incentives and systems for strategic and managerial decision-making. In a matrix way of categorising the various types of ownerships, the early start of the USA in the research fields of EBD may be explained by the simpler, single-owner model where the focus on output-responsibility in the market is obvious. At the other end is the publicly owned hospital, where the owners are "you and I" in the shape of a bulky bureaucracy and diffuse groups and sectors. This is often the model in much of the EU, making it challenging to responsibly lead and manage hospitals as coherent and sustainable businesses.

The Theory of Evidence-Based Design

Many mix up the concepts of EBD and healing architecture. The simple differentiation is that evidence-based design is a method to obtain healing architecture. But EBD can do more than provide healing architecture. The focus of EBD is optimising the value of the desired outputs. These can be healing architecture, but can also be low energy, high ambulatory efficiency, low staff turnover or lean processes. It depends on the specific strategy plan of the business model and the measures chosen to assess the success or performance.

Because of the high level of complexity in healthcare and design we need to move the discussion from rigid theoretical discussions often focused on the battle between qualitative and quantitative research paradigms and accept EBD with a more multidisciplinary approach, first and foremost as a tool developing a common language. This will enable us to benchmark the mechanisms in different complex systems that can

explain for different outputs. Performed in the framework and relations between EU counties and with an open, collaborative attitude to global trends and communities, the door to real healthcare innovation is open.

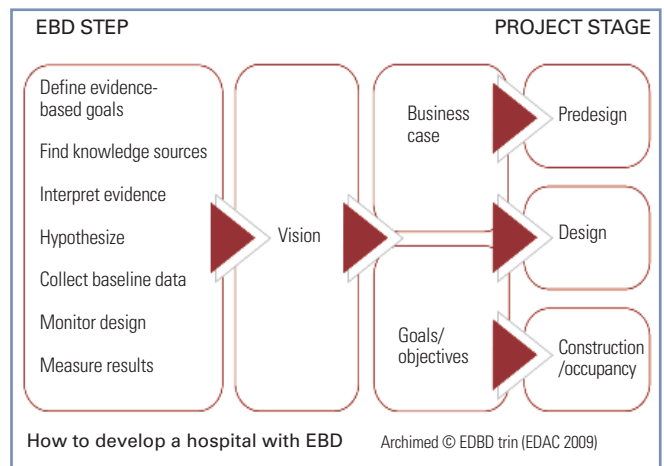
The Methods

The discourse of EBD is still signified by its novelty as research paradigm although the vocabularies in terms of definitions and tools are increasing. Again the "first movers" from overseas are trying to lead the way. Since 2009 the certification and accreditation of EBD as a process or method – EDAC (Evidence-Based Design Accreditation Certification) has been a possible "school" of practice. Yet we are only 385 people worldwide who are certified, mainly from the US. The distribution also shows a majority of architects and designers, with a lack in the presence of healthcare executives and hospital managers.

EDAC offers a methodology and hereby a framework for mutual understanding and a platform for co-creation of both a common language and future solid evidence. EDAC is not a rigid system, but a place to start the journey and is open for meaningful change of methods as long as EBD can be improved.

Yes, EDAC was born in the US and with close inspection of the current methodology we could dismiss its relevance to European healthcare systems. But that is too easy. EDAC is thought as an international set of methods and the invitation from EDAC is clear: jump on board and join the co-creation of both language and tools towards global innovation from local and contextualised best-practices.

As in the US, healthcare and hospitals all over Europe are challenged by scarcity of resources – the hunt for the best business model is on. We need to activate and cultivate the interrelationships between the built environment and operations. EBD can be our shared tool – combining the best of all different healthcare models – cutting edge and totally sustainable concepts for institutions, buildings and processes that are signified by optimum synergy between the built environment, human activity, equipment, infrastructure and logistics. This would be a great contribution to future health in Europe.



E-HEALTH IN SUB-SAHARAN AFRICA

Beyond the Hype – Part II

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In this concluding section of his article (the first part was published in our previous issue), Prof. Mars continues his reality check on e-health in Africa – its potential and the challenges ahead.

Lack of Capacity Development

Ignorance about telemedicine has been cited as a reason for poor uptake of telemedicine in developing countries. The same holds true for medical informatics.

There is a shortage of medical informaticians in the developed world. The situation in the developing world is worse. Organisations like the Fogarty International Centre and the American Medical Informatics Association have provided funding and assistance, while, on their part, African academics have formed the African Academic Public Health Informatics Association (AAPHIA).

What has emerged is the lack of capacity within universities to offer education and training in medical informatics. AAPHIA exemplifies this, with academics from 10 African institutions wanting to offer some form of medical informatics education and training, but few having the capacity or expertise to do so.

Capacity will develop over time, but where do these trained people then work? Few sub-Saharan African governments have created posts and career paths for medical informaticians.

There is, for some reason, an expectation that doctors and nurses will use telemedicine without training. In time, telemedicine will become an integral part of the practice of medicine, as have the telephone and fax, and there will then be no need for specific training. Until this point is reached, there is a need for training, especially in the developing world where Internet penetration and computer literacy is low. The International Society for Telemedicine and e-health has developed a basic introductory telemedicine training programme to introduce health professionals to telemedicine and various vendors offer training in the use of their product. Turnover of medical staff in rural Africa is high and ongoing training is required.

Ideally, telemedicine training should be part of medical student education and nurse training with students exposed to its routine use. Until there are enough active telemedicine services in place this will not occur and telemedicine training for doctors and nurses will have to continue. There are few formal academic telemedicine qualifications in the world and only one in Africa.

Continuing medical education using information and com-

munications technologies offers promise. It is well documented that doctors in rural settings feel isolated from their colleagues and the provision of continuing medical education over distance is a way of overcoming this.

Policy and Legal and Ethical Considerations

Policy or rather its lack, and policy that is parochial, is seen as a potential obstacle to the growth of e-health in the developing world. It is estimated that approximately half the countries in the world have or are working on an e-health policy, strategy or roadmap. e-health policy is also linked to other policies like IT, Telecommunications, eGovernment, Science and Technology and Education, and included in these are often policies on privacy, confidentiality and data security. In budget-constrained countries some form of government policy on e-health is required if pilot projects or programme specific projects are to become sustainable and integrated into the health system. It is unfortunate that none of the Africa Union, NEPAD or African Health Ministers published policies and strategies mention e-health, Tele-health or Telemedicine. e-health is mentioned as a spin-off of the NEPAD eSchools policy.

“Few sub-Saharan African governments have created posts and career paths for medical informaticians.”

Legal and ethical guidelines need to be formulated that enable the use of e-health and not impede it, while at the same time protecting both patients and the professionals. Africa is, and will be, dependent on international support for telemedicine and cross-border telemedicine practice. While acting locally, countries need to think globally, to harness the capacity of among others, the African Diaspora. The European Community is developing guidelines and legislation for cross

border telemedicine among its members and care is needed that this takes into account the need for telemedicine practice outside of the community. What is needed is an International e-health Convention on international cross border telemedicine and work on this has commenced.

E-health in Sub-Saharan Africa

In spite of the major obstacles, there are several successful examples of e-health in sub-Saharan Africa. In health information systems the BEANISH project (Building Europe Africa Collaborative Network for Applying IST in Health Care Sector) builds on the HISP project and provides an adaptable open source District Health Information System used by 11 African countries.

The Open MRS movement, led by the Riegenstrief Institute and Partners in Health provides a customisable open source medical record system for developing countries. It is active in eight African countries. The OASIS project (Open Architecture Standards and Information Systems) aims to develop an interoperable system that moves away from silos of information organised vertically by disease and design and assess interoperable e-health systems for resource constrained settings.

The Réseau en Afrique Francophone pour la Télémedecine (RAFT) based at the Hôpitaux Universitaires de Genève is active in 15 African countries and has been running since 2001. Largely focussing on webcast tele-education it has been used for telemedicine. Weekly teaching sessions are broadcast at relatively low bandwidth (30 kbps) to up to 42 sites.

iPath, run by the association TeleMed Basel is an international open source web based platform for store and forward clinical telemedicine, discussion groups and education. Information is not available on the number of cases submitted by doctors in Africa. Doctors in nine countries in sub-Saharan Africa have formed 36 discussion groups on the iPath platform. Activity within these groups is not available.

The African Teledermatology Project has offered free store and forward services through the web based teleder.org platform since 2007. Again use has been very low. In the first 2 years, doctors in 13 sub-Saharan African countries submitted 345 cases, which is one case per country per month. The Mali IKON project is a store and forward teleradiology project that overcomes the problem of all the radiologists in the country living in the capital, by linking six regional hospitals to the capital.

The Pan African e-health Network is a project of the Indian Government, supported by the African Union, that aims to eventually provide VSAT based telemedicine and tele-education facilities to one hospital in every African country with links to 5 regional super specialty hospitals, 7 universities in Africa and 12 super specialty hospitals in India. One hour of synchronous telemedicine and five store and forward consultations are offered free for the first five years. Continuing medical education is also being offered but uptake is apparently low. To date infrastructure has been installed in one hospital in 22 countries.

Other services include Medical Missions for Children, active

in 13 countries, Remote Access for Health Professionals providing Internet-based support for Ismaili health professionals in Tanzania, the Orbis cyber sight programme, the Children's National Medical Centre in Washington's paediatric echocardiography service to a hospital in Uganda, Johns Hopkins' medical training programme in Ethiopia and the Evangelical Lutheran Church's activities in Tanzania. AMREF has embarked on an eLearning programme aimed at raising the qualifications of 40,000 nurses in Kenya. Rwanda is looking at a similar project. The University of KwaZulu-Natal has been active in setting up videoconference-based medical education and continuing medical education programmes in South Africa and several Central African Countries and offers postgraduate qualifications in Telemedicine and Medical Informatics.

Nevertheless, few services are fully integrated into any country's health system.

Conclusion

So what do you as the Minister of Health make of all of this? The need to have realistic expectations based on limited budgets is apparent, as is the need to develop a plan, be it a policy, strategy or roadmap. Clearly the infrastructure issues are beyond the budget and the control of the Ministry of Health. It is time to call for an inter-ministerial meeting of Health, Telecommunications, Science and Technology, Education, and Law and Order, to find common solutions.

While seemingly obvious, the ministries have in the past tended to act as individual fiefdoms and collaboration has not been the norm. There is need to share scarce resources and address expensive connectivity.

The possibility that clinical telemedicine services may improve patient management is appealing but doctors are already overworked and under-paid, so advice is needed on the development of legislation that will enable international telemedicine. At the same time if the medical school could be supported through international tele-education, there is the opportunity to improve services in the country and produce more specialists. Doctors and nurses at the medical school must look at ways of implementing continuing medical education in rural areas.

But within a limited budget what are your priorities to be? A functional district health information system providing timely and accurate data which is automatically analysed will probably benefit the most people and assist planning and budgeting. The current paper based system only produces reports three to six months after data collection. An open source solution needs to be investigated and is, you think, the highest priority. A hospital information system would be nice to have but is not essential. Neither is an electronic patient record or an electronic medical record. Ongoing education will improve both the standard of care and raise the morale of the health professionals, so that will be the second priority. At the same time there is need to develop an e-health strategy, legislation and guidelines, a change management plan, and local capacity.

There is much to be done.

INTERACTIVE TIME-SHIFTED TV

Enhancing Quality Of Stay For Hospital Patients

Many patients seem resigned to the fact that hospital stays are to be 'endured.' Is it possible to make such stays enjoyable, at least to an extent? Some EU hospitals have implemented a Quality Policy aimed at achieving just such a goal. One of these, portrayed below, won an Award from the French National Assembly. Its secret is to combine the necessary functionalities of data entry in the increasingly familiar patient bedside terminal, with patient leisure and entertainment; one might well take the liberty of calling this the emerging era of 'meditainment'.

Centre Hospitalier de Douai (CH Douai) is one of northern France's major hospitals, both in terms of the number of patients seen and in the diversity of services and specialties offered.

Originally founded in 1628, CH Douai was recently completely rebuilt and modernised. The new facility was inaugurated on September 26, 2008, replacing the historic 380-year-old Hôtel-Dieu with a comprehensive, world-class facility.

The new 65,000 m² complex has 640 beds, 391 single patient rooms, and a total of 450 multimedia terminals for the use of both patients and hospital staff. The Emergency facilities were quadrupled in area, a new 1.5 Tesla MRI was added, operating and hemodialysis facilities were modernised and expanded, and patient care and reception areas were upgraded and optimised.

Motivation

CH Douai's commitment to the quality of care is embodied in its Quality Policy, and focused on the care, safety, rights, and well-being of patients. The hospital actually strives to exceed the guidelines and regulatory requirements of the Regional Hospital Agency (l'Agence Régionale d'Hospitalisation) and the French Health Authority (Haute Autorité de Santé). Among the eleven General Principals in the CH Douai's Patient Rights Charter, they include a commitment to quality care, access to information, and respect for the patient.

As part of the modernisation, CH Douai decided that one way to further the goals for the quality of patient care was by using electronic bedside terminals to make communication, patient education, and recordkeeping simpler and more efficient.

For recordkeeping, caregivers can access and update patient files directly from the bedside in real time, including filling prescriptions. Having all patient records, test results, histories, prescriptions, and protocols available improves the coordination and continuity of care for all stakeholders. Decisions about patient treatment become more patient-centered, minimizing the risk of redundant or contradictory treatments.

For communication and education, CH Douai wanted to be able to use the terminal as a primary conduit for caregiver-pa-

tient communications. Patient education about post-discharge treatment procedures and plans is a key element in the continuity of care. Patients can also use the terminal to access news and information about in-hospital events and live educational details. In addition, patients can use the terminal to order meals and other services, as well as purchase optional amenities.

Finally, CH Douai wanted to make its patients' stays more enjoyable, less frightening, tedious or frustrating. It envisioned a well-cared-for, well-informed patient having the freedom to surf the Internet, chat, web-conference, play games, watch movies, and even pause live TV (especially helpful when doctors or nurses visits might come during a programme).

"The patient education and entertainment capabilities of the system perform double duty; they contribute to the comfort and ongoing quality care for the patient, but patient fees for entertainment services also help defray the cost of the bedside terminal system."

The Solution

Telecom Services is a French systems integrator focused on the healthcare sector, particularly communications and entertainment services. It delivers phone, Internet, email, games, radio, television and other multimedia services to hospitals, over their fibre, Ethernet, or coaxial cable networks.

Telecom Services implemented and installed the end-to-end

bedside patient information system with touch-screen terminals for CH Douai. The screens can be used by hospital staff to access patient files using the Apicrypt secure messaging system, developed by the non-profit APICEM (L'association pour la Promotion de l'informatique et de la Communication en Médecine). This access is an important contributor to CH Douai's "Superior" rating by the French Health Authority for Patient Recordkeeping (Tenue du Dossier Patient – TDP).

The patient education and entertainment capabilities of the system perform double duty; they contribute to the comfort and ongoing quality care for the patient, but patient fees for entertainment services also help defray the cost of the bedside terminal system. For this reason, special care was taken in designing compelling television services.

"Our objective was to bring a contemporary solution to the hospital that allows in-patients not just to be entertained and informed but to be able to do that on their own terms and convenient time," says Pascal Wagener, CEO of Telecom Services. "We recognise that more and more hospitals in France wish to offer not just broadcast TV to their patients, but also a range of personal entertainment services such as video-on-demand and TV time-shifting."

To access such services, Telecom Services turned to GoBackTV, a vendor of cutting-edge solutions for television such as stream-based personal-TV applications, including IPTV over cable, middleware, switched broadcast and network DVR.

In addition to Internet access, a games package, and Voice over IP handsets, Telecom Services implemented the RetroVue® Personal TV solution from GoBackTV in the bedside terminals.

RetroVue allows hospital patients to rewind broadcast video, to start over a programme whose beginning they missed, or to pause live TV during medical procedures and resume when the doctor or nurse has left. RetroVue also delivers Video on De-



mand for movies and educational content, and provides a familiar television-style navigation interface for television, movies, information, and service menus.

Industry Recognition

This state-of-the-art solution and the CH Douai were recently honored with two major European awards.

The first award, sponsored by the French Assemblée Nationale (National Assembly) and the magazine Acteurs Publics (Public Players), is the prestigious 2010 Victoires de l'Innovation Hospitalières (Victory in Hospital Innovation). The Victoires de la Modernisation de l'État 2010 (Victories of the Modernisation of the State) recognizes those working to ensure a quality public service in hospitals.

For the second award, Le Trophée de l'Innovation Territoriales 2010 – TIC Santé Sociale (Territorial Innovation Trophy for ICT and Social Health) – CH Douai bested six other finalists in the ICT/Healthcare category.

"GoBackTV's RetroVue allows us to offer cutting-edge entertainment services to our patients, which enhances the quality of their visits," said Edmond Mackowiak, Director of the Central Hospital Douai. "We at Douai are all happy and proud of this innovation and modernisation prize. We installed a Terminal MultiMedia, which is a new technology, for the patients and hospital staff, with access to various TV, Internet and phone services. As an example, a patient can now share pictures of a new baby instantaneously, from the maternity ward, for family outside the hospital to see. It also allows doctors to access patient files remotely, from the patient's room."

HITM ANALYSIS – BEDSIDE ENTERTAINMENT SYSTEMS

The concept of improving "patient experience" via bedside entertainment and communication systems has acquired considerable momentum in recent years. Britain was one of the first countries to make formal recommendations on the topic. The NHS Plan 2000 explicitly urged hospitals to provide radio, TV and telephone services from each bedside. However, 10 years down the line, the British experience has been unsatisfactory - to both private sector service providers (most of whom have yet to make profits) or to patients; the Patients Association has billed the systems as "an unfair tax on the sick". Part of the problem in the UK was that the entertainment component was priced at a flat rate. Patients paid for an entire movie on TV, even if they watched it for just a few minutes. The possibility of viewing a movie on demand (starting and stopping at will, and paying by actual use) simply did not exist. Last but not least, the phone costs were often 'outrageous' - as described in an official investigation by regulator OFCOM in 2006.

Such shortcomings may become a thing of the past due to the innovative design of the system at CH Douai, and the possibility of differential pricing and cross-subsidising of high-end services (time-shifted TV, Internet, gaming) against necessities such as the telephone.

DRIVING OPERATIONAL EFFICIENCY

How To Make 'IT' Work

It has long been an axiom that IT systems, and their efficient use, can help control escalating healthcare costs. An industry expert who has worked on a variety of projects for the National Health Service (NHS) in the UK offers his insights.

Pressures

The information necessary to drive operational improvement within the health sector is already stored in one or more system within healthcare organisations. However, extracting and analysing the key information can be instrumental in yielding the necessary savings.

The recent budget announcement in the UK by Chancellor George Osborne highlighted that GBP 20 billion over the next four years must be saved. The NHS now has to deliver more for less. The successful use of IT can contribute significantly to this challenge.

A Rich Legacy of Projects

There is no lack of IT systems available to the healthcare industry, and I have worked on more than 60 successful improvement projects for the NHS in the last three years alone, all primarily focused on improving the efficiency of operating theatres and clinics in which the development of new systems has played a key supporting role in the success.

Projects using these customised tools can quickly and sustainably deliver productivity increases of 10 – 20 percent over two to four month timescales, with a corresponding improvement to the quality of care delivered.

Typical financial benefits can range from GBP 750,000 to GBP 2 million per year per Trust, and can be generated through a number of routes including increased case volume, decreased volume being outsourced, cost reductions, and decreased length of stay.

Making it Simple

One of our recurring key findings is the importance of displaying data visually in order to impart the maximum information to the user in the minimum amount of time.

All standard systems will produce lists of patients, procedures, key performance measures or whatever data is requested. But very few will analyse, prioritise and present it in a way that instructs the necessary action to take in a simplified manner.

Highly-customised information systems are emerging to play an increasingly important role in the project because they bring to light – in visual terms – information including theatres not in use, consultants' timetables, lost time causes and length of stay opportunities.

This allows areas for improvement to be identified and addressed as well as subsequent improvements to be measured in an accessible and uncomplicated manner – in a way no other systems are currently capable.

“The target 8 percent increase in theatre utilisation was achieved, as well as a 33 percent reduction in lost time due to theatres starting late.”

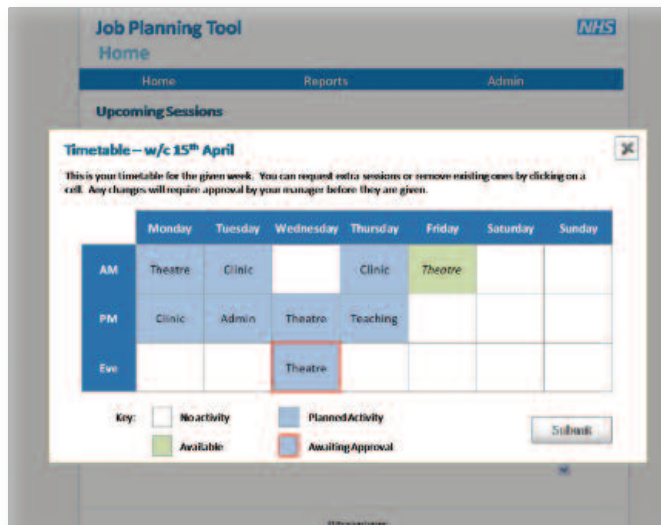
Using a core suite of components, it is possible to combine and adapt them to create a unique system designed to meet a specific Trust's needs. Recent examples of such work focus on utilisation, consultant performance and causes of lost time; live theatre input; session planning and booking; simple, clear planning and management of Consultants' PAs.

Three core principles are rigorously applied fundamentally to each project in order for significant positive results to be quickly achieved.

1. Solutions must be simple and focused. Enter data once, and stored only in one place and intuitive;
2. All data must be live or nearly live – reviewing data that is not up-to-date will not drive improvement, and
3. If you give the right people the right information about losses, they will improve.

Making IT work

Every NHS Trust has a different mix of standard systems. This is why highly customised solutions tend to work much bet-



As shown, the utilisation tracker focuses on utilisation, consultant performance and causes of lost time.

ter than an off-the-shelf package that must be configurable to cope with every possible permutation.

Typically, 30 percent of a project will be understanding and agreeing the metrics and identifying where the data to calculate them will come from.

Half of the time will be spent actually doing the customisation, and 20 percent will be used for implementation and sustainability. Minimal user training is normally required as the systems are designed to be simple and intuitive to navigate.

Case Studies

A comprehensive suite of IT tools was recently created for

Northwest London Hospitals NHS Trust. At the start of the project the Trust was maintaining theatre records using a paper-based system.

This made it very difficult to work out how well the theatres were running and generally took two weeks to get even simple measures such as daily utilisation. The new system allowed for touch screen entry of operating progress in theatres which feeds straight into a tracker to show live progress and performance – a real cornerstone of the Trust-wide programme to deliver actual improvements where it matters.

A speciality within a Northampton NHS Trust was experiencing difficulty meeting the 18-week patient pathway given the existing capacity of its operating theatres. In other words, this meant that an increase in utilisation of eight percent was required to both meet government targets and to reach sufficient capacity to perform the necessary additional operations and make cost savings resulting in GBP 243,000 additional profit to the Trust.

The eight-week project focused on operating theatres, ensuring theatre lists started on time and delays were minimised. Working closely with clinicians, theatre staff and nurses from the day surgery unit and wards, the main causes of lost time were identified and measured.

The systems supported the implementation of new processes that minimised delays between patients by ensuring the next patient was checked and brought to the anaesthetic room in a well co-ordinated manner.

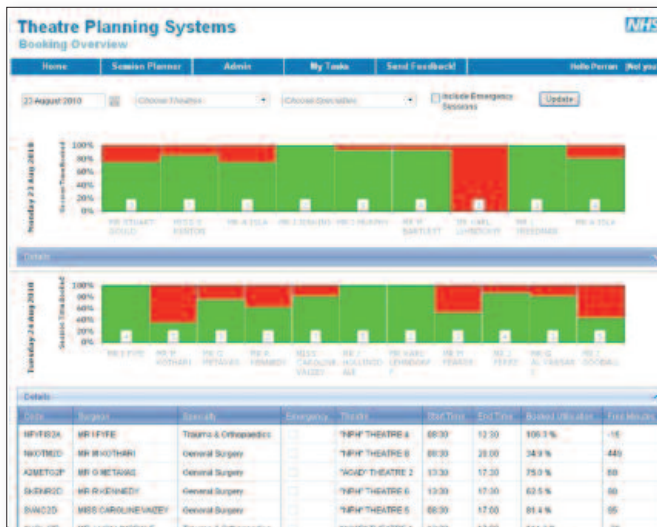
Working collectively with the management team, secretaries and booking clerks, the team focused on ensuring that operating theatre lists were appropriately booked and reduced cancellations.

To ensure lists were appropriately booked, the original method of list booking was revised and a new system was implemented. The list booking was reviewed every other day by members of senior management to ensure that every list was booked with an optimum number of suitable cases.

The target 8 percent increase in theatre utilisation was achieved, as well as a 33 percent reduction in lost time due to theatres starting late.

“There is no lack of IT systems available to the healthcare industry.... One of our recurring key findings is the importance of displaying data visually in order to impart the maximum information to the user in the minimum amount of time.”

The systems have consistently delivered between 10 and 50 percent improvement in the key performance measures, on average representing around a six-month return on investment.



Other systems include the theatre planner, the clinic manager, the ward communicator and the bed manager.



The **theatre planner** is designed to optimise the session planning and booking, while a related system, the **clinic manager**, helps to maximise clinic throughput. The **bed manager** reduces length of stay and operations cancelled as a result of unavailable beds.

Equally as important, the standards of care received by patients can be shown to be improved as a result of better information available, more predictable waiting times, less cancellations and shorter waiting lists.

We are already seeing evidence that cost pressures are leading to salami-slicing of services and staff, which invariably has a negative impact on an NHS organisation, reducing income or leaving remaining staff to do more.

However from our experience in working with NHS Trusts throughout the country, blindly applying cuts will not allow the NHS to cope with increased demand without an increasing in funding.

The NHS should now be intelligently targeting areas to improve quality and efficiency.

Having the proper management systems in place will provide a visible picture of capacity and demand and will drive the required efficiencies which are now being realised across the private sector. Newton's work has demonstrated that well designed, well developed, well implemented IT systems can be used to deliver real measurable savings to key areas of all NHS Trusts.

This strategy will build on the record investment of the last decade and help deliver a better, more responsive NHS that will fully meet the demands of the 21st century.

HITM ANALYSIS – VISUAL DISPLAY OF QUANTITATIVE DATA

Two axioms underpin the challenge of using visual displays for quantitative data.

1. It is, by far, easier – for most people – to make sense of pictorial, graphic information.
2. Given the increasing complexity of numeric data in today's world (driven by easier access to computing horsepower), the ability to translate ever-growing masses of such data into sensible, usable information has become a challenge in its own right.

And yet, as senior hospital management becomes more demanding for instant access to aggregated top-line analysis and decision-support tools (e.g through MIS dashboards), those who can metamorphose mountains of numbers into pictures have a God-given skill.

One must-read for IT managers in the coming holiday season may be **Edward R. Tufte's 'Envisioning Information'** (Graphics Press, 1990). The author, described by The New York Times as 'The Leonardo da Vinci of data' and by The Journal of the American Statistical Association as 'awesome' has one mission objective: to "display data for precise, effective, quick analysis" and "explain complex material by visual means".

The book covers a vast range of topics – sourcing data from multivariate analysis and time series to portray them in relational graphics, data maps, escaping flatland etc.

Case studies include charts for decision-making in medicine, technical manuals, design of computer interfaces and websites and on-line manuals.

What you and me consider an everyday task – to get Excel to draw out our piechart or build a Powerpoint – is painstakingly dissected and reassembled (through the microscope of color and information, layering and separation, small multiples) to show what Shakespeare noticed a long time ago: that beauty lies in the eyes of the beholder.

Two of the book's most intriguing points are what Tufte calls the "data-ink ratio" and "detection of graphical deception". Let me say no more...

PROMOTING PATIENT DATA SAFETY WITH NO HEADACHES

AUTHOR

David Mount,
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NetIQ

Good information governance is a particularly important area for the healthcare profession where large amounts of personal information about employees and patients are handled every day. Ensuring that access to patient data is secure while also ensuring its availability for relevant clinicians and managers, is critical. Nevertheless, it seems that information security at this fundamental level of access presents serious difficulties for many healthcare organisations.

Take the example of the UK National Health Service (NHS). Earlier this year, the country's guardian of information protection, the Information Commissioner's Office (ICO) criticised NHS organisations for a range of serious information breaches and mishaps with patient data. In fact, the ICO stated that a quarter of all 250 reported data breaches involved NHS hospitals.

Less Malice than Mistake

It is interesting to look at what lies at the heart of these examples of poor data security. Typically the security problems arise from mistakes rather than malice, such as an Excel spreadsheet of medical records is emailed to another department with no password protection, or passwords being casually shared among staff. The examples tend to appear minor though the potential for serious breaches is considerable.

There is also real scope for regulatory authorities to issue a stiff fine and inflict a damaging blow to a hospital's good reputation.

Information Governance and Regulatory Compliance

Information governance is therefore becoming a compliance issue for healthcare IT professionals. In the case of the UK, the Information Governance Statement of Compliance (IGSoC) was developed by NHS Connecting for Health (NHS CFH) to deal with key information governance issues and to provide a tool to support its responsibilities as a data controller. The requirements for improvements in information security are being ratcheted up, for example, a new level of IGSoC sets a tougher regime for NHS organisations and requires even deeper changes to how patient data is properly handled and protected.

The Need for Simple but Robust Policies

Adhering to these changing regulatory regimes can be daunting, but, the starting point for good IT security within the healthcare sector really starts with getting simple and solid procedures and policies in place.

Arguably, good IT security begins with knowing where your data is stored. Statistics suggest that most data loss actually occurs directly from relational databases. Therefore, protecting the content of these repositories is the first layer in a mul-

ti-step process. Having the ability to report in real-time on who is doing what within your environment is a powerful way of managing this risk.

Security and Housekeeping

However, secured data does still need to be accessed by the right people. This is often managed with directory programmes like the ubiquitous Microsoft Active Directory that are the central repository for IT organisations. Active Directory holds critical data on every user, their access privileges and their individual profiles that must be carefully managed.

IT organisations find managing Active Directory extremely challenging because it is a huge and complex administrative burden. The root of the problem is that the programme's own management tools don't give the detailed level of control necessary. This contributes to a general problem with house-keeping of user access rights and creation of rules, especially those associated with groups. The result is Active Directory can become a weak point in a healthcare organisation's information governance.

Security and House Cleaning

It is not uncommon that the number of groups in Active Directory gets unmanageable. IT organisations are presented with a dilemma. The job of cleaning up these empty or stale groups becomes more and more difficult because deleting a group may break or block access of users to mission critical applications. So it can be less of a risk to leave the "unknown" groups out there than delete them, despite the potential security risk or compliance breach.

The ideal solution would be having in place a defined process for managing a group's lifecycle. Groups should be reviewed and signed off by the business owners to maintain compliance, security or just to keep the directory clean.

Admin controlled and shared accounts can cause major issues when it comes to effective auditing as they are often not linked to specific individuals. Controlling access is only worthwhile if there is clear authentication in place to identify the user and establish that they are authorised to perform these actions on the system. Detailed user activity and log analysis is needed, as is clear segregation of duty to prevent access creep.



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Improved Identity and Access Management Tools

IT administrators need to take advantage of tools that can monitor for configuration creep and can help organisations manage privileged users. However, to be useful, the output of these tools needs to be easy to understand. This enables non-IT literate people to have visibility of when and where data is accessed and what changes have been made to the system.

Having better identity and access management systems and policies in place is only half the battle. The critical issue that must be overcome is that when a policy is put in place it has to be accepted by the individuals – the clinicians, managers - it relates to. And, as case studies of good information governance procedures being by-passed indicate, it is not good enough to have an excellent security policy if you cannot assure patients and the regulators that this is understood and applied by everyone, everywhere, all the time.

Of Policy and Complexity

In other words, security policy management and enforcement is the toughest challenge facing IT administrators. The typical sequence of events starts with a policy being circulated to all the relevant people. With more complex policies, a training course will often be carried out.

However, at the end of this process, there is no assurance that the policies are being followed and that they have been interpreted correctly. There is a need to ensure that the policy is understood, such as brief questionnaires that the users must answer correctly to signify their acceptance of the policy and regular checks to make sure it is still being followed further down the line.

This compliance requirement risks adding another administrative layer of checks to be managed and implemented. The real requirement is for an approach that makes the policy controls entirely systematic and seamlessly part of how staff manage information in step with strict data protection requirements.

The Promise of Automation

This is an opportunity for IT professionals to consider how security policy management procedures can be automated and thus applied more rigorously. Healthcare organisations can ensure that whenever they have policy in place relating to IT, for example access to the internet, they can tie this in with an automated process to manage the human interaction.

Initially it will re-direct the user to the policy centre like NetIQ VigilEnt Policy Center, presenting them with the relevant policy document that they need to review and accept. It will then test them to ensure they understand the policy before allowing them access to the internet. As soon as this process has been completed once, the system will recognise this and then provision access the internet to that user moving forward. It will then only re-direct the user to the policy centre when there are changes in the policy. Essentially this means that the organisation is now using technology to extend the people side of its business into the process side.

HITM ANALYSIS – HOSPITAL SECURITY BLIND SPOTS: A RESULT OF REGULATORY COMPLIANCE ?

Reports about patient data being at risk is not confined to hospitals in the UK or Europe, alone. Across the Atlantic, a major audit in 2008 by security firm Kroll Fraud Solutions found that US hospitals faced major (and routine) risks of patient data breaches, including identity theft. The reason, ironically, was too much focus by the hospital management on medical privacy and compliance. Most critically, Kroll concluded that the privacy provisions of HIPAA would do little to prevent malicious hacking.

The costs are not insignificant, averaging as much as 6.3 million dollars per incident. Efforts by hospitals to remedy the situation do not seem to have been satisfactory. In July 2010, South Shore Hospital in Massachusetts announced the loss of personal information on no fewer than 800,000 patients, including names, Social Security numbers, addresses, medical histories, and, in some cases, credit card and bank account data too.

By automating many of the processes associated with data management, the focus can be shifted away from the IT department. By ensuring that key information is automatically processed and the output is produced in non-IT specific language, users at all levels can effectively interpret information and act on it. This helps to reduce bottlenecks that can be caused by over-reliance on the IT department.

Concrete Returns for Healthcare Organisations

An example of this in action would be when a user is due to be granted administrator or root level access privileges. This level of access gives the user the potential to use and edit large amounts of sensitive and system critical data. Automation can be used to gather information to support, or advise against, this level of access for the user. Information including helpdesk tickets, case control, and configuration management can be collected easily and used to send a query to the owner of this data to check they are happy for the new user to be granted access.

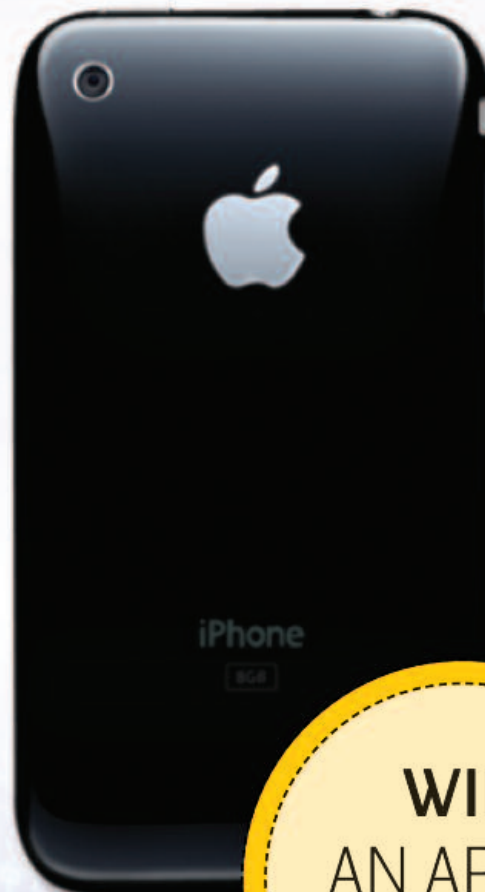
Automating security policies can have very concrete returns for healthcare IT organisations. This can apply to being able to better respond to audit regimes, avoid penalties without a heavy expenditure of resources and even make efficiency gains. Demonstrating that patient data is safely handled can have financial rewards such as reducing insurance premiums for litigation protection.

The key for managing these IT security processes and being ready for the health information governance auditors comes down to automation. And the regimes proposed are getting tougher every year. With organisations required to show that their users not only understand and accept key policies, but also demonstrate continued improvement, without bringing automation into the mix this is a near impossible task.

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Overview

THE HEALTHCARE SYSTEM IN FRANCE

AUTHOR

HITM Editorial Team

Like other European Welfare States, France has a system of universal health care. This is largely financed by the government through a system of national health insurance. However, there are some major differences in the structure of the French healthcare system and in its financing, versus its EU peers. Most crucially, France spends over 11 percent of GDP on health care, much higher than the EU average.

Primary Healthcare

Primary healthcare is provided in France by GPs (médecins généraliste). GPs refer patients to specialists and/or hospitals, acting as 'gatekeepers' according to a new coordinated consultation procedure ('parcours de soins coordonné'). They are also responsible for following diseases on a routine basis, that is, between acute phases which require specialist intervention.

GPs are legally obliged – based on a roster system – to contribute to night and weekend duty. In emergency care, GPs can be called by the SAMU, the emergency ambulatory medical service, to visit a patient's home. Such visits are also required when a patient cannot travel for consultation (for example, with the elderly or children).

GPs have freedom to choose where they wish to practice. France is, indeed, witness to considerable geographical disparities in GP distribution – with a high concentration in and around Paris and in the southern regions, once again in the larger cities. Such variations have long been a politically contentious issue, given that people in the northern regions

have generally poorer health and higher mortality rates.

Nevertheless, over 80 percent of the French population live in a municipality served by one or more GPs. For those who do not, the median distance to a GP practice is 7 kilometres. The latter figure is however considered to be significantly higher in rural areas.

According to the World Health Organisation's latest figures (2006), French patients contact their GP 6.5 times per year on average – slightly behind Belgium (6.6) and Germany (7.0), but well ahead of the 4-4.5 times per year in Scandinavia, 5.4 in the UK and 5.7 in the Netherlands.

Hospitals in France

About 60 percent of French hospital capacity exists in publicly-owned hospitals. The remaining capacity is split evenly (about a fifth each) between private, for-profit hospitals and non-profit organisations (which are semi-public, and owned by religious organisations, trusts or insurance associations).

The French hospital system has been significantly impacted by recent healthcare reforms (see next article). One key issue is a growing level of concentration in capacity:

6 percent of French hospitals account for about 58 percent of total spending.

French hospitals provide secondary care, almost always after referral from GPs – as well as 24-hour emergency wards, to which access is obtained by both referrals and via public services such as the police and the SAMU ambulance service.

Care is provided at both in-patient and outpatient departments (which also provide pre-hospitalisation diagnosis as well as post-hospitalisation follow-up).

Bed Numbers

In 2008, licensed hospital bed availability in France was 6.9 per 1,000 inhabitants. Of this, just over half (3.5 beds) were in acute care – a ratio which has remained steady since the year 2000 (when the figure was 4.1 acute care beds out of a total of 8.0).

Psychiatric care accounted for a small share (0.9 beds per 1,000 inhabitants in 2008), which is relatively higher than Germany or the UK (0.5 and 0.6 beds), although the latter figure conceals the far higher ratio of psychiatric beds in the UK (where total hospital bed capacity is a mere 3.4 per 1,000 inhabitants).

HOSPITAL BEDS PER 1,000 INHABITANTS IN FRANCE: 2000 – 2007

	2000	2001	2002	2003	2004	2005	2006	2007	2008
ACUTE CARE	4.1	4.0	3.9	3.8	3.7	3.7	3.6	3.6	3.5
PSYCHIATRIC CARE	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9
CHRONIC CARE/OTHER	2.9	2.9	2.8	2.7	2.8	2.6	2.6	2.5	2.5
TOTAL	8.0	7.9	7.7	7.5	7.4	7.2	7.1	7.0	6.9

Source: OECD, 2010

Trends in Hospital Stay

The length of acute care hospital stay in France has traditionally been lower than its EU peers. Like other countries, it has also declined over recent years.

However, the pace of such a fall has been less dramatic than other major EU countries. In 2000, for example, the average length of acute care hospital stay in France was 5.6 days (5.2 days in 2008), as against 9.2 days in Germany (7.8 days in 2008) and 8.2 days in the UK (7.1 days in 2008).

Healthcare Financing

Financial responsibility for health care in France is borne by a statutory health insurance system, within the purview of the wider State system of social security and welfare. Since 2000, this statutory system covers the entire French population.

In turn, all French residents are obliged to pay health insurance. The Social Security Funding Act sets the level of contribution based on earned income, as well as capital gains and benefits (pensions and allowances).

The insurers consist of statutory funds. There are three main funds, which together cover 95% of the population.

Affiliation to a fund is based on professional status: workers in industry and commerce, workers in the agricultural sector, a national insurance fund for the self-employed (non-agricultural), a fund for civil servants and one for students.

Unlike some of their European counterparts (above all Germany), health funds in France have little strategic competency. Instead, the State is responsible for the financial and operational management of health insurance – in terms of establishing premium contributions and determining the levels of reimbursement.

In terms of financing, the statutory system only funds about three-fourths of health spending (78 percent in 2008). The balance is funded by private/complementary insurance, as well as out-of-pocket payments.

Supplemental insurance coverage is available from private insurers. However, the bulk of the latter are not-for-profit bodies, known as mutualities. Unlike some other EU countries, participation in supplemental insurance schemes in France is also widespread (about 85% of the population avail of it); as a result premiums are relatively modest.

Since 2000, the State also provides healthcare to those outside the statutory system (those who have never worked). This regime is financed via general taxation. It also provides a higher rate of reimbursement than the profession-based system, for those who cannot afford to make up the difference with supplemental insurance (or out-of-pocket payments).

From the 'user' side, patients are generally refunded 70 percent of most health care costs. However, the level of reimbursement is 100 percent in case of chronic diseases or expensive treatments.

Hospital Financing

The French hospital sector accounts for almost half total healthcare spending. Of this, just under half is directed at existing infrastructure, with 30 percent going to upgrades and renewal, and 20 percent to new projects.

Overall, French hospitals have long been associated with a lack of transparency, along with little incentives for efficiency at individual facilities. Equally important is a sharp deterioration in the quality of buildings and other infrastructure. This is partly due to dwindling outlays on maintenance – ironically, a direct result of reforms in 1996.



		Date
Population (million)	62.8	2008
– in metropolitan France		
Live births/1,000 pop.	12.4	2009
Deaths/1,000 pop.	8.6	2009
Life expectancy (years)	81.5	2008
GDP (billion Euros: 2009)	1,607	2009
Total healthcare expenditure (% GDP)		2008
Total healthcare expenditure per capita (PPP dollars)	11.2	2008
% of healthcare system financed by public funds	3,696	2008
Number of CT scans (per 1,000 inhabitants)	77.8	2008
Number of MRI scans (per 1,000 inhabitants)	130	2007
Number of acute care beds (per 1,000 inhabitants)	48.5	2008
Length of stay (average in days)	3.5	2008
Number of physicians (per 1,000 inhabitants)	5.2	2008
Number of nurses (per 1,000 inhabitants)	3.3	2008
Percentage of households with broadband Internet access	8.0	2008
Percentage of individuals using the Internet for interacting with public authorities	57.5	2009
	43	2008

Source: European Central Bank, OECD, WHO, EU Commission, International Telecommunications Union (for Internet statistics).



In the mid-2000s, for example, no fewer than six of 10 university hospitals were reported to have inadequate safety standards in as much as 25-75 percent of their surface area.

The Hospital 2007 reform plan (see next article) sought to target some of the more serious shortcomings in the hospital financing system. Public hospitals were provided incentives to create hubs of medical excellence – under the responsibility of individual doctors who contract with the hospital management - in order to organise and regroup activities more efficiently.

This stipulated a stepped up introduction of activity-based (DRG-like) payments for both public and private hospitals, to replace the previous system by which public and private non-profit hospitals availed of global budgets dependent on historical costs (private for-profit hospitals had an itemised billing system).

Physician Payment

Most physicians have private practices but are paid from the publicly funded insurance funds. Consultations have a pre-set fee, determined annually by the government

(and currently 22 Euros for GPs and 25 Euros for specialists). 70° percent of this is reimbursed to the patient.

Though the government fixes this fee and reimbursement rate, physicians are free to charge whatever fee they wish for a consultation or an examination. Specialists, in particular, with high levels of referral and reputation, often charge more than the pre-set fee.

Private Spending

As mentioned, reimbursements under the compulsory system are (with some exceptions) capped at 70 percent for physician consultations and 35-100 percent for prescription drugs.

The balance is met by supplemental insurance and out-of-pocket payments.

After declining in the early 2000s, out-of-pocket payments have shown a rising trend in France. Their share was 7.1 percent of total healthcare spending in 2000, and 6.7 percent in 2004. Since then, the level has steadily risen, from 6.8 percent (2005), 7.0 percent (2006) and 7.1 percent (2007) to 7.4 percent in 2008.

Nevertheless, it is crucial to underline that the share of out-of-pocket payments

in France is far lower than much of Europe. In 2008, the corresponding figure for Germany was 13 percent, for the UK 11.1 percent and for Italy 19.5 percent. The share of out-of-pocket payments is also far higher than France's in model Nordic Welfare State countries – about 15 percent in Denmark, Norway and Sweden, and almost 20 percent in Finland.

In constant PPP dollar terms, the out-of-pocket spend in France has also risen dramatically over the past decade – from 181 dollars in 2000, to 210 dollars in 2004, and 270 dollars in 2008.

“The length of acute care hospital stay in France has traditionally been lower than its EU peers. Like other countries, it has also declined over recent years “

Healthcare Staffing

Physician density in France has been stable in recent years, at about 3.3 per 1,000 inhabitants in the period 2000-2009. This is more or less in line with the EU average.

Nurse numbers have however risen sharply, in line with other major EU countries such as Germany and Italy (but unlike the Netherlands). One reason for this is the decrease in average hospital stay and a considerable increase in emphasis on ambulatory interventions. Nurse density has risen - from 6.7 per 1,000 inhabitants in 2000, to 7.6 in 2005 and an estimated 8 in 2008. This corresponds to a satisfactory ratio of 2.5 per physician. However, France has still some way to go. Nurse density per 1,000 inhabitants in 2008 in Germany was 11.6.

HEALTH SPENDING IN FRANCE: THE NUMBERS

	2000	2001	2002	2003	2004	2005	2006	2007	2008
Health spending as share of GDP in %	10.1	10.2	10.5	10.9	11.0	11.1	11.1	11.0	11.2
Health expenditures per inhabitant in USD (PPP)	2,553	2,726	2,931	2,992	3,121	3,306	3,425	3,593	3,696

Source: OECD, 2010

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HEALTHCARE REFORMS IN FRANCE

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The French healthcare system, in some senses, resembles “a riddle wrapped in a mystery inside an enigma”. This may seem an unflattering comment for some; it was the expression used by Winston Churchill to describe the Soviet Union on the eve of the Second World War. However, one could make a case for at least some degree of editorial license, given the huge conflicts in perceptions about France’s healthcare system, internally and overseas.

‘Best in World’ or ‘General Confusion’ and Crisis ?

In 2000, the World Health Organisation ranked the French healthcare system as the “best in the world.” This was in spite of the fact that France lagged much of Europe in terms of standard benchmarks for high-tech healthcare (such a MRI or CT scanners per capita), and also faced other, major structural challenges.

Indeed, barely four years later, a French official body (the High Council for the Future of Health Insurance) warned that the country’s health system was in a state of “general confusion” and faced a severe crisis – including a six-fold rise in its public budget deficit by 2020. Such self-criticism, however, did not prevent the prestigious ‘New England Journal of Medicine’ urging the US government to take lessons from the French healthcare system.

Slowing the Roller Coaster

More recently, perceptions of healthcare in France have become little less of a roller coaster ride.

The French continue to seek ways to trim spending and increase efficiency, given the fact that spending on health as a share of GDP, at 11+ percent, continues to remain Europe’s highest. This will be exacerbated by the global financial crisis, as borne out by the turmoil on the streets of France with regard to first phase reforms to the pension and retirement systems.

American Admiration Remains Feverish

Nevertheless, American admiration for

France has not waned. In 2008, NPR Radio ran a series of features comparing global healthcare systems, and observed that at “half the cost of US health care, France offers universal coverage without sacrificing choice.”

In May 2010, Veronica de la Cruz, a celebrity news anchor at CNN, said America had a lot to learn from France’s health system – above all, an issue dear to Europeans - fairness versus the “purely commercial values” of the US. Ms. de la Cruz says she witnessed this first hand after her taxi had an accident, and she bumped her head. In an interview with the Paris-based English journal ‘Connexion’:

I went to hospital. I’m not even in the system, but they saw me right away and did tests. They said it would be 22 euros and they would send the bill to my address in New York. In America you can’t even walk in the door without an insurance card.

Or, if you don’t have one, they’ll bill you 10,000 dollars for what I had; they will give you a lot of tests you don’t need because they make money on each. There is no cost control.”

Reality Much More Complex

In reality, the issue of how good (or even excellent) the French healthcare system is far more complex than those provided by anecdotal judgements or one-line verdicts – such as that by the World Health Organisation in 2000.

Indeed, in November 2010, the authoritative Commonwealth Fund compared the healthcare systems of 11 industrialized countries. The Fund found that while the French fared at the top of the list on some counts, others did better elsewhere.

Underlying Structural Challenges Aggravated by Economic Crisis

The French themselves know this, better than anyone else.

Their healthcare system, like those in some other European countries, is world class. However, it also faces similar structural challenges – topped by the increasing demands of an aging population and rising costs – especially for new therapies. Tough enough as all these are on their own, the ongoing global economic crisis has made matters even worse. Such challenges, in turn, have to be accommodated alongside a legacy of healthcare infrastructure, the bulk of which dates back three decades or more.

1996: First Serious Steps at Reform, Achievements Limited

Indeed, in 1996, the French government began major healthcare reforms – principally targeted at strengthening quality and efficiency. Some of the measures included the founding of a healthcare accreditation body, new regional hospital agencies (RHAs), the establishment of cash-limited budgets at both national and regional levels and a contracting procedure between health authorities and hospitals.

These moves, however, did little to ensure long-term control of escalating costs, and led the way for far more drastic moves proposed in 2004 by the High Council for the Future of Health Insurance.

Hospital 2007

Hospital 2007, an ambitious 5-year reform programme, was implemented for the pe-

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riod 2003-2007. This was followed by the ongoing Hospital 2012, for the years 2008-2012.

Briefly, Hospital 2007 sought modifications to financing systems as well as the rules and frameworks for hospital planning and governance, in both public and private hospitals. It had three lines of action:

1. Decentralisation and investment in healthcare facilities – especially for hospital modernisation. Outlays of 6 billion Euros were provided as direct government subsidies with additional self-financing by hospitals.
2. Reformed governance for public hospitals, in order to provide greater autonomy to medical staff in managerial decisions.
3. Introduction of payment by results

(T2A, in French 'tarification à l'activité'). Overall, Hospital 2007 has led to significant modernisation programmes at hospitals, not least by several hundred smaller institutions which have (or are being) merged or regrouped – into larger and more viable entities.

There have, however, been many criticisms of the Plan, not least due to the unpredictability of new technologies on overall costs, and the difficulties of developing multi-year investment plans as a result.

The biggest criticism is that the reforms have paved the way for a two-tier hospital system. Though the internal organisation of public hospitals have improved, their boards remain under the control of the government, alongside old, bureaucratic mindsets as far as investments and recruitment are concerned.

In addition, the new system has entailed a potentially far higher risk for public hospitals – who are compelled to respond to the full range of healthcare demands (including lower-margin, higher volume services - the so-called public service obligation). For them, the challenge is to control costs rather than manage and fine-tune the range of services on offer. In contrast, the private sector has more flexibility to specialise, and most concentrate on surgery, maternity care and sophisticated specialty areas.

The Next Step in Reforms: Hospital 2012

Hospital 2012 (Le plan hôpital 2012) was announced in February 2007 by French Health Minister Xavier Bertrand as a follow-on to Plan 2007. Like its predecessor, it is focused on hospitals – both private and public, as well as achieving excellence in medical science and healthcare delivery.

With an outlay of 10 billion Euros (in two equal tranches in 2007 and 2009), the new Plan intends to build upon the positive results and experiences of its predecessor, while ameliorating the negative ones. Analysts have identified two principal thematic pillars for Hospital 2012.

The first is a continuation of the organisational and financial restructuring elements from Hospital 2007. The second is to "accelerate" the implementation of high-tech hospital information systems, with the aim of increasing outlays on healthcare IT - from 1.7 percent of spending to 3 percent by 2012.

e-health IN FRANCE

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France's Hospital 2012 reform plan seeks to double the share of spending on healthcare IT from 1.7 percent - a level at the bottom rungs of the EU league table - to 3 percent, and their modernisation constitutes one of the Plan's over-arching objectives. The hub of the French healthcare IT modernisation programme is the Dossier Médical Personnel (DMP) or 'personal medical file', which has sought to create a Electronic Medical Record for all French residents covered by health insurance.

The French government has not been hesitant to highlight the ambitions of the DMP project, as "a natural catalyst for the modernisation of the French healthcare system and the quest for greater efficiency within it."

The DMP was established by law in August 2004. The first major trials on the DMP were conducted in 2006, followed by a call for projects in 2007.

As with similar initiatives elsewhere in Europe, the Web-based DMP seeks to enable access to patient data from anywhere at any time. It is meant to improve health-

care efficiency and quality by facilitating information exchange and coordination between health professionals as well as medical facilities, during consultations, diagnosis and treatment. According to the French government, the DMP will cut fraud and yield annual savings to the State of between two and three billion Euros.

The DMP will be delivered by via IT service vendors grouped into six regional consortia.

- Cegedim, Thalès;
- D3P (RSS, Microsoft, Medcost / Doc-tissimo);

- France Télécom, IBM, CapGemini, SNR;
- InVita, Accenture, La Poste, neuf cegetel, Intra Call Center, Jet Multimedia, Sun Microsystems;
- Santénergie (Siemens, Bull, EDS), and
- Santeos (Atos, Unimédecine, HP, Strateos, Cerner).

The DMP programme is administered by a central government agency, the Groupe-ment d'Intérêt Public dossier médical personnel, or GIP-DMP. Oversight is provided by the National Council for Information

and Liberty (CNIL), a government body concerned with civil liberties and data protection. Finally, a third agency, the Groupe-ment d'Intérêt pour la modernisation du système d'information hospitalier (GIP MISH) coordinates at a national level the modernisation and adaptation of hospital information and patient information systems to ensure they meet the national DMP interface standards.

Early Concerns: Security, Heterogeneous Technology, Synchronous/ Standalone Initiatives

The DMP has been the focus of significant controversy in France, with emotive attempts by the mass media to portray it as an invasive tool, most memorably in terms of one which would allow Big Doctor to become Big Brother. There was also a formal appeal to the Council of State to declare it unconstitutional. The Council rejected the claim, but the government was forced into the defensive.

This was followed by a report from French Senator Jean-Jacques Jegou in 2005, which called the DMP "unrealistic" and described it as an airplane without a flight plan and a cockpit without a pilot.

Since then, the DMP has faced numerous other difficulties, due to the sheer complexity and heterogeneity of the healthcare IT market: core systems unable to share data (some of the most advanced hospitals in France were found to have 50-60 different IT systems), insufficient integration into hospital information systems, disparate products on the market as well as fragmented governance by an assortment of stakeholders, etc.

In 2006, a White Paper from Lesiss (the French association of healthcare IT professionals and industry) found only 10 percent of French healthcare facilities had shared patient dossiers at the hospital level – while 30 percent had partial sharing.

Another problem was to ensure that local and regional initiatives did not duplicate one another, and instead plugged seamlessly into a national healthcare IT/e-health infrastructure, which in turn would be in tune with still-emerging EU standards and regulations.

Such a challenge had cultural facets too: France has a strong tradition of tech-

nological elitism and resists being a follower. There was thus a real risk of an undue focus on technology for its own sake, rather than the increasingly user-facing requirements of the growingly cost-sensitive healthcare environment in Europe.

2010: From Prototype to Formal Rollout

Draft specifications for the DMP were formally published in October 2009, with responses from developer-vendors received by December 2009.

In March 2010, a proposal from a consortium led by ATOS Origin and La Poste was mandated to produce the first DMP prototype.

In June 2010, DMP compatibility technical specifications were released to enable vendors to develop software required for interfacing with the DMP.

In August 2010, a development kit containing some sample code and testing tools was released to allow developers to test their software for compliance.

In November 2010, the DMP compatibility procedure was implemented, to allow developers to attest that their software can be integrated with the DMP and provide the required quality of service for users.

The timeline remains tight. The first version of the DMP (DMP 1) is due to be rolled out by the end of 2010.

A Complex IT Project

DMP 1 has four principal sub-systems:

Core architecture

The core DMP IT architecture is the bedrock of the project. Its aim is to create, modify and consult electronic health records. Healthcare professionals and patients will be able to consult and add to the DMP.

For security and data confidentiality, the DMP must be interfaced with health professional card (CPS) systems to allow reliable authentication. If patients give their consent, their DMP will interface with external data sources (e.g their pharmaceutical file and reimbursement history).

The DMP itself has to be accessible through either an Internet browser or in the shape of web services to allow integration into the routine work environment of healthcare professionals.

Communication

A dedicated DMP communications portal enables (a relatively vast amount of) information to be made available to users – both patients and healthcare professionals.

Datasheets, graphics/videos and witness testimonies (by both patients and healthcare professionals) will provide answers to common questions (what, why, who, how), as well as an interactive platform for continuously updating such information.

Support

A hotline will be implemented for user support team. This will allow helpdesk staff to answer questions from users, ranging from how-tos, through requests for information, to reports of technical malfunctions and other problems. The information feedback is aimed at giving a real-time overview of system rollout, use and growth.

Management Information System

The final facet of DMP 1 is a management information system. This is aimed at feeding back statistical information from the three sub-systems above, and aggregating the findings to provide a high-level overview of the project.

Included here will be real-time data on the number of active DMPs, users and views, communications and information sharing, as well as the overall load (documents, graphics, videos) in the system. Its aim is enable rapid responses to any faults and proactively anticipate evolution of the system, in order to support it.

Other deliverables will allow for testing user interfaces for accessibility and simplicity, and to ensure that technically, the system is operating as it should.

Next Steps

If all goes according to plan, DMP 1 should be operational by the end of 2010.

Thereafter, the full-scale project is due to be rolled out in stages, in a coordinated manner, with structured inputs from all of parties involved (patients, healthcare professionals, IT managers and institutions, software developments, and last, but not least, the regional and national authorities – including those with legal oversight).



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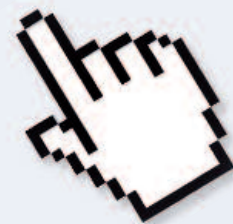
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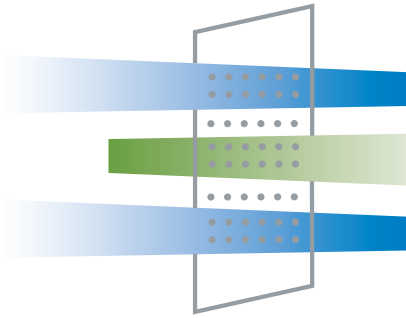


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