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SOLIDARITY IN
FACE OF ADVERSITY

Heinz Kölking

> It is now all the more important that each of us answer for a common Europe and create the prerequisites for positive development.

Europe challenges all of us. It is not easy to remain on the right path for a common Europe against the current background of unstable economies and the financial crisis. It is now all the more important that each of us answer for a common Europe and create the prerequisites for positive development. If this happens under the stipulation of solidarity and subsidiarity in all areas of life, I am confident that this will turn out well.

Nevertheless we have to cope with a painful setback for our association. The Greek association of Hospital Directors has decided, in coordination with the Committee of the EAHM, to postpone the 2012 congress in Athens and move this year's European congress. This was a difficult decision and we would have enjoyed carrying out the congress in Athens. However, the present situation brings considerable uncertainties so postponement seems unavoidable. The procedure of this difficult decision can be read in more detail in my EAHM presidential letter.

The committee of the EAHM has therefore decided not to organise a congress in 2012. Instead, a European seminar will take place in Düsseldorf during MEDICA, like last year, combined with the 2012 General Assembly.

In 2013 we plan to hold our next EAHM congress in Luxembourg. We are grateful to our colleagues in Luxembourg who have offered their services. In addition to this positive development we will work closely with our Greek counterparts to find ways in which we can help. We hope that an opportunity will arise in the foreseeable future to hold an EAHM congress in Greece.

This issue of *(E)Hospital* brings the readers interesting contributions on the topical issues of outsourcing, social media, design and information technology.

Cristina Machado Guimarães and José Crespo de Carvalho tackle outsourcing at a European level, analysing the benefits and risks of outsourcing and how this differs from country to country. Our cover story also features an article on the outsourcing of information technology and discusses the advantages of the managed service model.

Our American counterparts tell us about the design process for MaineGeneral Health's new regional hospital due to open in 2014. The new hospital will have cutting-edge technology running through every inch of the building.

This issue also includes a lab and diagnostic supplement in which we cover laboratory information systems, active surveillance testing (AST) for MRSA carriage and biomarkers for sepsis. There are two copies included, one integrated into the journal and another pullout version to pass on to your colleagues.

Each of these topics is important to hospital managers who must consider and implement these new developments. Our country focus comes from our friends in Austria this time.

I hope you all enjoy reading these interesting articles.

Heinz Kölking
President EAHM

Outsourcing

In an entrepreneurship environment, healthcare organisations adopt outsourcing solutions for the same reasons as in other sectors: Looking for efficiency, quality, and profitability gains. Cristina Machado Guimarães and José Crespo de Carvalho analyse the benefits and risks of outsourcing in healthcare and how motivations differ between countries. Our second article looks at the outsourcing of information technology through managed service models.

Lab and Diagnostics Special

This issue we have a special lab and diagnostics supplement with articles on a laboratory information system, active surveillance testing for MRSA carriage and pocket ultrasonic stethoscopes for improved bedside diagnostics. You will find the articles in two formats: One set inside the journal for you to keep and a second set as a pull-out supplement. The second set is for you to pass on to your colleagues in the relevant departments.

Focus: AUSTRIA

The Austrian healthcare system is characterised by a high density of easily accessible healthcare facilities. Austria has a high standard of compulsory state funded healthcare. There are three areas of social insurance in Austria: Health, accident and pension. There are a number of key planning instruments aimed to improve the cooperation among the individual actors in the healthcare system and also between the different levels of healthcare provision in the whole country. The most important are the Austrian Healthcare Structure Plan (ÖSG) and the Regional Healthcare Structure Plan (RSG).

EAHM AND THE CROSS-BORDER DIRECTIVE

The new European Directive on patient rights in cross-border healthcare was adopted by the European Parliament and the Council of the European Union on 9 March 2011. It establishes, on a European legislative level, the general rule that patients have the right to receive healthcare in a EU Member State other than their own. Patients may be reimbursed up to the level of costs that reflect the level of support they would receive in their own state without distinction between outpatient and inpatient treatment. However, the demand for care may also be based on EU regulation 883/2004 on the coordination of social security systems still applicable and in accordance with the jurisprudence of the Court of Justice of the European Union which provides details on the level of reimbursement.

But beyond purely monetary aspects, the European Affairs Sub-Committee of EAHM has also identified a great challenge, which will be the development of rules related to the future movement of services in healthcare. This cannot happen without effective coordination of all stakeholders, both at government level and on the ground level with patient associations. It is now increasingly necessary to compare hospitals and other health services as well as on a national level, on a greater regional level and on a European level. But to be able to successfully compare them we must agree on a set of shared standards as well as indicators to measure the efficiency of different services. We must define prescriptive and qualitative standards that will enable us to ensure a high level of quality and safety of healthcare activity at all levels. To perform this important task of benchmarking, we will have to put in place a number of essential prerequisites. It is not enough to want to compare, we need the ability to do so.

The management of services must display the necessary transparency and the acts and procedures should be comparable. Maximum efforts should be made to provide patients with the information necessary to benefit from such services. They should be able to compare the services at home and across borders and be properly informed about the procedures they must follow as part of their trip abroad. Services must be comparable in terms of the level of quality and security as much as the costs. There is a risk of intense competition resulting from these new constraints unless we manage to change the system gradually and reflectively in the only direction possible, i.e. maximum quality for the patient while maintaining a realistic level of profitability. Nevertheless, health services must be managed so that the procedures and tools needed to face these new challenges are implemented and assimilated as quickly as possible. At the same time it is necessary to redouble efforts to maintain a level of competitiveness that will allow hospitals to effectively evolve in this new, more competitive environment.

The EAHM also wishes to be involved in the execution of these actions to be undertaken at two levels for successful implementation of the new directive.

1. In each country, with the national associations who will be invited to participate on behalf of hospital managers to assert their views on the creation of new national legislation, particularly when it comes to building management structures for information flow to the patients and other stakeholders.

2. At the European Union level, by working with the European Commission to promote the considerations and visions espoused by the EAHM, especially when it comes to working towards the definition of common standards for quality and research on indicators of quality and low running costs of hospital services.

It is for this reason that the EAHM is organising a follow up event to the November 2011 seminar in Dusseldorf. Again taking place in Dusseldorf in November 2012, the goal of the new seminar is to advance the realisation of the actions identified and to promote procedures that could be implemented at a European level for the high quality management of hospital services.

We must be prepared for a new approach to working once the Directive has been transposed into national law in different countries of the European Union. Remember that the text of the Directive states in Article 21 that Member States must implement the laws, regulations and administrative provisions necessary to comply with the Directive by 25 October 2013. We must not wait for that date but starting acting now, performing the tasks needed to work effectively with all health stakeholders in the EU who are confronted with the same challenges. Hospital managers must work in the spirit of healthy competition by learning from each other across borders. Do not forget that it will be the patient who decides as an informed customer.

We believe that we will be able to make a positive assessment of this important work over the next two years and that we will be able to present the positive outcome of these actions at the next EAHM congress, likely to be held in Luxembourg in 2013.

Author:
Marc Hastert
EU Affairs Subcommittee

LIVING FOR THE AGE: EXCELLENCE IN AUSTERITY

The Institute of Healthcare Management Northern Ireland Division held their annual conference in November 2011. The theme of the conference was "Living for the Age: Excellence in Austerity".

Explaining the concept, Stephen Hodkinson, IHM Chair NI Division believes "Managers have a responsibility to help shape policy and its modes of delivery. Their behaviours and attitudes are inevitably affected by the adoption and implementation of such policy and therefore their engagement in the delivery of excellence in times of austerity is pivotal to the achievement of an appropriate and quality service".

The conference featured various high-level speakers from within the healthcare service and also other sectors. While the morning session was a masterclass in ensuring excellence in austerity, the afternoon gave managers an opportunity to meet the media and discuss their often troubled relationship.

Andrew McCormick, from the Department of Health and Social Safety emphasised that transformational change needs excellent leadership and that we must not ignore the energy and creativity within the healthcare sector, which can be used to its advantage.

Jim Easton, Director of Improvement and Efficiency, Department of Health, stressed that managers have a fundamental purpose but that it is not talked about enough. A key to success is remembering our passion for healthcare.

Charles Normand, a professor of health policy and management, was clear that health managers need to change their mindsets, "the way we think about institutions needs to change. We think in terms of furniture, we think in terms of capacity rather than efficiency." He believes that there are numerous ways of increasing efficiency while maintaining and improving quality, including cross-training staff so they can do multiple tasks. This allows one person to deal with a patient rather than three separate staff members; beneficial for both patient and staff.

The "Media Meet the Managers" session was a great opportunity for an open dialogue between two often conflicting, groups. Talking to the media is an integral part of a health manager's role and is especially important due to the significant change in media landscape thanks to the Internet. Quintin Oliver from Strategem, a public affairs agency, explained that managers are often only reactive with the media, they do not set the agenda. He stressed the importance of managing relationships with the media and politicians.

Print and broadcast journalists also gave their opinions and took questions from the floor. They emphasised the importance of access: This allows the story to be told. Journalists want to meet with patients and talk to managers/those involved. If you do not cooperate, your side of the story will remain untold.

For more information on the IHM NI Division, please visit:

www.ihm.org.uk/divisions_and_regions/northern_ireland

DUTCH REPORT ON E-HEALTH AND SELF-MANAGEMENT

The report, "E-health and self-management: a panacea for labour shortages and cost overruns in healthcare?" was first presented on 8 February in The Hague at the 12th Symposium "No self-care without e-care".

Populations are ageing and an acute labour shortage in healthcare is imminent. The Ministry of Health, health insurers and healthcare professionals are faced with less staff and fewer resources to deliver the necessary care. Research from the Hague and Maastricht University APE indicates that opportunities exist by making better use of e-health and self-management in healthcare. At this time the offer of online services, telecare and other ICT applications in healthcare is still limited. This prevents citizens and patients from empowering themselves to take greater responsibility for the care of their health and to help make decisions about it.

The authors substantiate their findings with figures from the Netherlands for five common (chronic) diseases with a large reliance on healthcare services. These are asthma, heart failure, thrombosis, diabetes and depression. Self-management in patients with asthma improves health and leads to thirty-six percent fewer hospitalisations, eighteen percent fewer visits to the emergency room and thirty-two percent fewer unplanned visits to a doctor.

In the Dutch healthcare sector these new technologies are still very limited in use. The report shows that it is important that barriers in the short-term financing are removed and the resistors in the healthcare sector from large scale introduction of e-health self-management are eliminated.

The Research Institute of Health Policy and Management (Erasmus University Rotterdam) also shows that the benefits of e-health are still insufficiently achieved in healthcare. The researchers see three major solutions. (1) There is a more targeted approach is needed so much more focused on care arrangements and the deployment of e-health can be made by employers, labour organisations, institutions and governments. (2) The financing of care should be grafted onto more rewarding health benefits, higher employment and social participation. This also requires financing from external parties such as employers and insurers. (3) Policy and research must be aligned so that better knowledge and better use of knowledge developed closer to the knowledge needs of stakeholders.

The full report can be downloaded at www.ape.nl.

For photos and videos of recent events please visit myhospital.eu

NEW PUSH FOR ORGAN DONATIONS

By Rory Watson

Hospitals throughout Europe should establish donor coordinators to help increase the supply of healthy organs from the recently deceased to patients requiring a transplant. Their role would be to identify potential donors and optimise the entire process of organ donation.

The general concept was first raised by the European Commission and endorsed by the European Parliament in 2010. It was addressed more specifically in mid-March by Professor Daniel Abramowicz, head of the renal transplant clinic at the Free University of Brussels in the run up to World Kidney Day.

At a press conference organised by the European Kidney Health Alliance, he pointed out that between 10-50 percent of potential brain-death donors in hospitals are not reported to transplant coordination. This could be for various reasons. Intensive care physicians from non-academic hospitals may not be familiar with the procedures involved. These could cover issues such as brain-death certificates, whether the national legislation is based on opting in or opting out of a donation and how to address relatives. In addition, these considerations could take up valuable time depriving other patients of urgent treatment.

He explained that such a role was especially important in small and medium-sized hospitals which did not perform transplants. Although they might not individually have many donors, the fact that these establishments are numerous would greatly increase the flow of potential donations.

Prof Abramowicz emphasised the benefits of widespread information and communication campaigns for the general public and the medical profession of the possibilities and issues at stake and for logistical help either by a nurse or a transplant coordinator for a nephrologist faced with a patient with a failing kidney.

The presence of transplant coordinators in hospitals, he suggested, could bring major financial benefits as well as improving immeasurably the quality of life of patients suffering from chronic kidney disease. Currently in the EU, 250,000 patients are on dialysis and 60,000 on a renal transplant waiting list, while there are just 18,000 kidney transplants annually.

Dialysis costs some 40,000 euros per patient per year, while expenditure on a transplant, after the initial operation, ranges between 2,000-4,000 euros. Dialysis treatments account for two percent of national healthcare budgets – a figure set to double over the next five years.

As proof that living donations can be increased, Prof Abramowicz referred to The Netherlands where rates had increased from some 20 per million inhabitants between 1995 and 1999 to 25 over the following five years and 35 between 2005 and 2009.

Moves to increase organ donations have coincided with the green light for a major pan-European phase III clinical trial into the use of mild hypothermia to treat stroke victims by cooling the brain. The launch will take place in November with the help of a research grant from the European Commission for 11 million euro.

The five-year trial, EUROHYP-1, will involve 60 hospitals in 25 countries and treat 1,500 patients. The new technique has already been tested in over 200 animal experiments and pilot clinical trials involving some 600 volunteers. These have shown that cooling the brain within six hours of a stroke can be highly effective in saving patients and reducing brain damage.

Therapeutic hypothermia, or cooling, is already used effectively to reduce ischaemic brain injury following cardiac arrest or birth injuries. Similar equipment could be used in the clinical trial to cool patients to the requisite 34-35 degrees within one hour. The treatment, which lasts for 24 hours, would be used in conjunction with current procedures such as a brain scan and removing a clot through catheters.

Speaking in Brussels at the presentation of the trial on 19 March, Dr Malcolm MacLeod, head of experimental neuroscience at the Centre for Clinical Brain Sciences at the University of Edinburgh, said: "Our job is to show with certainty by 2017 whether this treatment can work."

With 1,000 people dying from a stroke every day in Europe, he estimated that the hypothermia treatment could annually improve the outcome of 40,000 people in Europe who suffer a stroke. He also suggested that if the trial is successful, it could lead to its use in ambulances, for instance, before a patient is admitted to hospital.

The trial is being led by Universitätsklinikum Erlangen and the European Stroke Research Network for Hypothermia (EuroHyp). A key feature is that it will focus on patients who can be treated in hospital within six hours of a stroke. However, few stroke sufferers meet that deadline. In France, only 5 percent of patients reach hospital within four hours of a stroke. In the UK and Sweden, the figure is some 20 percent within three hours.

OUTSOURCING IN HEALTHCARE SYSTEMS

How, Why and Where

By Cristina Machado Guimarães, José Crespo de Carvalho

In the supply chain management of healthcare organisations, outsourcing decisions have specific distinctiveness, namely, in the reasons and constraints of the decision, in the selection criteria of the activities left to third-party operators, in the type of possible agreements, and even in the impact of the outsourcing decision on the organisation. After the success of outsourcing within the manufacturing industry, the healthcare sector is considered one of top three sectors (along with the finance and legal industries) with a significant potential for growth in the application of outsourcing.

Outsourcing decisions frequently result in organisational change, even in low-volatility sectors such as healthcare. In an entrepreneurship environment, healthcare organisations adopt outsourcing solutions for the same reasons as in other sectors: Looking for efficiency, quality, and profitability gains. However, in healthcare units, outsourcing is part of volume flexible strategies to adapt capacity (namely in bigger organisations such as academic medical centres) trying to respond to demand flotations, care that is increasingly complex, and to the linkage between clinical performance and number of medical acts. In fact, in some European countries that are more politically reluctant to privatisations (e.g., the United Kingdom, Sweden, Spain, and Portugal), outsourcing of clinical services was a response to waiting lists.

Through contracting agreements with public and private providers (including public-private partnerships, PPPs), healthcare systems looked for access, quality, equity, and efficiency advantages. However, although there is evidence in primary care outsourcing agreements for access improvement (in provision, coverage, and use) gains, there is not clear evidence of equity, quality, and efficiency improvements. Evidence regarding efficiency gains has revealed some inconsistency.

Although the extension of outsourcing decisions from nonclinical to clinical activities occurred in the healthcare sector later than in other sectors, the phenomenon took a global scale with many reported cases, from medical transcription to the latest trend of medical tourism with people travelling abroad for healthcare services seizing the best relaxing environment for recovering.

Drivers for Outsourcing

After a broad study of outsourcing cases in several healthcare systems, the most pointed drivers for outsourcing in healthcare units were:
- Cost reduction;
- Risk mitigation;
- Adapting to quick changes without jeopardising internal resources; and
- Redefinition of value streams.

At first glance it seems attractive, the possibility of externalising noncore activities but critical to process-oriented organisations, the leverage of nuclear capacities and the possibility for critical mass to build up and achieve economies of scale. However not all outsourcing solutions bring all desired benefits. There is an array of different outsourcing solutions in healthcare that vary outsourcing decisions in healthcare units depending on:
- The kind of activity (modular versus integral; more or less contractible);
- The type of contract (classical versus relational);
- The contract duration;
- The specification level of performance requirements (process and outcomes indicators); and
- The payment mechanisms.

In our study, we've identified a clear distinction between outsourced clinical services with less proximity to the patient and the outsourcing of nonclinical actions, mainly support activities and business processes.

Risks and Importance of Performance Monitoring

Both in clinical and non-clinical areas, the main risks of outsourcing are: (1) losing control of suppliers (discontinuity of service quality levels, accountability issues, loss of competences, and information confidentiality problems); and (2) excessive supplier dependency and consequent loss of flexibility.

It is, however, important to stress the importance of performance monitoring to avoid quality problems such as infection risks, patient dissatisfaction, and hidden costs of support activities such as cleaning and meal services. Other nonclinical activities outsourced and identified as the main drivers of cost reduction are procurement and purchasing to group purchasing organisations (GPOs) with evidence of cost reduction advantages (10 — 15 percent in acquisition cost, 40 percent in transaction-related costs), but with some associated risks of oligopoly development and function duplications due to strategic misalignment.

The most reported risks of outsourcing clinical activities refer to integration difficulties in activities such as radiology and other laboratory functions. On the benefits side, the gains in expertise, capacity, and resource release need to be addressed in a balanced evaluation along with associated risks.

Also, contextual differences are crucial to understanding the advantages and risks of outsourcing in each healthcare system framework. Based on the source of fund-

ing, three main models can be identified: The Beveridge model, with predominantly public funding based on taxation (in the United Kingdom, Spain, Portugal, Greece, Italy, Sweden, Denmark, Canada, Australia, and New Zealand); the Bismarck model, with private-public providers and premium funding (Germany, France, Austria, Switzerland, Belgium, Holland, and Japan); and the private insurance model, as shown in the United States with predominantly private providers coexisting with Medicare and Medicaid social care. From all reviewed literature, we focused on Germany, United Kingdom, Australia, New Zealand, the United States and Greece, not only because of the higher number of articles founded regarding outsourcing practices, but also to illustrate the three different healthcare systems. Underlining the main differences in the principal healthcare system models, four different outsourcing trends are visible, as follows.

Outsourcing in the German Healthcare Sector

The Bismarckian German healthcare sector suffered an evolution with demographic changes, the scarcity of resources for social security (mostly due to unemp- loyment), and the decrease of physicians as main constraints for deep reforms in the hospital sector. One of the measures deployed was a new remuneration system based on diagnosis-related groups (DRGs), following the Australian system, starting in 2004 to be completely implemented in 2009. This new system, along with quality implications of integrated care (or integrated delivery systems), forced a second wave of outsourcing trying to achieve better cost-efficient outcomes than found in the first wave during the 1990s.

Outsourcing in the United Kingdom, Australian, and New Zealand's Healthcare Systems

In the United Kingdom, the National Health Service (NHS) system, created from Beveridge's 1942 report offered universal access and comprehensive coverage of services for all citizens but has undergone considerable changes throughout the past decades. These changes have often been portrayed as a move toward an internal market in the UK system. Under a conservative

government and against the strong opposition of physicians and nursing personnel, provisions to reform the NHS (the National Health Services and Community Care Act) were intended to open the field to the private sector on a wider scale. Private hospitals were allowed to compete with regional and municipal hospitals for NHS patients, publicly owned hospitals could be acquired by private entities, and, most visibly, services were to be managed under prospective global budgets. The creation of trusts and an internal market at the beginning of the 1990s, and later in 1997 with the Blair government reforms led to the encouragement of private sector entrance and spreading of outsourcing practices that had begun in the 1980s. Likewise, Australia and New Zealand's healthcare systems, which are based on the same Beveridge concept, were driven by efficiency, flexibility, innovation, waiting-time reduction, and service range diversity gains to take measures such as the "national competition policy," which created outsourcing opportunities.

Outsourcing in the US Healthcare Sector

Funded through a complex mix of private and governmental insurance, the US healthcare system shows a great reliance on the mechanisms of the market, including contracting and competition that forces providers to do "more with less money". Outsourcing practices evidence is, however, much later identified in comparison to other sectors. Hazelwood et al. (2005) justify that fact because the ownership of most healthcare organisations is mostly not-for-profit (80 percent), government financed, and managed by committees, and not by an administration with a strategic plan and cost-driven decision-making processes. However, a growing outsourcing trend has emerged, driven by the JCAHO's quality markers (Joint Commission on Accreditation of Healthcare Organisations) and outlined by HIPAA (Health Insurance Portability and Accountability Act). In the late 1990's, around 75 percent of US hospitals had at least one outsourced function, not just in support services, as in early years, but also in the patient path of inbound to outbound functions. The growth trend is also stressed in studies using surveys of hospitals, long-term-care units, and clinics.

Another growing trend is group purchasing organisations (GPOs), which service 97 percent of US hospitals that outsource procurement. The latest trend is medical outsourcing provided by partnerships such as one of the Parkway Hospitals in Singapore; the Johns Hopkins Hospital in Baltimore, Maryland; one of hospitals in Health Care City in Dubai; and the Mayo Clinic in Rochester, New York.

Outsourcing in the Greek Healthcare Sector

The Greek healthcare sector, also inspired by the Beveridge model, illustrates the importance of the public health sector as the main provider in an economically difficult environment. Despite the lack of empirical and published research on outsourcing in the healthcare sector, one study gives a full description of the Greek healthcare system constraints to outsourcing practices in public hospitals, leaving private healthcare providers outside the empirical setting, and focuses on the decision-making process, the extension of outsourcing, effects on public healthcare, and future trends; stresses the difficulty of decision making in public healthcare organisations; and explores the reasons of (dis)satisfaction with outsourcing decisions.

Conclusion

The existing literature is frugal in empirical research on performance models and measures in outsourcing cases. There is also a lack of published research on how healthcare organisations deal with outsourcing risks before and after the decision and in different contexts from organisational change processes, such as start-up organisations' outsourcing decisions. Lessons from other sectors' practices should be studied instead of thinking of outsourcing as a panacea to mitigate risks or simply reduce costs.

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OUTSOURCING AND INFORMATION TECHNOLOGY

Is a Zero Capital Expenditure, Managed Service Model the Way Forward?

By Theo Ahadome

With decreasing healthcare reimbursement and increasing economic uncertainty, there is a growing trend for hospitals to opt for a zero capital expen- diture, managed service model with the purchase of IT systems in healthcare. As the application of managed service models emerges in the PACS market, it paves the way for cloud technology to finally have a significant impact in medical imaging.

Managed services refer to a model where the vendor owns the IT infrastructure, with the hospital paying a fixed fee per month based on projected examination volumes. The vendor is also fully responsible for maintaining this infrastructure, providing data storage and software on a subscription basis. The benefits of managed services include reducing the need for heavy capital investment in PACS, such as costly in-house IT support staff and IT infrastructure investment. It also provides regular access to the latest software upgrades and allows flexible storage capacity to suit end-user's needs.

In any managed service model, the underlying factor is the pay-per-service and third-party hosting or ownership of PACS. There are then different forms of managed services depending on the server location of the two components of PACS - software and storage (see table 1).

Cloud storage refers to the storage of the client's data resting with the vendor or third party. However, PACS incorporates a viewing component (software), as well as the storage of images; the viewing system is actually what many consider as PACS. Hence, the question is, at which point does one begin to class PACS as being cloud-based?

- Is it the moment the software is at a third-party server, as in SaaS on-site?;
- Is it when the storage is remotely available on the third-party server, as in hosted managed services?, or
- Is it only when both software and storage components are hosted by the third party, whereby the software as a service lies off-site?

Companies offering cloud-based PACS tend to fall into one of these three categories. It therefore depends on whether the system being offered is considered cloud-based from a software or storage point of view. A pure cloud-based PACS may be described as a system where both software and storage components are vendor-hosted.

More important than definitions, of course, is the adoption of this technology. Both the technology and the business model have to work for suppliers and end-users. On the technology side, one might be more confident that vendors will resolve the technical hurdles, such as the quality of the data when transferred between locations and servers, as well as the quality of the interfacing. On the business model side, however, confidence is much lower and many questions remain. These include:

- Will hospitals be completely comfortable with third-party hosting of patient data, regardless of regulatory compliance?
- Will patients be comfortable with this arrangement?

Managed Service Models	Software Location	Storage Location
Remote Managed	End-User	End-User
Software as a Service On-Site	Vendor/Third-party	End-User
Hosted Managed	End-User	Vendor/Third-party
Software as a Service Off-site	Vendor/Third-party	Vendor/Third-party

Table 1. Definitions of Managed Service Models. The terms 'On-Site' and 'Off-Site' refer to the location of storage server relative to the end-user. Source: InMedica

2010
■ Capital Purchase
■ Managed Services

2014
■ Capital Purchase
■ Managed Services

17%

83%

31%

69%
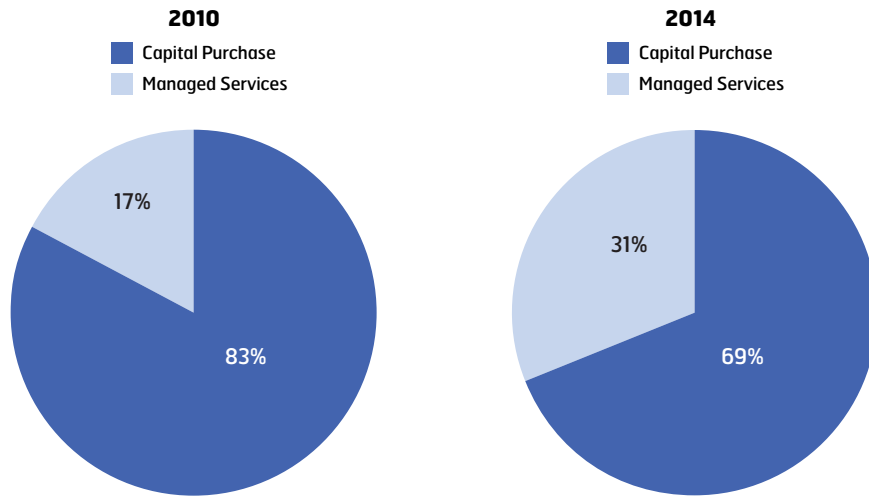
- What about the cost-savings? Is the total cost of ownership over a product's lifecycle significantly different from traditional PACS models?

The major draw for managed service models are their stated cost benefits. Once the return on investment is clearly established penetration of this remote storage model will increase and there will be strong demand for further technological advances in the field. This phenomenon is already taking place in the UK and the Netherlands, for example, where remote managed service models currently account for most managed service installations being currently provided. However, now that the cost savings from vendor ownership and management of PACS have been realised in these countries, the next wave of demand is for further cost savings, which may be obtained by completely moving storage and/or software to the vendor's site. Indeed, as the UK renews its national PACS programme in 2013, InMedica forecasts that up to 20 percent of revenues will derive from hosted managed models, where the storage of images is cloud-based.

As such, vendor-hosted PACS and cloud technology in healthcare will emerge strongly by proving an ability to reduce the cost of ownership to the end user. Despite any technological benefits that cloud technology may provide in medical imaging, what hospitals need to see, and what suppliers need to work on, is an enhanced return on investment.

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Successful Negotiation of Outsourcing Agreements

Speaking at HIMSS 2012 in Las Vegas, Diana J.P. McKenzie Partner and Chair of an IT and outsourcing practice group identified key negotiation points in billing and collections outsourcing agreements (RCM, Revenue Cycle Management Contracts), highlighted ideas for benchmarking vendor performance and strategies for risk and reward.

McKenzie believes RCM contracts are currently popular due to our slowing economies, the stronger focus on system efficiencies and health providers' desire for find "quick fixes". With these agreements the most general problems tend to include compatibility issues, workforce issues and also hidden expenses.

Her key negotiating points are as follows:
- Pricing: Use tiered pricing to correctly align both parties' interests.
- Services: Include a detailed services description.
- Acceptance: Require an acceptance testing period to iron out any kinks in the agreement before a long-term contract is signed.
- Warranties: Use warranties to close other performance and contractual gaps.
- Disentanglement: Include a disentanglement procedure. These types of deals fail frequently so customers need broad termination rights.

On the service level, McKenzie recommends:
- Setting baseline performance standards;
- Determining baseline requirements (know your financials and lock in sales promises); and
- Requiring a minimum level of staffing dedicated to your account.

Information adapted from Diana J.P McKenzie's presentation, HIMSS 2012.

SOCIAL MEDIA:

THE NEXT STEP FOR PATIENT-CENTRED CARE?

By Lee Campbell

Today we can't imagine working without emails and online resources; the Internet has become an integral part of our everyday lives. In the future, I believe all organisations, including healthcare institutions, will feel the same way about social media. Through this article I want to introduce you to the most common forms of social media and illustrate how they can be used within the healthcare sector. I spoke to healthcare practitioners, to so-called pioneers of social media both in Europe and the United States to find out how and why they are using social media and what benefits it has for both patients and institutions.

The phenomenon was instantly adopted by the younger generation but social media sites now boast huge numbers of users from all age groups. Life is fast paced and we seem to have an insatiable thirst for knowledge. People want information in real time, i.e. as it happens. Moreover, it is not just about reading the latest news/information it is also about commenting on it. Social media allows for conversations and debates. People will no longer blindly accept information as correct. They research it, ask their friends on Twitter and Facebook. Health information is not exempt from this.

In fact, last year the Washington Post reported the results of a study on the most common Internet searches. The study showed that looking up health information is the third most common activity by US Internet users. Eight out of ten users claimed to use the Internet to look up health information for themselves as well as for friends and family members. (http://www.washingtonpost.com/wp-dyn/content/article/2011/02/01/AR2011020106916.html)

There is no doubt that our patients are taking a more active role in their care by researching health information. The question is do we get involved and ensure patients get the correct information or stand back and watch it from the sidelines?

To Tweet or not to Tweet?

Yes, most of our hospitals have websites with practical information but 21st century patients want more than just maps and lists of services and telephone numbers. They want to interact with physicians and fellow patients and watch video clips just like they can do on their favourite social media sites. But many managers have an inherent fear of using social media in an official capacity. The risks are easy to spot. We cannot ignore the rational fear of losing of control of your message, of opening yourself and your institution up for criticism. The question is whether the benefits of social media outweigh the risks.

The Physician Blogger Perspective

To get a better idea of how physicians and hospitals are using social media I spoke to Dr. Wendy Sue Swanson, a paediatrician and health blogger in Seattle. She explained how she writes a blog, uses twitter on a daily basis and is also a member of many other sites such as Facebook and LinkedIn. Dr. Swanson describes her blog, Seattlemamadoc.seattlechildrens.org as a repository of her thoughts, "when new research comes out which is controversial or when a parenting controversy happens... then I can write a blog and explain my thoughts as a paediatrician, as a mom and as a community member."

Dr. Swanson is fortunate in that her institution supports her blog in two ways: By paying her a half-time salary to blog and by building her website. For her, the most important thing is that she has full editorial control, the last thing she wants is for her blog to sound like a communications or marketing department. Her blog is about reaching out to the parents of her patients, to other physicians and her community in general. During consultations she often refers her patients to her blog so they can read a post or watch a short video on the issue in question. She is also keen to stress that the blog does not contain personal health information, it is a source of health information written from her vantage point as an expert on what she believes families need to know.

But how did she get her institution on board? Well, her reasoning was, "rather than being the sound bite on the news why not provide great content and great information in a place where people trust, an academic health institution but instead of responding a month later we could respond a couple of hours or a day or a week later through a blog." Luckily they agreed and placed their trust in Dr. Swanson, moving around some of the marketing and communications budget to compensate her for her work.

Swanson is aware that most physicians are not in a position to go to the CEO and get their instant approval for a blog but her hospital recognised her passion for the topic and saw the benefits for both patient and institution, "I think I created an opportunity out of a need for earnest communication and I believe it exists everywhere and I think the benefit to the hospital is twofold. I serve the mission of the hospital, which is trying to improve and cure paediatric disease but I also provide a really personal brand for the hospital which is that I am a doctor, my children have been patients there, my husband is a physician at the hospital. We are telling the real story of healthcare and I think that is what the public deserves and wants."

Do the Benefits Outweigh the Risks?

The main risks centre around a lack of control and financial and manpower issues. It is true that information is harder to moderate in social media but it does allow for better communication between provider and customer. Ultimately, the extent to which social media is used within the hospital is up to the management. To be successful, boundaries must be discussed and rules and protocols devel-

Most Common Forms of Social Media

Twitter

In their own words "Twitter is a real-time information network that connects you to the latest stories, ideas, opinions and news about what you find interesting. Simply find the accounts you find most compelling and follow the conversations." People communicate on Twitter by writing Tweets: 140 character long posts.

Twitter is the place where conversations start, where people comment on current affairs and express their opinions. Therefore for many businesses Twitter is an ideal way of connecting with customers, sharing information about their products and services, gathering real-time market intelligence and feedback. The key here is building relationships with customers and other stakeholders. Many companies realise that there are already conversations about them on Twitter and joining in is the only way to become part of the dialogue.

Facebook

The founders of Facebook define their mission as giving "people the power to share and make the world more open and connected". Predominantly used on a personal level, Facebook is how many

people keep in contact with their friends and family and share information about their personal lives. Businesses also use the site, creating profiles and company pages that users can like and comment on. Many hospitals in the US have Facebook pages.

LinkedIn

As of February 9, 2012, LinkedIn operates the world's largest professional network on the Internet with more than 150 million members in over 200 countries and territories. LinkedIn's tagline is "get the most from your professional network". It has three main functions:
- Re-Connect: Find past and present colleagues and classmates quickly. Makes staying in touch easy.
- Power your career: Discover inside connections when you're looking for a job or a new business opportunity.
- Get answers: Your network is full of industry experts willing to share advice. Have a question? Just ask.

Blogs

Blogs are a less complicated form of social media with clear-cut articles on a range of topics. Traditional in the sense that they can be read like regular online newspapers, blogs have the added bonus of encouraging conversation.

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oped; transparency is key and only general health information should be shared. Denise Silber gives us a few ideas of how and why to get started (see below).

Conscious of the financial issue, Dr. Swanson strongly believes that social media can help hospitals through these tough financial times. Social media can actually save physicians and hospitals time and therefore money. This is apparent on two levels.

Firstly, through these new technologies we can sometimes communicate more efficiently than in person. A five-minute online chat can save time for both the patient and healthcare providers. Secondly, social media can be a great source of information for our patients meaning they will come to appointments much more informed about their condition. This source of information can also promote preven-

tive healthcare and is especially useful for patients with chronic conditions.

As we continue to focus on patient-centred care and management with patients making decisions in the care process, social media is a great facilitator of this new and improved patient-doctor relationship. It is clear that patients expect their physicians and healthcare institutions to embrace these new technologies and communicate through them.

Denise Silber, founder of Doctors 2.0 & You

I asked Denise Silber, founder of the Doctors 2.0 & You conference, for her comments on the use of social media in hospitals and the reluctance of many executives to get involved.

Thinking of going ahead with Social Media but afraid of loss of control?

Well, in fact, when you have one-way communication, you have a false sense of security. You don't know what people think...Yes, of course, a few vociferous critics can create problems, in theory. But, in fact, that isn't what happens. While there may be some criticism, you will actually also get positive comments that you wouldn't otherwise have had. In either case positive and negative, these comments are things that the hospital can build on to improve service.

More importantly, being present on Social Media will help get more traffic to your web site, since you'll be able to place links with your latest news, where people are and are most likely to click. And - ultimately Social Media is about creating a new channel between your institution and the outside world, a channel that will reduce other marketing

costs. As it becomes increasingly difficult to attract people's attention, developing a community of interested persons is indispensable. In any event, this is the direction that communication is going. Best to get on the train now.

What about the manpower cost required to manage the Social Media accounts?

If you've got a communications strategy, it should be the guiding light for what you do in social media-so don't reinvent the wheel! We recommend a step-by-step approach. You can start by placing a share button on your website home page so that people can share the page to their Facebook wall or on Twitter. You can take those videos on your site and collect them all together on your own (free) YouTube channel. Does your organisation produce a regular newsfeed? That can be redirected to a Facebook page or a Twitter account.

Perhaps someone from within your organisation will be delighted to take responsibility for one or more of these accounts, because for them it's a very satisfying activity. As organisations get diminishing returns from traditional media and email, social media is looking good!

Doctors 2.0 & You takes place in Paris on May 23 - 24 and there will be a session about webtv and hospitals. For more information, please visit: www.doctors20.com

State-of-the-art
Saint John General Hospital Bruges, Belgium

New operational concept and functional principles

VK was responsible for the design and execution of the operating block's extension and renovation in the Bruges Saint John General Hospital. An extension with 3 new "Hi-tech" operating rooms demonstrates a new operational concept as three separate rooms, or as "landscape" operating rooms connected with each other by sliding glass doors.

For this project, VK designers and the client set high ambitions for themselves. The result can be considered as a pilot project, architecturally as well as on a medical engineering plan. With open minds, innovative solutions were sought to combine and streamline various disciplines within the small space of an operating room. Therefore, new functional principles were applied: flexible preparation, "Grossraum" and plenary assembly in the hall will generate a specific workflow.

Revolution in the design of operating rooms

In terms of material VK chose for sustainable applications that have already proved to be sound in an international context. All this is supported by the latest medical technology developments. The combination of full laminar flow in temperature zones, wall heating and the use of a 'medical bridge', together with the development of a number of specific innovations, lends a unique character to this project.

The partition walls and ceilings use a modular stainless steel-system for maximum flexibility. The walls are clad with glass or coated panels that house the control panels (a glass panel with touch screen), embedded seamlessly for maximum hygiene. Also, the mobile operating tables are on a hard and conducting floor.

operating rooms
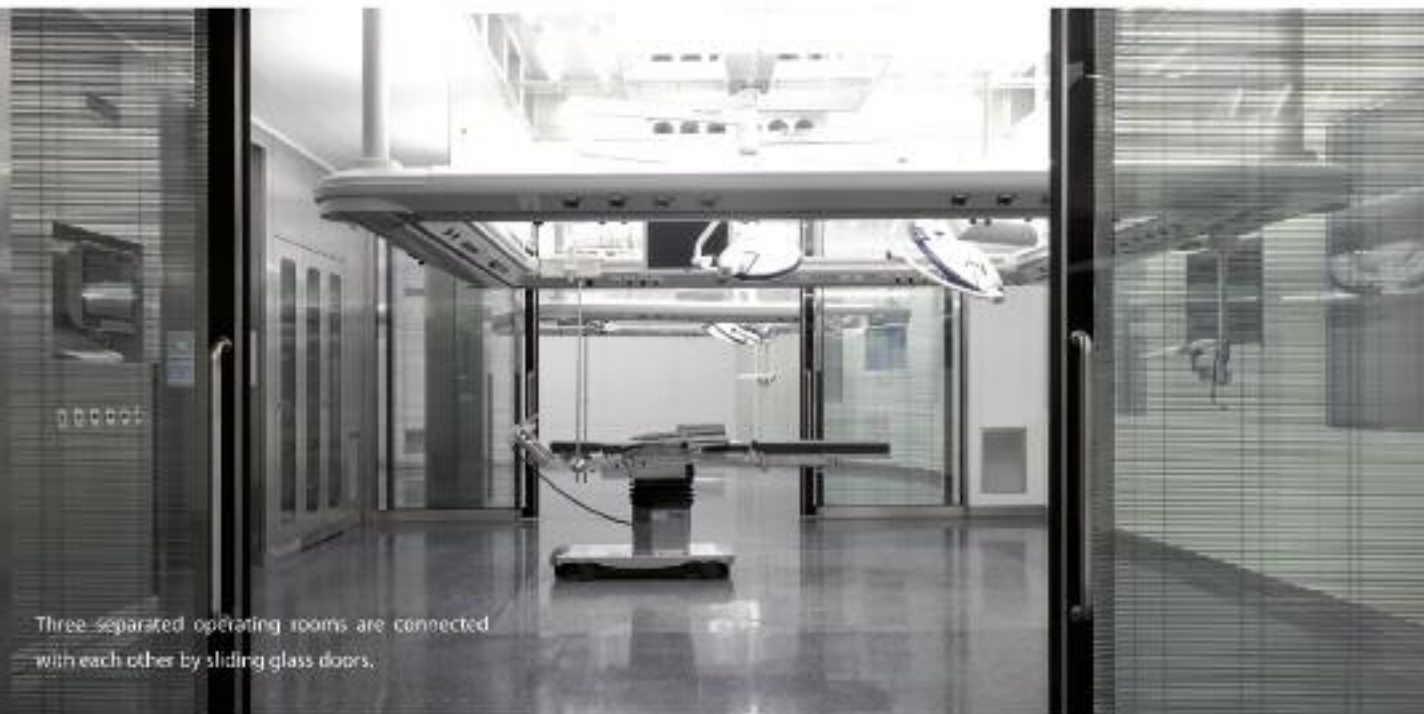
Three separated operating rooms are connected with each other by sliding glass doors.

Based on international recommendations, the air quality (ISO 5) is guaranteed in each room with a conducting laminar flow in a 3 by 3 meter area. The sterile area is indicated on the floor. The operating rooms are located behind the façade, so they can enjoy natural light. Privacy and solar protection are provided by built-in slats.

This realization simply means a revolution in the design of operating rooms. Firstly, the basic principles are unique, both from the users' viewpoint as well as with regard to the technical program requirements. Moreover, VK used new and state-of-the-art technology for the first time in this challenging environment, with the conviction that it will contribute to a better control and quality in operating rooms.

VK delivers fully integrated architecture and engineering services for demanding healthcare clients worldwide who want to invest in healing environments in a constantly evolving society where our quality of life is under stress.

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TECHNOLOGY LETS THE LIGHT SHINE IN:

How IT Influenced a New Hospital's Design

By Clint Davies, Daniel Burgess

When MaineGeneral Health opens its New Regional Hospital in 2014, here's what people will notice: Sunlight, big windows, private rooms, lounges, a courtyard and a healing garden. Here's what they may not notice: Cutting-edge information technology running through every inch of the building. And MaineGeneral is OK with that.

The New Regional Hospital in Augusta, Maine, incorporates state-of-the-art technology into every aspect of its design—and, ultimately—its patient care. But instead of showing it off, the hospital designers and stakeholders wanted to make the technology invisible. Why?

This is a story about how the team building a brand-new hospital made innovative, sometimes counterintuitive, IT and design decisions that used technology to put people first.

A few years ago, MaineGeneral had some challenges. It ran three ageing, inefficient facilities. Staff and provider recruitment and retention proved to be difficult in this rural location. The IT department was not functioning at peak efficiency, leaving user departments in the hospital (customers and stakeholders) frustrated. The CIO position had turned over twice in ten years.

At the same time, many good things were happening. MaineGeneral was making significant investments into clinical and business applications. The IT systems shifted from a distributed model to a centralised one. A new hospital was on the horizon.

Getting the Right Help

Dan Burgess, MaineGeneral's current VP and CIO, took the helm amid these changes. He recognised that thoughtful planning and getting all the stakeholders on board was critical to success. Burgess brought in Clint Davies and BerryDunn's Information Technology Consulting team to perform an objective and independent assessment of the IT organisation and to help identify IT's formative role in MaineGeneral's strategic planning efforts.

The goals were clear: To stabilise IT operations, and, more importantly, to lay the foundation for an information technology culture that would be a collaborative partner for the health system. Burgess and Davies' team established priorities:

- Engage stakeholders early on and throughout the process;
- Position IT to take a leadership role across the organisation;
- Integrate technology as a formative component in the design of the new hospital;
- Employ effective management practices to help the healthcare organisation undertake significant change; and
- Plan for the impact of new technology on improving clinical workflow and patient experience.

Project #1: Assessment

The first step in structuring the IT division for the future involved assessing the department's own needs.

Burgess wanted to **establish a more collaborative culture within IT**. After restructuring the IT department to make it centralised rather than distributed, the systems functioned collaboratively. So, too, could the staff. In addition to enabling a more productive workforce, a collaborative culture would, ideally, stave off communication lapses and potential morale problems.

The IT department also needed to **determine appropriate staffing levels**. Getting the right people into the right technical leadership roles goes hand in hand with the restructuring of IT systems. A review of the recent and upcoming changes to Maine-General's IT systems—involving IT leadership and even Human Resources—resulted in a re-evaluation of job descriptions, titles and responsibilities to best match employees' skills with their roles.

Project #2: Collaborative Technology Planning

The second step involved identifying what the organisation needed from IT, and then facilitating any changes that may be needed. To do this, Davies' team asked stakeholders what they thought about the current IT services, the role of IT, and what they expected of IT in the future.

Engagement and Buy-In

Burgess saw BerryDunn's assessment and technology planning as an opportunity to engage and collaborate with the entire health system community—department leaders, administrators, physicians, nurses, patients, and members of the community. These were the key stakeholders in the process, so the BerryDunn team set out to listen to as many of them as possible in order to understand their individual perspective and objectives.

Davies' team held numerous focus groups over several months. The stakeholders assigned relative urgency to various technology needs and assisted in aggregating all of the data into themes.

The focus groups produced over 500 points of issues, perspectives, and priorities. The BerryDunn team categorised and winnowed down all the data, teasing out key themes that formed guiding principles for the next stage in the project.

Principles and Goals

Here are the IT guiding principles and their corresponding goals:

- Making technology simpler, more effi-

cient, and easier to use:
- › Better adoption by the clinical community.
- Greater sharing and integration of patient information:
  - › Serve the community as an integrated service delivery system.
- Strengthen reliability, security and performance:
  - › Deliver fully compliant, robust solutions.
- Bring more of a strategic and enterprise view to technology planning:
  - › Ensure alignment with business objectives.
- Strengthen project and portfolio management practices:
  - › Deliver the right projects on time and on budget.

These principles and goals represented the voices of the many stakeholders, from patients to physicians, administrators, and community members.

Outcomes from the Assessment

Positive IT Changes
The findings pointed to several positive changes the MaineGeneral team could make to the IT systems and structure. IT could reduce the number of systems and make them easier for people to use. It could continue to consolidate its applications and data. The organisation could also continue incremental improvements toward achieving an integrated patient chart.

Based on the gathered feedback, Burgess committed to strengthening the project management culture, and utilising technology to improve collaboration and communication. The assessment affirmed that the IT Division could strengthen the reliability, security, support and integrity of its systems.

Overall, the IT Division could bring more of a strategic view to planning and purchasing new systems. One of the most significant changes that came from this effort was a new IT governance structure.

New Governance Structure
Based on the assessment of needs and priorities, MaineGeneral's IT Division updated its governance structure, in which new requests would be reviewed while considering the prioritisation of current projects. Resource allocation could then take place according to established priorities.

While the priorities were generated with stakeholder input from the focus groups, they would continue to be reviewed by a newly established leadership team, called the Strategic Project Oversight Team (SPOT).

The purpose of SPOT is to ensure that projects are considered and prioritised in alignment with MaineGeneral's objectives.

Planning for the New Hospital

Building a new hospital from the ground up is a once-in-a-lifetime opportunity. Facility planning for MaineGeneral's 312 million dollar, 600,000-square-foot regional hospital was running parallel to its IT planning process. The principles articulated by the hospital's many stakeholders during the IT assessment applied to and were folded into the new hospital design as a whole.

Technology as an Attraction
MaineGeneral recognised that a new with modern facilities and the latest technology would attract and retain doctors at a time when hospitals in the United States are competing for physicians. The New Regional Hospital is located in a relatively rural location in the state of Maine, but it is the largest employer in the region, serves a large catchment area and has several outpatient facilities. A new state-of-the-art hospital would create additional jobs, while serving as an attractive anchor for businesses and other investments in the region.

Figure 1. Aerial view of the hospital construction site

Invisible Technology

So much cutting-edge technology—why not show it off? Based on the stakeholders' input, the hospital's technology is designed to be invisible to patients and their families. That does not mean that the technology is out of reach. IT touches almost every inch of the hospital, from the high-tech IT desktops on each floor to the secure transmittal of patient information to staff and providers. The providers will have the most complete, pertinent information at the right place at the right time.

Using MaineGeneral's guiding principles developed through BerryDunn's strategic IT planning, technology will support and facilitate the flow of patient care. The new hospital will have 192 private rooms, which allow for better protection against infection and more privacy for patients and families. A Patient Family Advisory Council weighed in on the design of patient rooms, deciding to face windows toward the courtyard, for example, rather than the internal hallways. Staff and nurse concerns about seeing patients were allayed through technological means of monitoring patients.

To the extent possible, high-tech instruments can be stowed out of sight in patients' rooms. The idea is to diminish distractions indoors and instead direct attention outdoors, allowing sunlight and nature to become part of the healing process.

Healing Enhanced by Nature

Just prior to building the New Regional Hospital, MaineGeneral completed a new centre for cancer care and wanted to extend the cancer centre's concept of "healing enhanced by nature" to the new hospital design. Natural light and outside views serve to bring the outdoors in. Outside, the grounds include a courtyard, ornamental gardens, and a healing garden. Rehab patients have easy access to the gardens that are part of their healing programme.

Environmentally Healthy

The building is being built to the highest standards of U.S. "green" construction (LEED certification). It will have highly efficient heating and cooling systems, renewable energy sources where feasible, and building materials from local sources. The green construction and design will greatly reduce environmental impact while saving 900,000 dollars in annual operating costs and 12 million gallons of water a year.

Front-of-House / Back-of-House Design

While strategic technology planning goes a long way to improve patient care, MaineGeneral values low-tech solutions, as well. They reflect many of the same IT goals, however, to improve flow by simplifying and streamlining the experience.

In terms of layout, the hospital has a single entrance to ease access. The floors are marked in distinct colours and designs to simplify way-finding, even for patients with dementia. There are separate corridors for the public and for patient transport. The Emergency Department is streamlined, with comprehensive diagnostic services right next door. A helipad sits near the Emergency Department to assist emergency transit.

Inpatient wings are located away from the main entrance to provide more quiet and fewer interruptions, and separate wings serve specific types of inpatient care. Patient rooms have guest sleeping capacity and large windows to bring in light and views of nature.

The new facility houses a medical library and resource centre open to the public, an education centre with meeting spaces, and a spiritual centre. It also contains a learning lab for ongoing research and improvement of its own best practices.

Connecting the Community Through Technology

Technology serves to connect people at MaineGeneral. The public can follow the hospital's construction process live online through a web-cam on MaineGeneral's website. The site hosts an "ask a question" feature, allows people to subscribe to email project alerts, and posts photo galleries and renderings of the design. The community can follow regular updates about the building's progress on Facebook, Twitter and YouTube.

The first and perhaps most important community connection—long before the YouTube videos and webcams—consisted of the early stakeholder focus groups within the MaineGeneral health system. Old-fashioned, in-person discussions, and lots of listening by Burgess and the BerryDunn team, laid the groundwork for some of the most sophisticated technology planning in the history of MaineGeneral Health.

The Journey to Wellness

Just as the IT Division integrated its systems to reflect the priorities of the health system community, the entire hospital is designed to focus on the delivery of integrated care. Patient education, preventative care, and patient- and family-focused care are central to MaineGeneral Health's mission. Aided by BerryDunn's IT assessment and project planning, MaineGeneral's new facility consolidates services, increases efficiency, improves staff and provider recruitment, adds convenience and upgrades healthcare. The new regional hospital's technology-driven design allows patients and their families to get the services they need quickly, easily — and naturally.

For more information on the project, please visit: www.ournewhospital.org

Authors:
Article based on a presentation at HIMSS by Clint Davies, Principal at BerryDunn, and Daniel Burgess, VP and CIO at MaineGeneral Health

Figure 2. Planning process: collaboration between the architects and designers

Please pass this on to your colleagues

(E)Hospital Lab and Diagnostics Supplement

LIMSPORTAL AND BONSAILIMS: DEVELOPMENT OF A LAB INFORMATION MANAGEMENT SYSTEM FOR TRANSLATIONAL MEDICINE

By Timothy G Bath, Selcuk Bozdag, Vackar Afzal, Daniel Crowther

Laboratory Information Management Systems (LIMS) are an increasingly important part of modern laboratory infrastructure. As typically very sophisticated software products, LIMS often require considerable resources to select, deploy and maintain. Larger organisations may have access to specialist IT support to assist with requirements elicitation and software customisation, however smaller groups will often have limited IT support to perform the kind of iterative development that can resolve the difficulties that biologists often have when specifying requirements.

Translational medicine aims to accelerate the process of treatment discovery by bringing together multiple disciplines to discover new approaches to treating disease, or novel applications of existing treatments. The diverse set of disciplines and complexity of processing procedures involved, especially with the use of high throughput technologies, bring difficulties in customising a generic LIMS to provide a single system for managing sample related data within a translational medicine research setting, especially where limited IT support is available.

Within the core laboratory of the Translational Medicine Research Collaboration (TMRC), we routinely profile human samples in order to identify molecular biomarkers. We need to track clinical samples during projects that often use multiple profiling technologies such as Mass Spectrometry based proteomics, ELISA immunoassays and Affymetrix profiling technologies on overlapping patient samples. The tracking of primary clinical samples and derived laboratory samples such as purified mRNA aliquots becomes arduous as the complexity and the sample number increases. Commercial LIMS solutions are available which are not only powerful enough to handle these experimental data sets but are also robust and provide auditing functions to allow experimental labs to meet regulatory requirements. However these vendor solutions also tend to be expensive and require significant technical knowledge to install and run.

Different laboratories have very diverse needs from a LIMS ranging from the kind of informal data capture beneficial during academic research to the demonstrable, rigorous adherence to regulatory and governance standards mandated for drug manufacturing and human clinical studies. This means that 'off the shelf' LIMS software with generic functionality require significant customisation and tailoring to meet an individual lab's requirements. This customisation is difficult, time-consuming and expensive to perform. It is also the case that once a 'generic' LIMS has been tailored to meet a specific lab's working requirements the modifications made, such as modelling novel workflows, tend to be very rigid and do not adapt well to include future lab processes or technologies. In some cases the customisations may not even survive vendor upgrades of the software. In addition, many labs, such as those found in academia or pre-clinical research do not require regulatory compliance but rather need a LIMS which will allow them to manage their samples, clones or strains in an efficient manner in order to facilitate their research. This tracking can be more pressing when samples and results data needs to be shared between labs and research groups in collaborative projects. None of the available LIMS are trivial to deploy, and in larger laboratories LIMS software implementations are as failure-prone as any other large-scale enterprise software implementation project.

Translational medicine aims to improve human health by translating fundamental scientific research into practical applications and thereby bringing new products to market it crosses the traditional clinical/preclinical divide and often involves complex protocol development and modification, multiple platform technologies and generation of diverse raw and processed datasets for analysis. The participants in translational research come from diverse backgrounds have varying levels of computer understanding, and varying degrees of willingness to change their working practises and adopt new software. A bench scientist for example may be accustomed to recording a far greater level of experimental detail than a clinician whose background is emergency patient care, yet both can be involved in the translational research study. As a result of the diversity of disciplines typically found in translational medicine, there is often a proliferation of locally stored data in electronic and paper formats that may not be backed up and may not be stored securely and this poses a risk to any organisation that allows it. This risk is especially pertinent within translational medicine, where management and integration of diverse data can be fundamental to the discovery process. A LIMS therefore is a crucial tool in reducing the risks associated with poor data management in the translational research laboratory.

In this paper we describe BonsaiLIMS, an open source lightweight LIMS system which allows users to manage their studies and sample data though a secure web interface. This has been developed to meet the requirements of our translational research facility and we believe it will have wider utility. We also describe LIMSPortal, a basic portal implementation that includes BonsaiLIMS at its core and other modules to support security and user administration features.

BonsaiLIMS functions as an end solution to provide basic sample tracking capabilities and workflow-specific extensions via the definition of new attribute-value pairs that can be associated with a sample. It is sufficiently simple to replace locally stored spreadsheets and notebook-based records without significant user training or requiring changes to established working practises. The benefits of replacing locally stored lab records with a central database include improved backup and recovery of data and improved reporting and export of data for further analysis.

A useful second function of BonsaiLIMS is that rapid deployment of a very simple/lightweight LIMS can help lay the foundations of a transition to a commercial or more heavy weight LIMS. Getting users out of the habit of storing data locally, defining the data items they wish to capture and discovering features that are liked or disliked all contribute to the understanding of requirements and evaluation criteria for future, more complex systems. The process of implementing a LIMS system will generally require the formalisation of the laboratory processes that the LIMS is to support. This is especially useful in cases where bench scientists may not have prior LIMS experience or be in a position to express comprehensive software requirements. TMRC has a very diverse set of lab-based working processes and modelling all of them in the commercial LIMS system chosen for our lab was not possible in the time available. Therefore an immediate, interim solution was required. BonsaiLIMS uses a modern architecture and flexible object/data model to rapidly deliver a LIMS without the need for significant up-front business analysis, requirements gathering and workflow modelling, while providing users with sufficient LIMS functionality to replace ad-hoc methods of sample tracking and secure the data being generated at the bench.

Implementation

BonsaiLIMS is implemented as a module that can be embedded into larger portal application. The reason and benefits of this architecture are twofold. Firstly, a module may be adapted and changed independently of the core hosting application. Secondly, it allows for the development of additional functionality in a layered and modular fashion i.e. multiple custom workflows which build upon the base module can be defined and developed in parallel without having any form of mutual dependence. In comparison to other LIMS systems, where implementing custom workflows is often difficult due to the lack of separation or definition of distinct modules, modularity allows for an agile and responsive development process that can more easily adapted to meet the user requirements. The BonaiLIMS module is itself hosted within a portal that allows for a clean separation and integration of the required module functionality. Additional modules hosted within BonsaiLIMS have been developed for authentication, authorisation, security and module deployment.

BonsaiLIMS is implemented using Django, a Python web framework that supports rapid design and development of web based applications. Additional benefits of using Django include support for module based development, increased developer productivity due to built on constructs that provide DRY (Don't Repeat Yourself) functionality and portability across multiple platforms due to the python programming model.

Database Integration

The current BonsaiLIMS implementation is backed by an Oracle 11 g instance. However, neither the portal nor BonsaiLIMS utilises any Oracle-specific SQL commands, making them easily portable to other database back ends.

Deploying LIMSPortal

LIMSPortal is deployed on an Apache web server using mod_python module. Static files are deployed on a separate web server to increase the performance. That server runs lighttpd process to serve the files over Internet. Step by step instructions for deployment plus the required python code and Oracle DDL files are in the supplementary material.

Performance Tuning

LIMSPortal utilises two main approaches for increased performance. The first focuses on reducing the number of requests that must be processed, and the second aims at reducing the size of each request. To reduce the number of requests that must be processed in their entirety, memcached is used to cache the results of HTTP requests. To reduce the size of requests, AJAX is used to enable partial page refreshes.

Results and Discussion

Due to its simplicity, this architecture and data model enables the rapid deployment of a LIMS without the need for significant preparatory work or ongoing support and maintenance resourcing. Although the reference implementation was developed using Oracle and Django, the concepts can be easily implemented using a variety of software development technologies. The extensibility of the model allows future protocols and data items to be added by end-users with no reprogramming. It provides lab data management and helps integrate platform technologies with very little user training or changes to scientists existing working procedures being required. The implementation presented describes a portal platform and LIMS component that have been extended to provide additional functionality such as LDAP integration for user administration and authentication. Although LDAP was chosen as most appropriate for the translation medicine research collaboration smaller experimental groups who might benefit most from BonsaiLIMS may even prefer the simpler option of database or application authentication.

Functionality

The system is supporting the diverse workflows used by TMRC Genomics, Immunoassay and Tissue Culture groups. Data is being recorded centrally and ad-hoc methods involving spreadsheets are being phased out. In addition, by capturing lab process data in this structured way, migration to a more heavyweight LIMS is eased from both user and data perspectives.

Performance

The application is stable, robust and responsive. For enhancing data capture, GUI enhancements would improve usability especially with regard to batch data entry. Typical usage is that bench work is performed and hand written notes are made in a lab notebook, and then important results are input to LIMS. Closer inspection of this process has identified that the data entry screens are not optimal for much more than single data item entry or updates.

Comparison with Similar Software

There are many open source and commercial LIMS systems available that demand significant investment of time and money in order to obtain the promised return. These tend to be feature-rich, heavyweight systems that offer generic functionality that can be tailored to a specific labs needs, or are focused on a very specific lab function such as Proteomics analysis or Microarray studies. However, no LIMS could be found that combined the portal-based hosting framework and combination of modules to deliver specific functionality that this paper describes.

Intended Use and Benefits

LIMSPortal achieves goal of moving bench scientists involved in translational research away from ad-hoc data recording and facilitates central management of lab data along with the benefits of improved sample management and collaboration between lab scientists.

Conclusions

By focusing on a minimal feature set and a modular design we have been able to deploy the BonsaiLIMS system very quickly. The benefits to our institute have been the avoidance of the prolonged implementation timescales, budget overruns, scope creep, off-specifications and user fatigue issues that typify many enterprise software implementations. The transition away from using local, uncontrolled records in spreadsheet and paper formats to a centrally held, secured and backed-up database brings the immediate benefits of improved data visibility, audit and overall data quality. The open-source availability of this software allows others to rapidly implement a LIMS which in itself might sufficiently address user requirements. In situations where this software does not meet requirements, it can serve to elicit more accurate specifications from end-users for a more heavyweight LIMS by acting as a demonstrable prototype.

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ACTIVE SURVEILLANCE TESTING (AST) FOR MRSA CARRIAGE

MANAGING HEALTHCARE-ASSOCIATED INFECTIONS

By Dr. Achyut Guleri

The issue of healthcare-associated infections (HAIs) is one that commands increasing public, professional and governmental attention worldwide. The success of interventions to control avoidable HAIs, including infections associated with meticillin-resistant *Staphylococcus aureus* (MRSA), is evidenced by recent data from the European Antibiotic Resistance Surveillance System (EARSS) which reported 30 percent of S. aureus to be MRSA, compared with 42 percent in 2006. However, HAIs and MRSA remain unacceptably high in many countries (Figure 1) and are associated with significant morbidity, mortality and associated cost to healthcare systems. Further reductions in these infections are a priority for most European Countries.

Active surveillance testing (AST) for MRSA carriage for use in clinical decision making was introduced as part of an innovative programme implemented in a large district hospital in the North West of England. Data presented at the European Congress of Clinical Microbiology and Infection 2009 (Helsinki, Finland) showed that this programme significantly reduced the incidence of MRSA. This approach is suitable for healthcare institutions facing MRSA challenges across Europe.

Background

In the United Kingdom, mortality from MRSA quadrupled between 1997 and 2007. Since then, multiple initiatives have been introduced by the Department of Health (DoH) including the mandatory surveillance of HAIs. These have been successful in reducing the number of MRSA bacteraemias towards a target of a 50 percent reduction from 2003/4 rates. In 2008, the number of MRSA bacteraemias ranged from 0.96 to 1.2 infections/10,000 bed days compared to 1.3 to 2.4 infections/10,000 bed days in 2001. However, as nearly a quarter of MRSA infections are detected within two days of hospital admission and one third of patients who are colonised with MRSA will go on to develop an infection, rapid screening of all patients attending hospitals could further reduce the number of cases.

Since March 2009, NHS Trust hospitals in the UK are committed to screening all patients admitted for elective surgery. A DoH policy document states, "All trusts should have reviewed their screening policies, identified patient groups for screening, and implemented a decolonisation regimen for people identified as carrying MRSA, both to reduce the risk of infection occurring in themselves and the spread of MRSA to other vulnerable patients." However, there is a debate about whether all patients, elective and emergency, should be routinely screened.

Therefore, it is important to share success stories about HAIs management strategies in order to encourage a consistently high standard in the UK and Europe. This is particularly the case where investment in rapid AST technologies and techniques are being considered by hospitals in a climate of financial turbulence. Clinical experiences are gradually emerging, contributing to a growing body of evidence that demonstrates the efficacy of rapid screening in MRSA management, as well as its ability to provide a sound business case and return on investment by enhancing clinical quality, improving patient safety and reducing the cost of MRSA infections.

It is our experience that the key to a successful HAI reduction programme is very much a co-operation between Chief Executive, infection control team including microbiologists and clinical teams (nursing and medical staff), with every party fully and actively on board. The remainder of this article describes the rapid screening strategy, techniques and technologies implemented, and their results, at Blackpool Victoria Hospital in the North West of England.

The Challenge

In 2006/7, Blackpool Victoria Hospital had unacceptably high rates of MRSA infections. In 2006, the DoH had set a target reduction in MRSA bloodstream infection rates of 50 percent by 2008. Reducing the number of MRSA infections became a top priority for the hospital, and a number of initiatives as a part of a new HAI strategy were implemented.

The hospital set five key objectives:

- Reduce the number of MRSA infections;
- Enhance patient safety and quality of care;
- Deliver the Trust vision of providing "Best in NHS" Care;
- Raise staff and public awareness of HAIs; and
- Strengthen the infection control team.

The first element was 'Board-to-Ward' proactive involvement of the chief executive and executive directors in the new programme. A new Director of Infection Prevention and Control (DIPC) was appointed and the infection control team was expanded to include consultant microbiologists, an antibiotic pharmacist, a surveillance nurse and a data analyst. Under the banner of "Ban the Bugs," the programme included banners and posters with key infection prevention messages being displayed around the hospital to raise staff and public awareness. Mandatory infection prevention training for staff was implemented and hand hygiene champions appointed. The information on MRSA infections was collected and audited, and an MRSA "counter" was displayed on all staff computers detailing the number of days since the last MRSA bloodstream infection. A new "Bare Below the Elbow" uniform policy was introduced. Special initiatives around

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[1] CLSI. Surveillance for methicillin-resistant Staphylococcus aureus: principles, practices, and challenges: a report. Wayne, PA: Clinical and Laboratory Standards Institute; 2010.

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hand hygiene and antiseptic-non-touch-technique (ANTT) were undertaken.

A key component of the new strategy was the rapid identification of MRSA carriage. The trust introduced rapid polymerase chain reaction (PCR)-based MRSA testing for all emergency admissions (medical and surgical), intensive care, high dependency, surgical high care and cardiac intensive care units. Testing was offered seven days a week from 8 am until 12 pm (based upon hospital admission peaks over 24hrs). A test result phoned at midnight would be acted upon immediately, rather than being constrained by ordinary working hours.

Prior to the introduction of PCR testing the hospital had been relying on conventional, targeted and risk-based culture testing to screen for MRSA. The results of these tests took two to three days to be reported. This delay in identification and reporting MRSA had multiple implications, including the sub-optimal utilisation of limited single room facility, inappropriate barrier nursing and increased potential for transmission / self-infection. Due to the time delay in obtaining a test result, many patients were either transferred to wards or discharged before the results were available and control measures were either delayed or not initiated at all.

Elective admissions continue to be screened prior to admission using chromogenic culture based methods. Elective patients who test positive for MRSA prior to admission receive notification by letter and are offered a decolonisation regimen which includes mupirocin nasal ointment and chlorhexidine body wash/shampoo. Patients who are MRSA positive are isolated (wherever possible in single rooms) and nursed using barrier techniques. Visitors are notified that they must seek advice on appropriate precautions. Staff use disposable gloves and aprons, and strict hand hygiene is required after every contact.

The Results

The results of Blackpool Victoria's active surveillance initiative with PCR testing are compelling. Post its introduction, MRSA bloodstream infections fell by 78 percent (9 against 40 in previous year) in a 12-month period. Usually, MRSA test results are available in five hours rather than three days. Approximately 96 percent screened patients are reassured within this short timeframe that they are not carrying MRSA. This also facilitates the opti-

mal management of the remaining four percent. The hospital is the first in the country to use clinico–economic modelling to justify running an 8 am to 12 pm laboratory service with demonstrable success and to use the results to complement clinical decision making. The laboratory staff working the 4 pm to midnight shift can perform other tasks during "quiet" periods. They also frequently work right up to midnight in order to accommodate late-breaking situations with vulnerable patients where a life may be at risk.

Blackpool Victoria Hospital was awarded the HAI Technology Innovation Team Award on 26 February, 2009 by the DoH and the NHS Purchasing and Supply Agency for the most practical and innovative use of technology to reduce HAIs. Following a 400,000 pounds investment by the Primary Care Trusts, Blackpool Victoria and surrounding hospitals within the Trust are among the first to successfully complete a deep clean programme.

Blackpool Victoria Hospital intends to continue PCR-based MRSA testing. They also plan to extend the use of PCR testing to cover other HAI-related organisms and high-risk patient groups. The use of PCR-based active surveillance was not only associated with a significant reduction in MRSA transmission, but was also found to be cost-effective.

Conclusion

In summary, rapid confirmation of MRSA carriage permits targeting infection control pro-

tocols to minimise risk of infection and cross transmission. PCR is more rapid and accurate than traditional or chromogenic culture testing, and the timeliness of reporting has advantaged the clinical decision-making process. This same timeliness prevents unnecessary isolation, barrier nursing and the use of prophylactic decolonisation regimes for emergency admissions. Moreover, patients are reassured by knowing that we test all emergency admissions and know their MRSA status.

Our approach of PCR testing all emergency admissions (medical and surgical) up to midnight (so as to match peak admissions), is unique. We fervently hope, however, that this kind of successful, carefully planned approach can become the norm in hospitals in Britain and across similarly challenged European health systems.

In addition to improving the efficiency of the screening service in our hospital, the study also demonstrates the importance of teamwork with individuals from all sectors of a hospital, from Chief Executive Officer, Infections Control Teams, Laboratory Services and medical and nursing staff, in facilitating change for the ultimate benefit of patients.

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Proportion of MRSA isolates in participating countries in 2008 (c) EARSS
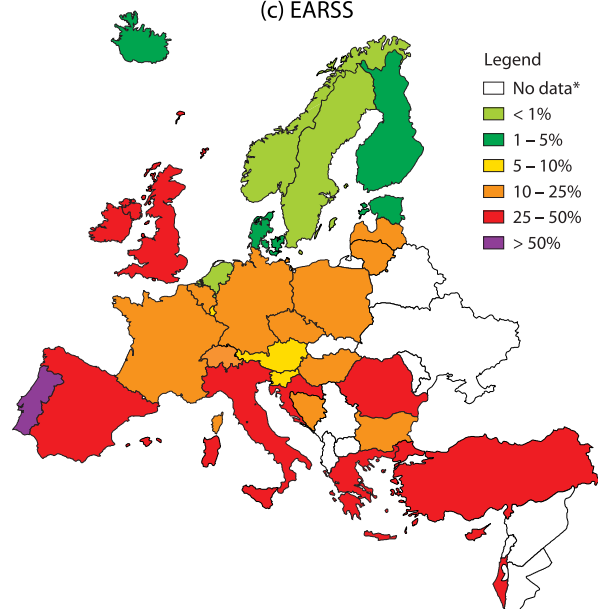
Legend
- No data*
- < 1%
- 1 – 5%
- 5 – 10%
- 10 – 25%
- 25 – 50%
- > 50%

Figure 1. Proportion of MRSA isolates in participating countries in 2006

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USEFULNESS OF BIOMARKERS IN THE CLINICAL DECISION MAKING PROCESS IN SEPSIS

By Pedro Póvoa, Luis Miguel Coelho, Jorge I.F. Salluh

Why are Clinicians using Biomarkers more Frequently?

The criteria to define the presence of sepsis (Levy et al. 2003) as well as to evaluate its clinical severity are not satisfactory since the signs and symptoms of sepsis are poorly specific and highly sensitive. Even more difficult than the diagnosis, is the monitoring of infection response to antibiotics (Povoa 2008). Currently the assessment of response relies on the resolution of the same criteria used in the diagnosis, however it may not be completely reliable as some clinical and radiologic variables can be influenced by non-infectious factors. Besides, the observation that a prompt and structured approach of severe sepsis and septic shock has a marked impact on prognosis encouraged the research on new tools of sepsis diagnosis even further (Marshall et al. 2009). Since the inflammatory cascade plays a central role in the host-pathogen interaction and in the infection control mechanisms, these mediators have been successively assessed as potential biomarkers of infection.

By definition, an ideal biomarker of infection should be absent if the patient is not infected, appear concomitantly and ideally precede the infection and disappear with successful therapy or remain elevated if infection is refractory to treatment (Povoa 2008). Whereas in myocardial infarction, 14 biomarkers are suitable for its diagnosis and prognostic assessment, in the complex field of sepsis more than 170 potential biomarkers have been studied and unfortunately the ultimate biomarker has not yet been identified (Pierrakos et al. 2010).

What are the Questions we want to ask a Biomarker of Sepsis?

Biomarkers are measures of molecular, biochemical or cellular levels that represent changes in the normal physiologic status. Biomarkers of sepsis indicate that the host has been exposed to an infectious pathogen, bacterial, fungal, viral or parasite, as well as the magnitude of the response to that infection. At the bedside, clinicians are faced daily with the two frequent dilemmas: (1) Whether a patient is infected or not and (2) If the response to antimicrobial therapy is adequate.

In the presence of a patient with systemic inflammatory response syndrome (SIRS), particularly if associated with organ dysfunction, clinicians must consider the severity and site of the infection as well as the most probable agent and likely sensitivity patterns. In addition, clinicians need to monitor infection response to antibiotics as well as to ascertain the duration of antibiotic therapy, thus raising two additional questions:

- Is the infection refractory to therapy? Should I change the antimicrobials?
- Is the infection cured? Can I safely stop antimicrobials?

Despite their importance, these questions are currently those most frequently cited by clinicians as 'impossible to answer with absolute confidence'. Biomarkers can be useful in some of these questions but the evaluation of their clinical performance is further complicated by the absence of a "gold standard" for the diagnosis of sepsis (Pierrakos et al. 2010).

What Questions Can Biomarkers Answer?

In the last 20 years, the research of biomarkers of sepsis has increased markedly. However, the great majority of studies evaluated their utility just in the assessment of prognosis. Biomarkers have a limited value if they are employed just to see if a patient has a high risk of dying when the attending physician is unable to change that prognosis. In opposition, we consider a biomarker useful if they provide additional information to a detailed clinical evaluation. In the context of infection and sepsis, biomarkers can potentially provide the following additional information:

- Screening;
- Diagnosis;
- Risk stratification;
- Monitoring response to therapy;and
- Antibiotic stewardship.

In this article we discuss recent data on the role of biomarkers of sepsis, in particular procalcitonin (PCT) and C-reactive protein (CRP), in diagnosis and antibiotic stewardship.

Diagnosis

Both single as well as serial measurements of biomarkers have been evaluated in diagnosis, in a variety of infections as well as in clinical settings, namely emergency departments, medical and surgical wards and intensive care units (ICUs). However, the results are, at times, contradictory. This is a consequence of the choice of different methodologies, namely in inclusion and exclusion criteria, used for the selection of patients to be evaluated and analysed (Simon et al. 2004; Tang et al. 2007).

In most studies, patients were included if they presented with SIRS and were subsequently stratified according to the American College of Chest Physicians/Society of Critical Care Medicine (ACCP/SCCM) Consensus Conference criteria into sepsis, severe sepsis and septic shock (Levy et al. 2003). Such methodology could result in an assessment of clinical severity rather than the evaluation of the diagnostic accu-

racy of the biomarker in infection itself. The gold standard, which should be presence of documented infection, that is patients with a defined source of infection with positive cultures, as opposed to patients with no infection and no antibiotic therapy is frequently ignored (Cohen et al. 2001).

Several studies have assessed the diagnostic performance of infection of a single measurement of a biomarker in different clinical settings and different infections (Table 1). In clinical practice, a markedly elevated serum level of a biomarker, e.g. CRP levels >5-10 mg/dL, may help to confirm the diagnosis of sepsis. Concerning PCT, the major limitation in diagnosis is the frequent finding of patients with documented infections with very low or even undetectable levels. This is particularly true in infections considered by the manufacturer to be localised, like empyema or abscesses (Christ-Crain et al. 2010).

At the bedside, clinicians should always consider the possibility of a false-positive test because inflammatory

in biomarker concentrations without an obvious reason can usually be caused by the emergence of infection and sepsis that are frequently silent in the beginning (Povoa 2008).

Since biomarkers are not static but on the opposite dynamic, with marked changes in serum concentrations over time, serial measurements could be more informative. Our group demonstrated that daily CRP determinations are useful as a marker of infection prediction in ICU patients admitted for longer than 72 hours. During the five days before the day of infection diagnosis CRP showed a steady and significant increase in infected patients, whereas in noninfected patients CRP remained almost unchanged (Povoa et al. 2006) (Figure 1). Patients, who presented a combination of a maximum daily CRP change higher than 4.1 mg/dL plus a concentration above 8.7 mg/dL, had an 88 percent risk of ICU-acquired infection. In a cohort of mechanically ventilated patients (Luyt et al. 2008), absolute PCT values as well as its kinetics over five days before clin-

mia patients. In one study (Schuetz et al. 2010), PCT showed a steady decrease until day seven without differences in patients with and without presumed infection whereas CRP was significantly more elevated in patients with pneumonia.

Antibiotic Stewardship

The decision to start and stop antibiotics is probably one of the most frequent and difficult decisions at the bedside. In addition, the recommended durations of antibiotic therapy of the majority of infections are not based on data from randomised trials.

Two studies have demonstrated in VAP, that the implementation of a discontinuation antibiotic policy (Micek et al. 2004) as well as a fixed antibiotic duration (Chastre et al 2003) could significantly decrease the duration of antibiotic therapy to 6 and 8 days, respectively, in comparison to traditional and longer antibiotic durations of the control groups, 8 and 15 days, respectively, without any differences in outcome. It is important to emphasise that both studies were conducted without the use of biomarkers! Several original trials showed that the use of PCT in different infections, lower respiratory tract infection, acute exacerbation of chronic bronchitis, community-acquired pneumonia (Christ-Crain et al. 2006) and VAP (Stolz et al. 2009), could safely decrease the rate of antibiotic prescription and the duration antibiotic therapy. However, these analyses were markedly biased by the very long antibiotic therapies of the controls. In ProCAP (Christ-Crain et al. 2006), ProHOSP (Schuetz et al. 2009) and ProVAP (Stolz et al. 2009) trials, the control groups were on antibiotics for 12, 10 and 15 days, respectively! In the ICU setting, several trials have been recently published assessing the role of PCT guided antibiotic therapy (Bouadma et al. 2010; Hochreiter et al. 2009; Jensen 2009; Nobre et al. 2008). With one exception (Jensen 2009), PCT-guided group showed a significantly lower duration of antibiotic therapy and smaller antibiotic exposure. However, there are several caveats in these studies that

	CRP				PCT			
	AUC	cut-off	sensitivity	specificity	AUC	cut-off	sensitivity	specificity
Ugarte (1999)	0.78	7.9	71.8	66.6	0.66	0.6	67.6	61.3
Chan (2004)	0.88	6.0	67.2	93.9	0.67	0.6	69.5	64.6
Sierra (2004)	0.94	8.0	94.3	87.3				
Póvoa (2005)	0.93	8.7	93.4	86.1				
Gaïni (2006)	0.83	5.0	73.6	74.6	0.77	0.1	71.6	62.7
Kofoed (2007)	0.81		86	60	0.72		80	58
Jung (2010)					0.45	0.5	54	39
Ingram (2010)	0.97	20.0	100	87.5	0.88	0.8	100	62.5

Table 1. Diagnostic accuracy of infection of C-reactive protein (CRP) and procalcitonin (PCT)

stimuli other than bacterial infection can occur in critically ill patients, particularly during the first 72 hours of postoperative course and major trauma. Notwithstanding, usually these later conditions are usually easily diagnosed and identified as causes of biomarker elevations whereas changes

ical suspicion of pneumonia has been shown to have poor diagnostic accuracy for ventilator associated pneumonia (VAP) (AUC 0.51 and 0.62, respectively). More recently, two studies found that the diagnostic value of PCT to assess early onset pneumonia is poor in post-cardiac arrest hypother-

need to be discussed. In two trials (Hochreiter et al. 2009; Nobre et al. 2008), more than 70 percent of the eligible patients were excluded for reasons that were difficult to accept since they are common in an ICU setting, namely Pseudomonas aeruginosa infection. In the PRORATA trial, there were significant rates of protocol violations in the PCT-guided group (Bouadma et al. 2010). In 71.2 percent of the episodes of clinical decision, the attending physicians did not follow PCT-guided recommendations for several reasons. At inclusion, 69 infected patients had PCT<0.5µg/L, but in 94 percent the attending physician prescribed antibiotics against the recommendations. In follow-up, antibiotics were stopped in 39 pts with PCT>0.5µg/L, since they were considered clinically cured also against the recommendations; in 111 patients, antibiotics were maintained even after discharge (N=32) and in 79 unstable patients despite a PCT<0.5µg/L (Bouadma et al. 2010). Finally, two trials (Bouadma et al. 2010; Jensen et al. 2009) demonstrated that patients from the PCT-guided groups presented more organ dysfunction and failure, in particular late failure.

In a pragmatic, 2x2 factorial, cluster randomised trial in which two interventions were tested, availability of a CRP test and/or training in communication skills, clearly showed that availability of a CRP test could significantly decrease antibiotic prescription (Cals et al. 2009). This result is noteworthy since this study was performed in The Netherlands, which is the European country with the lowest antibiotic prescription in the community.

Conclusions

The ideal biomarker has not yet been identified. Unfortunately, multiple biomarkers correlate only with mortality and few add additional valuable information that can be useful in the clinical decision making process at the bedside. Among all known biomarkers probably PCT and CRP are those with more solid data. Is it time yet to use biomarkers in sepsis? The answer is clearly yes but NEVER to be used solely, always in conjunction with a complete clinical evaluation and with a perfect knowledge of its biology, strengths and limitations.

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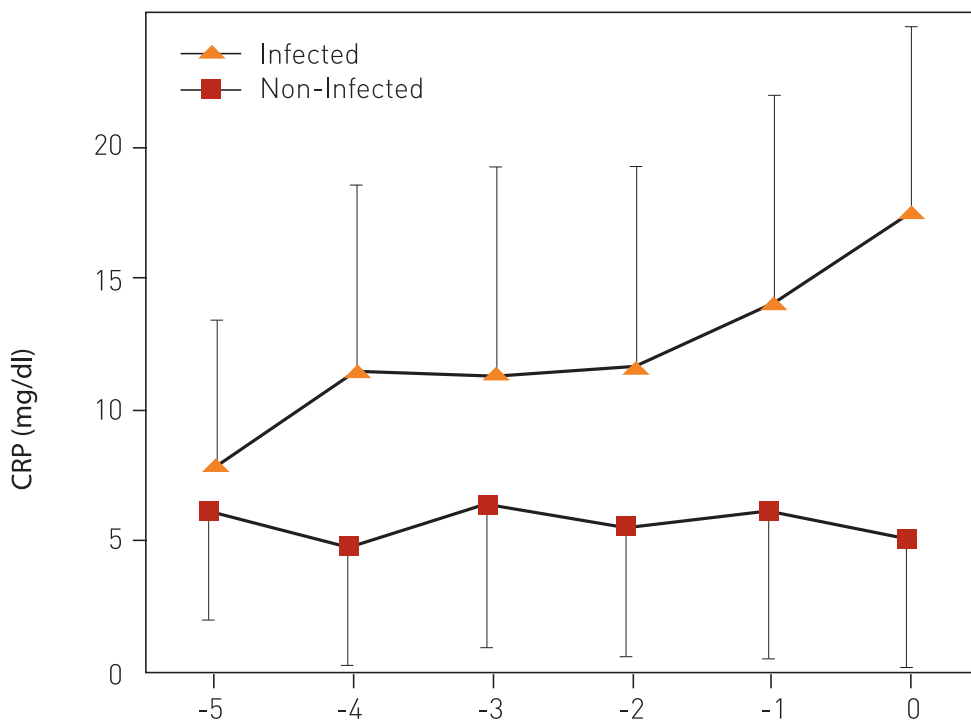
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Figure 1. C-reactive protein (CRP) progression before infection diagnosis. The time-dependent analysis of CRP (mean ffl standard deviation) from day -5 to day 0 of infected patients and noninfected patients is presented. The CRP course clearly differentiates infected patients from noninfected patients (P < 0.001). Patients, who presented a combination of a maximum daily CRP change higher than 4.1 mg/dL plus a concentration above 8.7 mg/dL, had an 88% risk of ICUacquired infection (Povoa et al. 2006).

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HEALTHY HOSPITAL PERSONNEL

Peer Organisation Concept in Eindiedeln Hospital, Switzerland

By Noldi Landtwing

A hospital and its services, from nursing staff and doctors to management, is a business in which the daily concern of many employees is the health of their patients. Einsiedeln hospital recognises the equal importance of the welfare of its staff and has implemented a peer project as part of its quality management system. This type of project is unique in Switzerland.

People in charge at all levels in a hospital are well aware of the importance of dealing with the psychological aspects of distressing events. Typical examples might be challenging situations with patients, or supporting critically ill or dying patients as well as their loved ones. However other factors might include safety in the workplace, accidents, major incidents, catastrophes, and to an increasing extent, abusive patients.

Prevention and Intervention as Pillars of Support

The peer organisation concept of Einsiedeln hospital is based on the two pillars of prevention and intervention. The aim of prevention here is to make staff aware of the impact of distressing events. Health-promoting initiatives lay ideal foundations for this. Intervention in this case means that post traumatic stress disorder (PTSD) amongst employees can be recognised in time and treated, or even avoided.

The director of the hospital, Reto Jeger aptly sums up the aim of the project as follows: "The most important resource of a hospital is having healthy employees. Our aim is to keep them in good health, and to swiftly identify and support vulnerable or distressed workers." A good start is to train all employees in recognising symptoms of PTSD. Following initial internal debriefings, an accessible team of specialised professionals can then be enlisted.

High Demands on Peers

Petra Reusser, in charge of quality management, specifies the following skills as essential for peers: "Peers should display strong mental and physical resilience and social competence. They are well-respected by their colleagues and have several years of experience in their work." They are only consulted on certain matters and have to be discreet. As trained caregivers they have to further and deepen their knowledge of psychosocial support. By attending professional training courses, they are trained in detecting signs of psychological shock following a distressing event.

Due to the high nature of the quality and the demands required, Einsiedeln is the second hospital in Switzerland to have been certified as a provider of psychological assistance since August 2011. The certificate is issued by the National Network of Psychological Assistance (www.nnpn.ch). The NNPN is an established faculty assigned to the Federal Department of Defence, Civil Protection and Sports.

Involvement of Professionals

The 'professionals' are experts who are externally consulted. They work in fields such as psychology, psychiatry, trauma therapy, counselling, consultancy and coaching. They can be enlisted by peers as soon as the need arises. Professionals can also be recruited to provide training in specific areas. They are bound by professional discretion.

Project Already Proven Successful

Two days after the conclusion of the project phase and its implementation in the hospital, the peer organisation had to prove its worth in Summer 2011. A political proposal by the Schwyz cantonal parliament put the future existence of Einsiedeln hospital in jeopardy. "Thanks to the peer organisation we were able to be there for and support anxious or distraught employees right away. Even at the most critical time of uncertainty regarding the future of the hospital, not knowing whether it would survive or be closed down, we didn't have a single resignation", says the director Reto Jeger approvingly. He was also positively supported by the peer organisation during this traumatic time.

Conclusion

The most important resource of a hospital is having healthy employees. The peer organisation of Einsiedeln hospital supports the health and welfare of its employees through prevention and intervention. Vulnerable staff can be quickly identified following distressing events in the workplace. In this way post traumatic stress disorder can be recognised, treated or even avoided before it is too late. Where necessary, a network of external professionals can be called in. They work in fields such as psychology, psychiatry, trauma therapy, counselling, consultancy and coaching. In crisis situations the peer organisation can provide the hospital management with positive, competent support and reassurance.

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INTERVIEW: MANFRED KLOCKE, CEO OF THE ECCLESIA GROUP

By Lee Campbell

Firstly, tell us a bit about Ecclesia. What does the company do and what are its main objectives?

The Ecclesia Group as international insurance broker is representative of its clients' interests vis-à-vis the insurance industry. The company, which is independent of banks and insurers, belongs with its 1,300 employees to the major players in Europe, and, in its traditional business segment hospitals / healthcare, it is market leader in Germany and Austria. Ecclesia serves about 1,300 emergency hospitals and 30 university hospitals in their insurance and loss related matters. A high degree of specialisation makes it possible to develop market leading insurance products independent of any insurance companies as providers.

Securing its clients against financial losses is a statutory business aim. Risk management and loss prevention play an outstanding role in the limited insurance market for the protection against medical malpractice claims. Since 1995, the Ecclesia Group is home to the largest loss database in Europe, which is fed with about 10,000 new medical malpractice claims per year, and it provides extensive potential for prevention measures, and in addition curricula for the professional development of physicians and nursing staff. Ecclesia's range of services comprises the entire spectrum of healthcare - from physicians in private practice and hospitals up to rehabilitation centres and care facilities. Ecclesia is networked worldwide and provides services in Germany, Austria, Switzerland, Belgium and Italy.

You have recently signed a partnership agreement with EAHM. How did this partnership come about and what do you hope to achieve?

For more than 20 years we have been participating in cross-border activities and adapted our risk management programme from the USA. International exchange of experience is an essential value with topical sig-nificance, this applies as much to service providers such as hospitals as it does for their suppliers. 20 years ago, it was Prof. Dr. Ingruber in Austria, who filled Ecclesia with enthusiasm for the European congresses of the EAHM, and just as Prof. Ingruber at his time, EAHM President Heinz Kölking is now a member of the Ecclesia hospital advisory board.

As an insurance broker that works in close collaboration with hospitals in several different European countries, what do you think are the main issues facing European hospitals today? How can we overcome these challenges?

Limited to our profession: Preserving and further enhancing the confidence of patients and cost bearers through transparency, quality management and risk management so that liability and its insurance remain calculable. This also encompasses the shortage of physicians and nursing staff in some regions that is eliminated cross-border. Exchange programmes and language supports are more important than uniform educational qualifications.

In your opinion, how will the implementation of the European Directive for Cross Border Healthcare affect hospital insurance systems? As a company, are you changing policies, making new provisions for this?

Measured in terms of case numbers, medical treatments, whether on an inpatient or outpatient basis, will remain national also in the middle term. The treatment of patients from abroad, mainly as direct payers (of course also in emergencies) is nothing new and poses no challenge for hospitals and physicians under liability and insurance aspects. In Europe, the appropriate legislation of the place of treatment is applicable in the first place. I must give a clear warning against the recruitment of patients in non-European countries, particularly in the US; advertising performance promises could lead to the application of U.S. legislation.

Many believe that Europe is becoming more and more like the US in terms of medical malpractice lawsuits. In your experience, has the number of medical malpractice claims increased in recent years?

The number of claims has increased, but not the number of well-founded claims; this applies to Germany and Austria. Our statistics coincide with those of experts and arbitration boards and findings of patient representatives. However, the compensation of individual and well-founded liability claims have become increasingly more expensive, not the costs for pain and suffering (contrary to the United States) but nursing and health-related costs.

I see Ecclesia has a hospital advisory board that meets once a year. Why is it important to have input from hospital managers and leaders of hospital associations?

Professional insurance knowledge can be taken for granted in an insurance broker firm of our size. Only the one who is aware of and realises the concerns and needs of its clients and who keeps his services constantly updated and adjusted to any changes can be a powerful representative of customer interests.

Lastly, this is your chance to address hospital managers from across Europe. What advice do you have for them?

I would suggest getting to know how their business works in other countries and systems through international relations, and exploiting cross-border collaboration can promote their own systems. Our currently published analysis of liability and compensation systems in 16 European countries makes an important contribution to this (*Medical Liability in Europe: A Comparison of Selected Jurisdictions. Verlag Walter de Gruyter GmbH & Co. KG ISBN 978 3 11 026010 6*).

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THE ETHICS OF ONLINE HEALTHCARE
Case Studies in Personal Health Records and Telemedicine

By Richard Wootton, Sarah Bougourd

For many people, e-health services and telemedicine provide convenient and flexible ways to manage their healthcare. However, a major enquiry by the UK-based independent Nuffield Council on Bioethics has identified a number of ethical questions and challenges associated with various forms of online healthcare. The Council's report, *Medical profiling and online medicine: the ethics of personalised healthcare in a consumer age*, makes a number of policy and practice recommendations for providers and users of e-health services. This article highlights the recommendations across two of the report's case studies: Online personal health records, and telemedicine.

Two key social pressures, 'responsibilisation' and 'consumerisation', were central to the recommendations made in the Council's report. 'Responsibilisation' indicates the trend for people to take more responsibility for their own health, to lead a healthy lifestyle and to actively manage their healthcare. 'Consumerisation' of healthcare and the new technologies available are helping to drive the market for many online medical services.

The Council found five ethical values to be important when considering developments in these areas. These were:

- Private information should be safeguarded;
- Individuals should be able to pursue their own interests in their own way;
- The state should act to reduce harm;
- Public resources should be used fairly and efficiently; and
- Social solidarity (sharing risks and working together to protect the vulnerable) should inform public policy.

These ethical values often conflict with one another but all are important and no one value trumps another. When applying these values to each of the case studies, the Working Party attempted to soften the conflicts by recommending a way of intervening that would allow each value to be respected as much as possible, and making recommendations that were evidence-based, proportionate and feasible.

Online Personal Health Records

Several commercial companies, mainly in the US, provide services that allow people to organise their personal health information, integrate health records from different providers, and share them with other people, including healthcare professionals. Whilst these services allow more convenient and patient-centred control of health records, they also encourage people to upload, access and share highly personal information via the Internet, and the Council is concerned about the possible breaches of privacy.

The Council's report states that people should be able to keep information about themselves and their health private and free from unauthorised access or use if they wish to. However, there is potential for misuse of stored information. For example, an online health record system could be used to market products to people and there is the possibility of doctor-patient confidentiality being breached through family members or other contacts demanding or guessing somebody else's password.

More broadly, personal health information entered and accessed online may be commercially valuable. The ease with which electronic files may be transmitted and accessed is a double-edged sword: While this feature increases convenience, it also means that files can be lost or misused as a result of carelessness, fraud or institutional change. And if a provider of online health record facilities were to go bankrupt or change hands, it might be difficult for users to guarantee that their data would continue to be held securely and would not be lost.

If we consider the ethical principles set out in this report, there is a conflict between the value of individuals being able to pursue their own interests in their own way and the value of safeguarding private information. What can be done to ensure that people can use online health services effectively and safely without compromising their privacy?

Recommendations

Currently, it is not straightforward for users to find out how their data will be used, stored, passed on or sold to third parties. The Council recommends that the UK Department of Health should develop an accreditation system for online health record providers. The accreditation system should specify exactly how the details provided by users will be stored, passed on or sold to third parties and the arrangements to ensure the security and confidentiality of data and information if the operator went into administration or changed hands.

The report also states that responsible bodies in the EU, and the Information Commissioner's Office in the UK, establish data protection legislation that applies to online health records held by people who upload and edit their information in the EU.

As an additional safeguard, the Council would like to encourage good prac-

tice for the process by which individuals join online personal health records systems. If people are routinely provided with information such as whether or not they will receive information or advertising from pharmaceutical companies on the basis of information they enter, this would help them to assess whether their private information on the system is being safeguarded.

Future Impact

The use of the Internet for health-related purposes is likely to grow as more people gain access to the Internet across the world and as people who are young and middle-aged now (social groups more familiar with using the internet) become elderly (the group that consumes most healthcare). Healthcare providers may find their patients increasingly demand access to their medical records and other services online, and commercial competition may drive further development of this kind.

Although use of online health records systems outside those offered by public healthcare systems seems limited at present, the European Commission recently offered support for pilot projects to develop systems for individuals to have their personal health information safely stored within an accessible online healthcare system. The Council concludes that it would be prudent to make arrangements that provide for the possible increased use of such records.

Telemedicine

Although some types of care will always need to be delivered in person, telemedicine has the potential to offer care to people in their own home and increase equitable access to healthcare services. The ethical issues associated with 'responsibilisation' are of key importance for telemedicine, since some telemedicine services lead to patients (or their carers) taking, or being obliged to take, greater responsibility for their healthcare. This raises questions about how far telemedicine should replace traditional forms of healthcare and about liability for adverse events.

One concern that the Council raises about the introduction of telemedicine systems that link patients to remote healthcare professionals or remote systems, is that it may serve to replace time spent in the physical presence of health professionals, an aspect of healthcare valued by many people. A balance must therefore be struck between the value of using public resources fairly and efficiently and the value of state activity to reduce harm in this case.

Additionally, it is noted that the current legislation for telemedicine does not encourage providers of healthcare services to consider all the factors that are thought to be desirable when deciding whether to introduce telemedicine services, including: Cost-effectiveness; equity; safety; quality; the value of physical time with health professionals, impact upon doctor-patient relationships and the value of global social solidarity.

Recommendations

Public healthcare systems should offer telemedicine services in circumstances where they can assist in a feasible and cost-effective manner to reducing inequities in access to healthcare. As when introducing any new health service, consideration should be given to ensuring that inequities of access to care are wherever possible not exacerbated for some groups while they are reduced for others, and any impacts on doctor-patient relationships should be evaluated.

To ensure that public resources are used fairly and efficiently, the report recommends to providers of public healthcare systems that telemedicine services should be subjected to the same criteria of cost-effectiveness, equity, safety and quality to which other health technologies are subjected. This recommendation may require careful monitoring of changes in the quality and standards of care for patients, for example if people were at risk of being discharged inappropriately early from hospital due to the provision of a telemedicine service for aftercare and follow-up.

The report concludes that telemedicine could have a particularly positive impact in developing countries, for example, by enabling doctors to seek expert opinions from specialists in industrialised countries. It may also have a role in reducing the 'brain drain' effect of doctors moving from developing countries to work in industrialised countries. The Council therefore recommends that The World Health Organization and other international agencies should encourage telemedicine networks in developing countries where they can be shown to be beneficial, cost effective and sustainable.

Future Impact

Telemedicine could be of particular significance when considering the impact of an ageing population on health and social care. Older people use healthcare more than other demographic groups, and therefore healthcare providers will need to assess ways in which telemedicine can be used to improve cost-effectiveness. Some forms of telecare could be particularly suited to the provision of health services to older people, insofar as telemedicine can help promote independence and detect early changes in health status. It has also been argued that telemedicine is important as a way of better supporting vulnerable adults and those with long-term health conditions such as dementia. Hence it is likely that, at least in the UK and other industrialised countries, we will see increased use of telemedicine in many different forms in the future.

To read **Medical profiling and online medicine, the ethics of 'personalised healthcare' in a consumer age** in full, please visit: www.nuffieldbioethics.org/personalised

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THE AUSTRIAN HEALTHCARE SYSTEM

Facts and Figures

Austria is a democratic republic situated in central Europe, which covers a territory about 84,000 square kilometres. It has nine provinces including Vienna as its capital. About 8.5 million inhabitants live there and demographic forecasts predict that the population will grow to more than nine million by 2030.

Since 1955 Austria has been a member of the United Nations and since 1995 a member of the European Union with the adoption of the euro (EUR) as its currency in 2002. Austria has one of the most generous systems of social security and health services for all people within Europe.

The costs for healthcare in Austria (Health Accounts/OECD 1990 to 2009 in Mio Euro – a summary of private and public costs) are rising and cost pressure in the Austrian healthcare system is increasing.

1990	11.365	Base value
1995	16.633	46%
2000	20.642	82%
2005	25.340	123%
2009	30308	167%

Table 1. Healthcare costs in Austria

Healthcare Services

The Austrian healthcare system is characterised by a high density of easily accessible healthcare facilities. Austria has a high standard of compulsory state funded healthcare. Private healthcare is also available in the country. There are three areas of social insurance in Austria: Health, accident and pension.

The Austrian healthcare system is based on statutory social insurance, regulated by law with the most important legislative basis of the General Social Insurance Act (ASVG). In Austria, there are about 28 social insurance institutions under public law.

As soon as a person takes up occupation they are automatically covered by insurance. Insurance contributions are calculated on the basis of a person's income. All insured people have a legal right to a large number of benefits. The main principles are solidarity, affordability and universality. The variety of services are:

- Primary healthcare services provided by contract physicians of the Austrian social health insurance funds;
- Special in-patient and out-patient care;
- Emergency care;
- Maternity services;
- Psychotherapy;
- X-ray and laboratory tests;
- Physiotherapy, ergotherapy, speech therapy, curative massage;
- Dental services;
- Ambulance services;
- Mobile and home care;
- Preventive health services;
- Rehabilitation and long term care services; and
- Care for people with disabilities.

Patients can choose their family physician and have free access to most other medical care.

The e-card system (a citizen ID card which contains an electronic signature and a personal data including their date of birth and social security number) monitors all health claims electronically.

Key Planning Instruments

There are a number of key planning instruments aimed to improve the cooperation among the individual actors in the healthcare system and also between the different levels of healthcare provision in the whole country. The most important are:

The Austrian Health Care Structure Plan
(ÖSG) which includes
- Core objectives and planning principles as well as descriptions of methods and quality criteria;
- Benchmarks regarding number of inpa-

tients to be expected in all healthcare regions and healthcare zones of Austria;
- An analysis of the situation in the areas of outpatient medical care, extramural therapeutic, psychological and psychosocial care, rehabilitation, and care for older people and long-term care; and
- Capacity planning for hospitals at provincial level (number of beds per discipline and locations for provision of specialised services; updated biomedical equipment plan); a number of data are provisional or only serve the purpose of general information after adoption of the individual Regional Health Care Structure Plans.

The Regional Healthcare Structure Plan
(RSG), which includes detailed plannings in the different healthcare regions, built up to the ÖSG. Cooperations between the hospitals (organisational consolidations, medical centres) and cooperations with the extramural area are forced

In-Patients

Healthcare in Austria traditionally shows a strong weighting on hospital care. In 2009 about 64,300 hospital beds in 267 hospitals were available for in-patient care; 52,200 of these beds were for acute care (Source: WHO 2009).

Austria has a network of state-maintained public and privately owned hospitals. Most people use the General Hospital, which deals with a wide variety of disease and injury. All state hospitals are open to all insured patients, including private. Patients are admitted to hospital either through the emergency department or through a referral by their doctor. Once a patient is admitted, treatment is controlled by one of the hospital doctors.

The quality of hospital rooms varies according to the quality of a person´s healthcare insurance scheme. Privately insured patients will get a single or double room. State insured patients may have to share with maybe two or three other people but there are no differences in medical care.

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BUKO, the National Association of Hospital Management

Organisation
Austria is a federal republic consisting of nine states. Each has its own autonomous union of managers, responsible for the administrative and financial business in the hospitals. These nine unions are combined in the National Association of Hospital Managers. The BUKO consists of the chairman and a delegate of each state and is a stage for ideas, communication and information and service-platform for all Austrian Hospital managers, especially financial directors of hospitals.

BUKO facilitates national and international contacts and the global exchange of experiences. Inputs, opinions and questions of general hospital management, health economics, financing and operating control are discussed in the public view or within the policy maker unit. BUKO provides a basic fee for securing the service-provision in community health

Further Education and Cooperation
The Austrian congress of hospital management is the most important activity in the public arena. This congress takes place annually and is arranged by a different federal state of Austria each year.

In 2012 The Federal State of Tyrol will present the 55th Austrian Congress of Hospital Management from the 14th to the 16th of May in Innsbruck, the capital of Tyrol. The slogan for this year is "best available technology". For further information on this event, please visit: http://www.krankenhausmanagement2012.at. These congresses, which are designed to be multidisciplinary in nature are the most important events for hospital managers in Austria. Many attendees also come from other countries.

The BUKO also collaborates with the industry and cooperates with producers and trading companies of medical products in Austria to improve process organisations, create standards or to discuss future prospects. Periodical meetings take place.

The education of young managers is one of the most important missions in the BUKO´s targets. Some years ago the Austrian Institute for Hospital Management (ÖIK) was founded to offer different courses, workshops and seminars. All the themes and issues are current and applicable to to-

day's situation. The lecturers are long-standing hospital professionals and experts in hospital management. Due to its excellent reputation and in face of more and more private competitors, the training courses, arranged by ÖIK are very successful and mostly fully booked.

General principle
The Austrian association of hospital managers (BUKO) sees its function as being an important voice in the healthcare system in Austria. The principal objective is to make a contribution to the Austrian healthcare system, so that high quality is warranted to all Austrian citizens.

Austrian Network for Patient Safety (ANetPAS)

The Austrian Network for Patient Safety was founded in 2008 after a political recommendation some years before. It is an autonomous platform made up of relevant institutions and experts on the Austrian healthcare system, in particular experts in patient safety and total quality management. The healthcare sector is full of complex challenges: Quality of care, patient safety and individual patient satisfaction. Therefore, the main objectives and activities of the AnetPaS are:

- To support, develop and coordinate projects and activities to bring forward patient safety and to reduce errors in healthcare;
- Scientific research on patient safety;
- Education and further training;
- To be a platform for activities and projects; and
- To cooperate with international networks.

The question of patient safety has become a public issue and is of more and more importance during a hospital stay. Questionnaires have shown that patients believe in supporting doctors and nurses to avoid human error. Therefore it is very important to involve the patients fairly in the process of care. The target is to have well informed and alert patients. This goal can be reached using a patient safety guide.

Patient Safety Guide – a Successful Medium
The target is to improve the patient safety by offering a code of practice. It includes suggestions for patients: How to act and how to

add their contribution for a successful care.

For most people contact with healthcare institutions is often like entering a foreign culture. The daily routine and working processes in hospitals seem curious und confusing for them. The patient safety guide is an instrument for the patients to support their uncertainty and to help them understand the hospital world.

It is important to inform the patients about the necessary steps of care so that they are able to decide responsibly and adequately in view of their disease and care. The patient safety guide offers many letters of recommendation and information for the patients. For example:

- How to prepare themselves for discussions with doctors and nurses;
- How it is possible to ask questions about their disease, about the plan of care and therapy and about the expectant results of care;
- How to keep the overview of all the information they will get; and
- How to make an active contribution to avoid errors and unwanted situations.

The patient safety guide is used like a diary. Patients have the possibility to make individual notes. It is an information source and will motivate patient-doctor cooperation.

Trygfonden, a Danish institution specialised in general safety activities, and the Danish Association for Patient Safety developed the contents of this guide some years ago. The Austrian Network for Patient Safety (ANetPAS) were given approval to translate it into German and to adapt this exemplary guide to the Austrian situation.

This patient safety guide will be introduced for the first time in Austria´s public and private hospitals this year. A test run will start in spring 2012 in Vienna. A scientific evaluation will be performed by the Karl Landsteiner Association for Clinical Risk Management, situated in Vienna´s Hietzing Hospital, under the direction of Dr. Brigitte Ettl, Medical Director of the Vienna Hietzing Hospital and the Neurological Centre Rosenhügel.

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Heinz Kölking

LA SOLIDARITÉ FACE À L'ADVERSITÉ

Nous sommes tous interpellés par l'Europe. Dans le contexte actuel des économies instables et de la crise financière, il n'est pas facile de réassurer l'idée d'une Europe commune. C'est pourtant maintenant qu'il est essentiel de croire en cette Europe et de créer les conditions les plus favorables à un développement positif. Si cela devait se produire en vertu de la solidarité et de la subsidiarité qui existent dans tous les domaines de la vie, je suis convaincu que tout se passera pour le mieux. Nous devons néanmoins faire face à un revers

> C'est pourtant maintenant qu'il est essentiel de croire en cette Europe et de créer les conditions les plus favorables à un développement positif

douloureux pour notre association. L'association grecque des directeurs d'hôpitaux a décidé, en coordination avec le Comité de l'AEDH, de reporter le congrès prévu en 2012 à Athènes et de déplacer le congrès européen. Ce fut une décision difficile et nous aurions aimé que ce congrès ait bien lieu à Athènes. Toutefois, la situation actuelle apportant avec elle des incertitudes considérables, cette décision nous paraît inévitable. La procédure de cette décision difficile peut être lue plus en détail dans ma lettre présidentielle de l'AEDH.

Le comité de l'AEDH a donc décidé de ne pas organiser de congrès en 2012. À sa place et comme l'année dernière, un séminaire européen sera organisé à Düsseldorf pendant MEDICA, où se tiendra également l'Assemblée générale 2012.

En 2013, nous prévoyons d'organiser notre prochain congrès de l'AEDH au Luxembourg. Nous remercions nos collègues luxembourgeois de nous avoir invité. Ainsi, nous travaillerons en étroite collaboration avec nos homologues grecs pour trouver de quelle façon nous pourrons les aider. Nous espérons que l'occasion se présentera, dans un avenir proche, de tenir en Grèce un congrès de l'AEDH.

Ce numéro de *(E)Hospital* apporte aux lecteurs des informations intéressantes sur des questions d'actualité. Il vous propose des articles sur l'externalisation, les réseaux sociaux, le design et les technologies de l'information. Tous ces sujets sont essentiels pour les directeurs d'hôpitaux qui doivent prendre en considération et mettre en œuvre ces nouveaux développements. Le country focus de ce numéro vient de nos amis Autrichiens. J'espère que vous apprécierez tous la lecture de ces très intéressants articles.

Heinz Kölking,
Président de l'AEDH

L'AEDH ET LA NOUVELLE DIRECTIVE

La nouvelle directive européenne relative à l'application des droits des patients en matière de soins de santé transfrontaliers a été adoptée le 9 mars 2011 par le Parlement européen et le Conseil de l'Union européenne. Elle consacre maintenant au de la législation européenne la règle générale de droit pour le patient qui l'autorise à bénéficier de soins de santé dans un État membre de l'Union européenne différent de celui dans lequel il est affilié. Il pourra être remboursé jusqu'à hauteur des coûts qui correspondent au niveau de prise en charge s'il avait bénéficié de ces soins dans son État d'affiliation, sans distinction entre traitements ambulatoires et stationnaires. Cependant, suivant les cas de figure, la demande de prise en charge pourra aussi être basée sur la réglementation UE 883/2004 portant sur la coordination des systèmes de sécurité sociale toujours applicable et en conformité avec la jurisprudence de la Cour de justice de l'Union européenne qui prévoit des nuances en ce qui concerne le niveau de remboursement.

Mais, au-delà des aspects purement pécuniaires, la sous-commission « Affaires européennes » de l'AEDH a aussi identifié un grand défi, celui de l'aménagement des règles liées à la future circulation des services en matière de soins de santé. Cela ne pourra se faire sans une coordination efficace de tous les acteurs concernés, aussi bien au niveau des pouvoirs publics que sur le terrain et avec les associations de patients. Il est aujourd'hui de plus en plus nécessaire de pouvoir comparer les acteurs des hôpitaux et des autres services de santé entre eux, ceci tant à un niveau national qu'à un niveau régional étendu ou européen. Pour pouvoir se comparer valablement, il est indispensable de se mettre d'accord sur des standards à partager et sur le choix des indicateurs pour mesurer l'efficience des différents services : nous devons définir des critères normatifs et qualitatifs afin d'assurer un haut niveau de qualité et de sécurité de l'activité des soins de santé à tous les niveaux. Pour réaliser cet important travail de benchmarking, la mise en place d'un certain nombre de prérequis est indispensable. Il ne suffit pas de vouloir comparer, encore faut-il pouvoir le faire concrètement.

La gestion des services devra afficher la transparence requise, les actes et procédures devront être comparables. Un maximum d'efforts devra être entrepris pour offrir aux patients les informations nécessaires pour bénéficier des services transfrontaliers : ils devront pouvoir comparer les prestations de part et d'autres des différentes frontières et être correctement informés quant aux procédures à suivre dans le cadre de leur circuit à l'étranger. Les services devront donc être comparables aussi bien en ce qui concerne leur niveau de qualité et de sécurité que leur niveau de coûts. Si nous ne parvenons pas à faire évoluer le système de manière progressive et réfléchie dans la seule direction possible, à savoir un maximum de qualité pour le patient tout en maintenant un niveau de rentabilité réaliste, une rude compétition risque de découler de ces nouvelles contraintes. Quoi qu'il en soit, les services de santé devront être gérés de manière à ce que les procédures et les outils indispensables pour faire face à ces nouveaux défis soient implémentés et assimilés au plus vite et il conviendra en même temps de redoubler d'efforts pour maintenir le niveau de compétitivité et de permettre aux acteurs hospitaliers d'évoluer efficacement dans ce nouvel environnement.

Afin que l'implémentation de la nouvelle directive soit réussie, l'AEDH souhaite aussi être impliquée dans la mise en place des actions à mener à un double niveau :
- dans chaque pays, avec les associations nationales qui seront invitées à revendiquer une participation des gestionnaires d'hôpitaux pour faire valoir leurs points de vue dans la genèse des nouveaux textes nationaux, notamment lorsqu'il s'agira de construire les structures de gestion des flux de l'information à l'attention des patients et des autres acteurs concernés ;
- au niveau de l'Union européenne, en intervenant auprès de la Commission européenne pour faire valoir les considérations et les visions défendues par l'AEDH, notamment lorsqu'il s'agira d'œuvrer en vue de la définition de standards Qualité communs et de rechercher des indicateurs pour la qualité et l'économicité des services hospitaliers.

C'est la raison pour laquelle l'AEDH souhaite organiser, à la suite logique des constats effectués lors du séminaire de novembre 2011 à Dusseldorf, un nouveau séminaire, toujours à Dusseldorf, en novembre 2012. Elle souhaite progresser dans la matérialisation des actions identifiées et faire la promotion de procédures qui pourraient être implémentées à un niveau européen pour une gestion de haute qualité des services hospitaliers.

Il faudra être prêt pour une nouvelle approche de travail lorsque la directive aura été transposée dans les droits nationaux des différents pays de l'Union européenne. N'oublions pas que le texte de la directive prévoit en son article 21 que les États membres devront mettre en vigueur les dispositions législatives, réglementaires et administratives nécessaires pour se conformer à la directive au plus tard le 25 octobre 2013. Il est indispensable de ne pas attendre cette échéance et d'entamer dès à présent les actions qui s'imposent pour travailler efficacement avec tous les acteurs de la santé de l'Union européenne qui sont se voient confrontés aux mêmes défis. Les gestionnaires des hôpitaux devront travailler dans un esprit de saine compétitivité, en apprenant les uns des autres, par-delà les frontières. N'oublions pas que c'est le patient qui tranchera, finalement, en patient éclairé.

Gageons que nous serons à même de tirer un bilan positif de ces importants travaux à mener au cours des deux prochaines années et que nous saurons présenter un bilan positif de ces actions lors du prochain congrès de l'AEDH qui pourrait se tenir au Luxembourg en 2013.

L'externalisation dans les systèmes de santé
Par Cristina Machado Guimarães, José Crespo de Carvalho

Si on considère la gestion de la chaîne d'approvisionnement des organismes de soins de santé, les décisions d'externalisation ont certaines particularités, qui sont dans les motivations et les entraves à la décision, au niveau des critères de sélection des activités laissées à des opérateurs extérieurs, tiennent au modèle d'accord possible, et même à l'impact de la décision d'externalisation sur l'organisation. D'après une vaste étude de cas de sous-traitance dans plusieurs systèmes de santé, les principales raisons évoquées pour ce choix étaient d'abord la réduction des coûts, puis l'atténuation des risques, ensuite l'adaptation aux changements rapides sans devoir compromettre les ressources internes et enfin la redéfinition de la chaîne de valeur.

Que ce soit dans les domaines cliniques ou non cliniques, les risques principaux de l'externalisation sont d'abord de perdre le contrôle des prestataires (si on prend en compte la discontinuité des niveaux de qualité dans le service, les questions concernant la responsabilité, la perte de compétences, et les problèmes de confidentialité des informations) et ensuite la trop grande dépendance par rapport au prestataire qui a pour conséquence une perte de flexibilité.

On observe un manque de recherche et de publications sur les organisations de soins de santé témoignant des risques liés à la sous-traitance, avant et après la décision, et dans des contextes différents de processus de changement organisationnel. Nous devrions tirer les leçons de la pratique effectuée dans les autres secteurs au lieu de voir l'externalisation comme une panacée pour atténuer les risques ou plus simplement réduire les coûts.

Les réseaux sociaux sont-ils la prochaine étape pour des soins de santé centrés sur le patient?
Par Lee Campbell

Une étude récente a montré que la recherche d'informations concernant la santé est située en troisième position parmi les activités les plus courantes pratiquées par les internautes américains. Huit utilisateurs sur dix déclarent rechercher dans Internet des renseignements concernant leur santé, celle de leurs amis et des membres de leur famille. Il ne fait aucun doute que nos patients prennent un rôle plus actif dans leurs soins et recherchent des informations concernant leur santé. La question est plutôt : pouvons-nous y participer et nous assurer que les patients obtiennent les informations adéquates ou voulons-nous rester en retrait et nous contenter d'observer ?

Le Dr Wendy Sue Swanson est une pédiatre passionnée de réseaux sociaux. Elle a créé un blog sur le site Web de son hôpital qui a reconnu sa passion et vu les avantages que cela représentait pour le patient et l'institution. Elle est persuadée que les réseaux sociaux favorisent une communication honnête et fait valoir que son blog fournit un cachet personnel à l'hôpital. L'information contenue sur son blog peut faire épargner du temps et de l'argent aux hôpitaux et aider les patients à mieux comprendre leur situation et le processus de soins.

Comment les technologies de l'information ont influencé le design d'un nouvel hôpital
Par Daniel Burgess, Clint Davies

La très rare occasion de construire entièrement un nouvel hôpital régional s'est présentée à l'organisation de santé «MaineGeneral Health». La planification stratégique de la technologie et les technologies de l'information ont joué un rôle central dans la conception de cette installation innovante qui devrait être achevée en 2014. Tous les aspects de sa conception bénéficient des technologies d'avant garde qui profiteront, en fin de compte, aux soins procurés aux patients. Mais au lieu de l'exposer, les concepteurs et les intervenants hospitaliers ont fait en sorte que la technologie reste cachée.

Dan Burgess, actuel vice-président et directeur informatique du « MaineGeneral », a pris la tête de ces transformations. Il a reconnu que la réussite tenait à la planification réfléchie et à l'obtention de l'adhésion de toutes les parties prenantes. Burgess a demandé à Clint Davies et à l'équipe conseil en technologies de l'information de Berry Dunn d'effectuer une évaluation objective et indépendante de l'organisation informatique et de l'aider à identifier le rôle fondateur des technologies de l'information dans la conception de l'hôpital. Les objectifs étaient clairs : il s'agissait de consolider les opérations informatiques, et, plus important encore, de jeter les bases d'une culture des technologies de l'information, qui serait un partenaire collaboratif du système de soins.

Le personnel hospitalier en bonne santé
Par Noldi Landtwing

La ressource la plus importante d'un hôpital est d'avoir des employés en bonne santé. La « Peer organisation » de l'hôpital d'Einsiedeln en Suisse, par ses actions préventives et ses interventions, travaille directement en faveur de la santé et du bien-être de ses employés. Quand des événements pénibles ou difficiles sont vécus sur le lieu de travail, le personnel mis en position de vulnérabilité peut être rapidement identifié et les syndromes de stress post-traumatique reconnus, traités ou même évités avant qu'il ne soit trop tard. Le cas échéant, il est également possible de faire appel à un réseau de professionnels externes experts en psychologie, en psychiatrie, dans le traitement des traumatismes, mais aussi conseillers, consultants ou spécialistes du coaching. Dans les situations de crise, la « Peer organisation » peut apporter à la direction de l'hôpital un encadrement positif, compétent, et du réconfort.

Photos et vidéos des derniers événements disponibles sur myhospital.eu

Le développement d'un système de gestion informatique des laboratoires pour la médecine translationnelle
Par Timothy G Bath, Selcuk Bozdag, Vackar Afzal, Daniel Crowther

Les systèmes de gestion informatique des laboratoires (LIMS pour « Laboratory Information Management Systems ») ont pris une place de plus en plus importante dans l'infrastructure des laboratoires modernes. Comme tous les logiciels très sophistiqués, les LIMS exigent souvent des ressources considérables pour leur sélection, leur déploiement et leur maintien. Les grandes infrastructures peuvent bénéficier de l'aide d'un spécialiste du support informatique qui va questionner leurs exigences et personnaliser le logiciel, mais des groupes plus petits ont souvent un soutien informatique trop limité pour accomplir le genre de développement itératif capable de résoudre les difficultés des biologistes pour définir et spécifier leurs exigences. Nous avons conçu et développé un système LIMS, « BonsaiLIMS », autour d'un modèle de données très simple : il peut facilement être utilisé pour un grand nombre de technologies et peut très simplement être étendu si des nécessités particulières l'exigent.

Notre institut présente l'avantage d'éviter les délais de mise en œuvre prolongés, les dépassements de budget, le « scope creep » (dérive du contenu), les produits hors normes et de prendre en considération la question de la fatigue de l'utilisateur – caractéristique de nombreuses implémentations de logiciels d'entreprise. La transition entre l'utilisation de dossiers localisés et non contrôlés (au format papier) vers une base de données centralisée, sécurisée et sauvegardée apporte les avantages immédiats d'une bien meilleure visibilité des données, de la qualité de l'ensemble des données et de l'audit.

L'éthique de la santé en ligne
Par Richard Wootton, Sarah Bougourd

Une grande enquête de l'entreprise indépendante basée au Royaume-Uni « Nuffield Council on Bioethics » a mis en avant un certain nombre de questions éthiques et de difficultés directement associées aux systèmes des soins de santé en ligne. Lorsqu'on examine l'évolution qui s'est faite dans ces domaines, cinq valeurs éthiques en particulier se démarquent par leur importance. Il parait fondamental notamment de préserver les données personnelles, d'inciter l'État à réduire activement les malfaisances, d'utiliser les ressources publiques de façon équitable et efficiente, de favoriser la solidarité sociale – qui est de partager les risques et de travailler ensemble à la protection des personnes vulnérables – et d'en éclairer les politiques publiques.

Actuellement, les utilisateurs ont des difficultés pour savoir comment leurs données seront utilisées, stockées, transmises ou vendues à des tiers. Le « Nuffield Council on Bioethics » recommande au ministère britannique de la Santé de mettre au point un système d'accréditation pour les prestataires de dossiers de santé en ligne. En ce qui concerne la télémédecine, le rapport recommande aux prestataires appartenant au service public que les services de télémédecine soient soumis aux mêmes critères de coût-efficacité, d'équité, de sécurité et de qualité qui régissent les autres technologies de la santé.

Le système de santé autrichien
Par Wilhelm Strmsek

Le système de santé autrichien se caractérise par une forte densité d'établissements de santé facilement accessibles. L'Autriche propose des soins de santé d'un niveau élevé, pour l'essentiel financés par l'État, même s'il existe aussi quelques structures de soins de santé privées. L'assurance sociale autrichienne comprend trois parties : le secteur de la santé, celui des accidents et celui de la retraite. Un certain nombre d'instruments de planification essentiels ont été créés. Ils ont pour objectifs d'améliorer la coopération entre les différents acteurs individuels du système de soins de santé et aussi entre les différents niveaux de l'offre de soins dans l'ensemble du pays. Les plus importants sont le Plan de structure des soins de santé autrichien (ÖSG) et le Plan de structure régional de santé (RSG).

BUKO, l'Association nationale de gestion hospitalière, est composée d'un président et d'un délégué pour chaque État fédéral. Elle est un lieu d'échange pour les idées, la communication et l'information et une plateforme de services pour tous les gestionnaires hospitaliers autrichiens, et pour les directeurs financiers des hôpitaux en particulier.

Heinz Kölking

SOLIDARITÄT IN WIDRIGSTEN UMSTÄNDEN

Europa fordert uns alle heraus. Es ist nicht einfach vor dem Hintergrund der Wirtschafts- und Finanzkrise auf dem richtigen Weg für ein gemeinsames Europa zu bleiben. Umso wichtiger ist es, dass wir alle für ein gemeinsames Europa einstehen und die Voraussetzungen für eine positive Entwicklung schaffen. Wenn dies in allen Lebensbereichen unter der Maßgabe von Solidarität und Subsidiarität geschieht, bin ich zuversichtlich, dass dies gelingen wird.

Gleichwohl haben wir in unserem Verband EAHM einen schmerzlichen Rückschlag zu verkraften. Der Griechische Verband der Kranken-

> Umso wichtiger ist es, dass wir alle für ein gemeinsames Europa einstehen und die Voraussetzungen für eine positive Entwicklung schaffen.

hausdirektoren hat sich in enger Abstimmung mit dem Präsidium des EAHM dazu entschlossen, den diesjährigen Europäischen Kongress in Athen abzusagen bzw. zu verschieben. Das tut weh und gerne hätten wir den Kongress durchgeführt. Allerdings bringt die augenblickliche Lage erhebliche Unsicherheiten, so dass eine Verschiebung unausweichlich scheint. Im Präsidenten-Brief des EAHM ist die Vorgehensweise dieser schwierigen Entscheidungsfindung nachzulesen.

Das Präsidium des EAHM hat sich deshalb dazu entschlossen in 2012 keinen Kongress durchzuführen. Dafür wird, wie schon im letzten Jahr, eine Europäische Vortragsveranstaltung des EAHM in Düsseldorf auf der MEDICA stattfinden, verbunden mit der diesjährigen Mitgliederversammlung.

Darüber hinaus wird es im Jahr 2013 aller Voraussicht nach einen EAHM-.Kongress in Luxemburg geben. Wir sind dankbar, dass unsere Kollegen in Luxemburg sich dazu bereit erklärt haben.

Ergänzend zu dieser Entwicklung werden wir gemeinsam mit unseren griechischen Freunden nach Wegen suchen, wie wir helfen können. Sicherlich wird sich eine Möglichkeit finden, in absehbarer Zeit mit unserer EAHM in Griechenland präsent sein zu können. Diese Ausgabe bringt den Lesern interessante Beiträge zu Fragen des Outsourcing, Social Media, Design, Informationstechnologie. Alle Themen fordern das Management in den Krankenhäusern neue Entwicklungen zu prüfen und umzusetzen. Unser Länderfocus kommt diesmal von unseren Freunden Österreich. Allen Lesern wünsche ich viel Freude und eine interessante Lektüre.

Ihr
Heinz Kölking
President EAHM

EAHM UND DIE GRENZÜBERSCHREITENDE RICHTLINIE

Die neue Europäische Richtlinie hinsichtlich der Patientenrechte bei grenzüberschreitender Gesundheitsversorgung wurde am 9. März 2011 vom Europäischen Parlament und dem Rat der Europäischen Union verabschiedet. Die Richtlinie setzt europaweit auf rechtlicher Ebene die allgemein gültige Regel fest, wonach Patienten auch in einem anderen EU-Staat als ihrem eigenen das Recht auf Gesundheitsversorgung haben. Die rückerstatteten Kosten spiegeln dabei das Ausmaß der Unterstützung wider, das die Patienten in ihrem eigenen Land erhalten würden (ohne Unterscheidung zwischen stationären und ambulanten Behandlungen. Jedoch kann auch die EU-Verordnung 883/2004 als Grundlage für den Betreuungsbedarf hinsichtlich der Koordination der Sozialversicherungssysteme herangezogen werden; diese ist nach wie vor anwendbar und in Übereinstimmung mit der Rechtsprechung des Gerichtshofs der Europäischen Union, welche Details über das Ausmaß der Kostenrückerstattung enthält).

Doch jenseits der rein finanziellen Aspekte hat der EAHM Unterausschuss für Europäische Angelegenheiten auch eine weitere große Herausforderung ausgemacht: die Entwicklung der Reglementierungen bezüglich des zukünftigen Dienstleistungsverkehrs im Gesundheitsbereich. Ohne gute Zusammenarbeit aller wichtigen Interessensgruppen — sowohl auf Regierungsebene als auch auf Basisebene zusammen mit Patientenvereinigungen — wird diese nicht vonstatten gehen. Heutzutage ist es zunehmend erforderlich, Krankenhäuser und andere Gesundheitsdienstleister nicht nur auf regionaler Ebene, sondern eben auch national oder im gesamten europäischen Raum zu vergleichen. Doch um diese Dienstleister auch wirklich erfolgreich vergleichen zu können, müssen wir uns erst auf gemeinsame Standards und Indikatoren einigen, um die Effizienz unterschiedlicher Dienste messen zu können. Messwerte und Qualitätsstandards sind zu definieren, welche die Gewährleistung eines hohen Qualitätsniveaus und die Sicherheit der Gesundheitsfürsorge auf allen Ebenen erlauben. Um diese wichtige Aufgabe des Benchmarking zu erfüllen, müssen zunächst einige Grundvo-

raussetzungen geschaffen werden. Es reicht nicht aus, vergleichen zu wollen — wir müssen zunächst überhaupt in der Lage sein, diese Vergleiche durchzuführen.

Das Management der Dienstleistungen muss über die notwendige Transparenz verfügen, und die Handlungen und Verfahren sollten vergleichbar sein. Es sollten maximale Anstrengungen unternommen werden, damit Patienten diejenigen Informationen erhalten, die für einen Vergleich solcher Leistungen erforderlich sind und einen Nutzen ermöglichen. Es muss möglich sein, die Leistungen im eigenen Land und über der Grenze zu vergleichen und umfassend darüber informiert zu werden, welche Prozeduren für die Auslandsreise erforderlich sein werden. Die Dienstleistungen müssen hinsichtlich Qualität, Sicherheit und Kosten vergleichbar sein. Aufgrund dieser neuen Auflagen besteht das Risiko eines verschärften Wettbewerbs — es sei denn, es gelingt uns, das System allmählich und reflektierend in die einzig mögliche Richtung zu lenken, d.h. maximale Qualität für den Patienten bei gleichzeitiger Erhaltung eines realistischen Profitniveaus. Nichtsdestoweniger müssen Gesundheitsdienstleistungen derart gemanagt werden, dass die Vorgänge und Werkzeuge, die nötig sind, um sich diesen neuen Herausforderungen zu stellen, so schnell wie möglich implementiert und assimiliert werden. Gleichzeitig ist es notwendig, die Anstrengungen zu verdoppeln, um ein Niveau der Wettbewerbsfähigkeit zu erhalten, das es Krankenhäusern erlauben wird, sich in diesem neuen, stärker wettbewerbsorientiertem Umfeld zu entwickeln.

Die EAHM möchte in der Umsetzung dieser Aktionen mitwirken, und zwar auf zwei Ebenen, die für die erfolgreiche Implementierung dieser neuen Richtlinie erforderlich sind:

1. In jedem Land, mit den nationalen Organisationen, die dazu eingeladen werden, namens der Krankenhausmanager ihre Ansichten hinsichtlich der Erstellung einer neuen nationalen Gesetzgebung zum Ausdruck zu bringen, vor allem hinsichtlich des Aufbaus von Managementstrukturen für den Informationsfluss zu

Patienten und anderen Interessensgruppen. **2.** Auf Ebene der Europäischen Union, über die Zusammenarbeit mit der Europäischen Kommission, um die Überlegungen und Visionen der EAHM voranzutreiben, vor allem bezüglich der Erarbeitung der Definition gemeinsamer Standards für Qualität und Forschung für Qualitätsindikatoren und niedriger Betriebskosten der Krankenhausleistungen.

Daher organisiert die EAHM einen Follow-up Event zum Düsseldorfer Seminar von November 2011. Auch im November 2012 ist Düsseldorf der Veranstaltungsort. Ziel des neuen Seminars ist das Vorantreiben der Realisierung der identifizierten Handlungen und die Förderung von Verfahren, die auf Europäischer Ebene für das hochqualitative Management von Krankenhausleistungen implementiert werden könnten.

Wir müssen bereit sein, einen neuen Arbeitsansatz einzuführen, sobald die Richtlinie von verschiedenen Ländern der Europäischen Union in die nationale Gesetzgebung übernommen wurde. Nicht vergessen: Die Richtlinie sieht eindeutig vor, dass die Mitgliedstaaten die für die Richtlinie erforderlichen Gesetze, Vorgaben und Verwaltungsvorschriften bis zum 25. Oktober 2012 implementieren müssen. Auf dieses Datum sollten wir jedoch nicht warten, sondern sofort handeln, die Aufgaben ausführen, die für die effiziente Zusammenarbeit aller Interessensgruppen im Bereich der Gesundheit EU-weit erforderlich sind, die denselben Herausforderungen gegenüber stehen. Krankenhausmanager müssen im Geiste eines gesunden Wettbewerbs und grenzüberschreitend von einander lernen. Vergessen Sie nicht, es ist der Patient, der als informierter, aufgeklärter Patient die Entscheidungsgewalt innehat.

Wir sind fest davon überzeugt, dass wir diese wichtige Arbeit im Verlauf der nächsten zwei Jahre positiv bewerten können, und dass wir ein positives Endergebnis dieser Handlungen beim nächsten EAHM Kongress vorstellen können. Dieser wird voraussichtlich 2013 in Luxemburg stattfinden.

▶ **Outsourcing in Gesundheitssystemen: warum, wie und wo**
Von Cristina Machado Guimarães, José Crespo de Carvalho

Im Supply Chain Management von Gesundheitseinrichtungen zeigen Entscheidungen über Outsourcing ganz spezifische Eigenheiten, nämlich hinsichtlich der Begründungen und Einschränkungen dieser Entscheidung, der Form der möglichen Übereinkünfte und sogar in Bezug darauf, welche Auswirkungen das Outsourcen auf die Einrichtung hätte. In einer umfassenden Untersuchung verschiedener Fälle von Outsourcing in unterschiedlichen Einrichtungen verschiedener Gesundheitswesen zeigten sich als wichtigste Entscheidungstreiber die folgenden Faktoren: (1) Kostensenkung, (2) Schadensminderung, (3) Anpassung an rasche Änderungen ohne Gefährdung interner Ressourcen, und (4) Neudefinierung der Wertschöpfung.

Sowohl in klinischen als auch in nicht-klinischen Bereichen sind die Risiken des Auslagerns: (1) Verlust der Kontrolle über Lieferer (unterschiedliche Service-Qualität, Probleme der Haftung, Verlust von Kompetenzen, Probleme bei Vertraulichkeit von Information) und (2) übermäßige Abhängigkeit vom Lieferer mit daraus folgendem Verlust der Flexibilität.

Derzeit mangelt es an Forschungsergebnissen darüber, wie Einrichtungen des Gesundheitswesens mit den Risiken des Outsourcings vor und nach der Entscheidung und in verschiedenen Kontexten organisatorischer Vorgänge umgehen. Die Erkenntnisse von anderen Sektoren sollten daher genau untersucht werden, bevor man Outsourcing als Allheilmittel für Schadensminderung oder Kostensenkung ansieht.

▶ **Soziale Medien: der nächste Schritt in der Patientenorientierten Betreuung?**
Von Lee Campbell

Laut einer aktuellen Studie ist die Recherche von Gesundheitsinformation die dritthäufigste Aktivität von Internet-Usern in den USA. Acht von zehn Usern gaben an, im Internet nach medizinischer Information zu suchen, entweder für sich oder für Freunde und Familienmitglieder. Es gibt keinen Zweifel daran, dass unsere Patienten zunehmend aktiver agieren und sich selbst die entsprechende Gesundheitsinformation zusammensuchen. Die Frage ist: Mischen wir hier mit und stellen damit sicher, dass die Patienten auch die richtige Information erhalten, oder wollen wir nur Zaungäste sein?

Dr. Wendy Sue Swanson ist Kinderärztin und enthusiastische Userin sozialer Netzwerke; zudem schreibt sie einen Blog für die Webseite ihres Krankenhauses. Ihr Krankenhaus anerkannte ihre Leidenschaft für dieses Thema und sah die Vorteile für sowohl Patienten als auch für die Einrichtung selbst. Dr. Swanson ist der Meinung, dass soziale Netzwerke die offene Diskussion fördern und argumentiert, dass ihr Blog dem Krankenhaus eine persönliche Marke gibt. Die Information auf ihrem Blog kann Krankenhäusern Zeit und Geld sparen und zudem Patienten dabei helfen, ihre Situation und die notwendigen therapeutischen Vorgänge besser zu verstehen.

▶ **Es werde Licht, sagt die Technologie: Wie IT das Design eines neuen Krankenhauses beeinflusst**
Von Par Daniel Burgess, Clint Davies

Das MainGeneral Health Krankenhaus hatte die Jahrhundertchance, eine neue regionale Einrichtung von Grund auf aufzubauen. Die strategische technologische Planung und IT spielten eine Schlüsselrolle im Design der innovativen neuen Einrichtung, deren Fertigstellung für 2014 vorgesehen ist. Das New Regional Hospital integriert die neueste Technologie in jeden Aspekt seines Designs und schlussendlich auch in die Patientenbetreuung. Doch anstatt die Technologie offensiv zur Schau zu stellen, beschlossen die Designer und Interessensgruppen des Krankenhauses, die Technologie unsichtbar werden zu lassen.

Dan Burgess, derzeitiger Vizepräsident und Leiter der Informationstechnologie am MaineGeneral, übernahm das Ruder während dieser Phase der Veränderungen. Er erkannte, dass durchdachtes Planen und die Zusammenarbeit aller Interessensgruppen der Schlüssel zum Erfolg war. Burgess brachte Clint Davies und Berry Dunn's Beraterteam der Informationstechnologie mit ein, um eine objektive und unabhängige Bewertung der IT-Organisation zu erstellen und dabei mitzuwirken, die formative Rolle von IT im Aufbau der Krankenhauses zu identifizieren. Die Ziele standen fest: Es galt, die IT Operationen zu stabilisieren und, noch wichtiger, die Grundlage für eine Kultur der Informationstechnologie zu legen, die sich als kollaborativer Partner für das Gesundheitssystem sieht.

▶ **Gesundes Krankenhauspersonal**
Von Par Noldi Landtwing

Die wichtigste Ressource eines Krankenhauses sind seine gesunden Mitarbeiter. Die Peer Organisation des Schweizer Einsiedeln Krankenhauses unterstützt die Gesundheit und das Wohlbefinden seiner Mitarbeiter mittels Präventions- und Interventionsprogrammen. Nach belastenden Ereignissen am Arbeitsplatz können vulnerable Mitarbeiter rasch identifiziert werden. Auf diese Weise ist es möglich, ein posttraumatisches Belastungstrauma rechtzeitig zu erkennen, behandeln oder sogar zu vermeiden. Bei Bedarf kann ein Netzwerk externer Fachkräfte miteinbezogen werden. Zu deren Fachgebieten zählen Psychologie, Psychiatrie, Traumatherapie, Lebenshilfe, Beratung und Coaching. In Krisensituationen kann die Peer Organisation dem Management des Krankenhauses mit positiver, kompetenter Unterstützung zur Seite stehen.

Alle Bilder und Videos finden Sie auf unserer Website www.myhospital.eu

▶ **Entwicklung eines Labor Informations-Management-Systems für Translationale Medizin**
Von Timothy G Bath, Selcuk Bozdag, Vackar Afzal, Daniel Crowther

Labor Informations-Management Systeme (LIMS) sind ein zunehmend wichtiger Teil einer modernen Labor-Infrastruktur. Die meist hoch entwickelten Software-Produkte benötigen allerdings oft wesentliche Ressourcen, um sie auszuwählen, einzusetzen und instand zu halten. Größere Organisationen mögen Zugang zu spezialisiertem IT-Support haben, der bei der Erhebung von Anforderungen und Maßschneiderung der Software hilft, doch kleinere Einrichtungen haben oft nur eingeschränkten IT-Support, um diese Art der iterativen Entwicklungsprozesse durchzuführen, die diejenigen Schwierigkeiten lösen können, denen Biologen bei speziellen Bedürfnissen oft gegenüber stehen. Wir haben ein LIMS, BonsaiLIMS, auf Basis eines sehr simplen Datenmodells entwickelt, das mithilfe einer Vielzahl von Technologien einfach zu implementieren ist und ebenso mühelos je nach speziellem Bedarf ausgeweitet werden kann.

Die Vorteile für unser Institut: Vermeidung längerer Zeitrahmen bei der Implementierung, keine Budgetüberziehung oder Zeitstandsprüfungen, Spezifikationsabweichungen und User-Ermüdungserscheinungen, welche für so viele Software-Implementierungen charakteristisch sind. Der Übergang weg von örtlichen, unkontrollierten Unterlagen in Tabellenkalkulations- und Papierformaten hin zu einer zentralen, gesicherten Datenbasis mit Back-up bringt unmittelbare Vorteile der verbesserten Datensichtbarkeit, Datenprüfung und genereller Datenqualität.

▶ **Ethik der Online Gesundheitssorge**
Von Richard Wootton, Sarah Bougourd

Eine groß angelegte Untersuchung des unabhängigen ‚Nuffield Council on Bioethics' im Vereinigten Königreich hat eine Anzahl ethischer Belange und Herausforderungen identifiziert, die mit verschiedenen Formen der Online Gesundheitssorge assoziiert sind. Der Council befand demnach fünf ethische Werte als bedeutsam für die Entwicklung dieses Bereichs: private Information ist zu schützen; der Staat muss handeln, um Schäden zu vermindern; öffentliche Ressourcen sind gerecht und effizient einzusetzen; und die gesellschaftliche Solidarität (geteilte Risiken und Zusammenarbeit zum Schutz der Schwachen) sollte auf die öffentliche Politik einwirken.

Derzeit ist es für Netz-User nicht leicht, herauszufinden, wie ihre Daten eingesetzt, gespeichert, weitergegeben oder an Drittparteien weiterverkauft werden. Der Council empfiehlt dem Gesundheitsministerium des Vereinten Königreichs, ein Akkreditierungssystem für Provider von Online Gesundheitsdiensten aufzustellen. Hinsichtlich Telemedizin empfiehlt der Bericht den Anbietern öffentlicher Gesundheitssysteme, dass Telemedizin-Services sich denselben Kriterien der Kosteneffizienz, Gerechtigkeit und Qualität unterziehen sollten wie andere Gesundheitstechnologien.

▶ **Das österreichische Gesundheitssystem**
Von Wilhelm Strmsek

Das österreichische Gesundheitssystem ist gekennzeichnet durch eine hohe Dichte einfach zugänglicher Gesundheitseinrichtungen. Österreich hat einen hohen Standard der gesetzlichen, öffentlichen Krankenversicherung; die private Krankenvorsorge ist ebenfalls verfügbar. Die Sozialversicherung in Österreich teilt sich in drei Bereiche: Gesundheit, Unfall und Pension. Es gibt einige wichtige Planungsinstrumente, welche die Zusammenarbeit zwischen den Einzelakteuren des Gesundheitssystems und auch zwischen den verschiedenen Ebenen der Gesundheitsversorgung im ganzen Land verbessern sollen. Die wichtigsten Instrumente sind der Österreichische Strukturplan Gesundheit (ÖSG) und der Regionale Strukturplan Gesundheit (RSG). Die BUKO, die Bundeskonferenz der Krankenhausmanager Österreichs, setzt sich aus einem Vorsitzenden und einem Abgeordneten aus jedem Bundesland zusammen. Sie stellt eine Bühne für Ideen, Kommunikation und Information dar und ist eine Service-Plattform für alle Krankenhausmanager Österreichs, vor allem für die Finanzleiter der Krankenhäuser.

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