



COVER STORY

Healthcare without borders

PATIENTS' RIGHTS • MEDICINE, TECHNOLOGY
AND HUMANITY • CHATBOT TECHNOLOGY
• TELEMEDICINE • INFOGRAPHIC

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Dear Reader,

As the world's largest representative body for senior healthcare executives, the European Association of Hospital Managers (EAHM) has a big responsibility in advancing the healthcare enterprise. Modern communication is key in sharing best practices, gathering new ideas and interacting with other disciplines.

The EAHM has selected *HealthManagement.org* as our exclusive media partner and I was entrusted to chair the set up committee of a fourth editorial board for Executive Management. EAHM has a lot to offer and will actively engage in shaping the future of healthcare with the help of *HealthManagement.org*. This board will perfectly complement the three already existing boards - namely Imaging, Cardiology and Healthcare IT.

We feel that the multidimensional approach, using all different media offerings in a concerted interaction, is not only the most advanced in the market, but ensures as well by far the best reach to our members and beyond.

In this issue of *HealthManagement.org* we introduce the new Cardiology Editor-in-Chief, Tienush Rassaf, who shares views on cardiology and leadership.

One of the areas that the EAHM is actively promoting is cross-border care in Europe, the cover story theme of this journal. It includes the interesting overview of the Active Citizenship Network on the benefits of the EU cross-border patient rights.

Technology is centre stage as Valentin Sinitsyn and Mei Wa Kwong take a look at the strengths and pitfalls of telemedicine from two differing country viewpoints. But breaking borders is also achieved with Chatbot technology or with Humanity as seen in Rambam Health Care in Israel.

Exciting developments are happening in imaging for breast cancer prevention and treatment. Prof. Gabor Forrai, President of the European Society of Breast Imaging gives us the state-of-the-art overview.

This edition gives as well interesting tips in Management Matters with the growing problem of physician burnout, the tragic consequences of exhaustion and stress and different ways we can be made aware of and remedy. It covers as well the administrative burden, importance of culture and leadership vision as well as the road ahead for value-based healthcare.

Finally, valued contributors, both past and present, offer their ideas about what is going to be making news in the healthcare sector in 2017.

Enjoy reading this latest issue,

Klaus Koller



Nikolaus Koller, MAS MBA

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MAMMOGRAPHY IS THE MOST PROVEN SCREENING METHOD

INTERVIEW WITH GÁBOR FORRAI, EUSOBI PRESIDENT



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What were some of the highlights of the European Society of Breast Imaging 2016 annual scientific meeting?

It was a fantastic meeting, with 730 attendees, the highest ever. Popular sessions included the BI-RADS workshop for standardising reporting in breast imaging and screening. The sessions on diffusion MRI were also very popular, as MRI is increasingly used to screen women with a high risk of breast cancer and also in diagnostics. There was an excellent session on managing B3 lesions (BI-RADS assessment category: Probably Benign). These borderline lesions are challenging to manage.

There was an interactive multidisciplinary team (MDT) session, played in front of the audience as in a hospital, including discussion about clinical cases. As breast diagnostics and therapy is a multidisciplinary issue it's impossible to decide on diagnostics and therapy alone. All these professions (radiologist, surgeon, oncologist) have to work together, therefore MDT meetings are obligatory in many countries. There is evidence that if there is a team decision patient management will be better, and in many cases after the team meeting there is a change of the therapy plan. A lot of the breast radiologist's time is spent in team meetings, and this intellectual professional "thinking together" is an important addition to the diagnosis. Meetings are comparatively cheap—it's not only the machines that can provide and add to the diagnosis and planning.

What's current best practice to manage borderline lesions?

There are some new features such as using MRI in order to try to predict the potential behaviour of these lesions. The question always is whether to operate or to observe. There is always a biopsy, which precedes this decision or issue, so if the biopsy confirms a lesion as B3 with malignant potential, the decision is always whether to excise something that may never cause harm to the woman, and the issue here is over-treatment or whether to schedule follow up. Here the risk is that the patient may not have regular follow up because she's forgotten or moved and then we may face a breast cancer, so that means under treatment. We are always balancing between these two situations with B3 lesions. Breast radiologists can perform image-guided excisions of these lesions. I think that in a few years interventional therapy will be performed by breast radiologists for small breast cancers as well. It is already practised in some countries like

Japan, eg for very old people who cannot undergo anaesthesia. It is not yet a routine method, as it is not allowed in every country.

Regarding information for women on mammographic screening, there is a lot of information and sometimes misinformation in the mass media and on the internet. How can this be improved?

This is mainly communication and public relations work, to reach the public with specific information to make them understand and convince them that the information is sound enough to be followed. Public relations work and doctors are fields apart, so there is a need for intermediates like the press and professional organisations to communicate. In the breast health field it is especially important, because there are fewer problems regarding communication regarding eg the liver and spleen because nobody thinks they know all about it, or gives hints about these lesions. In breast imaging misinformation is a huge problem. Because of this EUSOBI published recommendations for women's information about mammography (Sardanelli and Helbich 2012), which are also intended to be read by referring clinicians. EUSOBI also published a paper with recommendations for women's information on MRI (Mann et al. 2015).

This year the theme of the International Day of Radiology is breast imaging, EUSOBI, in collaboration with the U.S. Society of Breast Imaging, European Society of Radiology and Europa Donna, has published *Screening & Beyond*, which is free to download (internationaldayofradiology.com/publications). Aimed at women, the publication includes EUSOBI's recommendations for women's information on mammography, MRI, ultrasound and image-guided breast biopsies. There are also chapters on standards and quality, research, the history of breast imaging, the role of the radiographer as well as information from Europa Donna. EUSOBI has strong links with 30 national breast imaging societies in its National Societies Network. We recommend that the national societies translate the women's information materials into their own languages.

Should tomosynthesis be the new standard for mammographic screening programmes?

It is certainly an excellent imaging method. Already there are scientific articles that prove its superiority compared to simple digital mammography. However, the data are not enough to say that screening should be done with tomosynthesis. Many screening centres are doing an additional



L-R: Prof. Gábor Forrai, Prof. Hedwig Hricak, Prof. Michael Fuchsjaeger

tomosynthesis 1 or 2 views to the standard views. Even standard views can be replaced by tomosynthesis with some special techniques. However, we have to have the data, the evidence, to prove it scientifically, and statistically. This slows down the initiation of a new and very good technique, but on the other hand avoids the risk that a technology may later prove not to be successful. I think tomosynthesis is good enough and will prove its superiority, but we need time and data.

How can rates of false positives and false negatives be improved?

There is always a balance. If the screening method is sensitive but not specific enough, it finds a lot of things, both positives and negatives, but will result in a lot of lesions. If the method is not sensitive enough, it means it will not find enough cancers. There is always a difficult balance between finding most of the cancers but not finding most of the benign lesions. There are no 100% perfect methods in the world, either for medical or non-medical issues. We have to realise that this phenomenon exists, that there will be always some positives and false negatives. The question is how to deal with it, and how the public will deal with it. Most important is that we use very quick and straightforward methods to prove that a lesion is false positive or true positive and the same for the negatives. We should not keep women waiting long weeks between screening, additional diagnostic tests and biopsy until the result is known, as it is damaging psychologically. With one-stop clinics, patients are recalled after screening, and have additional tests and, if needed, most of the biopsies on the spot, and receive the results within days.

EUSOBI 5 Points Against Breast Cancer



1. In Europe, there are slightly different breast screening protocols in every country, but one statement is uniform: mammography saves lives and life quality – it can decrease breast cancer death by up to 40%.
2. One in five breast cancers occur in women below 50, so screening should start before this age, at least at 45.
3. 45% of breast cancers and related deaths occur in women at 65 and over. One in three breast cancers occur in women over 70, so screening should not stop at this age, but continue at least up to 75.
4. If a woman has breast symptoms, the breast radiologist is the doctor to meet – he/she integrates all diagnostic techniques in order to give the most accurate information on breast health status e. g. cancer disease.
5. The woman's risk profile matters: personalised screening protocols may include ultrasound and/or MRI – but should always be interpreted together with mammography.



Image credit: EUSOBI/ simoncallaghanphotography.com

As radiologists we need time and empathy to deal with false positives. We cannot avoid them, and we have to communicate with the woman what the probability is of the lesion being cancer. When you call back a patient, usually it's by phone, it is much discussed with administrative or medical staff what to say to them. We usually say "We have found a lesion in your breast, which can be a simple asymmetry or something else." If the result is positive, we quietly inform the woman, that there is a lesion and that a therapy will be needed. You cannot avoid false positives, but communication and time are key.

Will computer-aided detection and diagnosis play a bigger role in the future in breast imaging?

Definitely. Already artificial intelligence and data mining are taking more of a role as prices come down and products are more readily available. Such technology will help radiologists' work, especially as there are many capacity problems in healthcare. But these technologies will not replace the decision maker. Computer-aided detection in mammography is almost 15-20 years old, and even if you use the latest technology, you get quite frequently some false positive marks made by the computer. Radiologists never make so many false positive marks, so the radiologist has to control the technology. Computer-aided detection is not adequate to replace the human radiologists, the scientific eye and experienced brain, but it assists.

EUSOBI'S education course on digital breast cancer screening has the objective that radiologists "ensure the correct balance between detection, specificity and the associated efforts and costs." How do radiologists achieve this balance in practice?

We would like to decrease the personal "creative" approach towards diagnostics and to increase protocol-based

standardisation. Of course there are cases when we have to depart from the protocol and do something additional or different. But first of all radiologists must know the protocol, and EUSOBI is working on protocols and flowcharts that show the steps to follow. In breast imaging there are so many lesions and this is such a dangerous disease that the only way forward is to propagate to work in a protocol-based way. If it is done this way, it will be less costly, more cost-effective and will decrease workload.

You are a forensic radiologist as well as a breast radiologist. What does this involve?

Forensic radiology is between medicine and law. I took on the role of a forensic expert and made the juridical exams in Hungary, as there are very few breast experts doing it. Such cases should not be judged by a physician who is not practising breast radiology, which has been the case in some malpractice issues. We need experts from the same field. There is a different logic in breast imaging and screening, as we are working from statistics, from probability, and there are many more lesions in the breast than in other parts of the body. In 80% of cases the question is an overlooked cancer: what would have happened if it had been diagnosed earlier? It's an interesting mental and logical challenge.

This interview will appear in HealthManagement's issue with a cover story on healthcare without borders. What does this concept mean to you as a breast radiologist?

It means that there is one proven method in the whole world for screening breast cancer in normal risk women, which is mammography, and that is what EUSOBI's 5 points against breast cancer emphasise (see box). Mammography is already without borders, as everywhere it is the same. Millions of women's data from screening programmes have been collected in the world for 45 years, and the outcome of these data is used in other millions of women in the same and other parts of the world. Of course there are capacity and equipment accessibility variations between Africa and the USA, even between Europe and the USA that have to be taken into account by creating local protocols. Mammography is the most proven of all medical and diagnostic acts. It has the most scientific proof, even more so than a regular thoracic x-ray that is performed every day in hospitals. ■

EUSOBI 
european society of breast imaging



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MEETING THE ACCESS CONTROL CHALLENGE IN HOSPITALS

SECURING A HOSPITAL ROUND THE CLOCK IS A TOUGH JOB. BUT A RAPIDLY MATURING TECHNOLOGY IS PERFECTLY BUILT FOR THE TASK, WRITES THOMAS SCHULZ



Thomas Schulz

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Hospitals present a complex security challenge. They should always be welcoming public spaces. Indeed, in Sweden, many are “open” during daylight hours. Yet every hospital also has many sensitive assets that need securing around the clock.

Key assets include patients, doctors, nurses and support staff, of course. The protection of drugs and confidential patient data is critical. In labs, sensitive — even dangerous — research or testing materials demand constant monitoring. Valuable lab equipment is, unfortunately, a target for theft and vandalism.

Then there are the extra logistical challenges. Hospitals are often large and spread out, and locks may need to integrate with fire detection, CCTV and other security systems. Not all site users are created equal: medical staff, cleaners, patients and their visitors, and countless temporary and contract workers, all need access tailored to their specific and very different needs. Labs with a steady flow of visitors and contractors are safer if access is managed with time-limited “keys” that can be revoked or revalidated when required. In case of any security breach, a thorough investigation is essential. In fact, it is often mandated for regulatory compliance.

We expect too much of the traditional lock and key if we expect it to meet such a challenge. What’s the alternative, especially at a time when European healthcare budgets are tight, even more so in taxpayer-funded institutions?

A wireless solution

An access control system with wired doors and programmable RFID smartcards can solve many of these problems. But conventional wisdom says access control is expensive and cannot be installed everywhere, due to the need for extensive cabling. The result? It only covers doors with very high security requirements. But that needn’t be the case... if we cut the wires. Wireless locks are the most affordable way to extend access control throughout a site, greatly enhancing security for a small outlay.

What’s more, it doesn’t require you to rip up the current security system and start again. Aperio® locks, for example, can easily “plug in” to an existing access system, to bring

monitored security to many more openings than would be possible with wired doors. They interoperate seamlessly with building management systems, linking wirelessly via a communications hub to the central system. Most importantly, they allow hospital managers to upgrade security and to give facility administrators more control over the premises — from monitoring pharmacy doors to granting cleaners access only to their designated work areas to revoking the access rights of any lost smartcard instantly.

Critically from a compliance perspective, audit trails can be generated for any Aperio® lock, key or system user, at any time — making a proper investigation of any breach not just feasible, but straightforward.

Aperio® components come in all shapes and sizes, for all kinds of hospital doors. The range includes locks, cylinders and escutcheons for wood, aluminium and glass doors. Aperio® can protect both exterior and interior doors, from certified fire and safety doors with mandatory security requirements to meeting and consulting rooms, labs, store rooms, offices and even server racks. The system can assign each a different level of security, if needed. Any installation can incorporate online or offline locks — or a mixture of both.

Cost efficiency

These locks can be installed quickly, without changing door hardware. If you search YouTube for “Time challenge Aperio® cylinder” you can watch a technician complete an installation, from start to finish, in under 2 minutes. No wiring and no cabling means there’s no electrician required, and so no need to pay decorators to tidy up afterwards. Maintenance simply involves changing a standard lithium-ion battery once every 2 years. That’s it.

Wireless locks are cheaper to run, too. Unlike wired locks, Aperio® wireless locks only “wake up” when prompted by a credential. They are not connected to the mains, and use no power when inactive. One wireless electronic lock uses approximately 0.001 kWh of energy per year. A standard wired lock and reader uses 55.2 kWh.

And because any lost credential can simply have its access rights revoked, there’s no longer any need for the expensive, time-consuming process of changing the



Wireless, battery-powered cylinders can be operated with access cards



Wireless, battery-powered solution for entrance or corridor doors

Photos: ASSA ABLOY

locks when someone loses a physical key. Audit trails can be generated at the touch of a button, another saving on the substantial cost — in both staff time and money — of administering a mechanical master-key system.

Wireless access control in action

Securing hospitals wirelessly has gone beyond the concept stage: Aperio® is already deployed in European hospitals. For example, in Belgium, Hospital Maria Middelaeres is a vital part of Ghent's health infrastructure. In partnership with Nedap, around 700 doors in a new hospital building — opened in 2014 — have been fitted with Aperio® Offline locks connected to a Nedap AEOS access control system. The deployment is 100 percent wireless, maintaining design aesthetics in the new build. Staff now open doors and access secure areas with a single smartcard using MIFARE® RFID technology.

As part of a £35 million refurbishment of A&E and other urgent care services, Aintree University Hospital in Liverpool, England, sought an upgrade to its access control system. The trust needed flexible access control to streamline day-to-day security operations, extending public access while also maintaining restrictions to sensitive areas. They wanted a cost-effective, wire-free system, so installation could be done quickly and efficiently, without disrupting the day-to-day work of the hospital. ASSA ABLOY partnered with Grantfen and Inner Range to deliver a unified platform, which extended the Integriti access control system with ASSA ABLOY's Aperio® wireless escutcheons.

It took a minimal outlay on Aperio® wireless locks to transform security at the Centre Hospitalier Universitaire de Grenoble. Approximately 20 Aperio® Online cylinders and escutcheons were installed in hospital buildings. Previously, the open nature of the site had posed a significant risk of

intrusion. Stealing hospital property had become widespread, until Aperio® wireless access control drastically reduced theft from the premises. Aperio® Online technology also ensures hospital security managers can access building information in real time, even removing a swipe card's permission remotely, if required.

In France, the UK, Belgium and elsewhere, Aperio® gives doctors and nurses controlled access tailored to their shift patterns or working hours. Facility managers have real-time status information about their premises, with online or offline integration protecting wards, clinics and management offices. Audit trails for sensitive areas — like labs and rooms where drugs or medical records are kept — are available on demand. And hospital managers can extend access control to new buildings, or bring monitoring to more areas as and when required, without breaking the bank. The key to upgraded, cost-effective hospital security? Cut the wires.

Thomas Schulz is EMEA Marketing & Communications Director at ASSA ABLOY. For more about Aperio®, see www.assaabloy.co.uk/aperioforhospitals. ■

About ASSA ABLOY

ASSA ABLOY is the global leader in door opening solutions, dedicated to satisfying end-user needs for security, safety and convenience. Since its formation in 1994, ASSA ABLOY has grown from a regional company into an international group with about 46,000 employees, operations in more than 70 countries and sales close to SEK 68 billion. In the fast-growing electromechanical security segment, the Group has a leading position in areas such as access control, identification technology, door automation and hotel security.

DISCLOSURE:

"Point of View" articles are part of the HealthManagement.org Corporate Engagement Programme



MANAGEMENT AND LEADERSHIP IN CARDIOLOGY

INTERVIEW WITH EDITOR-IN-CHIEF, CARDIOLOGY, HEALTHMANAGEMENT.ORG



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HHealthManagement.org, Europe's leading multi-disciplinary healthcare management platform, welcomes Prof. Tienush Rassaf as Editor-in-Chief, Cardiology, HealthManagement.org. Prof. Rassaf is Director of the Department of Cardiology and Vascular Medicine at the Westgerman Heart- and Vascular Center, University Hospital Essen in Germany. He gave an interview to HealthManagement.org about the present and future of health management and leadership, where he reflects on personal thoughts and experiences working as a cardiologist and a leader.

What should cardiologists learn about management and leadership?

The further we advance in our medical career as cardiologists, the more we have to face the challenges of management and leadership. We should not make the mistake and see this as a problem, but rather as a chance and an opportunity. Taking a role in management and leadership is a privilege and belongs to the responsibilities of every cardiologist, even or especially early in his/her career. What kind of challenges do we have to face? Let's focus for example on education: we all want to be trained, we all want to learn more about novel techniques, and we all expect to be educated. But we should not forget that, when starting our career, it is also our commitment and our responsibility to start training and educating the next generations very early. We may all see deficits in our own education; what we should do, however, is to take responsibility and try to make it better for the next generation. Motivating, inspiring, educating, training and recruiting young students and physicians is the genuine obligation of every cardiologist.

How do you balance clinical and leadership excellence?

I believe that you cannot do one without the other! Clinical excellence is inseparable from leadership excellence. Cardiology is a very fast-growing and developing field. Treatment of complex cardiological diseases requires teamwork. Teamwork within the department and with colleagues from other departments is indispensable. To manage this, you have to be a good leader.

How can we achieve a good level of engagement between healthcare managers and clinicians?

We have to learn from each other. With the growing economic challenges, strong interaction between health managers and clinicians is becoming more and more important. Practising medicine, and especially cardiology, at a hospital and/or a practice has changed over the past years. Meetings and round tables are a good tool. The professional societies more and more offer seminars and courses to train physicians. The clinicians of tomorrow have to realise that health management is part of the job. We have to start very early in our career as physicians to train other physicians, ideally during their studies.

“ TAKING A ROLE IN MANAGEMENT AND LEADERSHIP IS A PRIVILEGE AND BELONGS TO THE RESPONSIBILITIES OF EVERY CARDIOLOGIST ”

How important is the role of journals in the field of health management for the dissemination of healthcare management practices?

Very important! Problems and solutions of healthcare management practices can thus be disseminated. However, we need journals of high quality. ■

"It's Always Too Soon to Give Up"

Read Prof. Rassaf's Zoom On profile at <https://iii.hm/5by>.

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HEALTH LEADERSHIP IN EUROPE PROMOTED IN EXCLUSIVE MEDIA PARTNERSHIP

THE EUROPEAN ASSOCIATION OF HOSPITAL MANAGERS (EAHM) AND *HEALTHMANAGEMENT.ORG* ENTER NEW AGREEMENT

EAHM and *HealthManagement.org* will partner to foster healthcare management and leadership in Europe, by leveraging in mutual expertise and network.

With both parties supporting the importance of multidisciplinary collaboration and sharing of excellence, the collaboration will put the development of cutting-edge leadership and management firmly at the centre of the European healthcare landscape at a time when the sector faces critical challenges in sustainability and IT implementation.

Appointed as official media, *HealthManagement.org* will grant each EAHM member the privilege of subscription and access to the media platform, relay any activities and announce and cover the association events.

Furthermore, EAHM will actively participate in *HealthManagement.org* – The Journal content via the curatorship of the Executive Management editorial board, attracting individuals in management, leadership and health management academia. This will allow EAHM to engage with many concerned stakeholders and provide a unique opportunity to reach out to a wider audience and to further its objectives.

Speaking about the new partnership at the 26th EAHM Congress in Bologna in October, Gerry O’Dwyer, EAHM President said:

“It is with great excitement that we have entered into a new partnership with *HealthManagement.org*. We look forward to distributing the publication widely to all our members across the 25 associations in Europe.”

“The partnership will provide an additional platform for the EAHM to influence and comment on new emerging standards of care and healthcare management processes,” EAHM President Gerry O’Dwyer said. “It will further enable us to continue the European wide debate and critically influence European legislators and decision makers, together with the World Health Organization (WHO), in that process. This collaboration will provide an opportunity to promote and discuss our activities in fostering innovation and research, and the on-going development of academic and other strategic partnership across Europe and beyond.”

“The *HealthManagement.org* journal will lead the way

forward by supporting the challenges we have and will give us a huge opportunity to exchange information across all of our member associations and worldwide.”

The EAHM will work closely with *HealthManagement.org* in promoting its organisational objectives through its ongoing programme of international conferences and seminars. It will additionally provide the opportunity for European wide publication of articles, key-notes and comments.

“HEALTHMANAGEMENT.ORG WILL SUPPORT CHALLENGES WE HAVE AND GIVE US A HUGE OPPORTUNITY TO EXCHANGE INFORMATION ACROSS ALL OF OUR MEMBER ASSOCIATIONS AND WORLDWIDE.”

EAHM PRESIDENT GERRY O’DWYER SAID

Marc Hastert, EAHM Vice President, Luxembourg said: “We have signed an important agreement with *HealthManagement.org* to become our official publication for the years to come. We aim for good communication and visibility of our association, and believe that it can provide us a platform where we can present our activities and views on the management of hospitals in Europe in an efficient way.”

Klaus Koller, EAHM Board Member and President of the Editorial Committee, Austria reassured that the EAHM could contribute to *HealthManagement.org - The Journal* in a constructive manner.

“As hospital managers we want to contribute to *HealthManagement.org* with our operational know-how, expertise and in-depth knowledge. We believe that this widely distributed, great journal is a fantastic platform to conduct our public relations and to disseminate our message broadly to our members,” he said. ■



EUROPEAN ASSOCIATION
OF HOSPITAL MANAGERS

The European Association of Hospital Managers

The European Association of Hospital Managers (EAHM) was founded in 1970. It is the umbrella association for 28 leading hospital management associations in 25 European countries representing over 16, 000 individual members. The EAHM serves explicitly and exclusively the public interest and does not pursue any political, economical nor confessional goals. The organisation is one of the world's largest hospital management associations. It represents both the hospital managers of public and private hospitals in the European Union and at international level.

Objectives

- to promote the professional competence and responsibility of managers and senior employees in hospital and public health management in the European countries;
- to foster the growing together of the hospital systems of the European countries as the basis for the construction of a Social Europe.
- to seek to influence European Union legislation affecting the hospital sector;
- to collectively represent the hospital management profession and its interests in the competent European organisations and international bodies.



HealthManagement.org

HealthManagement.org is an integrated health information portal which serves as a key resource for best practices in health leadership and management.

Its research and publications cover essential and substantial issues in healthcare on the topics of management, innovation, new techniques and technologies with the objective to simplify healthcare managers' decision-making process and enhance efficiency of the outcomes.

Their contributing partners, who are distinguished health-care specialists, ensure the soundness and rationality of the information delivered through Print and Digital publications.

HealthManagement.org is supported by over 50 professional associations and is consistently recognised as a valuable resource for healthcare management due to its focus on delivering impartial and factual information about industry issues and best practices in health administration and leadership.

HealthManagement.org also serves as forum for exploring major issues in the industry and reaching out to a large community of healthcare executives and clinical decision-makers by making available their database of Faculty members from almost 50 countries.

Objectives

HealthManagement.org portal contains health management library of more than 15 years. With over 40,000* articles in the e-library its objectives are to become the most comprehensive health care management library and serve as an industry information provider-of-choice for the worldwide community of health administrators.

HealthManagement.org is committed to serving the industry leadership by ensuring cross-functional learning and bridging the different medical specialities. It also recognises the challenges facing newly-qualified health-care management professionals, and strives to cater to their needs as regards effective organisation of day to day health administration and care, efficient use and management of resources, strategic decision-making, managing change and supporting professional development.



What can HealthManagement.org contribute to the members engagement of EAHM?
I-I-I with Gerry O'Dwyer, EAHM, Ireland



How can HealthManagement.org contribute to EAHM goals?
I-I-I with Klaus Koller, EAHM, Austria



Why did EAHM choose HealthManagement.org as their exclusive communications partner?
I-I-I with Marc Hastert, EAHM, Luxembourg



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HEALTHMANAGEMENT.ORG'S MOST CLICKED STORIES

Every week *HealthManagement.org* publishes top healthcare management, leadership and best practice news of the week in dedicated newsletters. We know you're busy, so we do all the work and pick the best three stories to send you. Read on for a variety of topics that piqued record interest recently.

Endoscopy Market Set for Growth

New industry market research shows that the global market for endoscopic devices is tipped to grow at a CAGR of 7.06 percent until 2020. North America is the largest market for endoscopic devices followed by Europe. The Asian market is set to grow significantly until 2020 with a projected 7.91 percent CAGR revenue growth.

The research, conducted by Novonous, covers Rigid Endoscope, Flexible Endoscope, Endoscopy Visualisation, Capsule Endoscopes and Endoscopy Accessories.

One of the key drivers behind the growth is an increasing awareness about colon cancer. On a management front, in coming years, some of the key challenges for stakeholders to prepare for will be stricter medical regulations and fluctuating exchange rates.

The report identifies key industry bodies and associations and their role in the global endoscopic device market along with political, economic, social, technological, legal and environmental analysis.

Statin vs Nonstatin Therapies for Lowering LDL-C

A study published in *JAMA* was conducted by researchers at Brigham and Women's Hospital and Harvard Medical School to evaluate the association between lowering LDL-C and relative cardiovascular risk reduction across different statin and nonstatin therapies. LDL-C is an established risk factor for cardiovascular disease. It is widely accepted that statins successfully lower LDL-C. However, the clinical benefit of nonstatin therapies on lowering LDL-C still remains uncertain.

Researchers conducted a meta-analysis and review of 49 trials. The analysis included 312,175 participants with 36,645 major vascular events and 9 different interventions to lower LDL-C.

The analysis showed that there was a similar association between absolute reductions in LDL-C and lower relative risks for major vascular events across therapies that work through upregulation of LDL receptor expression.

See more at: <https://iii.hm/5m2>

Radiation and DNA Damage

Researchers from the Wellcome Trust Sanger Institute and their collaborators have identified two characteristic patterns of DNA damage in human cancers that are caused by ionising radiation. The research published in *Nature Communications*, could help doctors identify tumours that may be the result of radiation as well as determine the right treatment strategy. The findings can also explain how radiation causes cancer.

While it is already known that ionising radiation such as gamma rays, x-rays and radioactive particles damage the DNA and can cause cancer, it is not clear how this happens or how many tumours can be caused by radiation.

See more at: <https://iii.hm/5ce>

eHealth for Cardiology - Benefits Need to Be Demonstrated

Despite widespread eCardiology applications, research is showing smaller effects as assessment becomes more robust. It is becoming difficult to demonstrate added value other than patient preference and convenience, according to experts speaking at the European Congress of Cardiology in Rome this summer.

When cardiac patients are not attending rehabilitation programmes, then telerehabilitation programmes may close the gap, improving adherence and demonstrating benefits. Telerehabilitation plus standard cardiac rehabilitation is more effective and less costly than standard CR alone in the long term. However, the challenge is to sustain the benefits of telerehabilitation in the long-term in a cost-effective way.

Ines Frederix, from Antwerp University, outlined their ongoing investigations, which build on the findings from the Tele-REHAB III trial, as well as ongoing investigations into telerehabilitation strategies after acute coronary syndromes.

Telemedical care provides the means to address inadequate risk factor control and unhealthy lifestyle behaviour and improve adherence, said Frederix.

See more at: <https://iii.hm/55m>

Lego-like Ultrasound Imaging for Cells

Scientists are now saying that, in the future, protein-engineering techniques could lead to colourful ultrasound images that penetrate cells deep within our bodies.

Ultrasound imaging is used for disease diagnosis and visualising developing babies in the womb through sound wave technology. The next phase in ultrasound is the coloured imaging of cells deep within the body, like those connected with tumours of gut bacteria, rather than solely anatomy.

Protein-shelled structures known as gas vesicles, can be worked with proteins with the aim of improving ultrasound methods. The vesicles can assist in the detection of specific cell types and create informative multicolour images.

The benefits of gas vesicles? They give off clearer signals, target specific cell types and help create colour ultrasound images. In the years ahead, such gas vesicles could be given to a patient for the purpose of obtaining visuals of specific tissues of interest.

Senior author on the research paper on gas vesicles, Mikhail Shapiro, likened it to engineering with molecular Legos.

The team said they wanted to bring ultrasound down to the molecular and cellular level in the future.

High-Performance Hospitals Keep AMI Patients Alive in the Long Term

According to a new study published in The New England Journal of Medicine by Yale School of Medicine researchers, short and long-term risk of death after acute myocardial infarction (AMI) is associated with hospital performance.

Risk-standardised mortality rates are widely used to measure quality and hospital performance. However, it is not known whether differences among hospitals in the early survival of patients with AMI are associated with differences in long-term survival. To address this issue, Bucholz and colleagues compared life expectancy among patients admitted to high-performing hospitals with life expectancy among patients admitted to low-performing hospitals.

See more at: <https://iii.hm/664>

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Fee Models Desperately Need Improvement for Telehealth Care

Leading telehealth provider, the University of Mississippi Medical Center (UMMC) has said that as healthcare moves towards value-based care, the national reimbursement framework has to improve for telehealth in general and Remote Patient Monitoring (RPM) in particular

“Remote patient monitoring allows providers a way to educate, engage and empower patients to improve their overall health status,” Michael Adcock of UMMC told HealthManagement.org. “The move towards value based care will drive more focus to these types of technology enabled programs. Until then, improvements under the national fee for service models are needed.”

Mississippi has been in the spotlight for having some of the highest diabetes rates in the country as well as being amongst the highest spenders on care for this disease.

Addock said limited access to healthcare services in parts of the state and poor nutrition had exacerbated the high figures until a viable telehealth programme was introduced to fight the trend. The success has spawned expansion into other diseases. See more at: <https://iii.hm/5xi>

Burnout Syndrome in Critical Care: What Needs to Happen Now?

Following the release of the U.S. Critical Care Societies Collaborative Call to Action on Burnout Syndrome, ICU Management & Practice interviewed co-authors Ruth Kleinpell and Vicki Good from the American Association of Critical-Care Nurses.

Kleinpell said there was a tendency for healthcare professionals experiencing burnout not to admit or recognise it and that admitting their feelings might be perceived as a sign of weakness. “The CCSC Call to Action is intended to highlight the importance of preventing and addressing burnout in ICU healthcare professionals, and to bring recognition that burnout is common among members of high-stress professions,” she said.

Burnout is commonly caused by emotional, mental and physical exhaustion related to excessive or prolonged stress, she added.

See more at: <https://iii.hm/4ht>

Radiologists Can Detect Breast Cancer in 'Blink of an Eye'

A study conducted by investigators at Brigham and Women's Hospital, the University of York in the UK and MD Andersen Cancer Center in Texas tests the ability of experienced radiologists' to sense when a mammogram is abnormal. The paper is published in the Proceedings of the National Academy of Sciences.

For the purpose of the investigation, visual attention researchers showed mammograms to radiologists for half a second and found that they could identify abnormal mammograms at better than chance levels. The ability was further tested through a series of experiments in order to determine what signal alerts radiologists to the presence of an abnormality.

See more at: <https://iii.hm/54s>

Expert Tips on How to Train Doctor Leaders

Doctors must lead the way as healthcare moves towards new payment and care delivery models say executives at the country's largest health systems.

The industry needs more physician leaders to drive the movement from volume to value, experts at a physician leadership panel discussion in the District of Columbia overseen by the Council of Accountable Physician Practices (CAPP).

Screening early in the recruitment process should be undertaken in order to note doctors who have promise for a future leadership role. Succession planning is also recommended with leaders being encouraged to have a possible successor in place before leaving.

CAPP offers a series of articles on physician leadership for healthcare systems not yet cultivating potential leaders fully. The aim is to “translate the experience of national leaders”.

See more at: <https://iii.hm/5t3>

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Risk Prediction Model for Atrial Fibrillation

In a study published in the JAMA Cardiology, Darbar and colleagues found that the risk prediction model for atrial fibrillation (AF) developed by investigators on the Heart and Ageing Research in Genomic Epidemiology-Atrial Fibrillation (CHARGE-AF) trial does not accurately predict incidence of the condition.

Various risk models have been developed and are currently used to identify the patients at risk for atrial fibrillation. They aim at reducing the risk for stroke, heart failure and death from atrial fibrillation. The question is whether these widely-accepted prediction models are effective when applied to electronic medical records (EMRs).

Professor Dawood Darbar, chief of cardiology at the University of Illinois Hospital & Health Sciences System, closely worked with a team of researchers and physicians in order to address this issue. "A number of atrial fibrillation risk prediction models have been developed but this is the first study that has attempted to validate them in the EMR setting," Professor Danbar told HealthManagement.org.

See More at: <https://iii.hm/665>

HIMSS Cybersecurity Hub

HIMSS launched a new, interactive Cybersecurity Hub in October. The move was part of the HIMSS Innovation Centre located in Cleveland.

HIMSS describe the hub as an "immersive learning environment aimed at de-mystifying the evolving threat landscape for executives, healthcare providers, IT professionals, policymakers and the general public."

The hub will be an in-person exhibit that allows visitors to engage with a series of standalone interactive modules that simulate security-related scenarios. This will be followed with guidance through a selection of vendor solutions for addressing the security issues that arose from the scenarios.

HIMSS said that the multi-sensory journey showed how various points of care connect through electronic data and highlights that security risks can be encountered. It also showcases the latest solutions designed to mitigate risk. See More at: <https://iii.hm/666>

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On April 23, 2015, we lost Kevin Dietl to suicide just weeks before he was to graduate medical school. Kevin's parents were so excited to attend their son's graduation. Instead, they attended his funeral.

On May 10, 2016 we lost another bright, young soul to suicide. Sean Petro was in his third year at the USC Keck School of Medicine. His suicide is the third such tragedy at his school in the last two years.

Medical student and physician suicide is an epidemic. The American Foundation for Suicide Prevention estimates that 400 doctors die by suicide in the United States each year (American Foundation for Suicide Prevention, 2016). That's the equivalent of an entire medical school. Suicide is the second leading cause of death among medical students, yet no medical organisation appears to be tracking these suicides or taking concrete steps to prevent them.

Why is this? How can we solve a problem when it is hidden from us? What's being done to prevent the next suicide? How many more students must die before this issue is addressed?

Pressure and Shame

The AAMC (Association of American Medical Colleges) and ACGME (Accreditation Council for Graduate Medical Education) claim to improve the healthcare of all through serving the academic medicine community and advancing the quality of physician education. Yet, how can this be achieved while ignoring our own epidemic of medical student and physician suicide?

The fact is, studies show that medical students enter medicine with our mental health on par with or better than our peers. Those of us who have gone through the training know that public humiliation, bullying, and sleep deprivation are commonplace in medical training. Those who seek help often risk punishment by their programmes and even loss of their careers. It is shameful that mental health is stigmatised within the medical profession and it really is to the detriment of all.

Action Needed

As physicians who are dedicated to caring for the physical and mental health of others, we are appalled at the level of inaction among our own physician advocacy organisations when it comes to caring for physicians and medical students. This is the reason that I and Dr. Pamela Wible started a petition to urge the AAMC and ACGME to track medical student and physician suicides, to enact policy requiring medical training programmes to take concrete actions to combat the culture of abuse and to offer routine and confidential on-the-job psychological support to all medical students and physicians. Further information about the Care2 petition and the campaign to prevent physician and medical student suicide is available at: care2.com/savedoctors

More than 75,000 people globally have signed this petition demanding action. With the petition as inspiration, Care2 sponsored a National Day of Solidarity to Prevent Physician and Medical Student Suicide on August 20th, 2016. This day was chosen because it worked well for medical student

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Participants at this year's National Day of Solidarity to Prevent Physician and Medical Student Suicide

and resident schedules. The event took place in 11 cities across the U.S. in order to show solidarity with those medical students and physicians who lost their lives to suicide. Over 600 people attended the events nationwide. It was a transformative event for those in attendance and we hope that it will grow yearly.

The programme for the Day of Solidarity was uniform across the different event locations. Each started with speakers from the medical community sharing their experiences and observations with depression and suicide, then opened the floor in an open-mic session for attendees to speak, showed a clip from the "Do No Harm" documentary, a short film about this hidden epidemic, and ended with a candlelight vigil to pay tribute to those who have lost their lives.

Our hope is that by sharing our stories we, as a collective, can move towards healing and, in doing so, bring awareness to this life-threatening issue facing physicians and medical students. We believe that it is only from within that we can change the course of medical culture and healthcare in the world. ■

In the U.S., suicide deaths are 250–400 percent higher among female physicians compared to women in other professions. In general, males succeed at suicide four times more often than females. In the medical world, female physicians have a rate equal to male physicians. Depression rates among medical students are 15 to 30 percent higher than in the general population. Depression, bipolar disorder and alcohol and substance abuse are key factors in medical suicides.

Physician suicide completion rates are partly attributed to medics' knowledge of drug lethality (American Foundation for Suicide Prevention, 2016).

Student BMJ says one in seven medical students has considered suicide during their studies. One in three has experienced mental health issues while 80 percent of 1, 000 surveyed said help for mental health problems at university was poor (Cooper, 2015).



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CIRCADIAN RHYTHM DISRUPTION

IMPACT IN HEALTHCARE WORKPLACES



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Circadian Rhythm

The Circadian rhythm dictates that living organisms sleep during the night and are awake during the day. This internal autonomous function ensures adequate rest, avoidance of emotional disorder and the reduction of future morbidity and mortality.

Ideally the work timetable is adapted to the Circadian rhythm, but there are certain professional groups for which this is difficult within current conditions and the applicable legal framework. The medical profession falls into this category. The rolling working hours and insufficient relaxation time often mean staff are unable to work and rest in line with the Circadian rhythm. This situation has negative consequences, such as the full deregulation of Circadian rhythm in these professional groups and the disorder of physiological balance between work and rest (Garbarino 2014; West 2001). This is a situation that has been exacerbated in working conditions in recent years owing to the burden of fiscal adjustment and the effects on the medical profession especially in the Greek health system.

Theoretical Approach: Rolling Schedules and Melatonin

The deregulation of the normal secretion of the melatonin hormone, instrumental in managing sleep cycles, is thought to be the actual cause of any pathological consequences for

occupational groups in medicine. If the portion of the brain where the melatonin secretion is regulated is damaged, then the Circadian rhythm disappears.

Psychological Consequences of Circadian Rhythm Disorder: 'Burnout'

As to the psychological impact, nurses are a high-risk population for depressive symptoms regardless of the rolling schedule. For example, according to one study, in a relatively large sample (n=3474) the incidence of clinically significant symptoms was recorded at 38 percent. Indeed, this study confirms the aggravating role of a rolling schedule, since those working on rotating schedule for two or more nights a week had a statistically more significant probability of clinically significant depressive symptoms than those not working on rotating schedule (Gong et al. 2014). These findings are confirmed in an earlier study of the nursing population by Skipper et al. (1990) and in a study which found that depressive symptoms affected in turn identical nursing work by reducing staff durability in work in staggered shifts (Jung and Lee 2015).

Moreover, depressive symptoms of rolling schedules seem to trigger a wider range of psychopathology. According to the results of various studies, professionals who work on rotating shifts have a higher probability of clinically significant anxiety and sleep disorder (Flo et al 2014; Oyane et al

2013). As a result of exhausting hours, burnout syndrome is triggered. Burnout is defined as physical fatigue and the psycho-emotional exhaustion of the worker (Skouteli 2010). This is considered a concerning situation since the reputation of health institutions is impacted by poor care.

“ ACCORDING TO VARIOUS STUDIES, PROFESSIONALS WHO WORK ON ROTATING SHIFTS HAVE A HIGHER PROBABILITY FOR CLINICALLY SIGNIFICANT ANXIETY AND SLEEP DISORDER ”

Physical Morbidity and Rolling Working Hours

In terms of physical morbidity, the first symptom appears to be tiredness (Øyane et al. 2013) followed by a series of psychosomatic and musculoskeletal problems (Nicolletti et al. 2014) and chronic, potentially fatal bodily diseases. Specifically, a large epidemiological study in the USA revealed that those who worked more than five years in rolling schedules had a greater chance of death due to cardiovascular problems and other causes than those who were not working in rotating shifts (Gu et al. 2015). Researchers from Mount Sinai Hospitals in the USA reported at the American Heart Association meeting in 2014 that the toxic combination of fatigue, frustration and irritability from exhausting work increased the risk for cardiovascular disease by 36 percent (Onmed.gr 2014). In

terms of cancer, Gu et al.'s research confirmed a causal relationship only with lung cancer not overall cancer mortality (Gu et al. 2015). The Mount Sinai researchers also showed that people who experience constant disruption of the Circadian rhythm and experience intense stress and fatigue smoke and eat more unhealthily as they are seeking ways to address the situation (Onmed.gr 2014).

The Road Ahead

Circadian rhythm disorder has a strong negative impact on the health and lives of medical staff employed mainly on rolling schedules. It is possible that there may also be an increased prevalence of psychological disorders uninvestigated to this day in this population (eg, excessive anxiety, sleep disorder, panic attacks).

Therefore either policies towards minimising rolling timetables and working hours should be implemented along with six-hour rather than eight-hour days (as in Sweden), or introduction of increased and regular rest periods should be considered.

There is a need for practical and practicable strategies to be created at management level, with training and education through management programmes and the establishment of control and monitoring with periodic stress test programmes for employees.

Indeed, both because of the probability of error on the part of the professional and of increased morbidity, health systems may be burdened with a much heavier load in the future.

It is essential that the issue of Circadian rhythm burnout is addressed at a management and policy level in order for the quality of services and the integrity and sustainability of health systems throughout Greece and Europe to be sustainable. ■



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THE BURDEN CAUSED BY ADMINISTRATORS AND MANAGERS

A EURO-AMERICAN JUMBLE

We argue that a jumble of rules, protocols, checklists has emerged, which jeopardises not only the pivotal relationship between doctor and patient, but also the quality and costs of care, and the quality of future healthcare workers. It must be emphasised that the introduction of protocols and checklists in clinical medicine has improved care at some points and in some places, and it has similarly contributed to a reduction in errors. However, the onerous bureaucratic rules, regulations, protocols, certifications and credentialing imposed by administrators and “oversight” organisations have become disproportionate to its original objectives. We plead that clinicians realise that the time has come to rebel against this and come into action.

Caring for the sick and dying is a privilege that society has bestowed upon physicians. Patients and their families trust physicians with their lives and health. Physicians spend years in training and ongoing professional development with the goal of providing the highest quality of care with compassion and humility. However, the culture of modern medicine has rapidly eroded the unique and time-honoured relationship the physician has with his/her patients.

Increasingly, hospital administrators, insurance providers, quality organisations and a myriad of regulatory agencies are dictating how physicians should practise medicine. Unfortunately, too many of the individuals creating and enforcing these regulations have little or no knowledge of the complexity of the practice of medicine. They regard physicians as labourers working in a widget factory. Consequently, physicians have lost autonomy and the sacred patient-physician relationship has been corroded. In this new environment, the dehumanisation of the patient-physician relationship is at risk of being exacerbated by the new generation of healthcare providers, trained in this—in our view—undesirable environment. This new generation of clinicians is at risk of being brought up lacking the concept of hard work and dedication, “patient ownership” and responsibility.

With the exponential growth of medical knowledge and technology, clinicians are continuously being challenged by complex new diagnostic and therapeutic interventions. Simultaneously the organisation of patient care is changing, with an ever-increasing number of organisations and non-medical individuals involved in the delivery of healthcare. Society demands, and rightly so, accountability regarding the quantitative, qualitative and financial aspects of patient care. In

response to these demands, hospital managers and administrators, individuals with little or no knowledge of medicine, have become increasingly involved in almost all aspects of the delivery of care. In order to have—apparent—total control over the entire patient experience, these managers demand the use of numbers and measurements as a reflection of the quality of care delivered. An additional factor that is emerging in Europe, which has followed the movement in the United States, is the regulatory demand that all possible adverse outcomes be outlawed. At first sight this would seem reasonable; however, medicine is not a perfect science, and sick patients will develop complications no matter how hard one tries to avoid them. The sicker and more complex the patient the greater the likelihood that a complication will occur. The institution of punitive measures (financial, otherwise or in terms of reputation damage) in response to a bad outcome will frequently lead to changes in behaviour which may compromise patient care, eg not doing blood cultures in a case of suspected catheter-related bloodstream infection to prevent the diagnosis being made.

Another misunderstanding is the belief that there is only one truth. Diversity in medicine, patients and diseases is so big that it seems inconceivable that one solution for complex syndromes like sepsis, with many possible underlying diseases, in the form of a protocol and checklists, is advocated. Yet what we see, with the intention to rule out all possible risks and errors, is an increasing number of rules, legislation and protocols. Oddly enough, professional medical societies have not protested against this movement; on the contrary, they have frequently endorsed and perpetuated this approach. The result is a jungle of rules and protocols from medical and scientific societies, governmental and other non-medical bodies such as insurance companies. Physicians and clinical leaders are confronted with more and more requirements, rules, audits, inspections, compliance training and protocols, imposed by governmental and non-governmental organisations, insurance companies, accreditation organisations, inspectorates and boards of directors of hospitals. With all the regulatory administrative tasks that physicians are forced to undertake, it is not rocket science to realise that less and less time remains available for the primary process: patient care. Apart from impacting patient care, the time wasted jeopardises clinical research, education and the training of students and registrars. Additionally,

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research and training are hampered by an increasing number of rules, regulations and mandatory non-functional courses. Many of these mandatory courses are not only meant for the teachers, but also for their PhD students. The distance between workers on the shop floor, the healthcare workers, and on the other hand those people who make the regulations is growing and they speak different languages. All kinds of bodies and committees in hospitals offer training programmes, the additional value of which is questionable in terms of patient outcome or educational quality. It might come to one's mind that these bodies are mainly preoccupied with providing new work for themselves, creating rules, work and training programmes of unclear benefit.

A simple recent survey that the first author (AG) conducted among some board directors of hospitals demonstrated that they have insufficient insight into the huge number of obligations imposed by different bodies on medical specialists and nurses. **Table 1** provides an incomplete but illustrative overview of the Dutch situation.

The quality movement has imposed the increased use of protocols and checklists with the intention to improve quality of care. This is accompanied by obligatory ticking off and securing of lists that go through implicit procedures. While protocols were initially intended to provide up-to-date medical knowledge translated into clinically and practically applicable information, currently all kinds of procedures need to be embodied in protocols, which need to be secured by checklists and repeated evaluation according to a plan-do-check-act cycle. Subsequently, compliance to the protocol is used as a marker of quality. Undeniably this approach has induced improvement on certain fronts (Girbes et al. 2015; 2016). But it is now getting out of control. Moreover, a trend can be observed that for every rare incident a new protocol is created, without taking into account how a new protocol might induce new errors. For example, in addition to double checking the preparation of a medicine by an intensive care nurse, a new additional obligatory protocol was introduced (in the Netherlands) without any evidence or calculation of the consequence. This protocol requires that immediately after the double check of the medication an additional double check is required at the time of administration of the medicine. This of course requires another ICU nurse to abandon their current activity, move to another patient, check what is given, and then go back to continue the interrupted work. It is beyond doubt that frequent interruption of work will induce other errors (Westbrook et al. 2010). Of course continuous double checking would be a dream scenario, if feasible in terms of human factors. This would however require double the number of nurses: one nurse to do the work and another to check the work. Considering the pressure on and shortage of human resources, one wonders whether this is the most effective way to save lives. Furthermore, one of the nurses would surely become bored, which is not conducive to good concentration on doing the best work they can.

By no means do we want to argue that errors, mistakes and undesirable outcomes should not be investigated to

Quality inventory list of care processes with priority list and improvement actions (eg is the pulmonologist present during lung surgery? Is there a registry of all complications? Is there a protocol for the treatment of pneumonia? etc.)
Yearly obligatory report of several "performance parameters" (imposed by inspectorate)
Participation in national safety management system (eg participation in and report of Surviving Sepsis Campaign, number of reoperations after hip replacement, number of central venous line infections, yearly training in CPR for all physicians, etc.)
Participation in hospital accreditation programme (eg Joint Commission International)
Registry of every employee on knowledge of manuals of all devices in the department
Registry of followed training programme of nurses and physicians
Course for fire extinguisher use
Participation in practice for calamities
Participation in practice for evacuation
Courses to work with electronic patient file
Training in lean management
Audits (Audits for training programmes, safety audits, audits for employee working condition, audits for material handling, etc.)
Yearly satisfaction measurements for trainees on a large number of items (System of evaluation of teaching qualities – SETQ – and Dutch residents' educational climate test)
Imposed training programmes for PhD students
Critical Performance Indicators (McKinsey & Company)
Teach the teacher courses (level 1, 2 and 3)
Basic Qualification for Education (see text)
Test for English language knowledge
Training programmes for addressing other people/issues

Table 1. Examples of Imposed Managerial Tasks, Training and Registration Programmes in the Netherlands

recognise the "holes" in the system. However, the solution is not always the introduction of a new protocol or checklist.

We strongly believe that the policy of increasing the number of protocols and checklists should be reversed if we want to keep good medical care affordable. An issue that is easily forgotten is that we must be able to keep and attract young talented people. Increasing rigidity of the system is, to say the least, not an incentive to motivate young talents to work in medicine. We argue that protocols and checklists are comparable to medicines: it is the dose that makes poison and the indication always remains pivotal. The dose has now reached the level of poison and the indication is too often wrong.

Jumble of Protocols and Checklists

The purpose of clinical protocols is to translate the best possible up-to-date medical knowledge into practical, clinically applicable instructions. Several studies have shown an improvement in patient outcome with the introduction of a protocol or checklist. Whether a protocol or checklist will introduce an improvement in care largely depends on how good or bad the situation was before the introduction of the protocol. Introduction of a protocol is therefore especially useful in situations of suboptimal circumstances or where inexperienced or less trained healthcare workers are employed. Furthermore, checklists are not universal. Checklists need to be intrinsically supported by staff, based on



the local applicability of the checklist and support from the leadership.

Protocols will by definition lead to regression to the mean and mediocrity. Rigid application of protocols will hamper progress and innovation, and protocols are by definition not up-to-date. Finally, many protocols are made on the basis of insufficient scientific data, insufficiently possible external validation of studies or even only on the basis of the judgement of self-proclaimed “experts”. Unfortunately, healthcare managers, “organisations for quality”, supervisory bodies and healthcare insurance companies mandatorily impose the introduction of protocols and checklists for all kinds of aspects of care. The forced introduction on a national level of the Surviving Sepsis Campaign in the United States and in the Netherlands, apart from many other examples, is a tragic example of this. There is insufficient scientific evidence to impose per protocol treatment according to the surviving sepsis guideline in all hospitals and even evidence that it might be harmful (Marik 2016a).

The introduction of protocols with doubtful benefit may lead to waste of time, work and money. The obligatory introduction of the medical emergency team (MET) from the ICU, implementation of all components of the time-out procedure in the operating room, reporting standard screening of feeding condition in the elderly, and scoring of community-acquired pneumonia, are examples of so-called safety programmes that cost a lot of time and money, but are of doubtful benefit for society and individual patients.

Filling in all kinds of lists is promoted by the introduction of electronic patient record programmes. These have been designed for administrative and financial reasons and not, as one would expect, to improve patient care and help healthcare workers to do their work correctly. It is no surprise that the introduction of such electronic health records has been shown to increase the risk of professional burnout in physicians (Shanafelt et al. 2016).

Treating individual patients optimally will always require aspects of craftsmanship with an academic attitude and thereby individualised treatment. Translating the use of protocols and checklists to another craft, food preparation, might clarify some aspects. Application of protocols only works very well in the fast-food industry. In “restaurants” where no chef is needed the employees are easier to handle by the management of the “restaurant” and can be paid less. Food will always be according to the guidelines and protocols and checklists, but in the end will not fit everybody. Likewise, even if written by a great chef, reading and following the instructions of a cookery book will not match the quality and craft of a real chef.

Proponents of the unrestrained use of protocols and checklists often point to the analogy and similarities between aviation and building construction. We reject that comparison. Patients are not airplanes and doctors are not pilots. Pilots receive very specific training in general for a single type of airplane. Since every patient is different, it would pose serious problems if doctors were trained like pilots.

Jumble of the Quality Movement

There should be no doubt that doctors and nurses should be accountable to patients and those who pay for them: society. And society is all of us. The healthcare payer has the right to know how their money is spent and where to find quality for the money. However, this is quite difficult to measure and instruments to measure quality are readily available. Nevertheless the “Quality Movement” has triggered a “quality tsunami” where multiple organisations have now become preoccupied with developing quality tools, quality indicators and measuring the “quality of outcomes.” These quality indicators and scorecards are frequently publicly reported and may influence reimbursement. The scientific validity of most of these quality indicators is highly questionable. It would appear that those who expend the most resources measuring quality provide the worst care (Thomson et al. 2013). The refuge that seems to be chosen now by the administrators and managers can best be described as: “If you can’t measure what is important, you make important what you measure”. So orthopaedic surgeons obligatorily record and report on the rate of reoperations for hip fractures. This of course will result in a figure, but this figure is of course full of confounders and biases (eg region, population characteristics, referral pattern, etc.) and nobody can tell what the figure means. A rapid survey among chairmen of university departments of orthopaedics in the Netherlands confirmed this. Nevertheless, whenever criticism is expressed about this obligation the answer is: “It is simply an obligation” or “everybody complies with it”.

Registrations furthermore do not take into account the pollution of data that is not expressed in the data. Subjective data are reduced to figures in a spreadsheet, suggesting that different figures and outcomes can be compared. This becomes most hilarious when comparing opinions. For example, during regularly performed so-called employee satisfaction measurements we add the opinions of ambitious, looking for security, lazy, adventurer, genius, hypochondriac, disappointed (in private life or their career) people, divide this by the number of participants and then we conclude that the satisfaction is 7.3! (We do not take into account the number of employees who for several reasons do not wish to participate). The manager will surely advocate a leadership programme to fulfil the goal for next year: 7.8.

In the U.S. Medicare has embarked on hundreds of “quality initiatives”, and records over 1000 “quality measures” with the purported goal of improving the “quality of care” (Casalino et al. 2016). It has been reported that physicians and their staff spend 15.1 hours per physician per week dealing with external quality measures at an annual cost of over \$40,000 per physician. There is scarce data that these quality measures improve patient outcomes. In 2006 the Centers for Medicare and Medicaid Services (CMS) developed the “Surgical Care Improvement Project” (SCIP), which became federally mandated and linked to pay for performance in 2007 (Joint Commission 2015). SCIP incorporated a number of measures, including glycaemic control and strict timing of

prophylactic antibiotics that were required to be performed in every patient undergoing elective surgery. In January 2015 the SCIP project was quietly “retired” (Joint Commission 2015), after it became clear that this very expensive and time-consuming endeavour did not improve patient outcomes (Hawn et al. 2011; Dua et al. 2014; McDonnell et al. 2013). In 2015 CMS adopted the “SEP-1 Early Management Bundle for Severe Sepsis and Septic Shock” for the Hospital Inpatient Quality Reporting Programme. Most alarmingly, it is likely that this “quality” programme will harm patients (Marik and Varon 2016). In the U.S. and progressively in the Netherlands, physician’s medical records are scrutinised by individuals with limited educational training to ensure that all elements of the history and physical examination are documented, no matter how irrelevant. Rather than being a tool to communicate medical information, the medical record is used as a quality indicator and a means to punish physicians for incomplete documentation. And again a new industry is filling this created gap: a “quality company”. Their slogan is: “Let me measure if you have a quality issue, all your colleagues did it already. Indeed you have a problem and we know people who can solve it”.

Jumble of Obligatory Training

Fortunately, the time of “see one, do one, teach one” is over. Many skills can be learned and improved with good training programmes and simulation sessions. This includes not only hard skills and knowledge but also so-called “soft” skills such as advanced life support in a team, team performance, bringing bad news to families and patients, and calling someone to account. Complex tasks with a low incidence cannot be dealt with in a training programme. Intentional publication fraud cannot be prevented with a course on ethics in science and neither will a course, obligatory in the Netherlands, with a duration of more than one week on regulations and organisation of clinical research prevent that. However, these rules mean that professors with many publications in leading journals, and with a research desk to guarantee all responsibilities and compliance with regulations, fail an exam because they do not know by heart how many years all records need to be stocked. The goal of good

clinical practice and research will also be missed whenever those who conduct the courses get too much influence on making it an obligation to follow these courses. This again will result in a “course industry” both within and outside the hospital, whose sole purpose is that of self-preservation. In the Netherlands, PhD students in medicine have been guided and supported for decades by established researchers and professors during their PhD study. The study outline and the interpretation of data were discussed almost on a daily basis. They participated in international congresses and presented their data during national and international meetings. However, all of a sudden specific time-consuming courses have been made obligatory for PhD students with no data to support impact on student outcome. Another remarkable obligatory regulation without any supporting data was the introduction of the Basic Qualification for Education (BQE). This training programme consists of 5 full days’ training, 165 hours of study, 90 hours of which are with the help of an assigned mentor. Someone with more than 30 years of educational experience, educational diplomas outside the field of medicine, who has students who value the courses and applaud during presentations and over 260 international presentations is called to follow this obligatory BQE training programme.

A long list can be generated of time-consuming training programmes with concomitant registration obligation, which can be related to demands by health insurance companies, legal authorities and accreditation programmes. It is beyond the scope of this paper to discuss the benefit-time ratios of these programmes, but in general we would challenge those who make these regulations to demonstrate their benefit.

The question remains of how to make progress in medicine and how to prevent errors and wrong treatment. We think the key is good training programmes and a culture where healthcare workers continuously give feedback to each other. Medicine has to stay attractive for young people with an academic mindset that is challenged by all the complex problems encountered in healthcare. Whatever protocol or checklist, it should be used as a mental support for highly educated professionals and never get the force of law. ■



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VALUE-BASED HEALTHCARE REVOLUTION AHEAD



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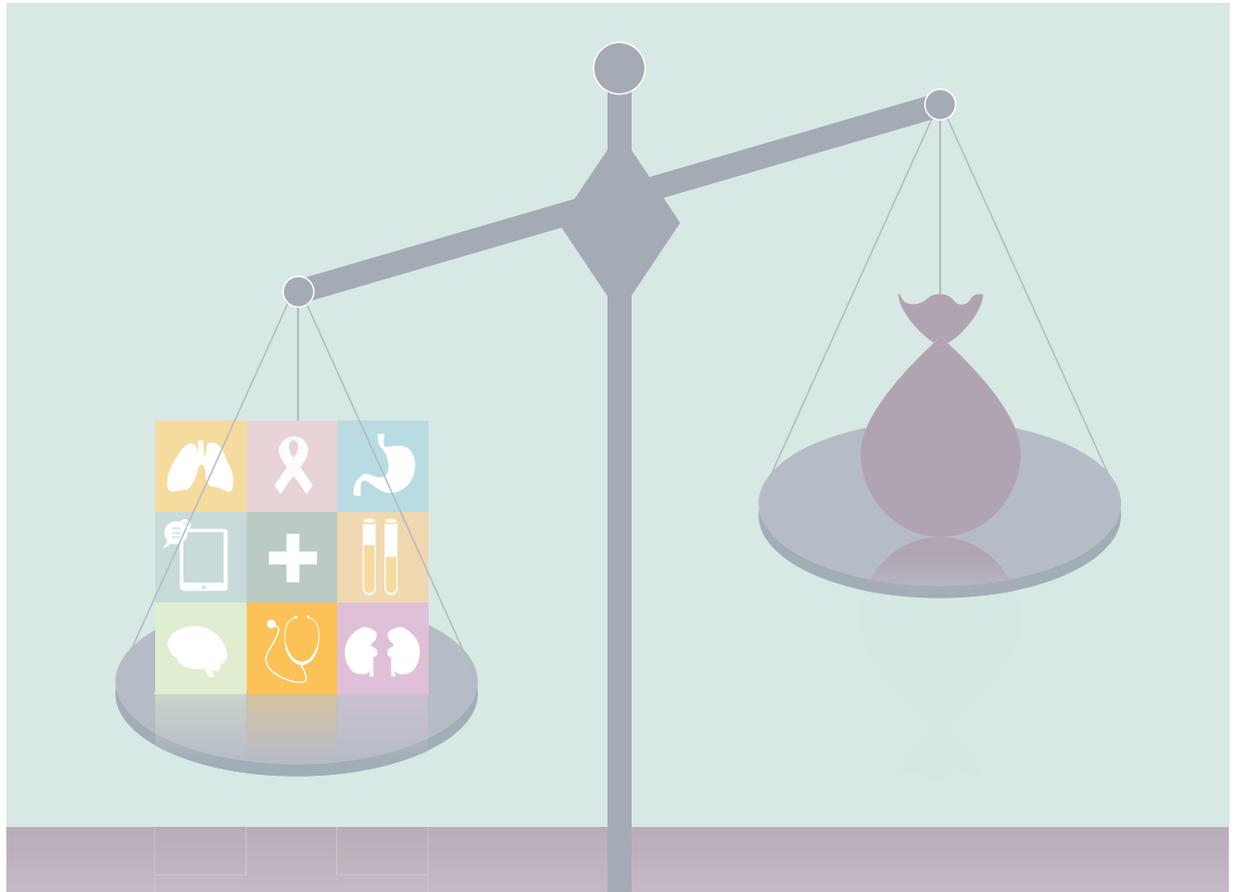
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Tremendous progress has been made over the last forty years due to the second healthcare revolution, with the first healthcare revolution having been the public health revolution of the nineteenth century.

Hip replacement, transplantation and chemotherapy are examples of the second, high-tech revolution funded by increased investment and, in the last twenty years, optimised by improvements in quality, safety and evidence-based decision making. However, there are still three outstanding problems which are found in every health service no matter how they are structured and funded. One of these problems is huge and unwarranted variation in access, quality, cost and outcome, and this reveals the other two: overuse which leads to waste—that is anything that does not add value to the outcome for patients or uses resources that could give greater value if used for another group of patients and patient harm, even when the quality of care is high. The third is underuse, which leads to failure to prevent the diseases

that healthcare can prevent, stroke in atrial fibrillation for example and inequity.

These problems need to be tackled, together with the challenge of the steady increase in need and demand which is estimated to create a 15 percent gap, between need and demand on the one hand and resources on the other by 2021. What is emerging is a new paradigm, the paradigm of value-based healthcare focused not on quality but on the following triple value:

- **Allocative:** determined by how well the assets are distributed to different sub-groups in the population between programmes, between systems in each programme and within each system, from prevention to long-term care
- **Technical:** determined by how well the allocated resources are used to achieve valid outcomes for all the people in need in the population
- **Personalised value:** determined by how well the outcome relates to the values of each individual

The Road Ahead

For the last twenty years hospitals have made tremendous progress improving quality, safety and productivity, and this work is to continue. For the next twenty years, however, there will be expectations of hospitals that require a new set of concepts and skills. Firstly, hospitals will be expected to use their knowledge, authority and frequent contacts with the population they serve to be more active in disease prevention. Secondly, hospitals will also be expected to focus more on their variation and use for conditions for which referral is discretionary, because the huge unwarranted variations and the use of hospital services indicates both overuse and underuse. For this reason population-based hospital care focused on value will be a key theme in the decades to come.

“WHAT IS EMERGING IS A NEW PARADIGM, THE PARADIGM OF VALUE-BASED HEALTHCARE”

Four activities have dominated our attention in the last twenty years, in addition to improving the effectiveness of service management:

1. Preventing disease, disability, dementia and frailty to reduce need
2. Improving outcome by providing effective, evidence-based interventions
3. Improving outcome by increasing quality and safety of process
4. Increasing productivity by reducing cost

These are all of vital importance but are not sufficient and have taken place during an era in which overuse and underuse has remained largely unnoticed and unchanged. What is needed is a new set of activities and these are described below:

- Ensuring that every individual achieves high personal value by providing people with full information about the risks and benefits of the intervention being offered and relating that to the problem that bothers them most, their values and preferences
- Shifting resources from budgets where there is evidence from unwarranted variation of overuse and low value to budgets for populations in which there is evidence of underuse and inequity
- Ensuring that those people in the population who will derive most value from a service reach that service
- Faster implementation of high-value innovation to improve outcome-funded care by reduced spending on lower value interventions for that population
- Increased rates of higher-value intervention within a single system (eg, helping a higher proportion of people die well at home funded by reduced spending on lower-value care in hospital in that population)

Each of these of course requires training, for example training to design and develop population-based systems of care and training to become familiar with the new language to be able to answer questions such as: what do you understand by the term complexity? What is meant by the term system and how does it differ from a network? What is meant by population-based healthcare rather than bureaucracy-based care and what are the three meanings of the term value in 21st century healthcare (not ‘values’ as in ‘we value diversity’ but the economic meanings)? What is the relationship between value and efficiency and what is meant by the optimal use of resources? What is meant by the term quality and how does it relate to value? What is a system and a standard? How would you assess the culture of an organisation and, finally, how would you decide if an organisation had a strong culture of stewardship?

Better Value Healthcare has a set of resources to help people acquire these skills and concepts and to help the leadership of the hospital service change the culture to one in which everyone feels responsible for optimising value. ■

Further Reading

Better Value Healthcare website
bettervaluehealthcare.net

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Key Points

- ✓ Progress has been made in second healthcare revolution of last 20 years
- ✓ Huge problems remain in variations of care quality, overuse leading to waste and underuse leading to failure
- ✓ A 15 percent gap between need and demand and resources is projected by 2021
- ✓ Paradigm of value-based healthcare is emerging based on principles of allocative, technical and personalised value
- ✓ A new set of practices is needed to reach value-based healthcare goal
- ✓ Training to deal with new healthcare questions is critical
- ✓ Better Value Healthcare has tools to assist in skills acquirement and change of hospital culture



CULTURE IS KING

BUT ONLY IF YOU DO THESE THREE THINGS



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The phrase “culture is king” is thrown around quite a bit in business circles and yet, if you talk to business leaders, you’ll find that there aren’t many who feel that the culture in their organisations is what they would like it to be.

In healthcare, most of these leaders are striving for a culture of service excellence, or patient engagement, or high quality care. Many hit the mark sometimes, but not in all categories all of the time. Why?

Primarily because for many organisations, the culture just is what it is. There has been no conscious thought and planning for the desired culture. But the truth is, creating an intentional culture requires clear vision, constant vigilance and ongoing coaching, counselling and course correction.

“SENIOR LEADERS NEED TO DEFINE A COMPELLING VISION ALONG WITH CLEAR EXPECTATIONS”

Here are three things that leaders need to do to make their culture strong:

1. Senior leaders need to define a compelling vision along with clear expectations of all leaders, making sure that competencies are in place.
2. Senior leaders must share the vision through clear communication, stating their expectations and specific standards of behaviour. This sends a message that standards are non-negotiable.
3. All leaders in the organisation need to lead in ways that are consistent with the desired culture, and serve as role models for others to emulate—coaching, mentoring, modelling and managing for the behaviours that have been defined.

Peter Drucker is credited with making the statement “culture eats strategy for breakfast” (which is often restated as “culture eats strategy for lunch”). What does it mean? It means that an organisation can spend a lot of time and effort on developing strategy, but without a strong and consistent culture, that strategy is unlikely to be achieved.

Many healthcare leaders can attest to the wisdom of this statement as they attempt to build a culture to drive desired results. It’s not easy. Where it often breaks down is at the point of standing firmly behind the service standards as “non-negotiables.” If leaders define a compelling vision for the culture, communicate the vision (along with specific behavioural expectations), but then don’t back up their stated expectations with action, the culture won’t improve. To back up these expectations in meaningful ways, leaders need to:

- Model the expected behaviours
- Positively reinforce and reward those who exhibit these behaviours (using the language of the standards)
- Constructively correct and coach those who don’t exhibit these behaviours (using the language of the standards)

Avoidance is the number one accountability killer. How often have you observed members of your organisation exhibiting behaviours that have been identified as non-negotiable, yet fail to do anything about it? How often have you done this in situations where others have been able to observe your inaction? What message do you think that sends about how non-negotiable these standards really are?

Culture is king—but only when leaders do three things: create a compelling vision, communicate the vision, and consistently support the vision. How are you doing at that? ■

Nurse, author, and consultant Kristin Baird, "Healthcare's Customer Service Guru," is the author of Raising the Bar on Service Excellence: The Health Care Leader's Guide to Putting Passion into Practice (Golden Lamp Press, 2008), Reclaiming the Passion: Stories that Celebrate the Essence of Nursing (Golden Lamp Press, 2004), and Customer Service In Healthcare: A Grassroots Approach to Creating a Culture of Service Excellence (Jossey Bass, 2000). The Baird Group provides consulting, mystery shopping, and training services for improving the patient experience. To learn more, please visit <http://baird-group.com> or call 920-563-4684.



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Healthcare Executive Alliance

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A SUCCESSFUL HR STRATEGY IN HEALTHCARE

NEEDS, CHALLENGES, AND OPPORTUNITIES IN RECRUITING AND RETAINING MEDICAL PROFESSIONALS

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IDENTIFYING, CONTROLLING, AND REDUCING OVERHEAD COSTS

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STANDARDIZING QUALITY OF CARE

HOW AND WHY STANDARDIZATION CAN HELP HEALTHCARE PROVIDERS IMPROVE QUALITY AND INCREASE EFFICIENCY

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HEALTHCARE EXECUTIVE ALLIANCE

INSIGHTS FOR HEALTHCARE LEADERSHIP

Healthcare organizations do a phenomenal job. Today, an increasing number of diseases are treated successfully and people enjoy a better quality of life even into old age. Yet, while much is being done to discover new ways to improve patients' lives, we now see radical changes to structures, incentives, and processes within healthcare to sustain provision for our inhabitant-rich planet.

Gone are the days of the simple equation that a higher price guarantees quality and vice versa. Faced with cost pressures, we see provider strategies of consolidation, industrialization, and population health management to meet the growing care demands. Times have changed: Today, healthcare and its delivery are increasingly validated and regulated by performance metrics. This development has led to nothing short of a paradigm shift in the structures and infrastructures of care.

In times of transformation, success comes from leading the changes. Riding the wave, rather than being washed away. We believe that effective healthcare transformation must include clinical, operational, and financial improvements. Delivering healthcare to more people with fewer resources is possible. But the levers need to be ideally set to improve your particular clinical outcomes, streamline your operations, and optimize your financial performance.

Through the Healthcare Executive Alliance initiative, we would like to support you and your teams to find insights, ideas and solutions for succeeding in these times. Our goal is to be your inspiring partner helping you to achieve better outcomes and reduce costs. As a starting point, we developed this set of white papers to help identifying key challenges in your healthcare organization with some first outlines on improvement methods.

Now's our time to inspire the future of healthcare together.




Dr Bernd Montag

Chief Executive Officer
Siemens Healthineers

A SUCCESSFUL HR STRATEGY IN HEALTHCARE

NEEDS, CHALLENGES, AND OPPORTUNITIES IN RECRUITING AND RETAINING MEDICAL PROFESSIONALS

Developed and developing countries alike struggle to supply adequate numbers of trained, qualified healthcare professionals, especially physicians and nurses. Sourcing, attracting, and retaining experienced employees are therefore among the biggest management challenges globally.¹

Staff Shortages Worldwide

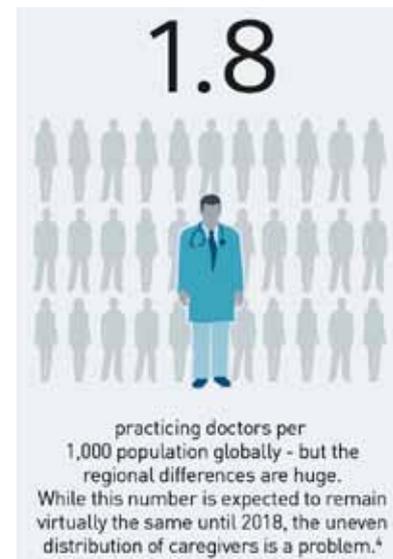
Unemployment is a rare phenomenon in the healthcare sector. In Germany, for example, the unemployment rate is only about 0.7 percent for nurses and 1 percent for doctors. A similar situation exists in the U.S., with an unemployment rate of 0.8 percent among doctors.² The demand for nurses in the U.S. is estimated to increase by 26 percent by 2020.³ So where does the staffing challenge lie?

Firstly, most countries have been experiencing personnel shortages for many years. Secondly, the world population has grown by approximately 1.2 billion since 2000 – an increase of 20 percent in just 15 years.¹ Globally, there are 1.8 doctors per 1,000 population.⁴ Thirdly, longer life expectancy is increasing the average age of patients, leading to higher medical care costs per patient. Finally, there is an uneven distribution of caregivers. This shortage of qualified professionals is one of the key challenges for the industry.¹

Political Support

Governments around the world have recognized and are responding to the enormous HR challenges facing their healthcare systems. In many countries, governments directly influence the level and structure of physician remuneration because they are a key employer of physicians, purchase services, or regulate their fees.⁵ China has taken action to speed up caregiver training in response to the needs of its rapidly aging population. The country has also set a target to train six million caregivers by the end of 2020. In Brazil, the government has introduced a program to hire local and foreign doctors to work in poor and remote areas where there are shortages. By mid-2014, approximately 15,000 new clinicians had enrolled, more than three-quarters of whom came from Cuba.⁶

In response to shortages of doctors, some countries have developed more advanced roles for nurses. Evaluations of nurse practitioners from the U.S., Canada, and the U.K. show that advanced practice nurses can improve access to services

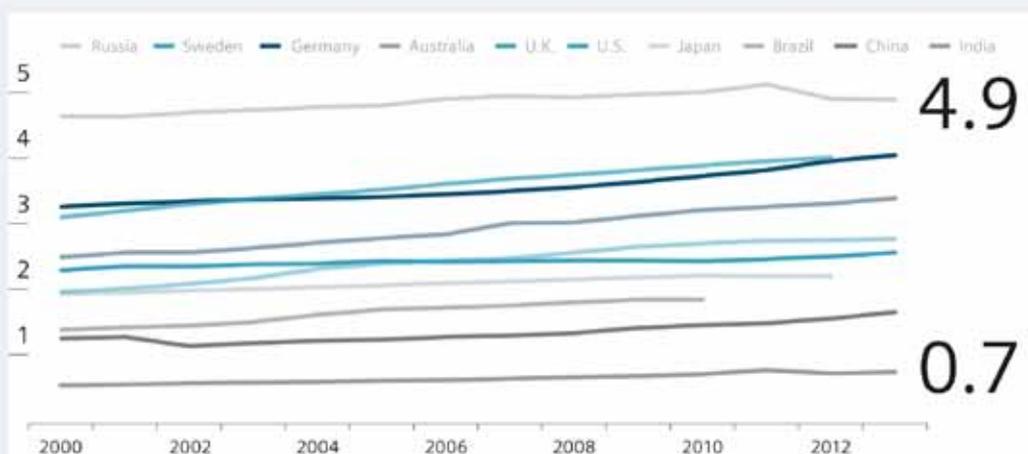


“ TO ACCOMMODATE THE PREFERENCES OF THE MULTIPLE WORKFORCE GENERATIONS, HOSPITALS NEED TO REPLACE TRADITIONAL HUMAN RESOURCES POLICIES. ”

and reduce waiting times while delivering the same quality of care as doctors to a range of patients.⁵ However, there are shortages of nurses as well as doctors, and nurses greatly outnumber physicians in most OECD countries.⁵ The Royal College of Nursing in the U.K. estimates that there are 20,000 unfilled nursing posts across the country. The Center for Workforce Intelligence forecasts a shortfall of 47,000 nurses in the next few years.⁷

Practicing Physicians per 1,000 Population

In most countries, the number of physicians per 1,000 population has not risen significantly in the past decade. However, regional differences are large with 0.7 physicians per 1,000 population in India vs. 4.9 in Russia.



Source: OECD Health Statistics 2013

Increasing Workforce Productivity

In the past, hospitals have often made the mistake of requiring doctors and nurses to do more in less time. The consequence of this is high staff churn, a high level of absenteeism, and low overall employee satisfaction. In Germany, no other occupational group has more sick days than health professionals (4.5 percent).⁸ According to a study by Germany's largest statutory health insurance company AOK, nurses have the most burnout-related sick days of any occupational group.⁹ According to a British study, 15 percent of all sick days in NHS hospital trusts result from psychological stress at work.¹⁰ The aim of effective hospital HR management must therefore be to use staff more sensibly instead of burdening them with overtime.

Automation, for instance, reduces the manual workload involved in setting up or evaluating clinical protocols. In addition, targeted training enables a more flexible use of staff – a key aspect of business management. The flexible deployment of staff also increases employee satisfaction, as their tasks become more varied. Doctors and nurses spend less time on unpopular administrative tasks, which reduces loss of information and frictional losses. If individual employees do fall sick, their work can be easily delegated to other employees thanks to the greater versatility of the staff. Additionally, modern information management is crucial for the speed and accuracy of care decisions by hospital staff. This is also an important factor in higher employee satisfaction.

Employee Satisfaction Lowers Costs

When a hospital's reputation improves, its costs for attracting and retaining qualified personnel fall. In the U.K. for instance, the reputation of an NHS trust as an employer is the first

“ THE MESSAGE FOR HEALTHCARE SERVICE PROVIDERS AND NHS TRUSTS IS A SIMPLE ONE. REPUTATIONAL RISK AND EFFECTIVE COMMUNICATIONS – AND IN PARTICULAR POSITIVE EMPLOYEE ENGAGEMENT – NOW NEED TO BE TOP OF THE AGENDA FOR ANY BOARD THAT HOPES TO ATTRACT AND RETAIN THE BEST STAFF. ”

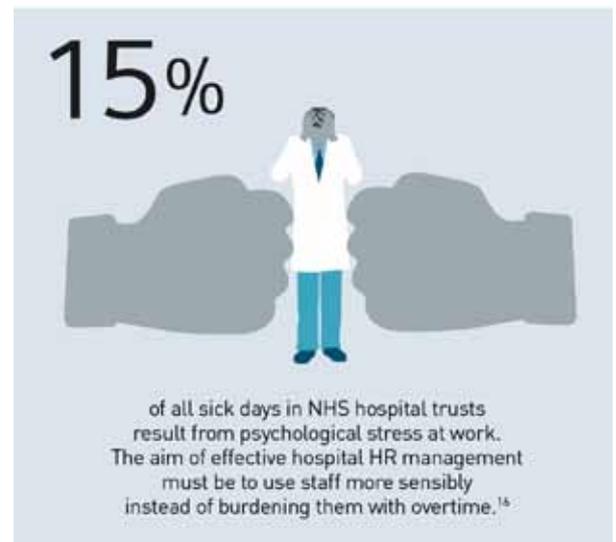
Nicola Bullen, TMP Worldwide, U.K.¹⁶

consideration for one in five nurses when looking for a new job. Other important factors include a healthy work-life balance, good career prospects, and salary.¹¹ As a result, hospital operators now optimize their clinical and administrative processes. They modernize their compensation and working time models, improve the promotion of education and scientific research, and create a corporate culture that makes them an employer of choice for scarce professionals.¹² A good working relationship with colleagues is also a prerequisite for high employee satisfaction. In the healthcare sector in particular, effective communication and appropriate information exchange between work shifts are essential components of the job.¹³ Thus, modern, user-friendly IT solutions that help staff efficiently share information across departments are key to job satisfaction. Additionally, there is a great desire and need for the systematic provision of further training

In a Nutshell Workforce Challenges in Healthcare

1. Given the tight labor market in the healthcare industry and the challenge of retaining and attracting skilled professionals, it is crucial for healthcare providers to foster their reputation as good employers by offering professional development, sound education, and an efficient work environment. This is true for medical personnel as well as for hospital managers with future-proof leadership skills and a high degree of willingness to change.
2. Hospitals need to establish new work models in order to increase efficiency and workforce satisfaction. Relevant measures do not mutually contradict but rather encourage each other, and they should always be planned and implemented holistically. Measures that systematically reduce e.g. overwork to counteract the industry's high rates of absenteeism and staff turnover also play an important role.
3. Quick and comprehensive access to relevant patient data also determines the efficiency of a hospital workforce. In addition to full availability, the needs-based processing/presentation of data is especially important; therefore, information management is crucial for the speed and accuracy of care decisions by hospital staff.
4. The feminization of the medical profession is a worldwide phenomenon. In order to become an attractive employer, hospital operators must adapt to the specific needs of their female workforce to take advantage of their increasingly important role.
5. The flexible deployment of personnel is mainly relevant from a business management point of view. It allows for optimizing schedules and a more varied work environment for employees. However, it requires establishing the right conditions in processes, skills management, and technology.

Read the QR-code to watch a short video introduction about the topic of workforce strategy on YouTube.



measures. Besides preventing potentially costly errors, training promotes personal development, a more needs-based use of equipment, and the greatest possible flexibility in deploying staff. Job satisfaction is also based on making informed decisions based on one's own knowledge and reliable information.

The Gender Factor

In the quest for well-qualified staff, female medical personnel play a key role, and their numbers are rising. In 2011, an average of 44 percent of doctors across OECD countries were women. Since 2000, the proportion of female physicians has increased in all OECD countries for which data is available.⁵ This trend is continuing, giving hospital managers more reason to specifically address the needs of the growing number of female doctors and nurses – such as flexible working hours, compressed work schedules, and fully paid maternity leave.

Naturally, such criteria differ from country to country. For example, fully paid maternity leave is mandated by law in countries such as Spain and Germany. In these countries, maternity leave therefore does not act as a differentiator in employer branding. In the U.S., however, these female-friendly criteria set top-rated U.S. companies apart from others.¹⁴ ■



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IDENTIFYING, CONTROLLING, AND REDUCING OVERHEAD COSTS

PRECISELY DEFINING INDIRECT OVERHEAD COSTS OR DIAGNOSIS/TREATMENT-RELATED EXPENSES IS A CHALLENGE

Certain operating expenses are necessary to keep businesses functioning. However, in healthcare, drawing clear boundaries between diagnosis/treatment-related expenses and overhead costs is not always easy. In some cases, overhead expenses might even improve the overall economic performance of a hospital.

Overhead Costs are Unavoidable to a Certain Degree

Overhead costs are expenses that are not directly attributable to a patient's medical care. Among other things, they can include governance and documentation, billing, or supplies. In many cases, however, there seems to be no precise definition for indirect overhead costs and direct, diagnosis/treatment-related expenses. Examples of these hard-to-define costs include things such as labs and laundry.¹ Still, setting out to reduce overhead costs across the board would be a mistake. Hospital operators who reduce avoidable overhead costs and invest in overhead expenses that create value and improve overall economic performance and medical care will increase their competitiveness.

Rising Costs and High Administrative Expenses Worldwide

In the U.S. healthcare system, \$750 billion is spent annually on expenses that are not directly linked to healthcare.² The causes of unnecessary spending vary widely, but generally point toward administrative expenses. A study of hospital administrative costs in several countries found that costs are highest in the U.S., where they consumed 25.3% of hospital budgets in 2011. Administrative costs were lowest in countries operating under single-payer health systems, such as Scotland and Canada. There, hospitals are paid global operating budgets, with separate grants for capital, which results in administrative costs of around 12%. Reducing U.S. per capita spending on hospital administration to Scottish or Canadian levels would have saved more than \$150 billion in 2011.³

Complexity and Competition as Cost Drivers

According to the survey, the high administrative costs in the U.S. are caused by, among other things, the complexity of the



health system and billing multiple insurers. Another cause is the need for hospitals to generate a profit (or, for non-profit hospitals, surpluses) in order to fund the modernization and upgrades that are essential to survival. Paradoxically, this entrepreneurial imperative and the reliance on market mechanisms raises administrative costs and reduces efficiency – due to, for example, higher marketing expenses and the need to provide high-volume services.³

Allocating Overhead Costs Correctly

According to Australia's Independent Hospital Pricing Authority, all costs accumulated in overhead costs centers should be allocated to the final cost to ensure that each product category (patient and non-patient) has its fair share

In a Nutshell Overhead Challenges in Healthcare

1. The most important prerequisite in eliminating avoidable overhead costs is to precisely define and record these costs, and allocate them properly. This is crucial in order to control these costs in a sensible way.
2. In terms of value, overhead costs are not necessarily economic burdens. They can contribute to higher levels of cost efficiency and care quality. However, costs that do not contribute to a higher quality of care should and must be reduced.
3. Hospitals in countries with particularly complex health systems and highly competitive markets tend to operate under the highest overhead costs.
4. There is considerable potential for optimization in the area of service accounting. The increasing use of electronic transactions helps to avoid unnecessary overhead costs.
5. Like other industries, healthcare providers have financial considerations. Benchmarking with other industries and investing in a management team that is well trained and experienced in business administration helps optimize overhead costs.
6. Comprehensive, flexible digitization of healthcare processes can be key to increasing cost transparency and process quality, systematically controlling overhead costs, and ultimately increasing cost efficiency and care quality in the long term.

Read the QR-code to watch a short video introduction about the topic of overhead burden on YouTube.



of overhead. This should be done before making any attempt to partition costs into product categories and subsequently into end classes within product categories.⁴ Incorrect allocation impedes or prevents intervention measures to reduce costs. Conversely, it becomes more complicated to make targeted and useful investments in overhead expenses where the investment creates demonstrable added value.

Learning from Other Industries

For healthcare providers, it would be wise to look to successful cost-efficiency measures in other industries, such as the manufacturing industry. There, such factors as short throughput, optimum utilization, minimum downtime, and low error rates are undisputed determinants of success, and high levels of attention and planning are devoted to them. In Germany, the introduction of fixed prices for DRGs made it indispensable to have an accurate grasp of the entire treatment process, its time requirements, and its direct costs (e.g. physician time) and overhead costs.⁵

Optimization Potential in Service Billing

One of the most effective ways to reduce overhead costs is to optimize the recording and billing of the services provided. In the U.S., healthcare providers manually handle around 28% of eligibility transactions, which accounted for more than 2.4 billion transactions in 2013.⁶ The potential for significant cost savings is enormous. The estimated cost for a manual transaction is roughly \$5, while an electronic transaction is approximately \$1.60. Thus, U.S. healthcare providers could save a total of approximately \$7 billion annually by switching six routine business transactions from manual to electronic.⁶ This represents an average savings potential of 86% compared to the costs of manual transactions.

IT as a Cost Reducer

Enhancing efficiency through comprehensive and flexible digitalization of hospital processes is essential in the long term to counteract the overhead costs caused by complexity and a lack of transparency. One problem with today's IT systems is that their concepts are too rigid, they are often operated as standalone solutions, and they are not sufficiently interconnected. A study by the management consultancy A.T. Kearney says that only carefully coordinated processes within the IT system can guarantee an accurate management of processes and thus reduce the administrative burden.⁷ The authors add that communication processes through third parties should be eliminated, as lean information flows would reduce interfaces and thus save money. ■



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STANDARDIZING QUALITY OF CARE

HOW AND WHY STANDARDIZATION CAN HELP HEALTHCARE PROVIDERS IMPROVE QUALITY AND INCREASE EFFICIENCY

Standards can improve efficiency, particularly in complex areas such as healthcare. Standardized clinical pathways are increasingly influencing the debate about sustainable, affordable, and efficient healthcare. Proven, standardized procedures can make the quality of care more measurable and reproducible for providers, patients, and payers.

Clinical Pathways: A Promising Instrument for Managing Quality

Patient surveys indicate that quality of care is a decisive criterion when choosing a hospital.¹ For many years now, quality-related selection factors such as expertise in a specific illness or treatment and the history of low numbers of medical errors top the list from the patient's perspective.² Therefore, the quality of healthcare influences occupancy and the commercial success of a hospital. Accordingly, systematic quality management is an important task. Improvements along clinical pathways can positively influence the quality of care. This makes enhancing the pathway a promising focus for achieving reliable, reproducible care improvements in daily routines.

Evidence of this can be found all over the world. For example, a 2014 study of cancer patients at Xi'an general hospital in China produced impressive results. A specific clinical pathway was designed to standardize the treatment processes of partial hepatectomy (removal of the liver) for patients with HCC (hepatocellular carcinoma, or liver cell carcinoma). In all areas of postoperative outcomes – total complications, mortality, and readmissions – the results were clearly in favor of the patients who were treated according to the clinical pathway, as opposed to the patients who were not.³

Quality of Care: Large Differences, Poor Transparency

The concept of defining clinical pathways has existed since the 1980s in healthcare systems worldwide. Despite promising results from various projects, the concept has only recently received widespread attention in conjunction with the buzzword "evidence-based practice."

The reason for this is growing economic pressure: In the interests of sustainable, cost-effective healthcare, resources must be used as effectively and efficiently as possible. Therefore, hospital financing is strongly linked to objective, verifiable quality criteria, such as successful surgeries or treatment and readmission rates. Current examples of specific initiatives



include Germany's Hospital Structure Act, and the Affordable Care Act in the U.S.

Indeed, there is a need for action on quality of care. There are significant differences in the quality of treatment between developed countries on the one hand and emerging or developing countries on the other. This is reflected in, for example, the survival rates of cancer patients. For breast and prostate cancer patients, the home country seems to be a factor in their survival, since sophisticated diagnostic and therapeutic options do exist, but not necessarily in all countries. In many countries, there is a call for reliable quality standards from payers, government officials, and patients' organizations. Figures from the German Cancer Society (Deutsche Krebsgesellschaft, DKG) confirm the contribution that quality standards can make to better patient care. They indicate that the society's approximately 950 certified cancer centers

achieve significantly higher survival rates than many of the non-certified hospitals.^{6,7} In the future, German hospitals must therefore expect deductions or could even be completely excluded from providing some health services if they fail to reach a certain number of cases or if they permanently fall below a defined minimum standard, which would indicate that they do not provide adequate treatment quality. For hospital managers, therefore, it is increasingly becoming an existential matter to prove their hospital's quality of care by means of evaluation criteria.

“ THE QUESTION IS WHETHER YOU, AS A SYSTEM, HAVE A PLAN TO EFFECTIVELY ENSURE ADHERENCE BY ALL TEAM MEMBERS. ”

Gerald Hickson, MD
Vanderbilt University Medical Center in Nashville, U.S.

work for employees.⁵ Thus, in the interests of having the broadest and most up-to-date database possible, hospitals could rely on routine data, i.e., data they have to collect anyway for billing purposes or official health statistics. This significantly reduces the burden on the staff compared to using separately developed process indicators, and increases the willingness to cooperate.

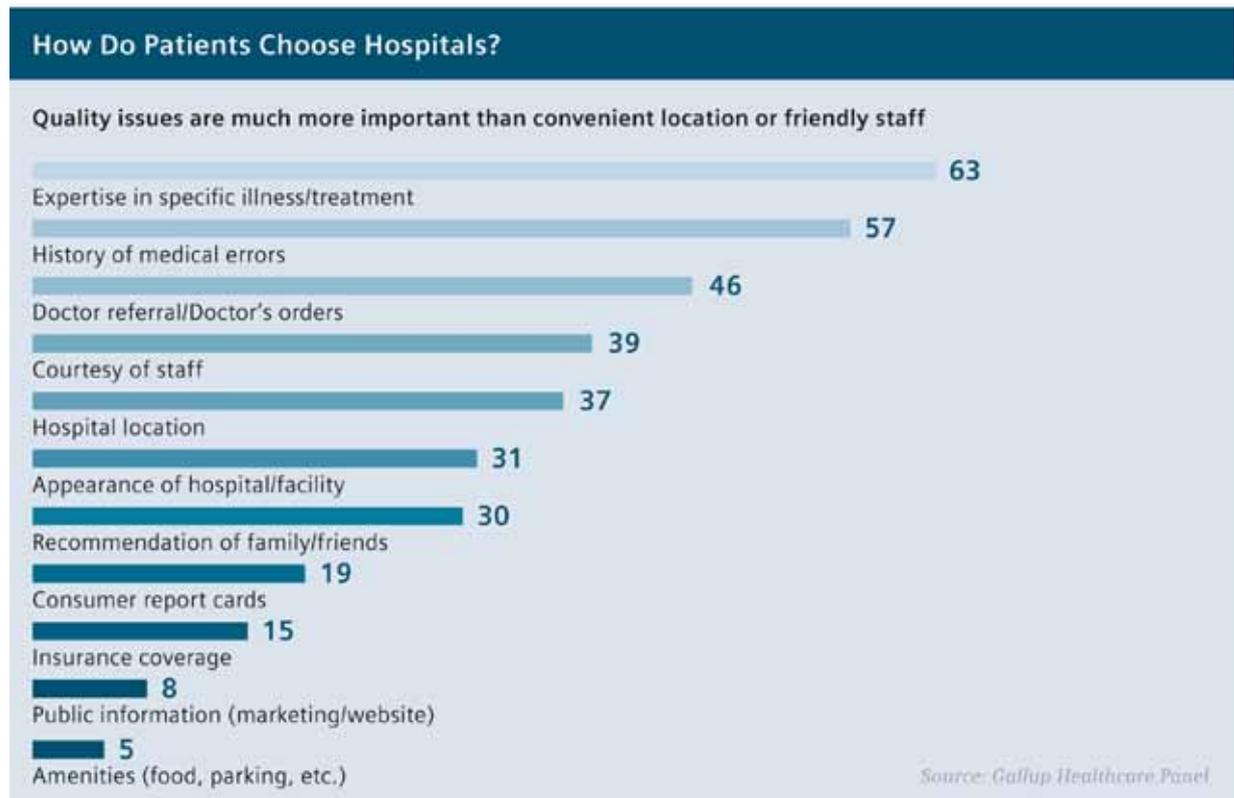
Evidence-based standards not only improve cost efficiency, but can also help doctors make decisions, avoid medical errors and omissions, explain therapeutic decisions to patients, and can support high-quality care. For example, Helios, a German hospital chain, has relied on structured quality management and continuous improvement processes for many years. As part of the Initiative for Quality Medicine (IQM), the quality indicators developed by Helios for its companies are now also used in Germany, Austria, and Switzerland by numerous hospitals outside the group.⁸ Ideally, participating providers can use the figures to compare efficiency across institutions, and the IQM process to manage quality and derive optimum treatment paths.

Managing Complexity through Evidence-Based Standards

Wherever standards and guidelines serve as a basis for treatment, it is important to develop them using the best possible evidence and to regularly review them using reliable measurement and comparative data. The collection and evaluation of appropriate datasets often involves considerable additional

Limitations and Challenges

For doctors and patients, the introduction of standards in combination with increasing economic pressure also leads to misgivings. Many doctors fear that standardization will restrict them in their individual treatment decisions. And patients are worried that they will not receive individualized – and therefore maybe more expensive – therapy.





In a Nutshell Standardization Challenges in Healthcare

1. Standardization does not aim solely at lowering costs, but first and foremost at ensuring reliable, high-quality results. This makes it a key issue for providers, payers, and patients.
2. Standardized clinical pathways can make quality of care more measurable and reproducible for providers, patients, and payers, supporting more consistent, reliable treatment decisions.
3. For standardization projects to succeed, hospital managers must actively address the concerns of clinical staff and patients, persuade all parties, and motivate them to participate.
4. In view of rising costs and the existing differences in quality, payers, government officials and patients' organizations in many countries are calling for reliable quality standards. For hospital managers, they are increasingly becoming a matter of survival.
5. Evidence-based standards and guidelines can provide support to doctors in making complex decisions, help them avoid medical errors and omissions, and help ensure that all patients get a consistently high quality of treatment.
6. Existing standards and guidelines should be subjected to regular empirical reviews and adapted to current findings. Rules that are based solely on tradition, or pragmatic consensus can endanger the quality of care.

To enforce standards within healthcare facilities, resolute and well-thought-out change management is required. One important prerequisite for success in standardization projects is that providers persuade everyone involved of the benefits and motivate them to participate.⁹

Even with clinical guidelines in place, a doctor's individual clinical decision-making and individual opinions about the patient will still be needed in the future. This is particularly true in regard to the increasing number of patients with multiple chronic diseases, for whom using various clinical guidelines developed for single diseases may have adverse effects.⁵ Decisions must continue to be made individually and sometimes subjectively if there is insufficient empirical knowledge to secure a specific clinical pathway. To apply evidence to a specific patient care situation, the clinician needs evidence plus good judgment, clinical skills, and knowledge of the patient's unique needs. ■



Read the QR-code to watch a short video introduction about the topic of standardization on YouTube.



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Der 39. Deutsche Krankenhaustag auf einen Blick



Zukunft gestalten

14.-17. November 2016
CCD-Ost, Messengelände Düsseldorf



Datum	Raum L	Raum M	Raum R
Montag 14.11.2016		10.00 - 12.00 Uhr Auftaktveranstaltung Zukunft gestalten	13.00 - 16.30 Uhr Das G-DRG-System 2017
Dienstag 15.11.2016	10.30 - 14.30 Uhr KH Träger-Forum Zentrale Hausforderungen für das Krankenhaus 10.30 - 12.00 Uhr Teil 1 Investitionen für Zukunftssicherung 13.00 - 14.30 Uhr Teil 2 Demographiefeste und kultursensible Krankenhäuser	10.00 - 12.00 Uhr Budgetverhandlungen 2017 14.00 - 17.00 Uhr IT-Entscheiderfabrik Unternehmenserfolg durch optimalen IT-Einsatz	10.00 - 13.00 Uhr BDI-Symposium Qualitätsindikatoren und Indikationsqualität 14.30 - 17.00 Uhr KHSG-Umsetzungs-Monitoring (Qualitätsoffensive und Finanzierungsvorgaben)
Mittwoch 16.11.2016	10.00 - 13.00 Uhr BMVZ-Veranstaltung Rentabilität von Krankenhaus-MVZ: Praxisseminar zu Benchmarks & Controlling für die ambulante Versorgung 14.00 - 16.15 Uhr VKD-Forum mit Work-Café Haftungsfalle Management 16.30 - 18.30 Uhr VKD-Mitgliederversammlung	10.00 - 12.00 Uhr Fachtagung Patientenfürsprecher Dialog und Patientenzufriedenheit im Krankenhausalltag 14.00 - 18.00 Uhr Vortragsveranstaltung AKG Der Architekt als Dialogpartner – als Zukunftsmodell geeignet?	10.00 - 14.15 Uhr Forum „Pflege im KH“ Fit für die Zukunft 15.00 - 17.30 Uhr DVKC-Veranstaltung Update Controlling 18.00 - 20.00 Uhr VLK-Forum Korruption im Gesundheitswesen: Sind alle Ärzte potentielle Täter?
Donnerstag 17.11.2016	10.30 - 17.15 Uhr IMPO-Forum Patientensicherheit und Riskmanagement	10.00 - 12.30 Uhr P.E.G.-Veranstaltung Boundaryless Hospital: Vision oder Zukunft?	10.00 - 12.30 Uhr IT-Entscheiderfabrik Start Up & Young Professional Preis

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PATIENTS' RIGHTS HAVE NO BORDERS



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Seeking Healthcare in Another Member State

The diversity of health systems, especially in terms of quality and safety policies, has always been mentioned as the biggest obstacle to cross-border care in the European Union. The implementation of the directive on the application of patients' rights in cross-border healthcare (Council Directive 2011/24/EU) in 2013 was therefore welcomed as a major achievement in health policy, as it grants European citizens the right to access healthcare services in a different Member State, in

compliance with the fundamental principle of free movement of people and services within the European Union.

Patient mobility accounts for approximately less than 1 percent of the overall EU health spending—around 10 billion euros per year (European Commission 2013), but it is increasing considerably. The extensive degree of connectivity and amount of information available today are progressively making patients more informed on treatments and care available beyond their national boundaries. (Levaggi, Montefiori, 2014:V).

Directive 2011/24/EU at Hand

The directive on patients' rights in cross-border healthcare enables all citizens living in the European Union access to planned healthcare in other Member States. It clarifies the rules and procedures applicable to patients' access to cross border healthcare. (EU & International Cross-border Healthcare Policy Team 2013). These include:

Reimbursements: patients usually pay upfront and are then reimbursed by their home state. However, Member States are only required to reimburse treatments the patient would have been entitled to in their home health system and up to the same amount;

- **Prior authorisation:** patients would need authorisation from their home national health system for certain type of treatments abroad. Prior authorisation can be refused if the treatment can be provided in the patient's own Member State or if the patient or general public will be exposed to safety risks;
- **Cross-border cooperation:** the directive strengthens cooperation between Member States in the field of eHealth and health technology assessment, through the development of a voluntary network connecting national authorities responsible for eHealth, with the aim of supporting and facilitating the exchange of information among the Member States;
- **National contact points:** the directive foresees the establishment of a contact point in each Member State to provide practical information and enable people to learn their rights and make informed choices regarding cross-border healthcare. These centres will exchange information between them and work in synergy with civic and patient organisations;
- **Prescriptions:** the patient should be able to have his prescriptions recognised in any other EU Member State. (EU & International Cross-border Healthcare Policy Team 2013).

The directive not only offers patients the opportunity to obtain care where there are better expertise or specialised treatments, lower costs or shorter waiting times, but also to take advantage of the enormous potential coming from an integration of the European dimension into health.

Indeed, cross-border healthcare facilitates mobility of patients, but also that of health professionals and, consequently, it fosters exchange of expertise and knowledge in the health sector. (Wismar, Palm, Figueras, Ernst, van Ginneken 2011:224-228) In a wider sense, this means that the Directive impacts all citizens living in the European Union. It improves freedom of choice for patients willing to get treatment abroad, but it also affects those receiving care in their home country, as cross-border cooperation enables greater efficiency and quality of healthcare across Europe.

Despite its potential, the effectiveness and impact of the Directive depend on many factors. The first and utmost important ones are related to citizens and stakeholders' awareness and understanding of the benefits this legislation brings to society and EU health systems. Actually, this is still a great

weakness and an open challenge: the report on the state of play of the cross-border healthcare directive, published by the European Commission in 2016 highlights that fewer than two out of ten citizens are informed about their rights in this area, and that only one in ten is aware of either the existence of or role of national contact points (Directorate-General for Health and Food Safety 2015).

These data do raise some concerns and questions regarding the commitment of Member States towards cross-border healthcare: what are they actually doing to spread the word about the rights introduced by the Directive?

After its inception, the EU Commission (European Commission, 2013) and some Member States (Ministero della salute, 2014) promoted several communication activities. Yet these initiatives never attempted to engage or affect civil society as a whole, and specifically civic and patient organisations in the first place, which instead are the strongest and most relevant allies to build bridges with citizens and patients.

“ **CROSS-BORDER HEALTHCARE FACILITATES MOBILITY OF PATIENTS, BUT ALSO THAT OF HEALTH PROFESSIONALS. IT FOSTERS EXCHANGE OF EXPERTISE AND KNOWLEDGE IN THE HEALTH SECTOR** ”

From Evidence to Action: a European Communication Campaign

In light of the above, the Active Citizenship Network (ACN) decided to celebrate the 10th anniversary of the European Patients' Rights Day this year by promoting a communication campaign in 14 European countries, entitled *Patients' rights have no borders* (Active Citizenship Network n.d.). The campaign, supported by Novartis Oncology, has been organised with the involvement of partner associations and will run until the end of the year. However, *Patients' rights have no border* foresees a much broader and ambitious geographical impact, as it plans to involve the civil society of all the Member States by the end of 2017.

The initiative has the innovative merit of establishing the first network of civic and patient associations able and willing to assist and advise citizens seeking care within the European Union. This network is composed of 14 organisations so far, which include patient organisations focused on rare diseases, civic and patient associations devoted to advocacy or protection of patients' rights, a consumer association and networks.

Furthermore, this activity is the result of a long-term commitment of ACN towards cross-border healthcare. Milestones in this field include:

- The *Manifesto for the implementation of the right of European patients to make an informed choice* drafted

with 31 civic & patient associations of 13 Member States and two European networks (Active Citizenship Network 2013a);

- The online petition *Make them informed! Ask your state to inform citizens on EU health rights* (Active Citizenship Network 2013b), signed by hundreds of European citizens to ask their national parliaments to transpose the directive into their legislations;
- The first civic assessment on the state of implementation of the Directive in 12 Countries (2014), the establishment of a MEPs Interest Group on the topic at the EU Parliament (Active Citizenship Network 2015).

“ RAISING CITIZENS’ AWARENESS OF THEIR RIGHTS TO CROSS-BORDER HEALTHCARE AND ABOUT THE MAIN CONTENTS OF THE DIRECTIVE HAS BEEN A PRIORITY ”

The campaign is supported by industry players, and it has also received the endorsement of the European Institutions (Directorate-General Health and Food Safety & Cross-Border Healthcare Unit and Members of the EU Parliament involved in the Interest Group European patients’ rights & cross-border healthcare) as well as the support of relevant umbrella organisations at a European and international level (EuropaColon, Global Myeloma Action Network, World Alliance of Pituitary Organisations).

Challenging Initiative

ACN has identified short-term and long-term goals to achieve in the framework of the project Patients’ rights have no borders.

As for the short-term goals, raising citizens’ awareness of their rights to cross-border healthcare and about the

main contents of the directive has been a priority. To serve this purpose, ACN and its partners have drafted informative materials in 14 languages, which are still being distributed throughout dissemination activities at national level, and are also available online. A specific campaign on social media is supporting these actions.

Another important goal in the short run has been the attempt to collect patients’ experiences in the form of case histories, data or interviews.

Long-term goals require a strong commitment of civic and patient organisations: on the one hand, they should work closely to find out common solutions to face the main issues and concerns raised by citizens on cross-border healthcare. On the other hand, they should play an active role and demand cooperation with their national institutions, as foreseen by the directive itself.

Raising awareness among all the stakeholders and strengthening collaboration among civil society, patients’ associations, institutions and professionals are all fundamental steps towards full implementation and effectiveness of the cross-border healthcare directive. They are also the basis of the campaign promoted by ACN, which works also as an invitation to open up to the power of network and partnerships to reach citizens and a common, holistic approach to health. ■

Key Points

- ✓ Patients’ rights to planned care abroad are not widely known amongst EU citizens.
- ✓ Council directive 2011/24/EU on cross-border healthcare is the framework for cross-border healthcare in Europe.
- ✓ European communication campaign on cross-border healthcare is letting patients know about their rights.



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AFFIDEA - HEALTHCARE WITHOUT BORDERS



Dr Rowland Illing
CMO Affidea

Affidea is an international healthcare provider focused on advanced diagnostic imaging and cancer care. We are the largest independent provider of these services in Europe, operating 198 medical centres in 15 countries. Despite spanning a multitude of geographies and cultures, the message across Affidea remains constant– *nothing is more important than health.*

Unification of clinical standards and quality improvement are usually the main focus of interest when considering networked practices. Affidea has a long track record in these, but we also keep investing in the areas that are often considered ‘supplementary’ to clinical practice – those being the physical environment of the medical centres (distinct from the technology housed within) and the attitude of staff members to each other and toward patients (distinct from the direct clinical interaction). A ‘culture of openness’ is an essential component of the latter.

An opportunity for change

The company underwent rebranding two years ago. The new brand provided an opportunity for all employees to be united through the core message that ‘nothing is more important than health’ and one set of guiding values. But how to establish a group-wide project to embed these values into Affidea’s corporate culture? The aim was to deliver on what the brand promises and provide better and more empathetic, patient-centric medical services delivered by the staff within a friendly physical environment across all locations. The rebranding project also afforded an opportunity to unify a previously disparate portfolio of design concepts to provide a unified look and feel as well as improved patient comfort across all medical centres, whilst respecting cultural differences.

A positive physical environment

After extensive engagement with patient focus groups in different countries, a set of interior design concepts were drawn up by an Italian firm. A modular concept was developed that would be compatible with all sizes and layouts of department. The designs were piloted in two centres in different countries. Extensive patient feedback was then provided in each centre to refine the concepts. Examples of the designs are illustrated in figures 1, 2, etc.

Consistency of behaviour

In 2015, Affidea decided to design a programme enhancing patient experience by:

- Delivering Affidea Culture Programme – a training explaining Affidea culture and core values and raising the awareness about the importance of the outstanding customer service to all employees (these core values are given in Box 1)
- Designing and launching new standards of patient care delivery and embedding them in existing operational processes
- Aligning Human Resources processes to hire, retain and reward the right people exemplifying in their behaviour the Affidea values and patient centric approach

In the initial design of the Programme, Affidea chose a partner from outside the medical sector to learn from those experienced in high class customer service. Partnering with Lausanne Hospitality Consulting, a consulting arm of the Ecole Hôtelière de Lausanne (EHL) experts in hotel management, the Affinity Programme was developed. EHL was founded in 1893 as the first hospitality management school in the world, and was thus well placed to develop the necessary foundation for all the work streams - the Affidea Culture Program, Change Management, Communication and Standardized Operating Procedures (SOPs). The outcome of the design phase was then adapted to meet Affidea’s specific needs and the programme is now being successfully implemented without the help of external partners.



Box 1. Affidea core values



Affidea Geneva Centre before



Affidea Geneva Centre after

In order to embed the new patient care standards and the behavioural change, Affidea decided to introduce designated 'Affinity Champions'. These champions are Affidea employees who work in patient-facing roles and exhibit excellent customer service behaviour and commitment to upholding Affidea values. They are the role models in patient care who possess and demonstrate predefined competencies that will help them train others on Affinity SOPs on an ongoing basis. Affinity Culture Leader is another role that has been identified and these are those who exhibit change management and influencing skills. They influence, engage and coach employees during the change programme to accept and embrace changes, and also ensure sustainability.

The Affidea 'Book of Affinity' has been written that incorporates the Affinity SOPs - a repository of all procedures related to delivering excellent customer service in our centres. The book provides directions to all Affidea divisions, medical centres and staff that will enable Affidea to provide uniform, empathetic and high quality customer service.

A culture of openness

Alongside the importance of consistency in behaviour and a beneficial patient environment, Affidea understands that a culture of openness is essential across the group. Although for patients it may seem that a culture of transparency in the health sector is a prerequisite, establishing such a culture is challenging. Scandals keep on occurring in healthcare. Even in systems where policies and pathways are in place, without embedding the correct culture the staff will fail to adequately learn and evolve. Sloane in 2008 provided this excellent summary of the seminal paper 'To Err is Human'

published by the American Institute of Medicine (IOM) in 1999 - see Box 2.

By putting a culture of openness at the heart of what we do, we will have a chance of becoming a truly learning organization. Of course, the reality of reconciling groups from different cultures and with different priorities to collaborate in an open manner is very difficult. The first steps are to create one set of shared goals and ambitions, to define and establish the processes to educate the staff and to develop

The IOM committee recognized that simply calling on individuals to improve safety would be as misguided as blaming individuals for specific errors. Health care professionals have customarily viewed errors as a sign of an individual's incompetence or recklessness. As a result, rather than learning from such events and using information to improve safety and prevent new events, health care professionals have had difficulty admitting or even discussing adverse events or "near misses," often because they fear professional censure, administrative blame, lawsuits, or personal feelings of shame.

Box 2. Changing the mindset. From Sloane (2008)



Affidea Athens Centre before



Affidea Athens Centre after

the tools to service them. We have created a unified platform to house these SOPs across all of the geographies that we cover, language-specific, and an Affidea Incident Management System (AIMS) to provide a unified and coded method of reporting incidents and more importantly ‘good catches’.

Adoption and use of the AIMS platform by all staff members is an indispensable link to the ongoing Affinity project. Although each Affidea country has its own Quality Manager, I would like to empower every staff member to take on this role in their day to day activities. The power and automotive industries have shown that it is entirely possible to embed a culture of openness and safety into an industry – healthcare must follow their example.

Conclusion

The rebranding of Affidea has afforded an unparalleled opportunity to uniformly provide not only an improved physical environment and establish first class patient experience but also establish one organizational culture across the whole international group – this is truly healthcare without borders. The greatest of all these challenges is to bring together a strong corporate identity with a true culture of openness to support clinical excellence. ■

DISCLOSURE:

“Point of View” articles are part of the HealthManagement.org Corporate Engagement Programme



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Rambam at night

The philosophy at Rambam Health Care is medicine, technology and humanity intertwined. Please explain.

Rambam is a very uniquely positioned hospital. It started in 1938 as a hospital for patients, founded by the British mandatory regime, and has grown to be a major academic hospital that includes the Faculty of Medicine of the Technion-Israel Institute of Technology. It operates its combined and forefront clinical activities side by side with the Technion, focusing on innovation in medicine and biomedical engineering. This gives Rambam a unique opportunity to position services between medicine, research and innovation.

When I came in over ten years ago as the hospital director, I arrived with a very strong background in medicine and engineering. I am Professor of Biomedical Engineering and Medicine at Technion in addition to being a clinical interventional cardiologist. I decided, with my leadership team, that this combination of medicine, technology and humanity would be the major theme of this hospital. We put medicine and technology at the forefront, but also

combine what we do with humanity, which is putting the patient at the centre, and treating everybody equally. These are at the centre of our vision.

Rambam is opening a new cardiovascular hospital. What will be innovative about it and how will it promote multidisciplinary working?

The new cardiovascular hospital will combine all the different disciplines: clinical areas in all disciplines, preventive medicine, public education, surgery and advanced technology. Cardiology is a discipline which is tightly associated with advanced technology and is one of the pioneer disciplines which developed with medical technology. The concept of this cardiovascular hospital is to include within its building all the disciplines, general and acute care, imaging, surgical, interventional and preventive medicine, so that we work together efficiently with the patient at the centre. The vision is to prevent diseases for the future and at the same time use the most advanced technology and create new technologies to treat the heart. It will be under one roof next to the Technion Faculty of Medicine, which has the most advanced stem cell

Image credit: Miki Koren

laboratory in the world, under the leadership of Professor Lior Gepstein, who works shoulder to shoulder with Dr. Shulamit Levenberg from Biomedical Engineering at the Technion. This creates a huge opportunity for a world-leading cardiovascular centre.

Rambam has built an underground hospital. Can you explain the background and what is innovative about it?

The concept of an underground hospital was born during the second Lebanon war in 2006, when we were under threat of continuous missile attack for a full month. We continue to be under such threat unfortunately, and we have to be able to treat our patients safely and protect our staff even in a conflict situation. We visioned and planned a new campus at Rambam that includes several buildings: for paediatrics, for cardiovascular care, for cancer, and for research. The parking lot beneath the campus will be a parking lot during times of peace, and it will be converted to a fortified underground hospital if the need arises. That means everything was designed so that every part of the parking lot can also be used as a hospital. The infrastructure, medical gases, equipment connections and so on are contained within the walls. When needed the patients will be moved downstairs. We have carried out simulations and trained our staff how to react. This facility doesn't exist anywhere else in the world. This hospital can function as the primary trauma and emergency hospital of northern Israel under all conditions.

**“MEDICINE HAS NO BORDERS.
WE ARE ALWAYS FIGHTING
FOR LIFE ”**

What do you see as the most promising technologies in the future to improve the outcomes of cardiovascular heart disease?

It is difficult to predict. Cardiovascular disease is still amongst the highest causes of mortality in the western world. What we have achieved over the last four decades is a revolution in the way we diagnose blockages in the arteries and the way we treat them with stents, from metal stents initially through drug-eluting stents and to the recent development of bio-absorbable stents that will disappear from the body after one year. It revolutionised the way to open blockages for both chronic conditions or during heart attacks. The field of revascularisation, creating new blood flow to the muscle, has really reached optimal care. There will be other developments for this, such as robotics that allows automation for this process, making it more precise. It will change the way we do things, but it is not going to change mortality far beyond what we know.

A major challenge today is to treat electrophysiological problems of the heart and prevent sudden death. We know much more today about how to diagnose and treat



The underground hospital

arrhythmia, we have more efficient drugs, we can ablate foci of arrhythmia, but there is still a way to go to prevent sudden cardiac deaths. This is an area of very active research. Another major challenge that we face is treating heart failure, when the muscle doesn't have enough power to pump blood. We need to change the way the muscle acts, add to its power, generate better synchrony or add muscle. There are new very promising drugs in the market, and we have to see how effective they are. There are mechanical devices such as ventricular assist devices, which are becoming smaller and more efficient. There are some ideas about to make new muscle using stem cell technology. There is a huge future for directed stem cell therapy to the heart. Rambam with Technion is going to be a major player in this field. I think this can be a major solution to heart failure. We can hopefully generate new muscle, which is the main challenge when most of the patient muscle is weak or dead.

Also currently undergoing major transformation is treatment for heart valve disease. There will be a revolution in treatment. Today most of the valves are repaired still through surgery. In the future it will move to non-surgical, mechanically oriented engineering solutions to treat leaking or stenotic valves. Finally, we have the challenge of education: how to educate the public not to smoke, to eat healthily, keep cholesterol and other factors controlled. So there are still many challenges ahead of us.

This interview will appear in *HealthManagement's* cover story on healthcare without borders. Please comment on how Rambam serves patients outside Israel's borders.

At Rambam we treat everybody. Rambam reflects the population of Israel—at least 25 percent of the staff are Arab. Everybody walks shoulder to shoulder to save lives—Arabs, and Jews, Christians, Muslim and Druze. We are treating also our neighbours in the region. We treat patients referred by the Palestinian Authority, for example for bone marrow and kidney transplants and other therapies not available locally, and we are always open to save lives. Due to the hostilities in Syria we also treat injured Syrian civilians who come to the border and seek medical help. We have treated at Rambam close to 150 patients from Syria with severe injuries. We are also treating patients from the former Soviet Union. Our visionary concept is that medicine has no borders and we are always fighting for life. ■



THE FUTURE OF TELEMEDICINE: TWO PERSPECTIVES

RADIOLOGY WITHOUT BORDERS: A RUSSIAN VIEWPOINT



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Today teleradiology is an essential and indispensable part of radiology. Teleradiology enhances efficacy of our service, makes our diagnosis more timely and accurate, saves time and money, helps to overcome some temporal or regional shortages of trained radiologists and—last but not least—it is more and more needed by our patients.

So far in Russia there is more discussion about teleradiology than real action. Nevertheless, there are some good examples of municipal or regional teleradiological services

working quite well. But still some hospital managers believe that it is better to hire well-trained specialists and never apply to teleradiology consultants (especially if some fee for this service is required). But I believe that in real life this approach cannot be true in 100 percent of cases. The need for teleradiology exists, but some organisational and administrative issues (e.g. qualification of consultants, reimbursement, mutual responsibilities of teleradiological partners etc.) must be solved. Some years ago the European Society

CROSSING BORDERS: THE VIEW FROM THE U.S.



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The Center for Connected Health Policy is an organisation that is vocal about policy reforms on integrating telehealth virtual technologies into the American health care system. Mei Wa Kwong, Policy Advisor and Project Director spoke to HealthManagement.org about the legal challenges of harmonising telehealth/medicine across borders.

What, from the perspective of the Center for Connected Health Policy, have been the greatest challenges in 'harmonising' telehealth regulations across the U.S.?

The way the US health care system is structured, you have multiple entities who pay for care. You have government programmes like

Medicare on the federal level and Medicaid on the state level as well as private insurers who provide insurance through employers or private purchase. This creates layers of different policies in law, regulations and the insurers own individual policies. So already you have a complicated environment to navigate. Now multiple that 51 times (50 states and the District of Columbia) and you can see how daunting and complicated the policy environment is around telehealth. And what I've just described is only one aspect of policy. You also have other laws, regulations and policies that aren't necessarily specific to telehealth but impact it such as licenses to practice medicine.

How wide is the need for telehealth in the U.S.? Are you seeing examples of cross-nation telehealthcare or does it tend to be

fairly localised? In other words, is legal harmonisation so critical?

I don't have any numbers regarding how much telehealth activity crosses state lines, but it definitely has that capability and some of that is taking place. I think wherever there is an issue getting some type of service because of lack of access definitely points to where telehealth could be a solution. Right now telehealth policy is still being developed, so part of the problem is definitely not having the right policies in place, such as reimbursing for telehealth-delivered services. But there are other factors that impact telehealth such as connectivity. Some of the places that lack access to necessary health care services are remote or rural areas that may not have the connectivity to make telehealth work. Additionally, starting a telehealth programme requires an investment on a health organisation's part. They are introducing something new that could disrupt the typical workflow in their clinic. They have to make sure they have the right and trained staff, the equipment, the policies and procedures in place and ensure they can at least cover their costs to do a telehealth programme. It's not as simple as just one day deciding to provide services via telehealth. There's a lot of work and investment involved in making sure you do it right.

As Europe also develops telehealth, would the Center for Connected Health Policy have any advice on an optimal model or what to keep in mind?

Think of policies that work for every player involved in the delivery of care, not just the providers who are using telehealth to provide services, but also the patients. Telehealth won't work if either party doesn't believe in it.

of Radiology published a white paper on teleradiology (2014), but discussions on how to implement these guidelines in real life continue.

For years we have performed 'internal' teleradiology —night shift and urgent teleconsultations in our hospital and we have got accustomed to it. In 2014 we started to provide external teleconsultations on a large scale. For example, in 2015 we signed a contract with five hospitals in the Russian Far East region and we did around 3000 teleconsultations for them.

There is pressure from patients asking for 'second opinion' teleradiology. I am involved in such a project and I found it quite interesting and challenging for me. We have several domestic 'second opinion' projects targeted to patients. But in general it looks like real demand for second opinion turned out to be not so big as expected. Probably patients need a second opinion not only about radiological images, but about general advice and management of their health problems.

Legislation of teleradiology on the national level is another issue. The Russian Ministry of Health is developing a law

and regulations about telemedicine and teleradiology, but so far no final documents or drafts were presented to the medical community. Security of teleradiology consultations and protection of patient privacy has always been a subject for debate, but simple means of image and data anonymisation and inexpensive VPN networks protect sensitive medical information much better than paper medical charts.

Teleradiology is already here and it has become a part of our everyday practice. I see it as a very interesting and challenging area of radiology and would like to see its further expansion and improvement. ■



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A HEALTHCARE CHATBOT NAMED SHAILA

AUTOMATISED HEALTHCARE COMMUNICATION ON THE RISE

In April this year I and Thomas Schulz started the pilot project Shaila under the brand Smarthealthlab. The task: to explore the fast growing chatbot technology for healthcare with Shaila (Smart Health Artificial Intelligence Lab Activity).

To make that algorithm more tangible we chose a visual of a young female, gave her a face and named her with an acronym. The choice of a female was a reflection of the impressive growth of female leaders in healthcare, computer science and other business areas.

Thomas and I, as two healthcare professionals in technology, business development, communications, marketing and behavioural economics bundled our extensive knowledge into the digital life of a chatbot creation. The aim was to set up an international digital community of healthcare specialists for knowledge exchange, interactions, questions and answers and dynamic developments. This is especially significant for frequently asked questions for example, as they show great potential for automation. Shaila takes care of a common task in healthcare communication: building a community as are a large number of current Facebook examples — to have a closer relationship with the desired target group.

The advantage of Shaila is that with a smart setup of the algorithm this piece of standard communication can be transferred to the chatbot. Working 24 hours, Shaila, with an unmatched accuracy, finds people who you wouldn't find even if you surfed the web nonstop.

The challenge is to configure the suitable tech specifications and apply a smart communication style which is related to deep knowledge of construct and effective packaging of language elements. These include favouring the use of ellipsis which cause through the omission of words a "dramatising" effect for the readers.

Design Thinking and Rapid Prototyping

Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation (Brown 2009) incubated extensive research, students and professionals within the economic system. Tim Brown points out that innovation is a collaborative process through a rigorous examination to identify brilliant ideas.

According to Brown, successful ideas follow an overlap of three criteria:

- **Feasibility:** What is functionally possible within the foreseeable future
- **Viability:** What is likely to become part of a sustainable business model
- **Desirability:** What makes sense to people and for people

Design thinking will bring this criteria into harmonious balance. For the Shaila project Thomas and I followed this theory in order to come up with a holistic idea for an evolved method of healthcare communication. But as the technology itself was quickly developing with the speed and momentum of a tidal wave we had to choose a suitable instrument to cope with that challenge.

Since I had been working for a long time with rapid prototyping in my lectures, we examined *Experience Prototyping* (Buchenau and Fulton Suri 2000) for inspiration about the swift prototyping of design and context. During our discussions we produced everything from sketches to the instant installation of chatbot algorithms like try outs, the design of a webpage, Twitter accounts and the slack community.

We went live on 1 April 2016, adjusting technology, design and context almost daily in the first 30 days. Thanks to our observations and the feedback from the first participants we were able to construct a battle-proof system within a very short time.

Impressive Facts

After releasing Shaila into cyberspace we collected the following within just over five months:

- More than 620 followers on the Shaila Twitter account (we never intended to reach such a goal so quickly as Shaila invites participants into the Smarthealthlab account as a landing page)
- From June to August we had 226,100 impressions in 91 days, four link clicks per day, one retweet per day, 18 likes per day and one answer per day
- We deduced that the visitor profile was 65 percent male with the top four interests being technology (83 percent), tech news (77 percent), entrepreneurship (76 percent) and marketing (70 percent)
- More than 1,400 followers in the Smarthealthlab Twitter account. This exceeded our expectations
- About 130 healthcare professionals in our Slack community.



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There was some resistance from invited people as they told us they didn't like the chatbot approach. Others couldn't follow the idea of an algorithm with a face and the name Shaila as they thought it was a real robot existing somewhere delivering static answers. But the majority were fascinated, interested, wanted to know more and registered in our free Slack community.

As flanking activities we started a blog and a new form of instant interviews, shot from the hip so to speak, with immediate publication via Periscope and our Youtube channel.

A bot provides a basic service in communication which is already standardised, so it makes sense to transfer such routines to an algorithm which always delivers the same performance quality. The experts however stay on top of the work by monitoring and getting into the game when their expertise is necessary in a talk or when they invite the community to join a specific closed user group according to their needs. Through this, patients or customers can enter an individual private premium space where they enjoy the chargeable full care package.

What's Next

In under a semester we have connected worldwide healthcare professionals and brought them into a constant exchange while simultaneously being able to influence the further development of the community. Our next frontier is participatory design. It's about sending and receiving information and adjusting the continuing construction of a powerful contact instrument for hospitals and all the other market participants.

Now we have already received the first enquiries to have a look at healthcare communication projects which could be transferred to a chatbot. These include community building, registration processes or product hunts. We are ready to deliver individual chatbot solutions for hospitals and the healthcare market.

To heat up the situation we will carry out the first online chatbot conference under the brand botscamp.co on 7 December 2016. As with the Shaila community, there will be no travel costs, no travel time and the option of being able to push the replay button to attend all planned 20 sessions. Since it is a camp, participants will vote for the 20 sessions they would like to see and follow. By applying the participatory design idea we will let the participants have an impact by their interactivity. ■

Key Points

- ✓ Chatbot technology
- ✓ Hospital communication
- ✓ Automatised procedures
- ✓ Design thinking and rapid prototyping



How Shaila Works



- Shaila is a Twitter account @shailabot
- Shaila invites specific healthcare professionals from the Twitter world via the account of @smarthealthlab into a Slack community according to the definitions/profiles in the algorithm;
- Registration is free
- Within the Slack community there is general chat as well as specific forums
- Shaila is answering more and more questions from the participants in a form of dynamic development monitored by the creators
- Shaila will distribute information about upcoming livestream/video interviews, events and suitable publications

Maurice Couderey MAS ZFH Education Management, Co-founder, Smarthealthlab

Born and based in Zürich, Switzerland, Maurice focuses case studies in healthcare communication, marketing and behaviour economics. While the background of his studies was the environment of constructivistic didactics at the University of Applied Sciences Zürich, the teaching in Zürich at the EB Zürich School targets social marketing for nonprofit organisations. His collaborative knowledge exchange procedures led to the formation of Scaph Swiss Communication and the Marketing Association of Public Health as the first president as well as to lectures at the West Pomeranian University of Technology in Szczecin, Poland and the University of Bucharest. He is a speaker and member of programme commissions at congresses and currently works as the co-founder of Smarthealthlab on the development and investigation of the chatbot technology in healthcare communication.



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HEALTHCARE WITHOUT BORDERS



The top destinations for medical tourism are Costa Rica, India, Israel, Malaysia, Mexico, Singapore, South Korea, Taiwan, Thailand, Turkey and the United States.

The estimated market size is **\$45.5 to \$72 billion.**



Source: Patients Beyond Borders (2016) Medical tourism statistics & facts <https://iii.hm/61r>

WHO IS ON THE MOVE FOR HEALTHCARE IN THE EU?

- Patients treated across the border
- Temporary visitors abroad
- People retiring to other countries
- People in border regions
- People going abroad on their own initiative
- People sent abroad by their home systems

Source: WHO (2014) Cross-border healthcare in Europe) WHO <https://iii.hm/61s>

Johns Hopkins Bloomberg School of Public Health suggests that the world's estimated 60 million refugees, displaced from their homes due to conflict, persecution or human rights violations, may need at least 2.78 million surgeries a year, something thought to be very difficult to arrange in the midst of their upheaval.



Source: Johns Hopkins Bloomberg School of Public Health (2016) <https://iii.hm/626>

“Out-of-country care and medical tourism are examples of how healthcare is becoming increasingly globalised. Both forms of cross-border care introduce some risks but may also generate efficiencies in healthcare.”

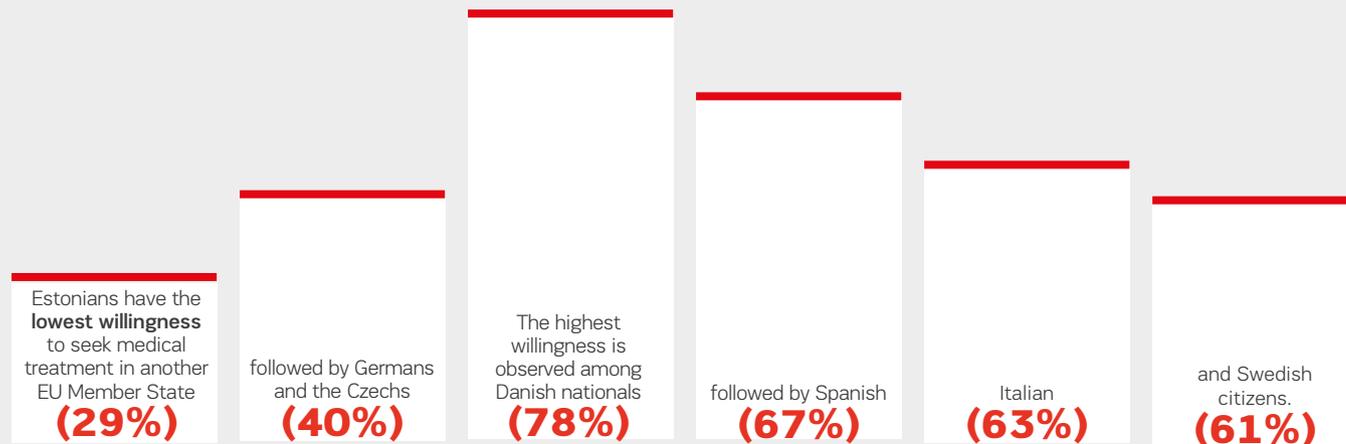
Source: Canadian physicians' responses to cross border health care (2014) <https://iii.hm/61t>

TOP SERVICES FOR MEDICAL TRAVELLERS

- Cosmetic surgery
- Dentistry
- Cardiovascular
- Orthopaedics
- Cancer
- Reproductive
- Weight loss
- Scans, tests, health screenings and second opinions



Source: Patients Beyond Borders (2016). Medical tourism statistics & facts <https://iii.hm/61r>



Source: European Commission Consumers, Health and Food Executive Agency Impact of information on patients' choice within the context of the Directive 2011/24/EU of the European Parliament and of the Council on the application of patients' rights in cross-border healthcare (2014). <https://iii.hm/61v>



2017 AND BEYOND

THE FACE OF HEALTHCARE

Healthcare is at an exciting yet vulnerable crossroads. Technology is being implemented for everything from diagnosis to workflow solutions and more and more providers and professionals are joining forces in order to deliver the best care possible. With changes coming fast and furious, what do healthcare experts across the spectrum see ahead and how can the changing landscape be navigated for best financial management, happy staff and optimal outcomes? Also, what trends are ahead for patient care and education? HealthManagement.org collected the opinions of our valued Editorial Board members and contributors who gave us their expert views on healthcare in 2017 and beyond.

“ There'll be more uptake of population health management, to assess and proactively manage our health risks through the whole life-course. With integrated care, we'll support multi-disciplinary teams using real-time, shared care plans. People will increasingly become co-creators of their own health, and they'll gain enhanced self-knowledge by tracking their health numbers (data). Our older adults will now age well in place in our communities, fully supported by new services and social innovations to maintain independence for longer.

Technology-wise, we'll begin to make better use of the Internet of Things (sensors; wearables; ambient intelligence) to keep us safe and make better health choices. We'll begin to liberate our health and care data, and put it to work for our benefit; clinicians will rely more on artificial intelligence and machine learning to make better decisions in the face of complexity; and anti-stress, mindfulness technologies will be a new area for exploration.

Increasingly, companies and health authorities will be partnering to bring improved healthcare to people and society, but also to enhance our local, national and European economies.”

John Crawford

President, EHTEL and Healthcare Industry Leader, Europe/IBM Industry Academy Leader

Beyond the impact of the U.S. Presidential Election on healthcare, the other dominant threads are the continuing consolidation of healthcare organisations — including health systems, insurers and more. In 2017, I think everybody will take a deep breath and try to figure out how exactly they're going to manage their new organisations (many with a variety of new partners) to deliver value. And of course 2017 will take us even closer to nearly complete digitisation of healthcare — we'll be near 100 percent EHR penetration in hospitals, and more than 80 percent in physician offices. We'll make more (incremental) progress on interoperability, and so we'll move toward a more holistic digital experience, in which patient-facing tools (sensors, websites, apps) start to integrate more seamlessly with enterprise EHRs.

Finally, physician burnout will continue to be a major theme, with more effort going into reclaiming joy in practice.

Robert Wachter

Professor and Interim Chair of the Department of Medicine, University of California, San Francisco

“ While presenting at several auditing conferences this year, I learned that governance and organisational structure is usually not audited. I think this should be audited because executive qualifications, accountability, and oversight often are the single most determinants of organisational success. We also need to have healthcare organisations run by healthcare executives who are passionate about improving healthcare instead of financial executives who only care about money.”

Mansur Hasib

Programme Chair of Cybersecurity Technology, The Graduate School of University of Maryland University College (UMUC) & Cybersecurity and Healthcare Speaker & Author

“ The world of healthcare, even focusing only in the European panorama, can be defined as a universe of hundreds of shades of grey due to dozens of different regional situations. There are, however, many common problems and also some similarities in firm goals. One of these is the aim to expand the use of technology from robotics to eHealth and digital technology. Others concern the “patient-centred” model of healthcare service delivery and the aim of changing the nature of the hospital so there are no more silos, but an open community exchanging ideas. I believe that making steps along this road would be the greatest achievement of 2017. To do this, we will need to therefore generate a systemic vision encompassing city, hospitals and health facilities outside hospitals, as part of the ‘web of care’. Only people with acute problems will need hospitalisation and ‘light’ health services will provide the support for self-sufficient elderly and chronic illnesses management. ”

Simona Ganassi Agger

Chairman of the Board, European Health Property Network, EuHPN

Healthcare Education Online

Providing healthcare professionals such as nurses with online courses is a cheaper option for the student than attending a bricks-and-mortar educational establishment. For instance, a Doctor of Nursing Practice (DNP) can take on many of the tasks of a higher-paid doctor while being paid considerably less. Distance DNP training is example of education that reflects a growing trend in online medical learning. The number of online graduate schools are rising. This is a market trend to keep an eye on.

Source: wallstreet.com. <https://iii.hm/6c4>

“ 2017 will see a focus on lipid-lowering therapies, improvement of left ventricular assist devices and novel strategies in treating heart failure patients. Also important will be TAVI for the medium-risk patients, interventional mitral-valve implantation and novel anti-diabetic drugs. ”

Tienush Rassaf

Editor-in-Chief, Cardiology, HealthManagement.org & Department Head and Chair of Cardiology, Westgerman Heart- and Vascular Center

In coming years, the healthcare team will differ greatly compared to today. Some of the reasons for this include the movement to population health, prevention and wellness and localised and personalised care. Cheaper approaches to treatment will also play a part. One thing is for sure: the changes will call for a new spectrum of professionals beyond the traditional nurse and doctor.

Source: HFMA. <https://iii.hm/6cf>

As with finance, supply chain and design, Big Data is helping sort through large amounts of historical clinical data to aid with the identification of past health patterns. This makes conditions and treatment easier to predict. Data analytics and predictive analytics especially will explode in the next few years. Many experts describe Big Data as being in its infancy and as having huge potential when it grows to adulthood.

Source: HFMA. <https://iii.hm/6cf>

“ What will be important in 2017 is value-based imaging: demonstrating the added value of imaging, developing imaging-centred patient management and transforming it into measurable metrics, artificial intelligence, deep learning, computer cognition, clinical decision support for the referring physicians and radiologists and CAD implementation. ”

Lluís Donoso

Editor-in-Chief, Imaging, HealthManagement.org; Head of Diagnostic Imaging - Hospital Clínic of Barcelona, University of Barcelona; Past President, European Society of Radiology

When I think of key developments for healthcare, some of them appear to me to be expected; advances on genome tests, gene editing techniques, artificial Intelligence, smart sensors... and many more. But my main thoughts and concerns come from our current situation. What I mean is there is a framework lack when we pay attention to social (increased inequalities), political (the populism menace), cultural (absence of values) and low economic growth for the current environment and for future perspectives. How are innovators going to develop their projects beyond ingenious apps? How are these innovations going to be led and supported? There are hard times ahead for organisational change that will need strong leaders. Big industrial companies are planning strategies to overcome the situation, but the public / private healthcare systems - immature industries in my view - are they going to be capable?

Josep Picas

President - European Association of Healthcare IT Managers



THE CONTINUOUS IMPROVEMENT TEAM

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The Importance of Team Work in Healthcare

The challenges of organising healthcare in a public hospital are considerable. The best and most cost-effective outcomes are achieved when professionals work together, learn together, deliver and implement innovations for higher quality patient care. The Continuous Improvement Team at Papageorgiou Hospital in Thessaloniki, is a cross-departmental team, with the objective of solving simple and complex interdisciplinary problems and making suggestions for continuous improvement of processes.

Continuous Improvement Process

The process of continuous improvement is based on simple mechanisms of the human brain, where thoughts and actions are organised in such a way that an action "triggers" a thought, a feeling and vice versa. If the brain of all employees is geared to find solutions instead of problems, then a huge step towards success has been achieved (Goetsch,D., Davis,S. 2010). Continuous improvement should be a perpetual effort, which eventually becomes part of everyday culture.

In order to achieve this, people need to be given incentives to encourage creativity and innovation in all sectors, to have space for experimentation without criticism, opportunities for expression and tolerance of a number of errors as a normal consequence of the learning process and development. The incentives do not always have to be economic. The work itself can be designed in such a way so as to offer an approach of pleasure and creativity.

Kaizen

The Japanese word *kaizen* in free translation means "improvement" and it refers to the philosophy of continuous search for better ways to achieve what we do through a collective process. The Kaizen organisation model was applied for the first time at the Toyota plant in Japan in the early 50s, and later it was adopted successfully by other large companies (Creative Safety Supply 2010). The law of continuous improvement (the Kaizen principle) says simply that everything can be improved even though "it already works well". Everything can become even better, cleaner, of better quality, cheaper, faster, safer, more beautiful and more efficient. There is always room for improvement in all areas and we have to seek and find them.

The adoption of the Kaizen model indicates efforts to improve procedures, with minor but essential changes, with modern commitment to obtain excellence through continuous monitoring and improvement of workflow, day after day, without costly solutions (Hassan A. Tetteh 2012). The basic principle is the achievement of small, direct improvements in processes and workplace standards, with modern restriction of "trash", meaning actions which do not add value. In the long run, all these small added changes lead to better working conditions, higher safety, greater efficiency and ultimately greater benefits.

In a successful Kaizen process, management and employees work together to obtain the desired improvement. Employees do not just express their ideas. They get involved in the actual implementation and evaluation of results. Managers do not just assign activities to improve the staff. They participate and are involved as coaches, facilitators and leaders. This is a team effort. The application of the model changes for the future the manager-employee relationship. The job of the manager is now to motivate and inspire his or her people.

Kaizen and Healthcare

Scientists, studying the quality of healthcare from the late 80s, found that the Kaizen model could be applied to other sectors, apart from industry. It became obvious that one of the biggest obstacles to the effective implementation of healthcare systems was the lack of respect for employees, which caused frustration and lack of commitment of the staff.

One peculiarity regarding the implementation of the model in the healthcare system, is the fact that management cannot require employees simply to reduce costs. The cost reduction, as primary objective, does not "inspire" health professionals (Mark Graban (2014). On the contrary, they get excited when the target is to reduce the risk or trauma to the patients, improve satisfaction of patients and attendants and the reduction of frustration and conflicts that they have to face daily. Specifically, nurses constitute the group of staff that can greatly contribute to improving health services. Being involved in the continuous care of patients, they are able to make great changes and bring about improvements in the procedures, which will lead to better quality services and more generally, to significant progress in the health sector (Domingo R. 2003).

Countless improvements can take place in healthcare facilities for the benefit of patients and their families, for the staff and physicians and significantly and measurably, for the health system itself (Bandyopadhyay J.,Coppens K. 2005).

The Continuous Improvement Team of Papageorgiou Hospital

The name of the team is inspired from the philosophy of Kaizen (Kai = change, Zen = good) and there is a clear influence of a Japanese organisational model as philosophy and practice. The main element of the group culture is the pursuit of continuous improvement that leads to excellence. This means many small, fast and steady improvements with the overall participation of employees, from managers to ordinary staff.

This team acts as a "quality circle" and comprises different employees (cross- functional team) who have different knowledge and skills. Its aim is to solve complex interdisciplinary problems involving employees from all departments and to implement of proposals for improving the daily functioning of the hospital.

Through the technique of brainstorming, each team member submits new proposals and ideas for evaluation, discussion, processing, approval or rejection, aiming for the continuous improvement of processes and labour standards.

Solutions are proposed, whether simple or innovative, regarding procedures, planning, technology, or whatever else contributes to improve the effectiveness, efficiency and quality of services provided in Papageorgiou Hospital. But the most important thing is that they arise from employees of the first line, adding value to their work and exempting them from the "garbage" activities. Nothing is imposed from "top" to "below", but essentially ideas are suggested by the staff that cope with the problems on a daily basis and therefore, have full knowledge of the issue.

Conclusions

Kaizen means improvement-change for the better. It includes small steady steps for long periods, with minimal cost. Any change for the better is a strategy, a philosophy that runs throughout the structure of the organisation.

It is a long road to improvement, that must be followed by all employees, with common concepts and a team spirit, a journey without end that leads to excellence.

The employees participating effectively in improving processes collect benefits and optimise unexploited potential

Problems the Kaizen Method Has Solved at the Papageorgiou Hospital

Department Rules and Regulations: Regulation manuals have been issued for various departments (such as Surgery, Oncology, Emergency etc.). Working groups have been appointed to ensure that all rules are properly implemented.

Oncology department: Reduction of time of patients' stays, acceleration of all laboratory procedures, improving patient quality.

Reducing Bureaucracy: Improvement and replacement of bureaucratic procedures, resulted in increasing employee productivity. "Best practices" have been implicated under SAP ERP system. "One stop patient service" has been established.

Go Green: Implementation of proposals concerning energy and resources. Organisation of staff training and awareness actions and Eco-Week event.

Reduction in the number of laboratory and imaging examinations: Use of repeat testing interval international guidelines and staff training and awareness actions.

Key Points

- ✓ Continuous Improvement through the philosophy that everything can always be better
- ✓ Kaizen is Japanese word meaning 'change' and 'good'
- ✓ Focusing on the qualitative rather than quantitative motivates staff
- ✓ Kaizen is based on multidisciplinary collaboration

while through these actions, unnecessary handling is reduced ("the garbage", according to Kaizen concept) saving resources and improving efficiency.

The Continuous Improvement Team represents a pioneering creative energy management in a Greek Public Hospital. During the short time it has been operating, it has solved several major and minor problems, by endeavoring continuous efforts for continuous improvement of the everyday work. ■



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PATIENT IDENTIFICATION

EXECUTIVE SUMMARY



ECRI

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For its fifth Deep Dive analysis of a patient safety topic, ECRI Institute PSO selected patient identification. Safe patient care starts with delivering the intended interventions to the right person. Yet, the risk of wrong-patient errors is ever-present for the multitude of patient encounters occurring daily in healthcare settings.

Many patient identification mistakes are caught before care is provided, but reports submitted to ECRI Institute PSO illustrate that others do reach the patient, sometimes with potentially fatal consequences.

In addition to their potential to cause serious harm, patient identification errors are particularly troublesome for a number of other reasons, including:

- Most, if not all, wrong-patient errors are preventable.
- Incorrect patient identification can occur during multiple procedures and processes, including but not limited to patient registration, electronic data entry and transfer, medication administration, medical and surgical interventions, blood transfusions, diagnostic testing, patient monitoring, and emergency care.
- Patient identification mistakes can occur in every healthcare setting, from hospitals and nursing homes to physician offices and pharmacies.
- No one on the patient's healthcare team is immune from making a wrong-patient error. Mistakes have been made by physicians, nurses, lab technicians, pharmacists, transporters, and others.
- Many patient identification errors affect at least two people. For example, when a patient receives a medication intended for another patient, both patients—the one who received the wrong medication and the one whose medication was omitted—can be harmed.

Given that correct patient identification is fundamental to safe care, the Joint Commission has made accurate patient identification one of its National Patient Safety Goals since 2003 when the first set of goals went into effect. The Joint Commission is not alone in advocating for safe practices to ensure correct patient identification. The National Quality Forum lists wrong-patient mistakes as serious reportable events and also considers patient identification as a high-priority area for measuring health information technology (IT) safety. Even the media has called attention to the issue. Of the 25 “shocking medical mistakes” listed by cable news network CNN in 2015, at least 6 involved wrong-patient errors. Despite the attention given to correct patient identification, mistakes continue to occur.

Understanding Patient Identification

ECRI Institute PSO uses the following definition of “patient identification,” adapted from the Australian Commission on Safety and Quality in Health Care:

Patient identification is the process of correctly matching a patient to appropriately intended interventions and communicating information about the patient's identity accurately and reliably throughout the continuum of care.

As shown in **Figure 1**, patient identification occurs throughout the patient's encounter in the care continuum. ECRI Institute PSO developed a care process map to conceptualise a patient's movement through any healthcare setting and to show key points when patient identification is necessary.

The patient's care process involves three distinct phases for analysing patient identification events:

- Intake (ie, registration, scheduling)
- Clinical encounter (eg, diagnosis, treatment, monitoring, discharge/visit completion)
- Post-encounter (eg, referrals, health information exchanges, electronic prescribing)

“MOST, IF NOT ALL,
WRONG-PATIENT ERRORS ARE
PREVENTABLE”

Underlying all three phases is physical identification of the patient using at least two patient identifiers as well as various technologies with features that facilitate patient identification. These technologies include electronic health records (EHRs), computerised provider order entry (CPOE) systems, barcode scanners, physiologic monitors, electronic prescribing capability, and more. While the inappropriate use of these technologies can contribute to wrong-patient errors, when used properly these systems also play a role in preventing identification mistakes.

What ECRI Institute PSO Found

For its Deep Dive on patient identification events, ECRI Institute PSO analysed 7,613 events submitted by 181 healthcare organisations. ECRI Institute PSO conducted a keyword search of its event report database to find

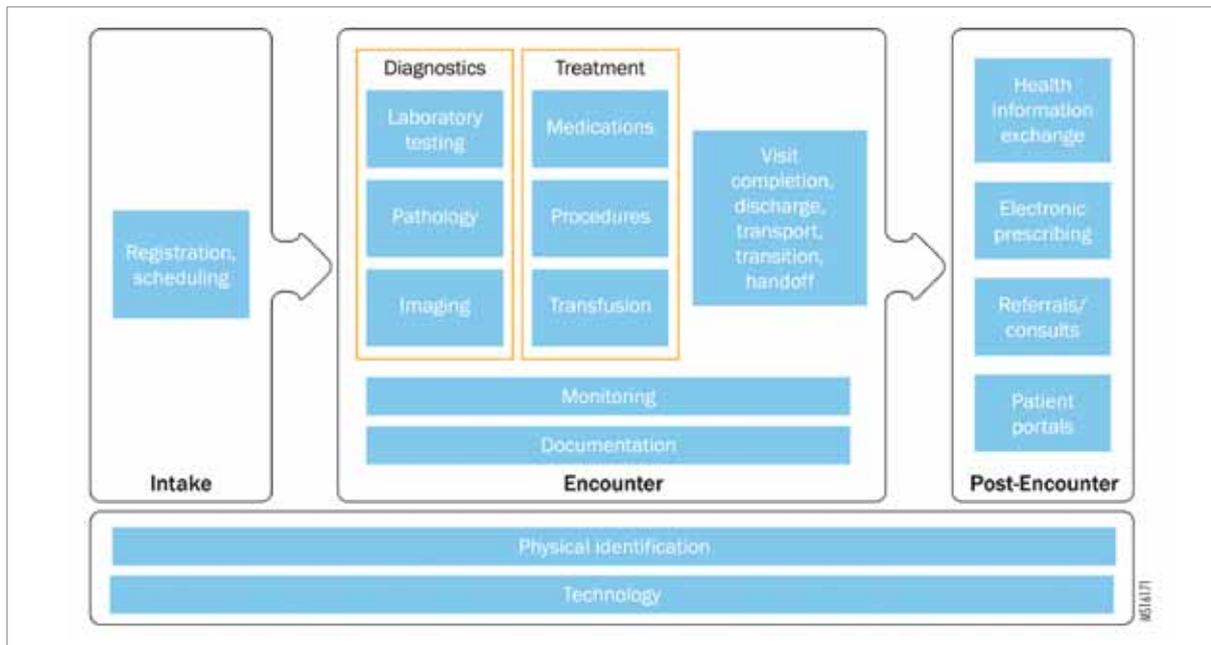


Figure 1. Patient Identification Care Process Map

events involving patient identification occurring over the 32-month period from January 2013 through August 2015. The term “event” includes near-miss events (events that are detected before reaching the patient) as well as events that reach the patient, some of which cause harm. We also asked member organisations and partner PSOs to submit at least 10 events related to patient identification during a six-week call to action (June 18 to July 31, 2015). We collected 10,915 events from these initiatives.

ECRI Institute PSO analysts individually classified each of the events using a unique taxonomy developed by the PSO for analysing patient identification events. Of the 10,915 events, the analysts eliminated 3,302 reports that were not wrong-patient events and classified the remaining 7,613 events using the patient identification event taxonomy.

The taxonomy assigns a failure mode associated with each event. Some of the events had more than one failure mode, resulting in 7,740 failures identified from the 7,613 events.

Examples of wrong-patient events submitted to ECRI Institute PSO by healthcare organisations are listed in “Sample Wrong-Patient Events.” The events occurred in a wide range of settings.

The events describe an array of factors that can contribute to wrong-patient errors, such as the following:

- Admitting a patient under another patient’s medical record or creating duplicate records at registration
- Using a room number or bed assignment to identify a patient who has been moved to a different room or bed
- Asking a patient to confirm his or her name (“Are you Mr. X?”) instead of asking the patient to state his or her name (“Tell me your name.”)

Sample Wrong-Patient Events from ECRI Institute PSO’s Database

- **Medical-surgical unit:** A patient in cardiac arrest was mistakenly not resuscitated because the care team pulled up the wrong patient’s record and adhered to a do-not-resuscitate order.
- **Surgery:** A cardiac clearance meant for a different patient was given to a patient who previously had an abnormal electrocardiogram. The patient underwent surgery and was found unresponsive in his hospital room the next day.
- **Dietary:** The wrong meal tray was given to a patient with a nasogastric tube who was not to receive any food or fluids orally. The patient attempted to eat the food and choked.
- **Diagnostic imaging:** The wrong patient was taken to the radiology department for a magnetic resonance imaging exam with general anaesthesia. The patient was intubated and sedated before the error was caught.
- **Pharmacy:** A patient received a different patient’s hypertensive medication, at 10 times the intended dose. The patient was admitted to intensive care for hypotension.
- **Maternity ward:** An infant received another infant’s breastmilk. The mother who produced the breastmilk was infected with the hepatitis B virus, so the infant had to be treated with hepatitis B immune globulin.
- **Doctor’s office:** The wrong patient was marked as deceased in the doctor’s office’s electronic health record. All her outstanding appointments were automatically cancelled. When the patient arrived for a previously scheduled appointment, she was not happy that all her appointments had been cancelled.
- **Eye clinic:** Two patients with the same first name were scheduled for cataract surgery. The wrong patient was brought into the operating room and received the lens implant intended for the other patient.
- **Nursing home:** A patient from a nursing home was scheduled for a computed tomography scan at an affiliated hospital. The wrong patient (who had a similar name) was picked up from the nursing home, taken to the hospital, and underwent the exam.

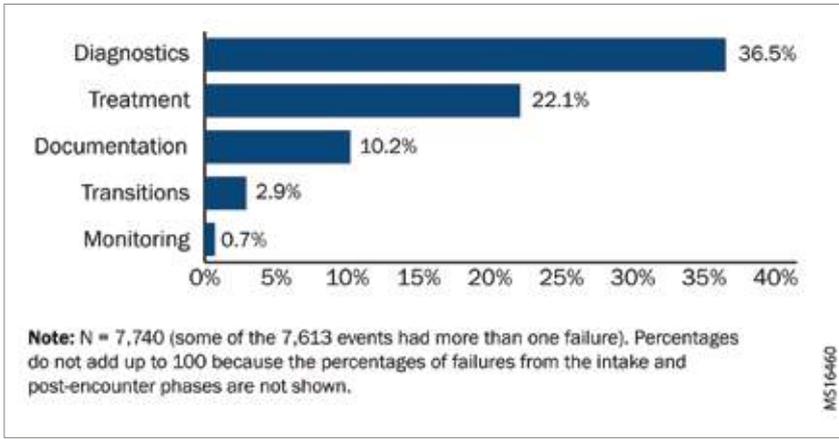


Figure 2. Patient Identification Failures: Encounter Phase

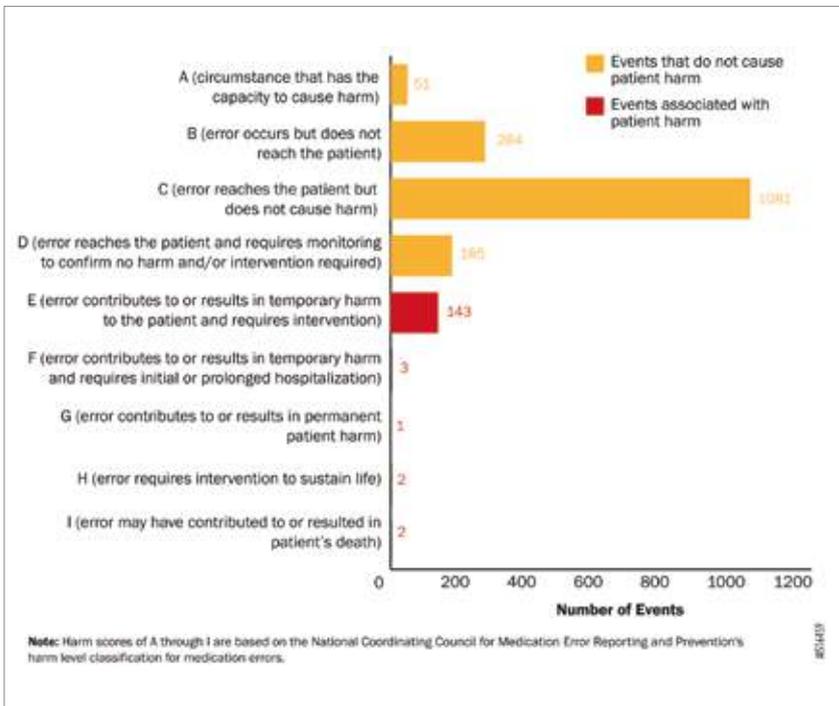


Figure 3. Patient Identification Events by Harm Score (N = 1,752)

- Relying on patients with impaired ability to confirm their identifying information

Analysis

Among the results from the analysis, ECRI Institute PSO found the following:

- The majority of the failures (72.3%) occurred during patient encounters; another 12.6% occurred during the intake process. Very few failures were identified during the post-encounter phase.
- More than half of the failures involved either diagnostic procedures (2,824 or 36.5%) or treatment (1,710 or 22.1%). Diagnostic procedures cover laboratory medicine, pathology, and diagnostic imaging. Treatment covers medications, procedures, and transfusions. (See Figure 2.)
- The majority of the events for which a harm score was provided were caught before they caused any harm (1,601 of 1,752 events, or 91.4%). (See Figure 3.)
- The two wrong-patient events associated with patient deaths involved documentation failures; in one event, the wrong patient record was accessed, and in the other event, the wrong patient's documentation was used to give another patient clearance for surgery.
- Wrong-patient events involving physical identification of patients constituted about 15% of all the failures identified; most of these events fell into three categories: wristband missing, patient identity not verified, or wristband identifiers incorrect.
- Almost 15% of events (1,148) were associated with technology contributing to patient identification errors.

Key Recommendations

Leadership

- Communicate to staff the expectation that patient identification is essential for safe care and is an organisational priority.
- Ask questions about the organisation's patient identification practices and experiences (eg, what adverse events and claims activity at the organisation are related to patient identification processes?) to identify strengths and opportunities for improvement.
- Provide support for the organisation's patient identification improvement initiatives to mobilise the many stakeholders who contribute to the efforts and to provide the necessary resources and staff to support the initiatives.

Policies and Procedures

- Examine the organisation's work processes—for example, conduct a failure mode and effects analysis—to uncover any latent system-wide problems with patient identification; the Deep Dive analysis found that lapses in adhering to an organisation's

- Pulling the medical record of a patient with a name similar to that of the intended patient
- Entering orders in the wrong patient's chart
- Asking about the patient's identity without using two acceptable identifiers or checking the patient's identification band
- Administering a patient's medications before confirming the patient's identity with barcode scanning
- Retaining previously recorded patient demographic data when a new patient is connected to physiologic monitoring equipment, or matching portable telemetry equipment with the wrong patient

patient identification policy were a contributing factor for events that led to patient harm.

- Adopt a standardised protocol to verify a patient's identity; ensure that the policy and procedures spell out the details for patient identification (eg, which identifiers to use and when).
- Ensure that all staff who have duties relating to patient identification receive training about the policy and the importance of adhering to the procedures for patient identification.
- Share with staff wrong-patient events that have occurred at the facility to drive home the message that patient identification errors can happen and may have serious consequences.

“ORGANISATIONS MUST ADOPT A MULTIPRONGED APPROACH TO PREVENT WRONG-PATIENT MISTAKES”

Patient and Family Engagement

- Engage patients and their family members in patient identification by explaining the purpose of the organisation's approach to patient identification and emphasising patients' and family members' roles in ensuring correct identification.
- Encourage patients to speak up if staff do not ask for patient identifiers or if they are approached for unexpected tests or treatments.
- Enable patients to view and access information about their hospital admission and physician visits from a secure patient portal. Ask patients to speak up if information is missing or incorrect; errors may be the result of a patient mix-up.

Patient Registration

- Support registration staff with clearly defined policies and procedures for the registration process; otherwise, incorrect patient information introduced at registration can compromise quality of care throughout the patient's course of treatment if the mistakes are not identified and corrected.
- Consider supplementing the registration process with biometric methods to improve patient identification.
- Foster a work environment that supports registration staff and values their contribution to patient safety through accurate patient identification.
- Implement a quality assurance plan using metrics such as duplicate record and record overlay rates to monitor the patient registration process, and share

the results with registration staff.

- Monitor various public and private initiatives to improve patient record matching and to promote information exchange between organisations.

Standardise and Simplify

- Adopt standard features for patient identification bands (eg, information display, location of patient name) to improve usability and readability.
- Ensure that the Joint Commission Universal Protocol to prevent wrong-person procedures, including the time-out protocol, is uniformly applied and consistently used by all providers.
- Provide a list of invasive procedures performed outside of the operating room (eg, biopsy, injections into a joint space or body cavity, insertion of central vascular access device) that require application of the Universal Protocol to prevent wrong-patient errors.

Technology

- Ensure the safe use of patient care technology to prevent wrong-patient mistakes; adopt measures to prevent patient mismatches that occur when patient information is incorrectly recorded in bedside equipment, such as point-of-care tests and physiologic monitors.
- Consider technology, such as barcoding or radio-frequency identification, to support patient identification, while addressing its limitations.
- Adopt a well-defined approach to evaluate and implement safety-enhancing technologies and to monitor their use after implementation to achieve their full benefit; otherwise, technology can contribute to errors if it is poorly designed, staff do not know how to use it correctly or optimally, or staff perceive it as interfering with their workload.
- Incorporate strategies to improve the usability of health IT systems and to minimise the risk of human error; incomplete approaches to the planning, implementation, and ongoing use of health IT can lead to unintended consequences such as mistakes in managing patient records and data.
- Clearly display attributes used in patient identification (eg, last name, first name, date of birth, calculated age, gender, medical record number) across all health IT applications, and include a banner or header with at least two patient identifiers in every display, view, or screen in the electronic health record.
- Display patient names on adjacent lines of a computer screen in a visually distinct manner to reduce the likelihood of selecting the wrong patient name.
- Harness the functions of health IT to support patient verification processes (eg, use patient verification decision support; embed patient photographs in records).

Event Reporting and Response

- Foster a culture in which staff recognise the importance of reporting events and near misses involving identification errors as part of the organisation's overall commitment to safety.
- Analyse events identified by incident reporting in a structured, step-by-step investigation to identify the process breakdowns that cause people to make errors.
- Use the information learned from event reports to improve patient identification and provide feedback to staff on improvements that are made as a result of their event reporting.
- Conduct proactive risk assessments to uncover latent system-wide problems contributing to wrong-patient errors, as well as problems that are specific to particular departments or settings, such as nurseries, emergency departments, or behavioral healthcare settings.
- Conduct periodic audits of patient identification processes (including electronic processes) to monitor and detect trends in compliance.
- Provide reports to senior leaders and board members on the effectiveness of patient identification initiatives to sustain the organisation's commitment in this area.

Conclusion

ECRI Institute PSO's Deep Dive analysis of wrong-patient events shows that the risk of errors is ever-present for the multitude of patient encounters occurring daily in healthcare settings.

These events occur during multiple procedures and processes and can involve nearly anyone on the patient's healthcare team. As a result, no single strategy can prevent these events; instead, organisations must adopt a multi-pronged approach to prevent wrong-patient mistakes.

The report discusses patient identification strategies involving policies and procedures, registration, standardisation, technology, patient and family engagement, and event reporting and response. Crucial to the success of these strategies is the role of senior leadership in supporting initiatives to improve patient identification and to ban what one researcher calls a "culture of low expectations." Patient identification must occur with every encounter and procedure. Staff cannot become lax and adopt unsafe habits by skipping patient identification. The leadership team must clearly communicate to staff that following patient identification practices is a top priority.

Several ECRI Institute PSO members and collaborating organisations shared their stories for this report about wrong-patient events and the steps they took to improve patient identification. Their experience makes clear that wrong-patient errors can be prevented, starting with an organisational commitment to improve. ECRI Institute PSO encourages all healthcare organisations to consider the recommendations of this report in order to deliver safe, high-quality patient care. ■



ECRI Institute, a nonprofit organisation, dedicates itself to bringing the discipline of applied scientific research in healthcare to uncover the best approaches to improving patient care. As pioneers in this science for nearly 45 years, ECRI Institute marries experience and independence with the objectivity of evidence-based research.

ECRI's focus is medical device technology, healthcare risk and quality management, and health technology assessment. It provides information services and technical assistance to more than 5,000 hospitals, healthcare organisations, ministries of health, government and planning agencies, voluntary sector organisations and accrediting agencies worldwide. Its databases (over 30), publications, information services and technical assistance services set the standard for the healthcare community.

More than 5,000 healthcare organisations worldwide rely on ECRI Institute's expertise in patient safety improvement, risk and quality management, healthcare processes, devices, procedures and drug technology. ECRI Institute is one of only a handful of organisations designated as both a Collaborating Centre of the World Health Organization and an evidence-based practice centre by the US Agency for healthcare research and quality in Europe. For more information, visit ecri.org.uk

Note

The full report, which includes an accompanying staff handout *What Can You Do to Ensure the Right Patient Every Time* and an illustrated glimpse of how new technologies to improve patient identification might be used in a fully equipped hospital of the future, is available on request from Philip Hodsman, European Business Development Manager, ECRI Institute European Office, phodsman@ecri.org.uk.



AUTOMATED EXTERNAL DEFIBRILLATORS

EXECUTIVE SUMMARY

Cardiac arrest, or the sudden and abrupt loss of heart function, is a leading cause of death in the United States. According to the American Heart Association (AHA), about 326,200 out-of-hospital cases of sudden cardiac arrests occur annually in the United States; less than 10% of those victims survive (Mozaffarian et al. 2015). Some cardiac arrests are caused by "shockable rhythms" and may therefore respond to automated external defibrillation.

Because death can occur quickly, AHA recommends that defibrillation begin within three to five minutes of arrest for out-of-hospital cardiac arrest or within two minutes for in-hospital cardiac arrest. Studies suggest that delays occur in responding to patients' cardiac arrest and that these delays can reduce the likelihood that patients will survive. In fact, AHA states that, for every minute that passes without defibrillation, a victim's chance of survival decreases by 7% to 10% if no cardiopulmonary resuscitation (CPR) is available and by 3% to 4% if bystander CPR is available (AHA 2012; Morrison et al. 2013)

AHA's combined 2010 and 2015 guidelines on emergency CPR stress the importance of using automated external defibrillators (AEDs) as a way to facilitate early defibrillation. According to AHA, in instances of cardiac arrest in which an AED is immediately available, defibrillation should be administered as soon as possible, as opposed to administering chest compressions first (AHA 2015)

In hospitals, AEDs may be particularly helpful in areas where staff do not have rhythm recognition skills and would not be able to use manual defibrillators, as well as in areas where defibrillators are infrequently used. Healthcare facilities must ensure that healthcare workers and other staff who may activate AEDs are aware of their locations and are properly trained in their use, that quality improvement processes are in place to monitor resuscitation efforts, and that AEDs are properly managed.

Action Recommendations

- Assess in-hospital and off-campus response times to cardiac arrest. Identify situations that may contribute to delays in response.

- Ensure that response processes for in-hospital and out-of-hospital cardiac arrest enable victims to receive a first shock in the AHA-recommended time frames.
- Decide whether AEDs will be deployed in the facility and at off-campus sites.
- Decide which AED features would be most desirable for the organisation's intended use, and purchase devices accordingly.
- Ensure that the AED programme is overseen by a medical director or an appropriate group within the healthcare facility, such as the CPR or code blue committee. The individual or committee should serve as the "champion" for the facility's AED strategy.
- Arrange training for staff in accordance with AHA standards or other standards as designated by state law for all AED users. Plan refresher training at least annually.
- Establish policies and procedures for AED use in children one year of age or older following recommendations from AHA.
- Require postevent documentation and reporting consistent with the Utstein style for quality improvement purposes.
- Ensure appropriate medical review of documentation for each event, and, if necessary, identify strategies for improvement.
- Ensure that preventive maintenance of AEDs is regularly scheduled as recommended by the device manufacturer, and require that the organisation's hazard and recall management programme effectively address safety alerts and advisories for AEDs.

Note

The full Healthcare Risk Control report on AEDs is available on request from Philip Hodsman, European Business Development Manager, ECRI Institute European Office, phodsman@ecri.org.uk. ■



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See page 348 for more about ECRI



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SUPPLY CHAIN MANAGEMENT CHALLENGES IN CANADA

FOCUS ON KEY INTERPERSONAL SKILLS

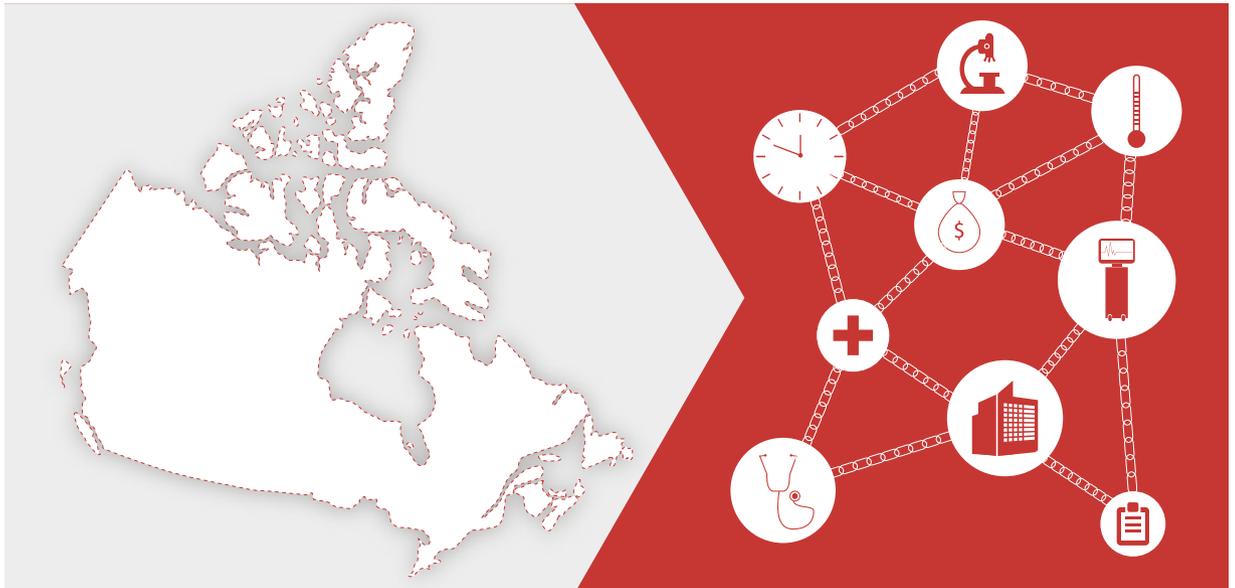


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Overview

Managing a supply chain efficiently and effectively is tremendously challenging in any industry. Time and financial constraints combined with operational dependency on inputs to produce outputs required by buyers is extremely difficult. A publicly-funded supply chain, as in Canada's healthcare industry, makes it even harder to achieve the desired outcomes.

Of course the health and wellbeing of millions of Canadians depend on the country's healthcare supply chain. However, the resources available are being further restricted while at the same time the number of patients and patient care needs are increasing dramatically. The demographics of an ageing population, the use of modern technology, the customisation of healthcare and the spread-out population of Canadians puts the healthcare supply chain under tremendous pressure.

This convergence of issues highlights the need to make the interpersonal skills of healthcare supply chain professionals of paramount importance. There are many technical problems that must be solved and/or resolved through the sharing of leading practices, the networking of industry professionals, and the training of front-line practitioners.

Some of the key current challenges in Canada's healthcare include:

- an ageing population increasing the demand of services but also meaning retirement of experienced healthcare employees

- financial pressure due to the need to rein in healthcare spending
- changes to the budgeting system of healthcare in Canada
- technological innovation in care and recovery

Healthcare supply chain management practitioners in Canada have to work and succeed within this environment. The need to communicate effectively (precisely and in a timely manner), negotiate creative solutions, resolve conflict and take initiative are all becoming more and more important. The 'old' way of doing things has to change to keep up with the dynamic landscape in Canada's healthcare industry.

Context

Typically, the supply chain management industry is characterised by the movement of goods from raw materials to manufactured items to end users. The stakes are raised when the end users are patients with compromised health and the goods are not just commodities but medical devices, tests and diagnostic imaging. The additional risk of an inefficient supply chain necessitates clear, concise and frequent communication in the healthcare industry.

Working in Canada's healthcare supply chain management industry, one has first-hand observation of the dedication and resourcefulness of people in this field. Although some of them 'fell into the supply chain', meaning that their decision was not intentional, once they were in Canada's healthcare

supply chain, they invested their time and energy into it. In an industry with a near zero margin of error allowable, there can be seen an abundance of collaboration, teamwork and support among supply chain partners.

The question has been raised as to why there exists such cooperation between publicly-funded and for-profit organisations. It has been suggested that due to a common experience of enduring hardships, Canada's healthcare supply chain organisations have had to develop close relationships to be able to be successful. With a more limited number of suppliers than in countries like the United States, with far fewer people than in most countries and with a rugged landscape and weather trends, Canada is not an easy place to manage a supply chain. Layered on top of these challenges is the fact that the funding is not tied to the market but rather to a fixed budget.

Communication, Negotiation and Leadership

Key skills that have risen to the top are communication, negotiation and leadership. Without these interpersonal competencies, not only will the jobs of professionals not get done, the needs of the patients will not be met. There are numerous reasons why a 'rush order' has to be made or hospitals cannot pay their suppliers as quickly as expected, but through personal relationships, Canada's healthcare supply chain continues to provide the goods and services to patients.

Communication is critically important in any service role and becomes even more critical when it involves the healthcare of patients. This is most evident in the interaction between clinician and patient. The supply chain must be precise in what both clinicians and patients need in order to provide the quality healthcare that is expected and safe.

Negotiation is the frequent navigation between competing interests, timelines and priorities. Again in healthcare, this decision-making and conflict resolution requires careful consideration of the various perspectives and of what will satisfy as many of the stakeholders as possible.

Leadership can be defined in many ways but 'leading by example' in serving others seems to be most appropriate in regards to patient care. In a service industry such as healthcare, everyone helping out is the only way to make the system cost-effective, timely and of the highest quality possible.

Professional Development in Canada's Supply Chain

There are a number of industry associations providing professional development opportunities. The Supply Chain Management Association (SCMA) is a leading professional association in Canada that provides workshops in key interpersonal skills. In fact, communication, negotiation, and leadership are part of six workshops and eight modules (courses) that make up the core of one of the designation programmes in Canada's supply chain industry.

While this training is not unique to healthcare, many healthcare professionals have completed it or are in the process of completing it. Furthermore, the SCMA has worked with a healthcare supply chain management association, the

Healthcare Supply Chain Network (HSCN), to provide training to supply chain professionals in that industry. In other words, there is a recognition that skills need to be taught from the broader supply chain context but with industry specific issues. Interpersonal skills are important across all industries but there are nuances within each industry that warrant additional focus.

The approved budget for training in Canada's healthcare organisations is limited, especially over the last number of years due to a need to curtail spending. However, individuals are still receiving training in critical skills through a variety of service providers. This trend is likely to continue as professionals recognise the need for continuous improvement in their own abilities, and if they have teams working for them, they recognise this need in the team members also. The technical skills of succeeding in Canada's healthcare supply chain management profession are significant. However it is the interpersonal skills that ultimately permit the flow of goods and services to the clinicians and the patients at the right time at the right cost and in the right way. ■



Key Points

- ✓ Canada's healthcare supply chain management industry is extremely challenging
- ✓ The changing dynamics, including demographics, innovation, and fiscal constraints are placing more demands on Canada's healthcare supply chain management professionals
- ✓ Interpersonal skills help these professionals meet service expectations

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Steven is a Professor, Coach and Consultant. Steven also coaches immigrants through the ACCES Employment in the Greater Toronto area and is an Instructor and volunteer for Supply Chain Management Association Ontario (SCMAO). He owns his own business called AIM Performance Consulting that assists individuals and organisations in meeting their potential.

Steven has worked in supply chain management since being a stock boy in a local grocery store and has held a variety of roles such as Account Manager, Business Solutions Advisor, Marketing Representative, Sales Account Manager and Sourcing Specialist.

Additionally, Steven has been on the Board of Directors and the Professional Development Committee for the Healthcare Supply Chain Network (HSCN). Furthermore, he has been a Board member and a member of the Recruitment and Retention Committee for the Canadian Supply Chain Sector Council (CSCSC).



ULTRASOUND

PUSHING THE BOUNDARIES WITH UNCONVENTIONAL TECHNIQUES



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Prof. Dr.-Ing. Georg Schmitz gave the State of the Art lecture at the Euroson 2016 conference on the subject of “More than only echoes - unconventional techniques for ultrasound imaging”. *HealthManagement.org* asked him about his medical engineering research and its potential clinical applications.

What are “unconventional techniques” for ultrasound imaging? Which techniques show promise and for what clinical applications?

Several new methods are in some aspect unconventional. One technique that could change the appearance of ultrasound images fundamentally is based on so-called full-wave reconstruction. This means that the acoustic waves are modelled physically more correctly for the image reconstruction process. For example, we take into account multiple reflections, changes in the speed of sound, and multiple scattering. These effects are neglected in current imaging techniques and therefore artifacts arise in difficult imaging situations. Additionally, first results indicate that these techniques may be able to deliver quantitative data for material parameters like density and compressibility of the tissue, even with today’s standard ultrasound scanners. Currently, these algorithms are computationally too complex to run in real time on standard hardware, but the progress in computational speed as well as in algorithmic development is expected to resolve this issue.

Another unconventional technique is photoacoustic imaging, where absorbed infrared laser illumination generates ultrasound waves that can image light absorption in the tissue. First systems are already available for clinical testing.

In addition, a technique that is close to first clinical tests in research is microbubble tracking using clinically approved contrast agents, where super-resolution techniques similar to optical microscopy are adapted to generate high-resolution images of microvessels.

What techniques have you developed to image microvessels? Will this translate into clinical practice?

For microvessel imaging we use conventional clinically approved microbubble ultrasound contrast agents but unconventional processing techniques: as we can detect and localise single microbubbles even when they pass the smallest capillaries, we can track them. Showing these tracks results in super-resolution vessel images because localisation of single bubbles is possible with about a tenfold higher accuracy than the imaging resolution of the scanner. Additionally, we can measure the velocity of these bubbles and by this capillary bloodflow down to less than 1 mm/s. Currently, this is achieved in small animal studies but we see no reason why this should

not be translated to clinical imaging in the next phase of our German Research Foundation (DFG)-funded project.

What is your research into photoacoustic imaging hoping to achieve?

Photoacoustics is unconventional as it generates ultrasound waves by light absorption of the tissue. It shows a different physical property of tissue, which is also dependent on the wavelength that is used. In the EU-funded FULLPHASE project (fullphase-fp7.eu) we use a point-of-care scanner with four different wavelengths in the infrared range. In this consortium clinical partners hope to achieve for example early diagnosis of rheumatoid arthritis by imaging the increased angiogenesis in the inflamed finger joints, which is potentially more sensitive than power Doppler ultrasound. In the long run penetration depth of the method remains a major issue we plan to address in the EU-funded project CVENT. If a clinical system can achieve an imaging depth of up to 3 cm, important diagnostic questions like the differentiation of vulnerable and stable plaques of the carotid can be addressed.

What is your research into tumour therapy with ultrasonic targeted imaging aiming to achieve?

Ultrasound targeted imaging quantifies the accumulation of microbubbles that attach to molecular markers within the blood vessels. A typical target is VEGFR-2, a receptor linked to angiogenesis. Microbubbles will accumulate in regions of angiogenesis as in tumors and the response to antiangiogenic therapies can be monitored at a very early stage helping in patient stratification. Our work as engineers is aimed at the correct quantification of the concentration of bound microbubbles as this is not simply proportional to image brightness. ■

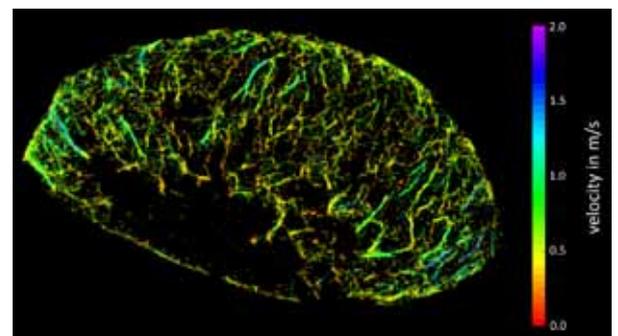


Figure of tumour microvasculature flow velocities of a A431 tumor xenograft in a nude mouse that was acquired in cooperation with Prof. Kießling, University Hospital Aachen, using a Visualsonics Vevo 2100 ultrasound scanner and generated with our microbubble tracking algorithms.

GM85 :

Moving digital X-ray with Samsung's technology

Samsung Electronics' newly launched GM85, a premium mobile digital radiography system, provides advanced mobility, maximized user convenience and a high image quality.

Its ultra-compact design with 555mm narrow width and 349kg light-weight allow easy access around tight spaces, even in elevators. When moving the system in the hospital building, GM85's collapsible column gives users clear visibility and help access anywhere easily. The adaptive soft driving control and automatic front bumper sensor offer safe navigation and an ultimate driving experience.

The system features a multi-touch screen panel, image display screen on the THU (Tube Head Unit), and extensive long tube reach for easier operation. The S-Align displays the detector's angle to the THU for precise alignment, and the quick-positioning function optimizes workflow and decreases fatigue, enabling users to serve

more patients. It can also power up from 0 to 100% in only two to four hours and go on for a full day.

The GM85 goes further from this with advanced imaging which enables more accurate and confident diagnosis. It applies Samsung's advanced imaging engine S-Vue to enhance image sharpness and clarity. The SimGrid is an application which, even without the need of a conventional grid, produces superior image by reducing scatter radiation effects. With the SimGrid, radiographers can provide better patient care and lower retake rates, as it eliminates alignment errors that often occur with a conventional grid. The Tube and Line Enhancement feature brings improved clarity of the tube and line in chest images through single on-screen click.

The system has received 510(k) U.S. Food and Drug Administration (FDA) clearance. (It is currently scheduled to receive the clearance at the end of November, 2016)



RS80A with Prestige :

Introducing the enhanced CEUS in the U.S.

Thanks to the FDA's approval of contrast-enhanced ultrasound for liver lesions in adults and pediatrics in the U.S., Samsung is successfully introducing its latest contrast-enhanced ultrasound imaging at this year's RSNA.

The RS80A with Prestige, Samsung's premium ultrasound system, applies sophisticated imaging technology that empowers user's confident diagnosis. Samsung's CEUS+ provides superb resolution and improved uniformity with effective noise reduction, which help users acquire better clarity in the near field. Its automatic brightness control feature optimizes imaging in real time, enabling users to secure enough time to diagnose. The CEUS+, in particular, improves the diagnosis of small lesions and its clear

expression of tissue boundaries helps users to achieve interventional procedures with ease and accuracy.

At this year's RSNA, Samsung holds the Corporate Symposium which solely focuses on CEUS. Prof. Paul S. Sidhu, a consultant radiologist at King's College Hospital in the U.K., will discuss about CEUS' usability in clinical practices and Dr. Stephanie R. Wilson, Conference Co-Director of the International Contrast Ultrasound Society, will give a lecture on CEUS's usage on Hepatocellular Carcinoma.

Please visit Samsung's Corporate Symposium on November 28 from 8:30 to 10:00 a.m. at McCormick Place, room S101AB and explore more cases using CEUS+.



DISCLOSURE:

"Point of View" articles are part of the HealthManagement.org Corporate Engagement Programme

For more information on Samsung's global medical equipment business, please visit, www.samsungmedicalsolution.com

* Visitors of RSNA 2016 will be able to see both GM85 and RS80A with Prestige at the Samsung booth located in South Hall A #4735, McCormick Place.



TRAINING THE INTENSIVISTS OF THE FUTURE



Dr Kaushik Bhowmick

Consultant Anaesthetist
West Suffolk Hospital
Bury St Edmunds

West Suffolk Hospital is a district general hospital located in a 19-hectare parkland site on the outskirts of Bury St Edmunds. The hospital has a strong focus on ultrasound training, and its intensive care trainees have the opportunity to develop their skills in point-of-care cardiac and lung ultrasound using state-of-the-art equipment, as consultant anaesthetist Dr Kaushik Bhowmick explained.

My interest in ultrasound began many years ago in India, when a prominent intensivist from a renowned hospital visited where I was working to demonstrate the importance of cardiac output monitoring using echocardiography. I later came to the UK to further my medical career and went on a few ultrasound courses to improve my knowledge of this modality. However, it's not until you use ultrasound in your everyday practice that you really develop your practical skills and, when I came to West Suffolk to do my intensive care training, I took advantage of the department's pocket ultrasound system, using it as much as possible.

At West Suffolk, we have a 10-bed ITU with 11 consultants. Around two thirds of our cases are medical – COPD, asthma, oncology, haematology, GI – and the remainder are general surgical patients. Like any other intensive care unit, we perform in-house echocardiograms, and are very positive about the use of point-of-care ultrasound. However, when I joined the hospital as a consultant anaesthetist in 2013, the ITU did not have an intensive care-specific ultrasound system that could be used to perform critical care ultrasonography, including echocardiography. With the

department's support, we made a business case and, with some definite goals in mind, trialled several instruments before choosing a FUJIFILM SonoSite X-Porte®.

My own main focus is in point-of-care cardiac scanning, while my colleague Dr Vijayakumar Gopal is particularly interested in lung ultrasound. We needed a system that would be suitable for both of these applications, so that we could provide the best service possible for our patients. The first consideration was focused echocardiography, which allows us to quickly assess a patient, establish their fluid status and treat accordingly. Diagnostically though, there are many situations where ultrasound can be helpful, for example, answering the question of whether a patient with hypotension of unknown cause is suffering from a pleural effusion, which can have the same effect as a pericardial effusion in certain circumstances. Ultrasound also helps us to monitor cardiac output as we can see how the heart is contracting and, in the case of a cardiac arrest, we can see whether or not there is any flow within the heart chamber, or possibly detect any heart defect. In an intensive care environment, point-of-care ultrasound is particularly beneficial when an echocardiogram is urgently needed, perhaps in the middle of the night when services are limited. Similarly, an echocardiogram is always requested before a respiratory patient is accepted for extracorporeal membrane oxygenation (ECMO), so that any contraindications for a particular type of ECMO (VV or VA) have been diagnosed.

Lung ultrasound is just as valuable as that for cardiac applications and, in many cases, can avoid the need for a



chest X-ray. It allows you to see whether or not there is a pleural effusion that should be drained, and also to instantaneously detect pulmonary consolidation seen in patients with pneumonia. This can, on occasions, be quite critical because, with ultrasound, objective data is available immediately, allowing the correct treatment to be started straight away, whereas X-ray tends to lag behind and there may be a delay before a consolidation has developed sufficiently to show up.

The X-Porte ultrasound system is ideal for these purposes and also serves as an excellent teaching device for our intensive care trainees. We place a strong emphasis on training and, in fact, West Suffolk is the first district general hospital in the eastern region to offer a FICE training course. Good ultrasound teaching is very attractive to advanced trainees who rotate within the university hospitals – either Addenbrooke’s in Cambridge, or the Norfolk and Norwich – before spending six months in one of the smaller hospitals in the region. We are effectively competing with other hospitals for these trainees, who are a real asset to ITU, and we need to show that we have something different to offer them. The excellent ultrasound equipment and training opportunities we provide have had a big impact on this.

For all trainees, practice is the key to developing their

skills and the X-Porte can really help in this respect. For example, there may be occasions when a trainee cannot get the view they want, but their tutor or a consultant may not be around to ask for advice. The X-Porte allows them to look at the multimedia demonstration module already embedded within the machine. Interpretation of the data is of course even more important, and using the X-Porte for seminars is perfect for showing the trainees different images from real patients, and talking them through a full range of case studies and possible scenarios. In addition to this targeted education for trainees, we are very keen for all our consultants in ITU to gain FICE accreditation. It’s something that I am actively promoting, because if the responsibility for cardiac and lung ultrasound lies with just one or two people it can be difficult to get an assessment done quickly, particularly during the night. The days are long gone when it was acceptable for only selected individuals to use a particular technology. Everybody should learn to use ultrasound, as the more people who can use it, the better it will be for our patients. ■

DISCLOSURE:

“Point of View” articles are part of the HealthManagement.org Corporate Engagement Programme

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COMPUTER ASSISTED RADIOLOGY AND SURGERY

31st International Congress and Exhibition June 20-24, 2017
Hotel NH Collection Constanza, Barcelona, Spain

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'DREAM IMAGER' FOR BREAST CANCER DIAGNOSIS

INTERVIEW WITH PROFESSOR SRIRANG MANOHAR

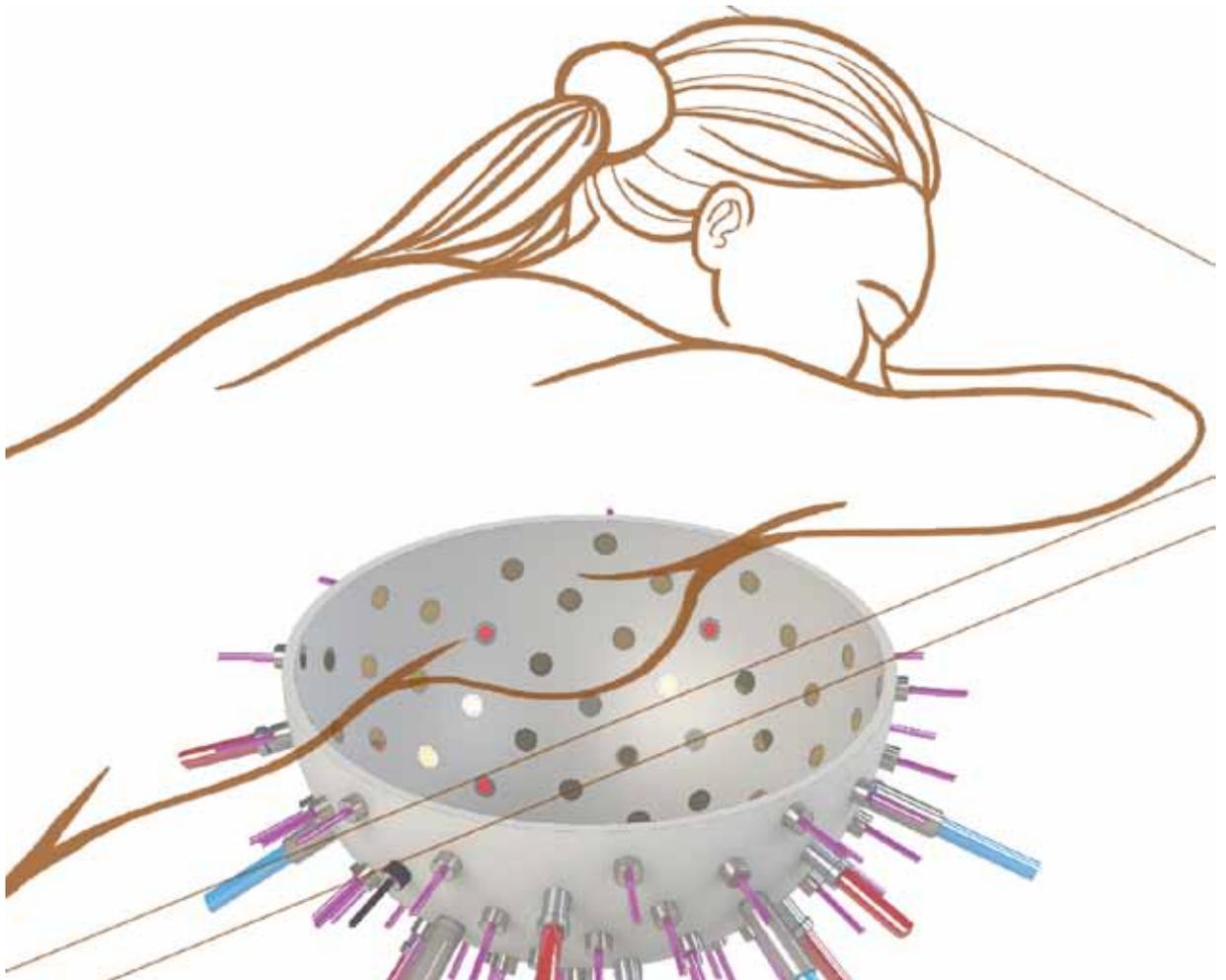


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Today, techniques for detecting breast cancer, ie x-ray mammography, ultrasound and magnetic resonance imaging (MRI), have several disadvantages. One of the most important ones is that they cannot clearly distinguish a tumour from a benign abnormality or even healthy tissue. The end result is that often tumours are missed or unnecessary biopsies have to be carried out. A European research consortium is to receive a grant of 5.1 million euros from the European Union and the Swiss government to develop a new imaging device that is expected

to improve and accelerate the diagnosis of breast cancer. More specifically, it will provide improved photoacoustic and ultrasound imaging and will also combine the images generated by both techniques. The device, which has been dubbed 'PAMMOTH', is expected to be ready for large-scale testing and production in four years. Project leader Srirang Manohar gave an interview to *HealthManagement.org* about the benefits and advantages of the proposed device over existing technologies and the expectations of the team of researchers.

image credit: R. Molenaar

A range of proven technologies already exists for the diagnosis of breast cancer - 2D and 3D mammography, MRI and ultrasound. Why is this new device needed and what benefits are anticipated?

X-ray imaging uses ionising radiation, involves painful breast compression and has poor performance in younger women or women with higher glandular tissue in their breasts, the so-called dense breasts. Ultrasound is ubiquitous in the breast imaging paradigm as an adjunct to x-ray imaging, being real-time and showing anatomic features, but is not always able to differentiate between malignancies and benign lesions. Magnetic resonance imaging (MRI) has high sensitivity for breast cancer detection, but suffers from limited specificity, is expensive and requires contrast agents.

“ WE INTEND TO DEVELOP HYBRID PHOTOACOUSTIC-ULTRASOUND THAT SHOULD HELP THE RADIOLOGIST MAKE MORE ACCURATE DIAGNOSES ”

What advantages does photoacoustic imaging bring for breast imaging?

Photoacoustic imaging uses light as excitation energy, but, rather than detecting light which is heavily scattered, ultrasound is detected to study the optical absorption contrast. The mechanism of signal generation and detection is as follows: short pulses of near-infrared light are shone on the breast. Some of the light is selectively absorbed by blood in the strongly vascularised tumor. The absorbed optical energy is converted to heat and results in a localised increase in pressure due to thermal expansion. This pressure spreads out as acoustic waves, which have frequencies very similar to those in ultrasound imaging. These pressure waves can thus be detected by ultrasound detectors.

Photoacoustic imaging, when implemented in the PAMMOTH imager, will allow the tumour to be displayed due to the high blood vessel density around it. Furthermore, the use of multiple wavelengths of light excitation combined with a robust mathematical analysis will give tumour-specific optical contrast including oxygen saturation of tissue. This may provide information regarding the metabolism of the tissue allowing differentiation between malignancies and benign lesions. However, photoacoustics alone cannot provide anatomic information, which is why we included ultrasound imaging.

Thus, we developed a hybrid of the two methods in our

proposed PAMMOTH imager in order to provide images of anatomical features and the extent of tumours using ultrasound imaging with overlaid photoacoustic images of tumour vascularity. The imaging system thus generates information that is complementary making the system multimodal. So, instead of layered imaging as is used now, we have two imaging modalities in one instrument.

What evaluations on diagnosis compared to existing technologies will be performed before the anticipated production begins in 4 years (2020?) Will there be randomised controlled trials (RCT)?

We will have the clinical prototype in 3 years. We will not be doing RCT within the period of the project. The last 9-12 months of the project will be devoted to first clinical feasibility studies on a limited number of patients. We will compare our images with conventional imaging from x-rays, ultrasound and MR. The gold standard regarding the diagnosis will be from histopathology.

Do you anticipate that the "dream imager" will improve on the kind of false negative and false detection rates seen with existing technologies?

Yes, that is indeed our ambition, and that is why we intend to develop hybrid photoacoustic-ultrasound and build in various functionalities that will generate information which should help the radiologist to make more accurate diagnoses.

How long does such a photoacoustic examination take in comparison to a mammogram for example? Is the time taken to read the image similar to time taken to read a mammogram?

We are aiming to perform region-of-interest (ROI) imaging in real-time. Detailed functional images will be available only offline. The question about image reading is a difficult one, since there is very little clinical data available at the moment using photoacoustics, so it is not yet fully known how to interpret images. ■



CREATING GREAT CARE ENVIRONMENTS

CASE STUDIES



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Macmillan Delamere Unit in Runcorn with artworks by Alison Milner

Summary

What are the benefits of including art in healthcare settings? Willis Newson have over 15 years' experience of working with healthcare partners to deliver creative solutions to problems and to integrate art into environments. We have worked across different spaces, from accident and emergency (A&E) to wards, mental health units to care homes, using art to engage patients, improve wayfinding, boost wellbeing and more. We conclude that working with artists helps to humanise the healthcare experience for patients, resulting in less stress and anxiety and positive perceptions of the care received.

Context

Since we were established in 2001 we have delivered over 200 projects for more than 31 national health service (NHS) trusts and architects, developers, contractors, government and arts partners.

This article will focus on a selection of case studies illustrating different approaches to arts and health projects.

Arts and health as a sector has now been established for over 20 years and is becoming more and more widely recognised as a force for good within the healthcare industry.

It can be beneficial in many different ways, from finding creative solutions to practical problems such as noise reduction to 'softer' outcomes such as improved sense of wellbeing or increased positivity.

Here we have chosen 10 real-life examples of the beneficial effects of including art in healthcare environments:

Welcoming

Southmead Hospital Bristol wanted to create the right first impression with patients, so we commissioned sculptor Laura Ford to create landmark artworks across the hospital site.

Her series of playful animal sculptures are already firm favourites with patients visiting the new hospital, who sent in hundreds of suggestions of names for the lion sculpture within days of it being installed

Dementia-Friendly

Oakwood Rehabilitation Unit in Reading felt cold, confusing and impersonal when it was first built. We worked with artist Linda Schwab to run engagement workshops with patients and then to create designs based on their ideas and stories. This helped to bring a warmer feel to the unit, and the artworks also acted as a communications prompt for staff to help them connect with patients.

The large-scale feature wall artworks installed throughout the unit were also useful in helping patients to navigate and in turning 'wandering' into a positive activity.

“ WORKING WITH ARTISTS HELPS TO HUMANISE THE HEALTHCARE EXPERIENCE RESULTING IN LESS STRESS AND ANXIETY AND POSITIVE PERCEPTIONS OF THE CARE RECEIVED ”

Noise Reduction

Noise was a big problem in one of the large atria in a new Bristol Royal Infirmary wardblock. We worked with artists Studio Weave, who created a sculpture using standard acoustic baffling materials in an inventive and attractive way to create a visually stunning, practical artwork which fills the central hall

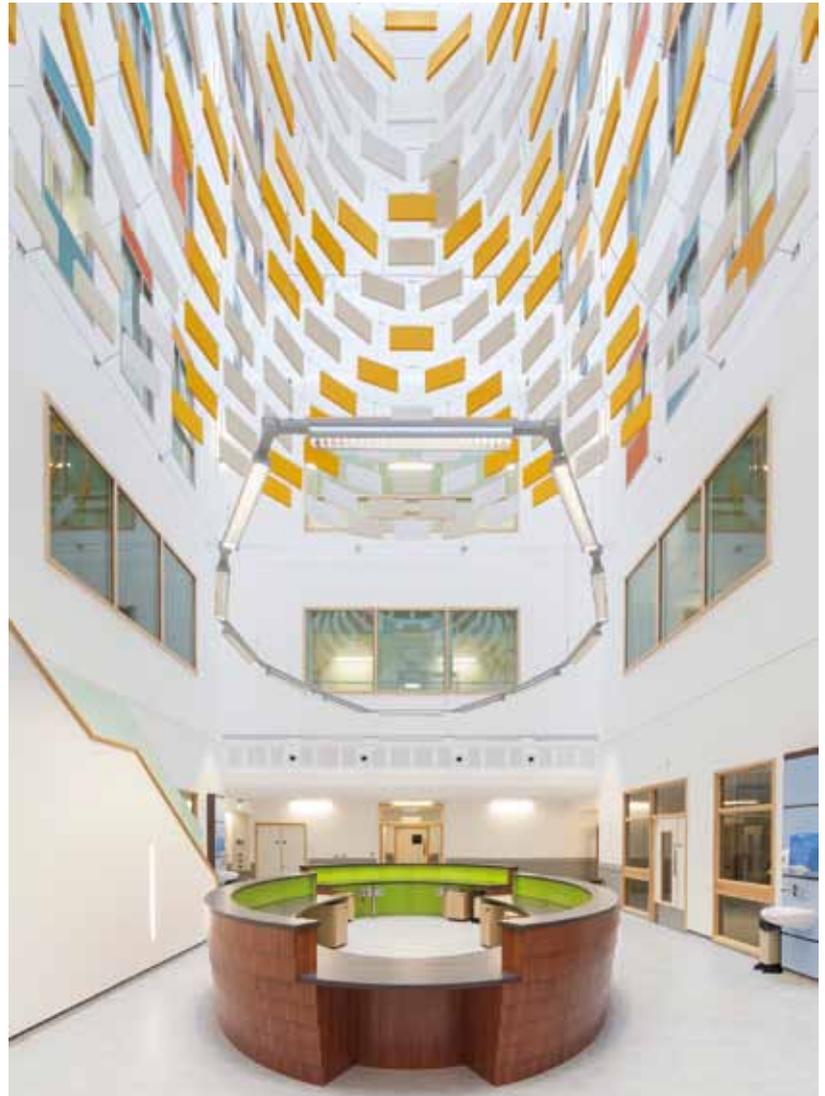
Communication

We worked with care home provider Brunelcare, textile artist Deirdre Nelson and the general public on The Napkin Project. People from all over the country embroidered napkins with images and words connected with 'Home', which were then used by staff at Saffron Gardens residential care home to engage with patients, to start conversations and prompt reminiscence.

Distraction

Patients can often find visiting hospital to be a difficult or stressful experience. Artworks can provide a positive distraction for visitors, giving them something else to focus on. For example, we recruited illustrator Dave Bain to create fun, colourful illustrations for the walls of a Teenage Cancer Trust environment to create a supportive and distinctive space for the young patients.

The illustrations were age-appropriate and detailed, with lots to discover on repeat visits or if a patient was in the centre for a long time.



Acoustic baffling created by Studio Weave for Bristol Royal Infirmary

Supporting

We have worked with Macmillan Cancer Support across a number of environments to create truly welcoming, positive spaces that support their patients' emotional wellbeing. For example, at the Macmillan Delamere Unit in Runcorn artworks by Alison Milner are used on large enamel panels in the waiting room to create a positive focal point, and then the designs are carried through to table tops and tiles, permeating the building with a positive, caring identity.

It even extends to the staff uniform, with team members wearing custom-made silk scarves designed by Alison to emphasise their role in welcoming and reassuring anxious patients and visitors.

Softening Clinical Edges

In Hillingdon Hospital we installed lightboxes in their nuclear medicine unit, which not only create a strong





Quality. Functionality. Style.

Nowadays, both in the private and public building sector, architects and construction companies are confronted with sophisticated demands of their clients. Individual solutions are commonplace when it comes to aspects of architecture and interior design.

The company Cserni, with its locations in Austria and Germany, is aware of these high requirements: Cserni is a full-service provider for building projects and offers comprehensive solutions regarding interior decoration and architectural design.

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Laura Ford "Patient Patients" sculptures at Southmead Hospital

visual identity for the unit within the hospital, but also give patients something to focus on which takes attention away from the heavy machinery that can dominate the room. Directing attention to a striking image on a ceiling lightbox can help patients to relax and therefore make the procedure more comfortable and easier for staff to manage.

Lighting

Artworks can also be integrated into gardens to animate spaces at dusk and after dark, as well as emphasising views out. We worked with artist Jo Fairfax on a lighting scheme for the garden at a Macmillan centre in Harrogate, which used lighting and projections to bring the outdoor spaces alive, day and night.

Positive Perceptions

The facade of the Bristol Royal Infirmary needed updating for both structural and aesthetic reasons — it had even been voted the ugliest building in Bristol.

We worked with the Trust to look at this problem in a creative way and introduced a design competition inviting artists and architects to re-think the facade.

Competition winners Nieto Sobejano created Veil, which now in place is creating the right first impression of the quality of care being delivered inside the building.

Wayfinding

We are about to embark on a project with Brighton and Sussex University Hospitals NHS Trust to integrate

graphic wall illustrations into the build of their redeveloped Teaching • Trauma • Tertiary Care (3Ts) hospital.

In order to make navigation easier for visitors to the hospital, each lift core will have a different imagery theme (eg coast / Brighton), which will help people to orientate themselves in the building. This type of approach to using art and design in healthcare can be a cost-effective and attractive way to help people to find their way around, whatever their age or language ability.

Working in the arts and health sector for over 15 years has given us a wealth of insight and there have been many lessons learned along the way. Some of the key insights we have identified include:

- **Early engagement:** involve patients & staff from the first days of a project for the best outcomes
- **Creative engagement:** using creative and artistic methods to encourage engagement with a project such as a redevelopment or hospital move is a sound way to ensure a real connection with the end results
- **Work collaboratively:** Capital and service teams can often be siloed on big projects, bring them together as early and often as possible
- **Integration:** Bring artists into the process early on to ensure seamless integration into the environment... this may also save money on enabling works down the line
- **Consultation:** Bring staff into discussions to ensure that artistic proposals fit with their operational policies ■



INTEROPERABILITY

SLOW PROGRESS BUT WILLINGNESS TO IMPROVE

Amere 6% of clinicians can effectively access information from healthcare providers using a different electronic medical record (EMR) in order to facilitate improvement to patient care, according to KLAS Research's recent report *Interoperability 2016: From a Clinician View—Frustrating Reality or Hopeful Future?* While this is a low percentage, Bob Cash, Vice President Provider Relations and co-author of the KLAS report, said that this is from a starting point of 28% of providers being able to regularly access data from different EMRs. Each stage is additional to the previous stage, so the last stage—impact on patient care—means that information has to be available, locatable and in the workflow. Access is only the first step on the path to interoperability that improves patient care.

The survey, which used the interoperability measurement tool defined and agreed upon by healthcare providers and EMR vendors at the KLAS Keystone Summit in October 2015, also assessed whether available records were easy to locate (reported by 13% of respondents) and if the shared data could be received and located within the clinician's workflow (8%).

Willingness to improve interoperability is evident amongst EMR vendors, healthcare providers, regulators and facilitators who attended the KLAS Cornerstone Summit in August 2016, noted Cash. Delegates included representatives from the Office of the National Coordinator for Health Information Technology (ONC), the College of Healthcare Information Management Executives (CHIME) and the American Medical Informatics Association (AMIA). "There was great collaboration and enthusiasm for making this better," said Cash.

KLAS researchers also questioned healthcare providers about their experiences with CommonWell, the not-for-profit trade association dedicated to achieving cross-vendor interoperability and Carequality, a public-private initiative that enables widespread, operational connectivity between and among existing health IT data exchange programmes and platforms. The KLAS survey reports that clinicians are hopeful that these initiatives will improve interoperability. However, while these initiatives assert that they have thousands of participating providers, to date KLAS validation efforts show that only a relatively small subset of providers is actively sharing data today.

Cash reports that there remains concern from providers about lack of a national infrastructure for interoperability, and specifically the need for a national patient identifier. The full report *Interoperability 2016: From a Clinician View—Frustrating Reality or Hopeful Future?* is available from KLAS Research, klasresearch.com. The survey will be repeated in future to measure interoperability progress. ■



KLAS Research

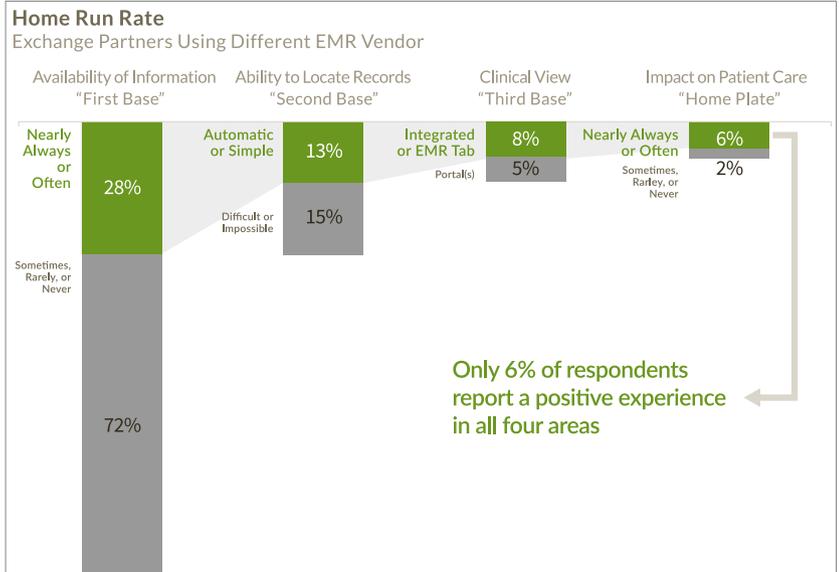
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Key Points

- ✓ Only 6% of providers are successful with all four interoperability bases
- ✓ Both acute and ambulatory care settings see significant and strikingly proportional deficits in usable, useful information exchange
- ✓ Effective sharing of information happens, on average, six times more between organisations on the same EMR product than between organisations with different EMR products
- ✓ Satisfaction ratings for how well vendors support interoperability are some of the lowest in any area KLAS measures
- ✓ Overall, facilitator vendors are rated higher than EMR vendors for supporting interoperability

About KLAS

KLAS is a research and insights firm on a global mission to improve healthcare delivery by amplifying the provider's voice. Working with thousands of healthcare professionals and clinicians, KLAS gathers data and insights on software, services and medical equipment to deliver timely reports, trends and statistical overviews. The research directly represents the provider voice and acts as a catalyst for improving vendor performance. Follow KLAS on Twitter at twitter.com/klasresearch.





ONE NATION, TWO HEALTHCARE SYSTEMS



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The Canadian medical system has integrated several paradigm-shifting transformations in the past two decades, not the least of which include quality improvement and patient-centred care. With each transformation there has been a concurrent benefit to patients, leading to improved patient outcomes and more effective systems of care. In this context it would be reasonable to then ask, why are Canadian Indigenous patients so sick?

Canadian Indigenous patients—those of First Nations, Metis and Inuit descent—continue to suffer much higher rates and severity of disease when compared to other demographics. HIV rates on Saskatchewan reserves are higher than many African nations. Infants in Nunavut suffer the highest rates of respiratory disease in Canada. The incidence of diabetes is three to five times higher. It is factual that significant health disparities exist between

Indigenous patients and other Canadian demographics. We are also observing that these disparities are not static. In many areas they are widening and in some cases accelerating.

Analysing the causes behind this ongoing health crisis have taken us in many different directions. More recently, the *Social Determinants of Health* have provided a useful context to frame these causes into poverty, education, early childhood development, food insecurity, racism, among others (Mikkonen and Raphael 2010). As health leaders however, it is difficult to reconcile how to impact areas clearly out of our scope of influence. For example, how does a health leader impact poverty from within the confines of the health system?

Taking a systems approach can have much more utility. In Canada, there are actually many different types of health systems. The most well-known is Medicare,

a system funded by both federal and provincial levels of government but administered by each respective province. Lesser known health systems include those both federally-funded and administered. These include refugee health, the military, the prison system and indigenous health. Despite the oft-repeated statement that providing healthcare is a provincial responsibility, the federal government clearly is very much in the business of healthcare.

When comparing the design of all these various health systems, there are some surprising insights. In Medicare, various types of legislation create accountabilities that enable patient rights. The Health Acts of each province establish a baseline of services that must be provided: services such as emergency care, laboratory services, diagnostic imaging, among others. Other acts include those that govern health quality, health professions, etc. Legislation creates fiduciary duty. Fiduciary duty necessitates defined processes.

None of these Acts exist federally. Without legislation, it is difficult to create clear fiduciary duties and define processes. Many federal programmes are thus

“CANADIAN INDIGENOUS PATIENTS HAVE NOT REAPED THE BENEFITS OF HEALTH TRANSFORMATION”

dependent on policy; in many cases this is very well-written. For example, the military health system has overcome the legislative gap regarding health professions by establishing contractual relationships with Colleges of Physicians and Surgeons across Canada. Recognising that it would be unreasonable to create an independent regulatory framework to govern health professionals within the federal military system, the military system has created a workaround. Other legislative gaps are overcome in a similar manner with the other federally-administered systems of care. Not so with indigenous health.

There is no baseline of healthcare services on reserves. Instead the Indigenous health system exists as a collection of various time-limited funding proposals, usually selected from an à la carte buffet of programme options. Instead of 24/7 coverage, we discuss “doctor days” and “nursing days.” The system purposely schedules lack of access to medical professionals. For this reason, access can fluctuate widely between indigenous communities. Consider having no access to healthcare providers as an expected component of health system design.

Credentialing, quality improvement, resuscitative

Statistics

Total population (2015)	35,940,000
Gross national income per capita (PPP international \$, 2013)	42
Life expectancy at birth m/f (years, 2015)	80/84
Probability of dying between 15 and 60 years m/f (per 1, 000 population, 2013)	81/52
Total expenditure on health per capita (Intl \$, 2014)	4,641
Total expenditure on health as % of GDP (2014)	10.4

Source: Global Health Observatory. World Health Organisation who.int/countries/can/en

equipment, emergency medication, continuity of care, as well as the many other health system components we take for granted are also very inconsistent. How can a health system be built without the proper building blocks?

Canada is in the midst of a broad reconciliation process with its indigenous peoples, triggered through a court-mandated Truth and Reconciliation Commission that published its final report in 2015. Regarding health transformation, National Chief Perry Bellegarde of the Assembly of First Nations states: “the Truth and Reconciliation Commission Calls to Action on health create a pathway for innovation and collaboration that will transform healthcare and improve the health of First Nations people in Canada. This is about supporting First Nations’ priorities based on our health care realities, and finding solutions that draw on the effectiveness of our knowledge and cultural traditions.”

To understand indigenous health realities we can start with acknowledgement that indigenous patients may be sick because we literally aren’t providing them the same healthcare as the rest of Canada. ■



“Don’t undertake a project unless it is manifestly important and nearly impossible”

Edwin Land



ALAIN CRIBIER

PIONEERING INTERVENTIONAL CARDIOLOGIST

Career highlight: The first non-surgical implantation of a prosthetic aortic heart valve, performed on April 16, 2002 with my team in Rouen after 10 years of research. It turned out to be a revolutionary life-saving procedure.

“Listen to understand, not to reply. It helps much more in the long run”



ANNA SORT

VIDEO GAME HEALER



Career highlight: Starting my company, PlayBenefit. I did it because I saw the need to change, and I thought it was better to have someone take that road no matter how hard.



MANSUR HASIB

PROGRAMME CHAIR, CYBERSECURITY TECHNOLOGY, UMUC, AUTHOR

“Do not view your employees as expenses. Treat them like the assets they are and see how amazing they can be”

“Show respect for all individuals at all times, no matter what your personal feelings might be toward the person”



RICHARD L. BARON

PRESIDENT, RADIOLOGICAL SOCIETY OF NORTH AMERICA



Career highlight: I am particularly privileged to have mentored so many individuals from countries near and far who worked with our teams at the University of Pittsburgh and the University of Chicago. I am delighted to see many of them grow to become leaders in radiology in their countries, creating a large international family experience.

“We should live our lives in such a manner that even strangers will mourn our death” Munirul Haque (my older brother)

How Copper can Help Protect Your Patients

By choosing touch surfaces made from antimicrobial copper, you can continuously kill pathogenic microbes, boosting hand hygiene, cleaning and disinfection measures and creating a safer environment for your patients. This novel approach works 24/7 and requires no routine maintenance, just standard cleaning. Antimicrobial copper surfaces are made from solid, eco-friendly metals with intrinsic antimicrobial properties that last the lifetime of the product.

Antimicrobial copper touch surfaces offer:

- Continuous and significant bioburden reduction
- Improved patient outcomes
- A supplement to standard hygiene practices
- Simple, cost-effective intervention
- Payback in less than one year



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