



Artificial intelligence (AI) will take centre stage during the Medica Academy sessions. While talks will focus on initiatives made in Germany, European Hospital took a look at Spain and spoke with Ignacio Hernández Medrano, a neurologist recently elected as one of the most influential people in healthcare (HC). At just 34 years old, Medrano has already founded two flagship AI projects, one of which enables extraction of valuable data from clinical reports written in free speech: Savana. With a name that echoes fertile lands, the solution may prove very helpful when it comes to mining valuable clinical information.



Interview: Mélisande Rouger

What is Savana?

'As doctors, we have been gathering information from our patients' clinical records for many years. This information has great value, but until now it hasn't really been exploited, because we write our reports in natural language, or free speech. We write in complex semantics and narratives, rather than in a structured way. For some years we have been using natural language and linguistics computational processing, so that computers can decode human language. That's the technology used by Google, for instance.

'Savana is the first company that has been able to subspecialise this AI technology to convert free speech contained in clinical records in a database, and to mine this data.'

What inspired this business idea initially?

'In our society, we have access to large databases all the time, whether for music, banking, etc. In healthcare, very large quantities of data are being generated, most of which are digital, however, we did not reuse it – which is possible with technology and a bit of organisation. So that's what we did.'

Is Savana unique?

'There are many innovative companies in Spain; social entrepreneurship is growing steadily. Technology is a great way to improve people's lives. Savana handles very big amounts of medical information, which very few private or public projects do. We manage tens of millions of clinical episodes and this makes us very unique.'

How is big data developing in Spain?

'Unlike Germany, the UK and the US, Spain did not pave the way for big data use. We need to get on board

now and use big data in healthcare. Just as e-banking is becoming banking, e-health is becoming health. The Spanish healthcare system is very strong, but things may change within 10 years if we don't realise that health is becoming digital.'

Are doctors or healthcare people resisting this?

'Innovation means realising that you need to get it wrong three or four times before it works. This is very hard to accept in healthcare. Mistakes are badly tolerated, so it's harder for innovation to go further in this sector. That's why big data and digitisation have advanced in other areas, such as banking.

'Nevertheless, no human production generates as much data as a hospital. So big data has an important role to play in healthcare too; and it already does, at the level of drugs and diagnostic or therapeutic algorithms, which improve human capacities.

'It's true that doctors tend to have a conservative attitude, especially regarding their role in society. But, when one realises that powerful algorithms that can improve diagnosis and treatment can be obtained through managing large amounts of data, then everything will fall into place, because patient care improves. If a machine gives what's best to the patient, doctors will follow. And that's not the future: that's right now.'

Currently, how many hospitals use Savana?

'We provide services to around 40 hospitals, so that would be a six million population. We definitely should have more by the end of the year. The more clinical information we have, the better it will be for everyone.

'Outside Spain, we have information from Chile, and contacts with the United Kingdom, the United

Savana goes data mining

States and Argentina, and we hope we will expand soon.'

Are you working on other projects?

'Yes, I'm working with Mendelian, a company in the United Kingdom, which has developed an online rare disease search engine, built with the aim of increasing diagnostic hit rates. I met the other people behind Mendelian while studying at the Singularity University.

'Rare diseases are complex and take a long time to be diagnosed. There's very little knowledge around these diseases, and our tool offers to speed up the process. Rare diseases associated genes and their existing gene panels are algorithmically matched to phenotypes. Recently we've helped a kid with a rare disease to be diagnosed.'



Neurologist Ignacio Hernández Medrano MD at Ramón y Cajal Hospital in Madrid, Spain, was elected one of the most influential healthcare professionals in 2016 by the specialised press for his work in HC systemic change due to information technology and big data use. He holds several masters in HC management, and he notably sits on the strategic board of Ramón y Cajal HC Research Institute. He gained a bachelor degree at the Singularity University (NASA, Silicon Valley) in 2014 and founded two emerging companies using artificial intelligence: Savana (electronic clinical records processing) and Mendelian (rare disease diagnosis and treatment).

What did you learn at the Singularity University?

'Private companies founded the university eight years ago to promote the impact of positive technology. The school has an annual number of 80 people who all want to improve living conditions by using high impact technologies and a positive, exponential approach.

'Technology is changing the lives of many people. Having an exponen-

tial approach means that we believe things will go much faster than we expect. This way of thinking changed me; the future is much closer than what we believe. The future will come and it will be for the good; there will be associated problems, of course, but it will improve people's lives.'

Link: <https://savanamed.com>

HALL 10 - STAND E 31

Latex gloves make great balloons but they make lousy probe covers.

Sure, exam gloves are always close by, but using one as a probe cover is awkward, especially with a large 3D/4D probe. They also allow for wasted ultrasound gel, make an incredible mess, and if the glove is latex, it may cause an allergic reaction in patient, clinician, or both. You, your ultrasound probe, and most importantly your patient deserve better. The Eclipse® 3D, Parker's newest probe cover, was designed solely for 3D/4D probes. Save the gloves for their intended use or for decorating the next office party.

Introducing **ECLIPSE** PROBE COVER 3D

Our newest probe cover was specifically designed to accommodate larger 3D/4D ultrasound probes. And like our original Eclipse® Probe Cover, Eclipse 3D is latex-free and conveniently pre-gelled with Aquasonic® 100, the universal standard for all medical ultrasound procedures.

Visit us at Hall 9 Stand D41

ISO 13485:2003

© 2014 Parker Laboratories, Inc. The sound choice in patient care.™ 973.276.9500 www.parkerlabs.com

AD-38-2 REV 0

www.metaltronica.com

- 1977** Metaltronica is founded
- 1988** Metaltronica launches its Compact Mammo - the first European made, high frequency system with a fully automated AEC
- mid '90s** Metaltronica introduces its FLATE mammography system which becomes the gold standard
- 2004** Metaltronica begins to manufacture its digital system
- 2015** Metaltronica launches its tomosynthesis system
- 2017** Metaltronica under new ownership and executive guidance enters an era of innovation and overall development
- 2017** Metaltronica introduces its new Compact 2D digital system

MEDICA 2017

Hall 10 Stand n.F73

The potential insights are invaluable; we should not waste this source

Medical data mining

The treasure trove of healthcare data waiting to be explored in German hospitals is immense and could provide invaluable insights. However, what about data security and privacy? Andreas Klüter, CTO of Empolis Information Management GmbH, a new business entry in healthcare IT, spoke with European Hospital about medical text mining and the need for ethics discussion.

Thirty years ago Empolis Information Management GmbH began its role in smart data processing and service optimisation. Giving the example of involvement with call centres, Andreas Klüter, CTO of Empolis said, 'We developed software that provides decision trees for call centre staff to help them get straight to the customer's problem and its solution. Our vision is that "no one must ever make wrong decisions again" and our new mission is derived from this vision: "utilise all information to provide the right recommendations".'

'Text mining and linguistics are the tools of our trade, also in healthcare. We developed a solution that retrospectively analyses free text medical reports, using a number of criteria. We do this with the help of mature artificial intelligence technologies, such as deep learning or case-based reasoning.

'Our partner Smart Reporting contributes the clinical process know-how. We fused their know-how and our technology in their prototype module called Smart Radiology.

'Now we can partially structure unstructured data. So far this works with existing reports that we analyse retrospectively. However, we are in the



process of developing a prototype that hints at which type of data might be missing, in order to arrive at a complete or guideline-compliant diagnosis of a certain pathology during the process of gathering findings. This might help to achieve a much higher degree of standardisation in findings and clinical reports.

'Our analysis is based on approximately 150,000 anonymised reports, focusing on the 40,000 brain CTs included in these reports. Our aim was to determine the level of quality of the findings, to figure out whether certain trends are discernible and whether the different hospitals have different referral and requirement patterns for imag-

ing procedures. However, we do not intend to conduct further studies.'

'While we initially focused on brain CTs to create a knowledge model that allows us to analyse the data, we do plan to cover all anatomies, step by step. In addition we want to analyse the results of other imaging modalities such as MR scans.

'Data security and privacy are immensely important issues. Therefore only the study principals receive the results and they decide how the data will be used,' he explained. 'We can show trends, but it is not for us to decide whether a trend indicates a problem.

'We need this debate on artificial

intelligence from the very beginning. However: In my opinion the computer cannot do everything better and it won't be able to do everything better, even though it can perform increasingly complex tasks.

'There was a very telling experiment recently where artificial intelligence was used to "train" a computer in Shakespearean language and then the computer was asked to write a book. The result: The machine's choice of words was indeed rather "Shakespearean" but the text was completely devoid of meaning. That clearly shows the current stage of AI.

'Having said that, there are advances, and we need to discuss how we are



For over 20 years, Andreas Klüter, CTO of Empolis Information Management GmbH in Kaiserslautern, Germany, has focused on developing systems for intelligent information processing. From 1994 on he was instrumental in realising the "Verbmobil", the worldwide first research prototype for fully automated translation of spoken language at the German Research Centre for Artificial Intelligence. During his tenure as Head of Development at ORBIS, he gathered profound knowledge of healthcare IT. As CTO of Empolis Klüter is in charge of the company's product portfolio and the business division eHealth.

going to deal with the new insights and which approach we will choose. It's a long process for a society to agree on a path, but this consensus is necessary and we have to embark on this journey now. To do nothing, I'm sure, is the wrong decision.

'The archives of German hospitals are full of text and image data waiting to be used, data that might really advance clinical research. The technological obstacles are surmountable today, the potential insights are invaluable. We should not waste this source.'

Launching: A vibrant colour monitor

The 27-inch medical trade 4K-monitor

A major addition to Ikegami's range of surgical monitors is being launched at Medica this year. 'The new MLW-2750HD is a 27-inch 4K UHD display in a shallow-profile configuration, fully optimised for use in operating rooms,' the manufacturer reports. 'With its 800 cd/m² high brightness IPS 8 megapixel display panel, this new monitor improves the efficiency of medical teams by enabling precise observation of picture detail and allowing high quality picture-in-picture image presentation.

'The IPS panel provides accurate colour reproduction across the full colour spectrum with smooth image gradation well into the deep red. Video can be viewed in a Standard Picture switch setting or Picture Enhancement Function can be selected. Picture Enhancement mode delivers Wide Dynamic Range,' the

firm explains, 'to ensure high quality display reproduction right through to the dark and bright areas of the incoming video signals.

'The MLW-2750HD is ideal for use with Ikegami MKC series cameras, providing optimal picture quality with the 4K UHD MKC-750UHD and Full HD models. Auto brightness/contrast stabilisation functions are included to ensure the most accurate and consistent shading possible for medical imaging. Gamma options and DICOM Part 14 standard configuration can also be selected when required. A user pre-set function allows easy adjustment and storage of the display mode and image setup parameters.'

Additional technical parameters include 10-bit colour display, 1000:1 contrast ratio, 14 millisecond typical on/off response time and fan-less

cooling. Weighing only 7.7kg, the MLW-2750UHD makes the system useable with medical transport carts, and more.

Set in hygienic silver-grey housing the monitor also has anti-reflection and anti-finger mark screen surface. The IP35 rated front panel and IP32 rated rear panel ensure high-level protection from dust and water during surgery and post-operation cleaning.

'A wide range of interface facilities are provided, including full compatibility with 4K UHD HDMI 2.0 and DisplayPort (Ver.1.2) for UHD resolution (3840 x 2160) at 50/60Hz refresh rate,' the maker continues. 'HD resolution 3G-SDI and DVI-D are also supported. An RS-232C remote control port is provided plus a USB port for hardware configuration.'

The MLW-2750 is being demonstrated at Medica 2017 as part of a complete system, including Ikegami's latest generation 4K UHD medical cameras.

The IPS panel provides accurate colour reproduction across the full colour spectrum with smooth image gradation well into the deep red



Ikegami is at Medica
Hall 10 / Stand B12

High frequency plastic welding

The British high frequency welding firm Speed Plastics offers its expert engineers to design and develop from concept to finished commercial product.

The company partners a number of medical manufacturers, working as an extension to their in-house capabilities. The range of manufacturing techniques includes ultrasonic

welding, CNC machine cutting, tool making, sewing and screen-printing – and, the firm reports the team 'ensures lead times are short and products are made to the highest quality'.

Operations Director Jane Collyer, said: 'Healthcare is a key market for us and Medica is a great platform to showcase the bespoke engineering solutions we have to offer.'

Speed Plastics is at Medica
Hall 16 / Stand G18-5



EXAPad
Portable ultrasound
Hall 9 Stand B 47
EXAPad mini
Made in France
www.ecmscan.com
ECM
ECHO CONTROL MEDICAL

The power of mobile intelligent information systems

Structuring data collection and diagnosis

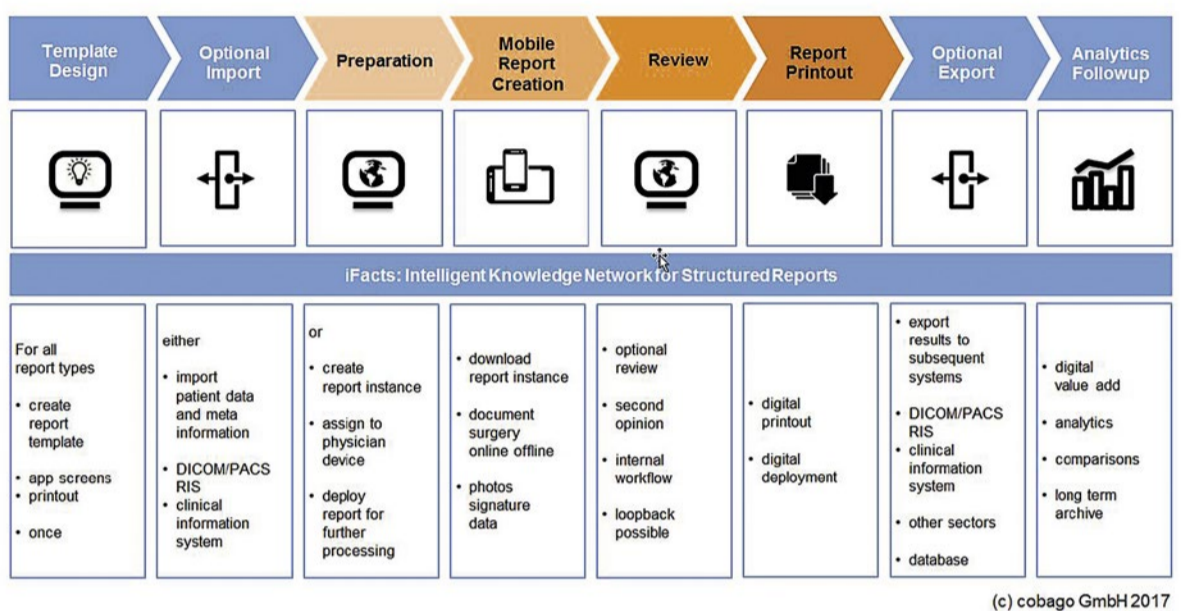
Today's healthcare IT market offers myriads of so-called comprehensive solutions to digitise administrative processes. However, in real life, long and verbose diagnoses and medical findings - and even paper-based documentation - are still widespread.

To meet regulations, generating written findings and reports account for over half of a hospital's daily work. Radiologists need greater efficiency due to increasing costs and competition. To that end, mobile IT specialist cobago has developed cobago SIX, to provide instant structured reporting and workflow management.

'The "classical way" is not only time-consuming but highly error-prone,' the firm points out. 'Reports also consist of multiple media types, such as texts, DICOM images and other data. This complicates central archiving and re-use in subsequent processes: It's high time to use the power of mobile and intelligent information systems to increase the efficiency of medical staff and increase overall documentation quality.'

cobago SIX turns tablet computers into mobile digital assistants for documentation and valuation of medical

Structured Reporting Workflow - Radiology and Beyond



facts on-site and in a doctor's office.

'Due to its architecture and function, SIX is optimal for structured data collection and diagnosis in radiology and other medical faculties. At first SIX offers structured scheme based fact collection, image adding, signature and auto-forwarding - this all based on intelligent case-dependent (case-aware) self-modifying checklists.

'Based on this, SIX automatically creates uniformly structured documents and, in parallel, digital data for subsequent analytics, comparative evaluation and handover to third party medical information systems.'

As an example, cobago reports, 'a SIX checklist documents a CT or MRT of the thorax with suspected

carcinoma. The radiologist - using his tablet - completes a predefined thorax carcinoma checklist with the respective parameters.

These may include written or spoken text, numbers, checkboxes and dropdown text selectors, as well as signatures, files and images. Important key indicators are calculated and plausibilities are checked straightaway. Non conformities and errors are automatically identified and can be corrected at once.'

Automated collection, valuation, analytics and retrieval

'In the subsequent workflow, the signed document is transferred to a central location. Here a complete,

semantically correct and ready to print report of text elements plus embedded photos and signatures is automatically generated.

'All data are additionally stored in a database and can be analysed one by one or as a whole,' the company confirms.

cobago SIX is an open, highly flexible, customisable ecosystem. 'It can be easily adapted to different medical use cases and requirements, starting with the definition of checklists and ending with gateways to third party information systems and subsequent processes, on-site or at other sector locations,' cobago points out. 'For this reason the SIX ecosystem can not only be adjusted to different content and processual requirements but also



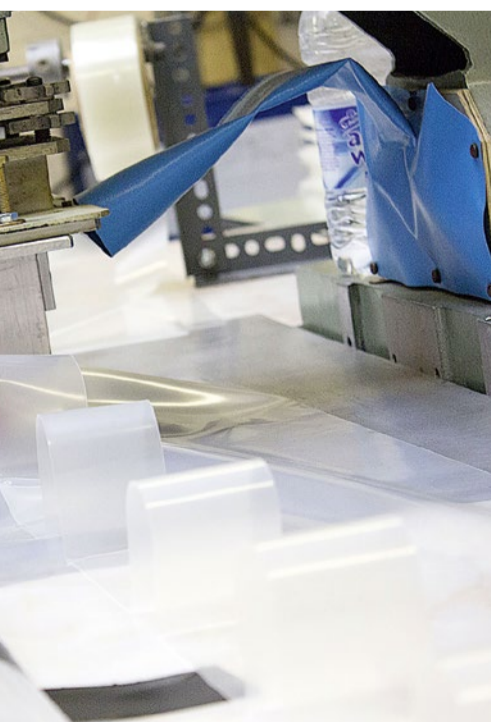
Dr. rer. nat. Dieter Kramps has more than 25 years of ITC experience in management and executive positions. Today he is CEO of the mobile specialist cobago GmbH in Dortmund, Germany, focusing on cross industry mobile solutions, IoT, cloud, security and predictive analytics. He has worked on pioneer electronic patient records, assisted T-Systems and Visus in introducing a long term archiving cloud service; worked for Materna, mbp (later EDS) and VEW. Kramps studied Computer Science/Electrical Engineering in Dortmund and received his Dr. rer. nat. degree in Hagen.

seamlessly integrated into virtually any hospital IT infrastructure.'

Thus diagnosis quality is optimised, results categorised and standardised, and findings become comparable and digitally searchable - without any further action of a physician, the report points out.

Obvious advantages

Productivity increases for a given staff, process cost decreases - through reduction of data collection errors and more so through growing transparency of the whole radiologic examination process, cobago adds. 'Team members are able to focus even more on the patient and their own core competencies, rather than fighting the periphery of different tools for texting, layout and data storage. Central organisation and IT benefit from unified digital formats, reliable and precise examination documentations, from automatic compliance to regulations and standards - and from complete accounting information records.'



BBI Solutions acquires Maine Biotechnology Services

DELIVERING OVER 27 YEARS OF ANTIBODY EXPERTISE TO OUR CUSTOMERS

Reduce risks and shorten timelines by developing the right antibody, first time.



Visit us at Hall 3A, Stand 3AB02-1

+44 (0) 2920 767 499 | info@bbisolutions.com | www.bbisolutions.com
www.mainebiotechnology.com

Tech firms, doctors and hospitals need greater cohesion

AI could enhance or disrupt healthcare

Report: Mark Nicholls

Artificial intelligence (AI) has enormous potential to revolutionise the delivery of healthcare, being able to remove the drudgery of routine tasks, join up fragmented care records, trigger alerts when abnormal results occur, speed-up the process of identifying clusters of patients by digging deep into electronic health records, and increase efficiency of healthcare staff resources.

Yet to achieve its potential, there needs to be greater cohesion between digital technology companies, clinicians and hospitals if AI can enhance rather than disrupt healthcare in this early phase of its establishment, according to consultant cardiologist Dr Ameet Bakhai, deputy director of research at the Royal Free London NHS Foundation Trust.

Speaking with European Hospital prior to his presentation 'AI in healthcare – delivery in diagnosis' at the UK Digital Healthcare Transformation Summit 2017 in London on 12-13 December, Bakhai explained that hospitals are at different stages of evolution in working with SMEs and large corporations in embracing digital technology and AI. 'Some are making small incremental changes, others are some years ahead and being innovative, while some are still in the traditional healthcare setting of the 1990s,' he pointed out. 'There are clinicians now willing to engage in trying out or helping to integrate a new technology; at the Royal Free Hospital we are blessed with key clinicians open to the role of digital technologies, such as remote monitoring companies, but across the NHS very few clinicians are doing that.'

Bakhai warned that the lack of a unified information share or strategy approach to how digital technologies as a group work with the NHS is an issue.

Whereas the pharmaceutical sector has a strategy, with manufacturers aware of each other's technologies, and registering and publishing in advance their on-going clinical trials and seeking peer review early, digital technology companies tend to crowd the same space without a cohesive approach to broader development of AI and innovation.

AI is currently impacting on some areas, such as diabetes, self-management of epilepsy and rare kidney diseases. Other companies are interrogating databases to identify patients who meet certain criteria for a clinical trial, and some deliver software to track patients and ensure timely follow-up after procedures.

'They are removing the drudgery from some of things that we used to have to do manually, with more robustness and security,' Bakhai added. Also in development, he said, are companies creating disease specific avatars to help patients monitor and self-manage conditions - such as diabetes or heart failure - to remind them of appointments, scans, inform them about medication or their test results and to motivate patients to take exercise and their medications, for example.

While all at different stages of development and affordability, other companies use AI tools to gather data that will trigger clinical input when required, often earlier than patients recognise symptoms, thereby preventing unplanned hospitalisation, he pointed out.



Some innovations support multidisciplinary teams across different centres to co-ordinate data and decisions and ensure these are relayed back to each hospital or centre, patients, GPs and social care teams

Other innovations support multidisciplinary teams across different centres to co-ordinate data and decisions and ensure these are relayed back to each hospital or centre, patients, GPs and social care teams.

However, the lack of joined-up working between the AI companies concerns the consultant, particularly with no generalised database of AI interventions existing, unlike pharmaceutical clinical trials. There is also no standardised consensus and guidance on measuring the impact of a clinical trial using AI technologies.

'Another aspect we don't know much about is how AI will disrupt the staff economy,' he observed. 'Will we be able to release staff from repetitive, low-impact work and reduce staff shortages in the NHS, and which staff are going to be impacted on most - doctors, nurses, healthcare professionals, pharmacists, managers or administrators?'

To ensure AI can fulfil its potential in a healthcare setting, Bakhai sug-

gests a Faculty of Clinicians in Digital Healthcare or AI to support a more cohesive approach of these technologies in healthcare.

Touching on security, he said: 'We think we are less in a risk area with digital technology - but look at the impact of the recent Ransomware attacks in the NHS.' Ideally, he would like to see doctors, entrepreneurs, technologists, coders and others working more cohesively and for clinicians - while still active in clinical practice - working alongside digital technologies to conduct research and create an evidence base on the value of AI interventions.

'The way we measure AI value in healthcare is also going to be crucial,' he emphasised. 'Often, for digital technologies, we commission or introduce something with anecdotal or superficial evidence, hoping it will have some benefit, but we haven't really put them through the rigour that we'd use with any other intervention in healthcare.'

He concludes that if healthcare can work cohesively with technology firms and that they look ahead together regarding AI, he believes money will be saved and duplication reduced of competing companies in the same space.

It could also help companies design and better evaluate the technology they offer and allow clinicians and hospitals to then be proactive, rather than reactive, in changing patient pathways.



The all-in-one portable telemedicine

Small, smart mobile

'Visiomed, a French leader in medical grade connected devices and services that advocate patient engagement as a primary component to maintaining good health, is proud to launch VisioCheck BW-XO7HD - the first scalable and connected mobile and evolving telemedicine station that weighs under 10.5 ounces,' the company reports.

'Developed on the Android platform, VisioCheck Mobile Telemedicine Station, class II medical device, CE marked and pending FDA approval, is an all-in-one portable solution to enhance the usability of telemedicine and connected health.

'The device is a connected mobile station that facilitates all aspects of telemedicine for patients, hospital and general healthcare professionals. VisioCheck provides a solution to support all aspects of telemedicine in terms of tele-expertise between healthcare professionals, tele-consultation between patients and healthcare professionals and tele-monitoring between patients and medical platforms.'

Use like a smartphone

The device is like a smartphone in features and size: it has a 10x6 cm colour LCD touchscreen, a high-def-

SONIMAGE HS1 Lite



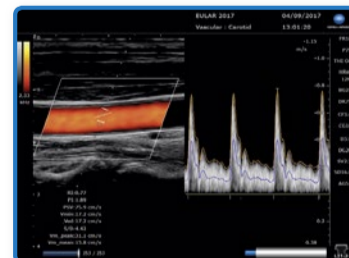
KONICA MINOLTA

Konica Minolta introduces the Sonimage HS1 Lite. The new "Smart & Portable" Ultrasound System, which comprises the most important aspects for ultrasound users:

- Diagnostic Confidence
- Ease of Use
- Reliability

Whether it is for Thyroid, Vascular, MSK or Abdominal exams, the Sonimage HS1 Lite is an economically attractive alternative for some, more bulky, cart-based systems.

Based on its powerful fully digital platform and Konica Minolta's in-house designed and manufactured transducers, Sonimage HS1 Lite delivers a real high image quality, in all of its imaging modes.



**PLEASE VISIT US AT MEDICA
HALL 9 – BOOTH D68, TO SEE A DEMO!**

Konica Minolta Business Solutions Europe GmbH / medica.konicaminolta.eu

**Visiomed is at Medica
Hall 15 / Stand B5**



Consultant cardiologist **Ameet Bakhai MD** is deputy director of research at the British Royal Free London NHS Foundation Trust, and is himself a cardiac researcher. He undertakes the design and management of clinical trials, health economic modelling and patient pathway innovations. He is also a scientific advisor to NICE, health technology appraisal, pharma and device manufacturers and clinical trials organisations.

Recognising pattern, predicting survival

Machines are learning fast

Language recognition on the smartphone, spam filters in the e-mail programme, personalised product recommendations by Amazon or Netflix – all share one feature: they are based on an algorithm that recognises patterns in a set of data. This artificial generation of knowledge is called machine learning.

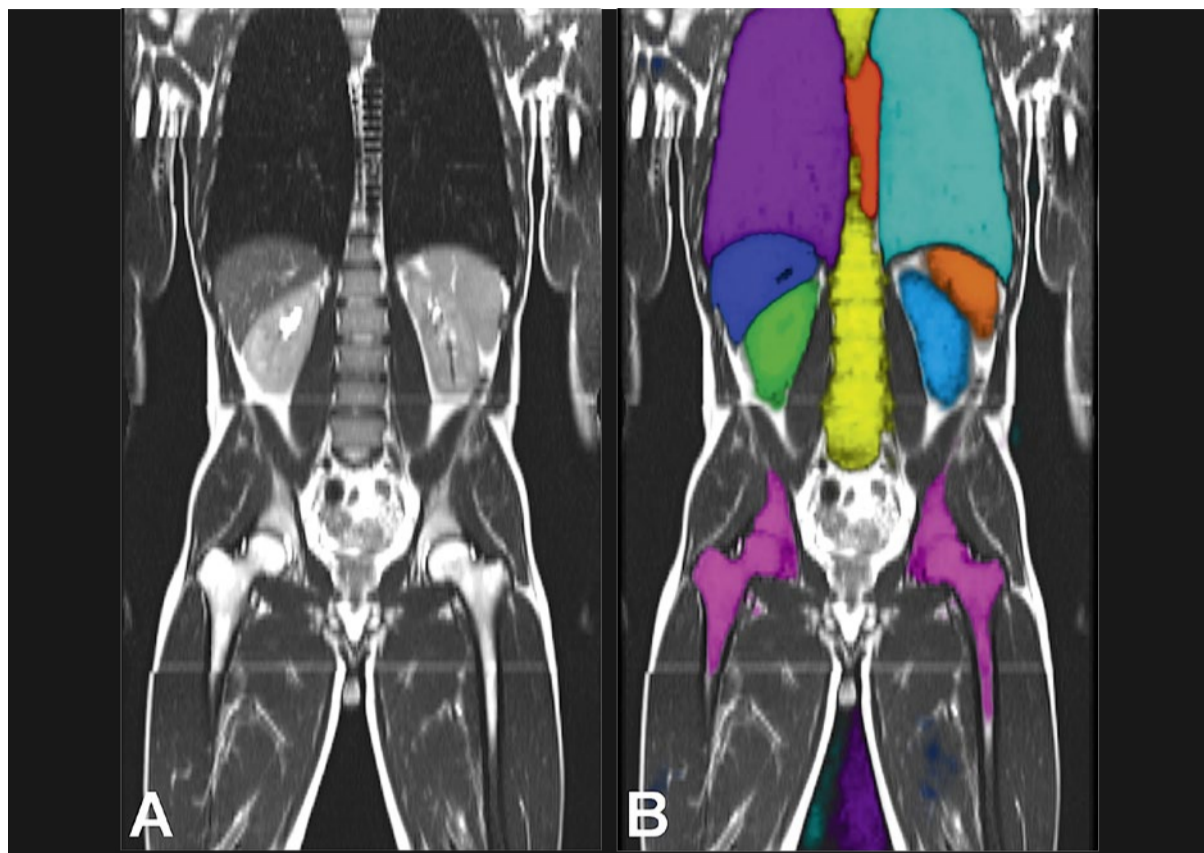
Report: Michael Krassnitzer

Radiology, in which huge data volumes are produced, is an increasingly important playground for machine learning. The analysis of quantitative image features in large medical databases is meant to allow statistic descriptions of tissue characteristics, diagnoses and course of diseases.

At Imperial College, London, for example, a system called MALIBO (MACHINE Learning In whole Body Oncology) is being developed that aims to detect tumours in whole-body MR images – without human intervention. So far, the system has looked at whole-body MRI scans of healthy volunteers to learn to identify organs and their components. The 'teachers' are radiologists who marked and named the structures to be recognised in the MRI scans. This enabled the systems to identify organs and their components fully automatically in new whole-body MRI scans.

Two different methods of machine learning were tested in this project: the principle of artificial neuronal networks that simulates the interaction of neurons in the brain, and so-called classification forests, i.e. large volumes of parallel decision-making paths. The former method was found to be superior to the latter.

In the meantime MALIBO has entered phase 2, the recognition of primary tumours. 'We have seen



some good results in the detection of colorectal cancers,' Dr Amandeep Sandhu Meng MBBS, a radiologist on the project team, reported.

Training an algorithm using 200 images

This ambitious research project is but one among many.

A team at the University of Valencia (Spain) developed an algorithm that can identify and characterise individual vertebral bodies on CT scans of spinal columns. The algorithm, which was 'trained' on 200 images of healthy and diseased spinal columns, assesses 90 percent of scans it has not previously processed correctly.

At Bari University (Italy) a research team evaluated a computer-assisted decision-making system (CAD), devel-

oped to detect breast cancer lesions. Of 3,735 scans, 192 were considered suspicious, 102 were false positives, and four were false negatives. This promising predictive ratio would allow the CAD system to identify from large volumes of scans those breasts that do not require further examination.

Teams at the University Hospitals of Zurich and Basel, Switzerland, jointly developed an analytical tool that can predict osteoporosis risk from a multitude of radiological images from different sources and varying quality. Working with CT 179 images, dyed by radiologists, from 60 patients, the neuronal network learned to cull quantitative bone data. Moreover, at Basel University Hospital, PACS Crawler was developed – software to predict osteoporotic fractures risk

High-resolution whole-body MR image of segmented structures

from looking at CT scans.

Last, but not least, a research team at Mainz University Hospital, Germany, developed an algorithm to predict liver transplant patient survival based on pre-operative 3-D CT scans. In 80 percent of the cases the algorithm correctly predicted which patients would survive surgery for more than one year.

Strangely enough, the researchers don't know how the algorithm arrived at its decisions. 'That's a bit like a crystal ball. We have no idea how it works – but it does work,' said Dr Daniel Pinto dos Santos, Head of the research team Radiology Image and Data Science (radIDS).

VisioCheck is the size of a smartphone and has the same features

station

Smart and

initiation camera and a high-intensity flash for recording or photographing injuries and other wounds. Patients can share these snapshots instantly and safely, the firm adds. 'They can also make phone calls, hold video conferences over Wi-Fi networks, and share data through the Secure Cloud with healthcare professionals or providers.'

The system also includes several medical devices e.g. blood pressure monitor, thermometer using Thermoflash technology, pulse oximeter, ECG monitor and blood sugar monitor. It is also compatible with all other Bluetooth enabled medical devices, the manufacturer points out, especially the BewellConnect devices. 'Easy to use, all data recorded is uploaded to the patient's chart automatically.'

All-in-one

Developed by physicians using patented technologies, BewellConnect is the only extensive ecosystem to create an all-in-one telemedicine station for medics to monitor patients easily, daily, and safely, and accurately, the firm confirms. 'It is an ultra-portable, scalable solution to facilitate, simplify and improve the experience for all users of telemedicine and connected healthcare. Gathering all the data into one platform makes e-health accessible and available to patients and their doctors.'

Get in touch with the future

4K

Unsurpassed technology opens new visual worlds

Ikegami's medical equipment incorporates the most advanced video technology. High-performance Cameras, Recorders and Monitors used in conjunction with surgical microscopes or endoscopes reproduce clear, natural and brilliant images – even now in 4K resolution.

Ikegami

www.ikegami.de · medical@ikegami.de

Visible Beyond

MEDICA® World Forum for Medicine
13 - 16 Nov 2017
Düsseldorf - Germany

Please visit us in Hall 10/B12

We need to consider the bigger picture

Big Data is an ethical decision!

With all the advantages of big data we need to proactively reflect on the use of the data, warns Professor Reinhard Riedl, Head of the Department of Economics at Bern University of Applied Sciences in Switzerland. This turns Big Data into a primarily ethical challenge. Riedl prompts a discussion that has not yet been given enough thought.

In all the discussions about big data the focus around the dangers involved tends to be on data security,' says Professor Reinhard Riedl, who heads the economics department at Bern University of Applied Sciences. 'Although this is a very important aspect, other issues also need to be addressed.'

The use of big data for research and medical practice is vital as the benefits are great. However, unprofessional use of big data can quickly turn into a nightmare – not only because of potential privacy violations but also because of the situations and issues that can suddenly confront people. 'Making a system as secure as possible is not really a challenge these days but more an issue of cost. This is also the reason why the topics of data retention and data security are frequently not given enough consideration. Sometimes there simply aren't the financial means available,' Riedl admits. 'But the much more important question is of a more philosophical nature: What is the right way of dealing with the data and the predictions it facilitates?'

This aspect has not yet attracted much public attention, given that the use of big data and the resulting opportunities for predictions raises issues of a psychological and emotional nature and increasingly forces doctors to take on the role of psychologists.

The patient becomes more independent

'Doctors are turning more and more into counsellors who provide emotional and psychological support for patients with their decision-making,' Riedl explains to clarify this sensitive

topic. The fact that patients are generally given more decision-making powers is only one part of the story. The fact that they must not be left alone with this process is a very different part. 'Explaining data to patients will ultimately always be a case-by-case decision for the doctor. At the moment, doctors are deliberately deciding what to tell patients – or not. Sometimes it can be more emotionally damaging to burden patients with knowledge than to withhold it,' Riedl explains.

But what happens when big data makes it possible to make predictions for the next 20 years? 'Suddenly, much better information becomes available,' says Riedl.

'We collect a lot of stochastic knowledge, and in many spheres of life we will need regulations as to how we should handle this knowledge. The insurance market is a classic example, with personal data already being used to calculate individual risks and tariffs for customers,' Riedl clarifies. 'Those who are happy to be monitored by insurers often receive reduced premiums.'

By implication, this means that everybody is responsible for his or her own fate. 'If people only receive favourable premiums when they live a healthy and low-risk lifestyle, whatever the respective definition of this may be, or when they are penalised for an unhealthy, risky lifestyle, then we need to regulate how far this discrimination can be taken,' Riedl cuts right to the core of the matter, and adds: 'Nobody's data situation is going to be entirely positive at each point in time and in all contexts.' Data discrimination is a new term that we will hear a lot more about.

But there still aren't enough working groups involved with this subject. 'Ultimately, it will have to be a political decision as to what knowledge we should and shouldn't take into consideration,' the IT expert emphasises.

Considering the consequences

However, he also sees opportunities for autonomous use of data. 'Article 20 of the European General Data Protection Regulation governs copyright and portability of one's data in machine-readable format. 'This means that I can make my data available on a platform which facilitates its utilisation for medical research under controlled conditions,' Riedl

explains. 'But the problem is that we need to develop governance guidelines which also take into account future risks and consequences. At the moment, the ideas around digital transformation are still very conventional. What makes the issue so difficult though is that big data methods, such as machine learning, can be incredibly effective.'

'Not using big data is not an option, because it would be unethical,' he emphasises. Data evaluation has too many important advantages for medicine and people.

'But it would also be unethical to use big data without thinking about the consequences.' And: 'As data providers we face the social question about the extent to which we worry



Professor Reinhard Riedl gained his doctorate in pure mathematics and has researched issues surrounding the design and practical utilisation of IT solutions in various academic disciplines. He currently heads the interdisciplinary BFH-Research Centre 'Digital Society', in which researchers from more than ten academic disciplines and six faculties at Bern University of Applied Sciences in Switzerland work together. From 1995 – 2006 he edited the Zurich Cynical Theatre Index. He has presided over the International Society for New Music in Bern since 2015.

about our security, and whether this concern makes us refuse to let our data be used. We can, of course, benefit from other people's data without letting them benefit from ours, but when too many people act like this nobody will benefit. Big data raises important ethical issues for all of us. Everything depends on our overall approach! ■



Dedicating time to patient care not paper work

'Intelligent IT solutions are key in meeting today's and tomorrow's challenges in healthcare management.

Ensuring patients get the attention and individual care they need in time – in light of growing budget constraints and ever-increasing regulations, this is one of the key resource struggles healthcare organisations face today.

Healthcare personnel only have as much time on their hands as they do. Therefore, the only way forward can be to unburden them from administrative tasks and enable them to focus on what they do best: caring for patients. This needs to be achieved through intelligent IT that doesn't just do more of what it already does, but also enables healthcare organisations to optimise processes.

This is what Konica Minolta is aiming for when offering solutions for IT workflows that automate document-related processes such as electronic health records (EHR), hospital information systems (HIS), digital admission and discharge processes as well as invoicing and archiving solutions. This means less manual labour, faster information access and exchange while lowering costs.

With Konica Minolta's PDB (Print DICOM Booklet) solution, radiology results can be printed in a specially designed booklet for reference purposes, encompassing the DICOM images and examination reports that can be shared with any physician. The integrated software and hardware solution meets the highest medical imaging needs, while printing on paper to reduce costs. The booklet also allows further informa-

tion such as access plan, schedules or annotations of the medical imaging centre to be included.

The digitisation of information flows can even help to save lives: the automation of ambulance and emergency processes enables direct transmission of patient information by an ambulance team. Ambulance and emergency forms are sent directly to an ambulance team's tablet. Once the hospital receives the data, medical staff prepares to receive the patient and provide timely treatment.

Processes can also be improved by setting up optimal solutions for meeting accessibility requirements: since touch displays common in printing solutions are particularly difficult for visually impaired people to operate, Konica Minolta offers a plastic, electrostatic film with braille which can be stuck onto the control panel of their printers. The braille contains the most frequent functions such as black/white or colour printing and paper tray choice.

Overall, one of the biggest obstacles for optimised workflows in a



Marian Kelly is an expert on IT processes in healthcare organisations. She works as International Business Development Manager in the International Marketing Division of Konica Minolta Business Solutions Europe GmbH.

hospital is the proliferation of systems: regardless of which procedures are involved, Konica Minolta has the expertise and experience to introduce automated workflows that bring substantial bottom-line benefits. Konica Minolta is looking forward to meeting their existing and potential clients at Medica 2017." ■

VisioCheck

« All-in-one telemedicine platform for challenging medicine »

FIND US
HALL BOOTH 15B50
bewell-connect.com
Visiomed-group.com
International@Visiomed-lab.fr

by Visiomed

MEDICA WORLD FORUM FOR MEDICINE

13-16 NOVEMBER 2017
DÜSSELDORF GERMANY

Find us in Hall 16 Stand F42

The widest range of single use suctions.

www.susl.co.uk

t. +44 (0)2920 767 800
e. info@susl.co.uk

Follow us

SINGLE USE SURGICAL PROFESSIONAL

Konica Minolta is at Medica Hall 9 / Stand D68

For the visually impaired: a plastic electrostatic film with braille can be stuck on the control panel of the printers

Spanish researchers successfully create skin

3-D bio-printed organ is 'just like the real thing'

In a spectacular development, Spanish researchers demonstrate for the first time that 3-D printing can be used to produce human skin deemed appropriate for transplants and testing applications.



Source: Jaremenko Sergii / Shutterstock

Report: Mélanie Rouger
An impressive prototype 3-D bio printer developed by a team of Spanish scientists in collaboration with the BioDan group can create human skin almost as good as new.

In an article published in Biofabrication earlier this year, scientists from Carlos III University (UC3M), the Center for Energy, Environmental and Technological Research (CIEMAT) and Gregorio Marañón General Hospital confirmed the long held suspicion that 3-D printing can reproduce perfectly functional human organs and tissues.

'We have shown that this process is possible. 3-D printing of tissues and organs has been a largely commented on field over the past few years and we have demonstrated that 3-D technology can generate perfectly functional tissue, which has all the functional characteristics of the human skin,' José Luis Jorcano Noval, one of the study authors, explained to European Hospital.

Jorcano, a professor at UC3M's department of Bioengineering and Aerospace Engineering and head of the Mixed Unit CIEMAT/UC3M in Biomedical Engineering, is a recognised expert in developing human skin in a lab.

He explained the skin he obtained on the prototype is one of the first living human organs ever created using bio printing. It replicates the natural structure of the skin, i.e. the epidermis with its stratum corneum, which acts as protection against the external environment, and the dermis, a thicker layer that produces collagen, the protein that gives elasticity and mechanical strength to the skin.

Faster to produce

Jorcano deemed the 3-D printed skin adequate for transplants, for instance in patients with major burns or serious skin diseases, or for use in research, or testing of chemical, cosmetic and pharmaceutical products.

A major benefit of 3-D bio printing technology is that it fastens the production of new skin compared to manual methods used for the past eight years in clinical practice, Jorcano explained.

'It used to take us three to four weeks to produce a layer of 1m² of human skin from a 1 or 2 cm biopsy. Now, with 3-D, this process is much faster, because we have automatized and standardised the whole process. It's also less expensive than manual production,' he pointed out.



Molecular biologist **José Luis Jorcano Noval** is professor of Bioengineering and Aerospace Engineering at Carlos 3 University, Madrid (UC3M), Spain, and head of the Mixed Unit of UC3M and the Centre of Energetic, Environment Technologies Investigations (CIEMAT) in Biomedical Engineering. He co-invented eight patents, almost all related to skin technologies, and his most important work so far focuses on developing human skin in a lab. Originally a theoretical physicist, he received his doctorate in physics cum laude from Madrid Complutense University in 1976. Later, he gained his PhD in molecular biology at Max Planck Institute in Germany. Jorcano has received numerous awards for his work and has served on relevant committees for EU projects on the human genome and animal models and, between 2000 and 2007, he helped to draft national plans on biotechnology and health.

The prototype replicates the natural structure of the human skin

Another advantage of using 3-D bio printed skin is that it offers optimal quality; this will improve toxicity testing of pharmaceutical and cosmetic products, Jorcano believes. 'Animal testing is banned for most of these applications and, when it is authorised, only 10-15% of the cases can be extrapolated to humans. So the industry increasingly needs in vitro human products,' the professor explained

Generating allogeneic skin

With 3-D bio printing, a large bank of cells can be collected from a single biopsy and used in multiple industrial applications, such as testing for irritation or inflammation. In this setting, scientists generate allogeneic skin. In the case of a patient with severe burns, they will create autologous skin, i.e. tissue made case by case from

the patient's own cells. Use of this newly created skin in therapeutic indications still needs to be approved by the relevant regulatory bodies before it becomes available. But things will go faster for industrial purposes. 'Approval in this respect,' Jorcano said, 'is easier to obtain so I expect the product will be available by the end of the year.'



These neat ultrasound scanners suit regional anaesthesia, MSK, sports medicine, physiotherapy and more

Ultrasound portability with image quality

Bright and new come the revolutionary portable ultrasound scanners EXAPAD and EXAPAD mini which French manufacturer ECM Echo Control Medical reports were developed in close collaboration with key opinion leaders in various medical fields. 'Optimal image quality for a perfect visualisation, an intuitive and streamlined user interface for a fluid workflow and the unique and useful features EchoVoice, EchoPad and EchoVoice are amongst the features that are appreciated by the users all

over the world,' adds ECM, which has more than 30 years of experience in portable battery-operated ultrasound devices.

From the design over production to assembly, the firm reports that it controls the whole manufacturing chain and guarantees the highest quality for its ultrasound range.

At ECM's HQ, in Angoulême, France, the firm's employees include physicians, electronic engineers, specialists in embedded software, and medical imaging technicians.

ECM is at Medica Hall 9 / Stand B47





WORLD FORUM FOR MEDICINE
13-16 NOVEMBER 2017
DUSSELDORF GERMANY
Visit us at Hall 10, Stand F40

ADLINK Medical Computers

Enabling Top-Level OR Patient Care

Optimum Image Viewing

Enhanced Patient Safety

Easy Cleaning and Maintenance

Superior Product Longevity



MLC 5-21/23
21.5"/23.8" High-Performance Fanless Medical Panel Computer with 5th Generation Intel® Core™ i7 Processor for Operating Rooms



MLC-101/121/156-BT
10.1"/12.1"/15.6" Fanless Medical Panel Computer with Intel® Celeron® Processor J1900 for Patient Monitoring



IMT-BT
10.1" Medical Tablet PC with Dual-Core Intel® Celeron® Processor N2807 for Critical Medical Applications

ADLINK TECHNOLOGY GmbH
Tel: +49-621-43214-0 - Germany@adlinktech.com - www.adlinktech.com



Working together to deliver the future of measurements and monitoring

Philips and Masimo have teamed up to provide a noninvasive, continuous, and real-time, hemoglobin (SpHb[®]) monitoring solution that seamlessly integrates into your workspace. Our patient monitoring solution combines the innovative monitoring capabilities of **Philips IntelliVue** with the advanced **Masimo rainbow SET[™]**, so you can experience:

- Insights on real-time changes, or lack of changes, in a patient's hemoglobin concentration throughout the course of a case
- Seamless connectivity without adding new equipment to your workspace
- Operational and cost efficiencies from enhanced workflow



Now includes pulse CO-Oximetry, SpHb, PVi[®], SpOC[™], SpCO[®] and SpMet[®] measurements.

Philips and Masimo. Focusing on continuous measurement monitoring so you can deliver better patient care.

PLEASE VISIT US AT
MEDICA 2017
HALL 9/ D60

Continuous measurement monitoring

Learn more about enhancing your patient monitoring with advanced blood measurement technology at www.philips.co.uk/healthcare/resources/landing/masimo

PHILIPS

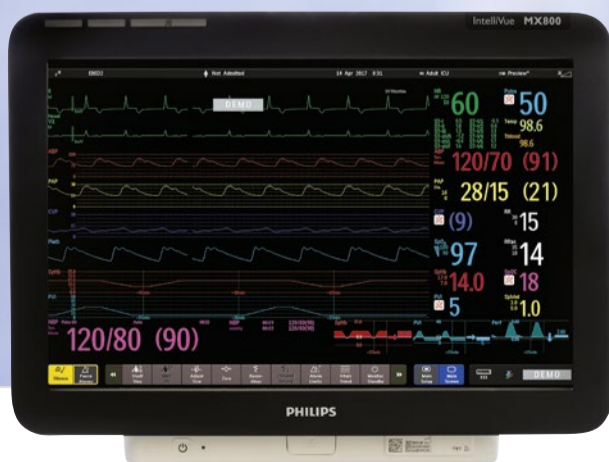
MASIMO

Working together to deliver the future of measurements and monitoring

Philips and Masimo have teamed up to provide a noninvasive, continuous, and real-time, hemoglobin (SpHb®) monitoring solution that seamlessly integrates into your workspace. Our patient monitoring solution combines the innovative monitoring capabilities of **Philips IntelliVue** with the advanced **Masimo rainbow SET™**, so you can experience:

- Insights on real-time changes, or lack of changes, in a patient's hemoglobin concentration throughout the course of a case
- Seamless connectivity without adding new equipment to your workspace
- Operational and cost efficiencies from enhanced workflow

Philips and Masimo. Focusing on continuous measurement monitoring so you can deliver better patient care.



Now includes pulse CO-Oximetry, SpHb, PVi®, SpOC™, SpCO® and SpMet® measurements.

PLEASE VISIT US AT
MEDICA 2017
HALL 9/ D60

Continuous measurement monitoring

PHILIPS | **MASIMO**

Learn more about enhancing your patient monitoring with advanced blood measurement technology at www.philips.co.uk/healthcare/resources/landing/masimo

Drones take laboratory logistics to a new level

A Swiss hospital group is using drones to fly medical laboratory specimens between its key centres, Mark Nicholls reports

In what is believed to be a world first, the eight-hospital Ticino EOC organisation has partnered with Swiss Post and US drone manufacturer Matternet to spearhead faster, more efficient specimens transport. The trial is being held for flights covering the 1.3 km between two of its Lugano hospitals, the Ospedale Civico and Ospedale Italiano.

While each hospital has its own emergency room and laboratory, the laboratory at Ospedale Italiano, in the city centre, closes at 5pm and at weekends. 'Presently the blood samples are transported between the two hospitals by local taxis,' explained hospital director Luca Jelmoni. 'This is, of course, subject to the availability and to traffic conditions. Therefore, to ensure transport that's always available and economically more interesting, we decided to apply the new technologies and use drones to transport our blood samples in those time slots when one of the laboratories is closed.'

There are already clear benefits from using drones in this way: the transport time does not depend on traffic conditions or third parties, cost is lower than by taxi, and the drone can fly over hills and mountains, considerably reducing the length of transportation compared to the road.



In addition, when snow makes road driving more difficult, drones will still operate and avoid delays in delivering specimens and test results. Whilst the distance between the hospitals is relatively small, Jelmoni told European Hospital that the drone can actually fly as far as 20 km, which means Ticino EOC is already considering a future possibility of transporting laboratory samples from other hospitals even further away.

The first phase of the initiative

involved proving the technical feasibility and acquiring official licenses and permits for the autonomous flights over populated areas, and this has been completed. With the approval of the Federal Office for Civil Aviation (FOCA), the trial will now move to the second phase later this year, which will see drone transport integrated into the hospital processes.

'That will be to test the integration of drone transport with the



emergency room and laboratory processes,' Jelmoni explained. 'This will be supported by a specific device, being developed by the supplier, which will autonomously load and unload the drone and charge the batteries.'

Phase three will see day-to-day usage of drones to transport blood samples between the hospitals, with hospital staff launching the drone via a smartphone application. The drone will then fly autonomously along the predefined route to its destination, where another staff member will receive the box.

Some observers have raised concerns that the acceleration and movement of drones might affect the quality and integrity of blood samples but, in a separate study conducted at John Hopkins University in Baltimore, researchers have shown this is not the case.



Luca Jelmoni became CEO of the two public 300+-bed hospitals in Lugano, Switzerland (Ospedale regionale di Lugano) in 2012. He graduated from the ETH Zurich (Swiss Federal Institute of Technology) in 1992 and gained his MBA from Kellogg University in Chicago, USA. Initially he worked in the pharmaceutical industry, then in retail, business development and corporate finance. In 2007 he became CEO of a leading Swiss clinic specialised in reproductive medicine.

The Matternet logistics drone used in Lugano is a quadcopter, 80 cm in diameter (without rotor blades). Able to carry up to 2 kg, and with a top speed of 36 km/h, the drone can operate in temperatures of -10 to +40°C and at an altitude of 50-100 m above the ground.

Safety features include a parachute in case of total drone failure, but all the drones' on-board critical components are replicated in case of malfunction. However, the test phase has seen more than 80 flights without any problems and the hospital believes transportation with drones will be as secure as transportation with a taxi. Once the drone meets all the strict requirements regarding safety, practicality and reliability, they will be in daily use between the two Ticino EOC hospitals – some time in 2018.

Point-of-care testing enters the community

The Laboratory Anywhere program

Report: Mark Nicholls

Point-of-care testing is being used to successfully deliver diagnostics to hard-to-access patients in a community in northwest England.

The 'Laboratory Anywhere' programme initially targeted the Gujarati community to aid them with timely diagnosis for diabetes and cardiovascular disease, but it is now being extended to people with mental health issues and learning disabilities, and also to offer additional tests.

Led by Dr Martin Myers, Associate Divisional Medical Director for Pathology for Lancashire Teaching Hospitals, he explained that the Laboratory Anywhere program is a value-orientated approach to delivering diagnostics where needed for a patient or a clinician to make decisions.

Whilst central laboratories may offer economies of scale and specialist testing, he suggests they can be remote from the patient pathway. The Laboratory Anywhere initiative bridges this gap. This is delivered via a multi-disciplinary team, with the Associate Divisional Medical Director of Pathology supported by healthcare scientists for the choice and verification of the diagnostic devices, training, delivery, and informatics. The program also involves close liaison with clinical support staff and patients to ensure that the service

is relevant and appropriate. Myers first set up the Point of Care Testing (POCT) Committee more than 20 years ago at Lancashire Teaching Hospitals and successfully implemented it in local hospitals and the community before the focus shifted, in 2001, towards delivering diagnostics to 'hard-to-access' patients, such as the Gujarati community, which was seen as at a high risk of diabetes and cardiovascular disease but were not always accessing the traditional patient pathways.

'Our principle was simple; we would take healthcare to the people rather than expect the people to follow our patient pathways,' he explained.

With Professors Romesh Gupta and Satyan Rajbhandari and others, the Lancashire Gujarat Health Users' Forum was set up and Health Melas (health festivals) established to deliver health checks including glucose, cholesterol (performed by Healthcare Scientists) and physiological checks (performed by medical students from Manchester University) to identify at-risk patients.

Now in its 15th year, the Health Mela has been extended to all members of society, with 4-6 events annually.

Learning and mental health issues

From the initial tests for the Gujarati groups, Laboratory Anywhere now

reaches patients with learning disabilities and will be rolled out to patients with mental health issues.

'Both these groups are at risk of diabetes and cardiovascular disease and are dying 10-20 years earlier than expected due to physical disease because of lack of access to simple diagnostic tests, or being needle phobic,' Myers said. 'This is unacceptable



Martin Myers MBE is a Consultant Clinical Biochemist and Associate Divisional Medical Director for Pathology at Lancashire Teaching Hospitals, where he continuously addresses pathology re-design, using advanced automation and point of care testing (POCT). His scientific interests include the use of automation, POC testing and informatics in improving the quality of the diagnostic process, while his clinical interests include the use of laboratory testing to improve patient pathways.

and the value-orientated Laboratory Anywhere model is designed to bring diagnosis to these patients.'

A Clinical Advisor to the Chief Scientific Officer of NHS England, Myers is leading a national pilot for the National Health Service (NHS) to deliver the Laboratory Anywhere model to these patient groups, with HbA1c, Total Cholesterol and HDL cholesterol measured.

The hope is that the Laboratory Anywhere concept will be adopted throughout the UK and beyond, to diagnose and monitor diabetes and cardiovascular disease in hard-to-access groups in developing countries, where socio-economic and political issues have resulted in lack of laboratory services, Myers added.

Laboratory Anywhere uses portable Lab-in-a-bag or Lab-in-a-Box technology to take to the patient. The devices vary depending on the purpose; for diabetes and cardiovascular disease, simple devices to measure HbA1c, glucose, cholesterol and HDL cholesterol on a finger prick blood sample are used, whilst for more complicated questions, such as assessing renal function, blood gases, and calcium, cartridge-based devices can measure up to 20 analytes at the same time from one blood sample.



Transportable equipment is a key factor for the Laboratory Anywhere program.

In a Health Mela, his team screens more than 200 people in six hours. However, he acknowledges that whilst measuring HbA1c and lipids in 4-8 minutes is good and glucose meters take seconds, he is keen to see developments where the analytical time can come down to less than a minute for some tests.

Into outreach services

The Laboratory Anywhere model is also being used by outreach services (Sepsis and Acute Kidney Injury teams) with Myers' team now about to implement the Lab oratory Anywhere for frailty units, care homes, urgent care centres and GP surgeries, with results captured on the patient record.

Overall, the impact of Laboratory Anywhere has been 'remarkable', Myers said.

'Patients enjoy the concept, and support what we are doing. As well as diagnosing some patients with diabetes and elevated lipids, many patients are identified as at risk and therefore we can intervene before disease develops.

'Advances in technology,' he concluded, 'mean healthcare scientists can bring the laboratory wherever it's needed and no longer can lack of access be used as an excuse for not reaching out to patients'.

International experts highlight gaps in pandemic planning

The world is underprepared for infectious diseases

Report: Mark Nicholls

A team of international experts has highlighted how the world remains 'grossly underprepared' for infectious disease outbreaks, which are likely to become more frequent in future decades.

Led by Professor Suerie Moon at the Graduate Institute of International and Development Studies in Geneva, the researchers looked at progress and gaps in actions and concluded: 'Ebola and, more recently, Zika and yellow fever, have demonstrated that we do not yet have a reliable or robust global system for preventing, detecting, and responding to disease outbreaks.'

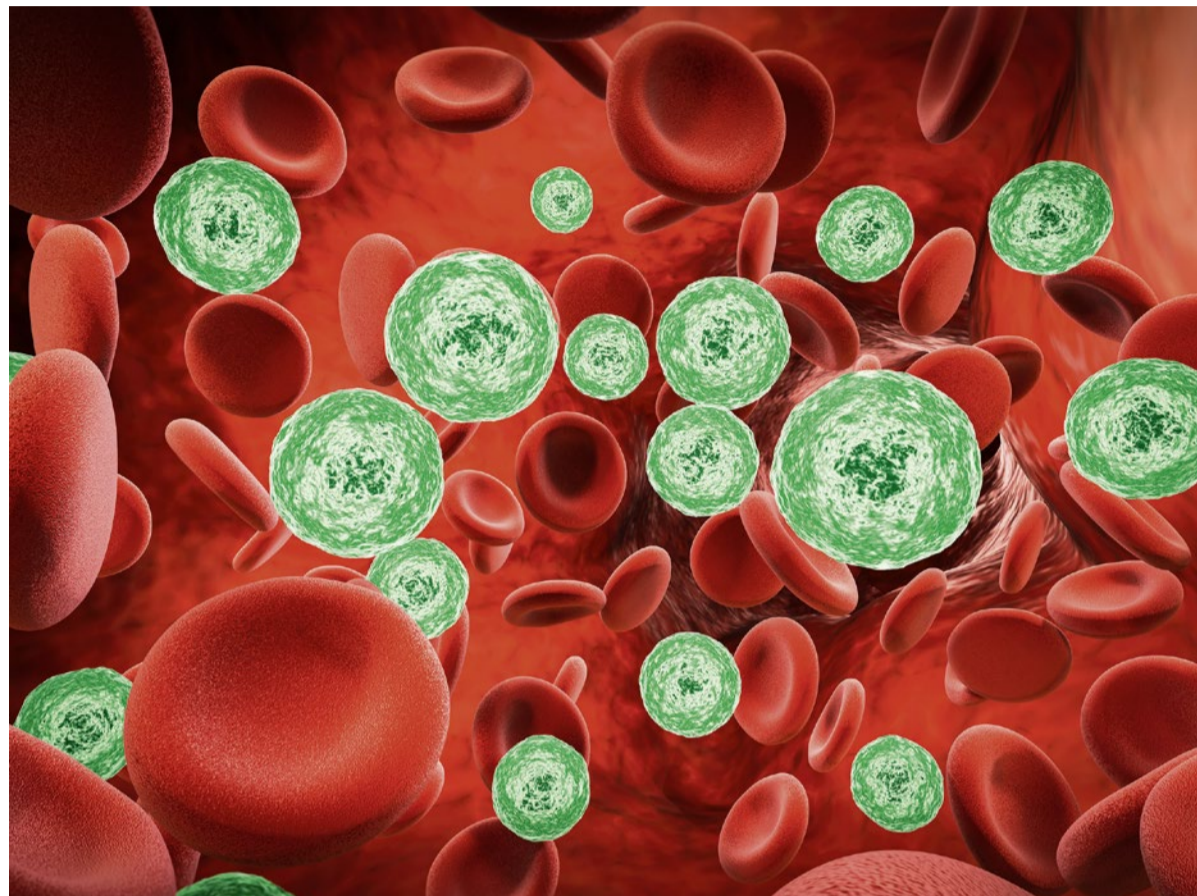
The warning came after the team reviewed reports on the recent Ebola virus outbreak in West Africa and say better preparedness and a faster, more coordinated response could have prevented most of the 11,000 deaths directly attributed to Ebola and also the broader economic, social, and health crises that ensued.

In August 2014, the World Health Organisation (WHO) declared the Ebola outbreak in West Africa a Public Health Emergency of International Concern (PHEIC).

In the aftermath, several reports were published reviewing what went wrong and how infectious disease outbreaks should be better managed.

However, a lack of clarity in terms of the main priorities and proposed reforms, led the researchers to look closer, synthesising seven major post-Ebola reports to assess recommendations and progress.

Their findings recognised that the reports differed in scope and diagnosis of the key problems and recommendations for action converged in three critical areas: strengthening



3D-rendering red blood cells infection with bacteria and virus

compliance with the International Health Regulations (IHR); improving outbreak-related research and knowledge sharing; reforming the World Health Organisation (WHO) and the broader humanitarian response system.

According to the team, so far progress has been mixed in addressing the issues raised. Key problems include the fact that investments in country capacity building have been inadequate and difficult to track; arrangements for fair and timely sharing of patient samples remain

weak, and reform efforts at the WHO have focused on operational issues but have neglected to address deeper institutional shortcomings.

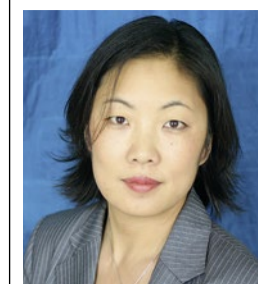
The analysis authors say they found 'remarkable consensus on what went wrong with the Ebola response' and what is needed to address the deficiencies but so far 'not nearly enough has been done'.

Warning: prepare or face significant threats

Moon has warned that being underprepared for infectious disease is

one of the most significant threats facing the global community: 'The risk of emerging infectious diseases is increasing due to environmental degradation, increased human-animal interaction, urbanisation, intensified trade and travel, and inadequate investment in health systems.'

'It poses risks to all countries - the richest, poorest and all countries in between. The losses in human lives, health, and economic activity would be devastating. Estimates based on the risk of a major pandemic over the next century have found annualised losses in the range of between \$60-\$570 billion.'



Dr Suerie Moon is Director of Research at the Global Health Centre, Graduate Institute of International and Development Studies in Geneva and adjunct Lecturer on Global Health at the Harvard T.H. Chan School of Public Health. She was also Study Director of the Harvard-LSHTM Independent Panel on the Global Response to Ebola and co-founded and led the Forum on Global Governance for Health, a focal point at Harvard University for research, debate and strategic convening on issues at the intersection of global governance and health. Her research and teaching focus on global governance and the political economy of global health, focusing on areas such as outbreak preparedness and response.

In terms of next steps to avert crisis, Moon acknowledges that there has been significant progress since the 2014 Ebola outbreak. 'But the glass is still half-empty, maybe even less than half,' she warned. 'Many different organisations need to take action to improve preparedness - local and national governments, intergovernmental organisations, companies, NGOs, academic institutions, and others.'

'I'd say three ingredients are especially crucial now: political leadership to keep the issue on the global agenda, financing from richer and poorer countries alike, and a system to monitor what is and isn't being done in order to achieve mutual accountability.'

The researchers urge the global community 'to mobilise greater resources and put in place monitoring and accountability mechanisms to ensure we are better prepared for the next pandemic'.

Failure to do so, they conclude, could mean the world will not be prepared for the next outbreak. ■

England's first dedicated emergency unit Sepsis Team

Rapid sepsis recognition saves lives

Report: Mark Nicholls

The UK's first dedicated emergency department sepsis team has been set up in one of the country's leading hospitals.

Leicester Hospital's created the team to recognise and manage sepsis. The key aim is to strengthen the response, in a timely manner, to sepsis cases admitted to the emergency department or to identify rapidly any patients who deteriorate within the unit.

The team of medical professionals from various backgrounds includes personnel from intensive and critical care, emergency medicine and operating theatres and is headed by consultant anaesthetist Dr John Parker, Lead Consultant for Leicester's Hospital. Parker explained that the initiative follows 'Time to Act', the Parliamentary and Health Service Ombudsman report of 2013, which observed patient deaths in the NHS after failure to diagnose and rapidly treat severe sepsis.

The document focused on 10 cases in which patients did not receive urgently needed treatment.

The care failings appeared to occur mainly in the first few hours, when rapid diagnosis and simple treatment is critical for patient survival.

From that, Leicester Hospital's began a project in early 2014 and formed a 'Sepsis Awareness' group, bringing together the mentioned healthcare professionals, led by Dr Parker and Sepsis Lead Specialist Nurse Sarah Odams.

A sepsis improvement project was put in place to raise staff awareness of sepsis, recognising that this is a life-threatening condition that arises when the body's response to an

infection injures its own tissues and organs and leads to shock, multiple organ failure and death if not recognised early and treated promptly.

The trust also implemented measures at that time to improve the management of septic patients across the Trust's hospitals.

Since then, the response to sepsis has evolved in a number of ways.

The Trust has written a bespoke 'Sepsis Adult Screening & Immediate Action' pathway, which has been shared with staff across hospitals in line with NICE (National Institute for Health and Care Excellence) and the UK Sepsis Trust protocols.

'We have developed a range of training for our staff, primarily face-to-face,' Parker explained. 'We will also soon have an e-learning package available. Sepsis Awareness

training is now mandatory for our staff. We have also carried out regular surveillance audits to make sure that staff are compliant with the care pathway.'

This has seen an improvement in the number of patients being given IV antibiotics and fluids within an hour, as recommended by NHS England, and recognition of sepsis across the Trust is now at 95-100%.

'With funding from the NHS Litigation Authority, our new dedicated Sepsis Team will be in our Emergency Department, where two thirds of our patients present with the symptoms of sepsis,' Parker pointed out. 'On an average day there could be between five and 10 people coming into the Emergency Department with potentially life threatening sepsis.'

'The team will support the emergency team to recognise and immediately treat anyone who we suspect has sepsis. They will then help to make sure that patient gets the right care from emergency surgery to intensive care support.' ■



Dr John Parker (centre) with the new emergency sepsis team

Cutting time spent on fiddling with screens and devices

Pixel perfect surgical displays

Given the aim to provide 'affordable care', the economical organisation of operating theatres is critical. Surgical procedures also contribute as much as 60-70% of hospital revenues. Thus surgical efficiency and flexibility are paramount in surgical departments.

However, the huge amount of medical devices combined with constantly evolving imaging technologies can make changes between different

An automated failover feature guarantees a backup signal at all times to ensure safe surgery



surgical procedures and preferences time-consuming and possibly risky.

Healthcare imaging specialist Barco has developed a surgical solutions portfolio to enable more efficient and effective use of an operating room.

Safe image-guided surgery

Barco reports that it's 'surgical solutions work seamlessly together to provide precise images to any integrated, hybrid or interventional operating room. The wide range of surgical displays, combined with Nexis

for advanced video integration, fuels the quick adoption and pixel-perfect representation of current and new imaging technologies. So surgical staff can concentrate on patient care instead of spending critical time on fiddling with screens and devices.

'This is quite crucial because, in image-guided surgery, the displays are the eyes of the surgeon. Barco's Full HD and 4K surgical displays provide the right depth and colour perception to offer the best visual guidance for surgeons. Every image is calibrated, rendered quickly, and displayed precisely, for perfect hand-eye coordination. In addition, a unique automated failover feature guarantees a backup signal at all times to ensure safe surgery.'

Maximum use of the operating room

'Though the quality of surgical images may be impeccable, smooth display of those images during image-guided surgery can be problematic,' Barco points out. 'In fact, it's considered one of the biggest challenges by OR staff (according



to a MarkeTechGroup 2016 survey), which is why Barco developed Nexis for video integration. It's the most flexible, scalable and reliable solution for managing images and video during surgical procedures.

'Thanks to its intuitive plug and play approach (just plug the source into the system, and Nexis will display it anywhere inside or outside the operating room), Nexis enables faster turnarounds in the operating

The plug and play approach enables faster turnarounds in the operating room

room and increases uptime. Because of the high flexibility of the system, you can keep pace with emerging technologies, so the OR is 100% future-proof.

'In a time when healthcare efficiency is under scrutiny, it's exactly these kind of solutions that will help healthcare professionals do more and perform better, with less.'

Barco's complete line of surgical solutions is on show at this year's fair in Dusseldorf.



**Barco is at Medica
Hall 10 / Stand F67**

Top quality single-use suction

A pioneering single-use Diathermy Abbey Needle with suction that helps surgeons improve performance and outcomes during a range of procedures is on show at this year's Medica. Developed by Single Use Surgical, the firm reports that the device improves visibility at the surgical site during submucosal diathermy (SMD), turbinectomy and breast surgery. 'It offers a unique combination of precise cauterisation and targeted suction helping to remove surgical smoke and reduce the risks associated with reprocessing a reusable

monopolar device,' the firm explains.

Single Use Surgical was established in 2001 as a direct response to UK hospitals' concerns over the cleaning practices involving fine lumen instruments, and how it posed a high risk of cross contamination between patients, the company points out. 'Since then, we have developed the widest range of high quality and specialist single-use suction capturing the same look, feel and functionality as the reusable equivalent.'

The manufacturer makes products with stainless steel tubes rather



than aluminium, which, it reports, has helped it to become a leading single-use medical device specialist. The range spans many specialties including ENT, head and neck, gynaecology, laparoscopy, general and vascular surgery.

The single-use Diathermy Abbey Needle improves visibility at the surgical site during submucosal diathermy (SMD), turbinectomy and breast surgery



**Single Use Surgical is at Medica
Hall 16 / Stand F42**

Prevention Is Better Than The Cure



Research from the Centers for Disease Control & Prevention finds that 20% of respiratory Infections (e.g., the common cold) can be prevented through Handwashing
Preventing illness is in your hands.

Studies show that the #1 way to prevent the spread of dangerous bacteria & viruses is proper hand washing.

- + Hand Hygiene Sanitizer Dispenser
- + Hand Lotion & Sanitizer Solution
- + Smart Hand Sanitizer Solution
- + Hand Sanitizer Dispenser Accessories

Use Doctorclean® dispensers system throughout the day to help provide protection against the spread of germs

Ningbo Changqi Bathroom Hardware Industry Co., Ltd.

Website: <http://www.doctorclean.com.cn>

Email: Changqi@doctorclean.com.cn

Tel: 86-574-56202601 Fax: 86-574-56202600



Homogeneous shadowless

The flexible wall, ceiling or trolley mounted SOLED15 is an LED examination light for multiple uses and places, e.g. first aid, minor surgery, intensive care, the recovery room, providing excellent light intensity from the IR-free light beam. With colour temperature (CCT) of 4.500°K, colour rendering index (CRI) of 95, the system has low power consumption and long life.

'The high technological level combined with the use of high-powered LEDs allow Soled15 to have a very linear yield and a negligible performance decay for its entire life duration,' Italian firm Acem Spa confirms. 'Thanks to the high efficiency achieved, Soled15 has a light intensity of

65.000 Lux (85.000 Lux with Boost function) and a low power consumption (16W).'

'The new SEL function allows the selection of single parts of the light beam and activation of the desired LEDs in a sequential way according to requirements and needs,' the firm reports. 'The Boost function, or brightness increase, is used to obtain a maximum light intensity in case of a wide light field. This approximate 20% increase deactivates automatically after five minutes.'

Soled15 has a light intensity of 65.000 Lux (85.000 Lux with Boost function)



**Acem is at Medica
Hall 10 / Stand E31**

Each demand is individual to fit an individual

Printing 3-D human parts

Everyone is unique – and so is human anatomy. Thus orthopaedics or implantology call for medical products that provide a perfect fit and demand is high for one-off components, or small production runs. At the same time, the materials used and manufacturing standards applied must fulfil extremely stringent quality control. This also holds for specialised surgical instruments and medical devices, which must be produced quickly and cost-effectively.

‘EOS, the world’s leading technology supplier in the field of industrial 3-D printing of metals and polymers, enables exactly this,’ the company reports. ‘Based on 3-D CAD data, parts are built layer by layer, by depositing powder material instead of, for example, milling a workpiece from solid block by removing material.’

Enabling design-driven manufacturing

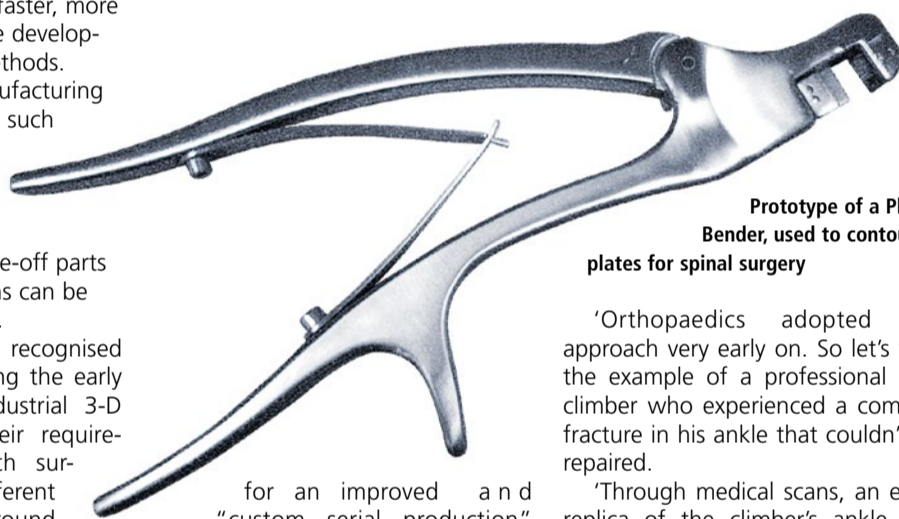
‘Where conventional manufacturing reaches its limits, industrial 3-D printing permits a design-driven manufacturing process allowing producers to come up with faster, more flexible and cost-effective development and production methods. Unlike conventional manufacturing methods, 3-D printing as such allows for maximum design flexibility and functional integration. Thus, test series, prototypes, patient-specific one-off parts and small production runs can be manufactured at a profit.’

‘The medical sector recognised this and has been among the early adopting industries. Industrial 3-D printing is meeting their requirements, supporting both surgeons and patients. Different patient populations around the world require different parameters for surgical equipment and medical implants. With additive manufacturing, patient-specific designs are possible, paving the way



Source: Mandy Ott.

Climber and amputee C J Howard moves with his 3-D printed titanium climbing prosthetic, at Luther Spires in the South Lake Tahoe, CA area



Source: DePuy Spine

Prototype of a Plate Bender, used to contour plates for spinal surgery

‘Orthopaedics adopted the approach very early on. So let’s take the example of a professional rock climber who experienced a complex fracture in his ankle that couldn’t be repaired.’

‘Through medical scans, an exact replica of the climber’s ankle was reconstructed in a program that

communicated a specific design to the EOS system. The 3-D printing technology was able to create a part that closely matched his anatomy and, once implanted, the climber’s recovery was quick because he had a more specific joint replacement rather than an ankle fusion or trauma plates that may not have allowed him to return to climbing.’

‘Beyond patient specificity, industrial 3-D printing also enables a greater complexity in surgical equipment design. EOS customer DePuy

Spine had worked and partnered with leading clinicians and researchers for over 20 years to advance knowledge of both professionals and patients in addressing spinal pathologies and to develop products to treat spine disorders. Getting the right instruments to a surgeon who needs them can be an arduous process.

‘Prototyping, revisions, materials selection, cadaver testing and manufacturing can create total wait times of many months. DePuy Spine was able to cut those lead times dramatically by employing the EOS technology.’

Enabling design-driven manufacturing

‘DePuy Spine was able to introduce a paradigm shift in part design, as such not designing for manufacturability anymore, but for functionality.’ the company points out.

‘The consulting doctors now can be very exact about their requirements for tools such as blades, racks, tweezers, and callipers. CAD designs can be adjusted more easily and another duplication of a tool can be made – instead of just one – to give doctors more choice and greater flexibility.’

‘Some opportunities the technology can offer are top in mind today: e.g. creating a point of care application, which is one of the many holy grails within the medical industry.’

‘Imagine being able to go to any hospital and have whatever ailment you had treated on the spot,’ the manufacturer adds. ‘There’s still a long way ahead but it’s becoming more feasible while we continue to focus on material advancements and the continuing improvement of the technology.’

* Further case studies: <https://www.eos.info/case-studies?category=Medizin>

ess light



The easy-to-move rounded structure suits multiple medical areas

The Surgeon’s Choice

New Range including Dermatology



TO EXPERIENCE THE PRECISION OF DTR MEDICAL STERILE SINGLE-USE INSTRUMENTS PLEASE CONTACT US
 t +44 (0)1792 797910 e info@dtrmedical.com w www.dtrmedical.com



Launching: the portable medical imaging workstation

Danish firm Plum Medical Solutions is launching its 2nd generation MED-TAB, reported to be the world's first portable medical imaging workstation. 'It's the only standards compliant portable device available for use in radiology and medical image analysis,' the manufacturer explains.

Designed, developed and refined over a five-year period by a radiologist, Dr Arpad Bischofe and team, the portable medical applications system is packed with functions dedicated to healthcare imaging.

Dr Bischofe explains that the system enables safe, secure reporting anywhere, anytime. 'I'm no longer anchored to the reading room. I can

work around the hospital and close up to patients as I see fit, or remotely, like when I'm on-call, at home or anywhere else. It's giving me so much flexibility. I never thought radiology could be like this.'

Made to work with its own Port-Ray software as an integrated part of the PACS or with almost all zero-footprint universal viewers from leading PACS companies, the system's unique features include:

- DICOM grayscale and colour operation via one-touch button
- DICOM hardware calibration

- Ambient light sensor and conditions indicator
- Large 13.3" touch-screen display
- Integrated precision measurement pen
- Integrated dual-purpose carry case/non-slip display stand
- Automatic portrait and landscape orientations
- Certified medical device

'Plum is a daughter company of the London-based PACS vendor Image Information Systems,' the Danish firm reports. 'It is the only company in the world dedicated to portable diagnostic imaging and cloud-based medical communication systems.'

Plum is at Medica Hall 15 / Stand E05

A fully automated mixing and dispensing station

Contact free formaldehyde dilution

Formaldehyde is used as preservative for biological samples (particularly in human and veterinary medicine) making this one of the most frequently used chemicals in pathologies. However, with every breath, laboratory staff takes up the harmful vapours of this carcinogenic chemical. 'We have developed a fully automated formalin mixing and dispensing system for contact-free formalin mixing to reduce the contact between laboratory staff and formalin to a minimum, which at the same time also significantly decreases formalin contamination in laboratories,' manufacturer Kugel Medical reports.

Due to its compact design, the Formamix is also suitable for small laboratories, the company adds. 'All operations, such as preparing a 3.7% standard formalin solution for tissue sample fixation, or a customised solution with variable quantities of formaldehyde, water and a buffer solution, are controlled through the new touch display.

Kugel is at Medica Hall 3 / Stand E93

'The integrated microprocessor allows you to save and recall your settings for later use. The prepared mixture can be drained directly from a tap at the device, or transferred to multiple remote stations that can be up to 200 metres away – a particularly interesting feature for laboratories with working stations in different rooms.

'The integrated pump enables you to dispense the exact quantity of the prepared formalin solution without dripping or leaking,' Kugel points out, adding: 'On the technical side, exhaust and ventilation technology has never

been more important than now, especially energy recovery and filtration of pollutants play a main role in pathologies. This is why the Formamix can be easily connected to the on-site ventilation system, or operated through eco-friendly activated carbon filters to ensure that all vapours are vacuumed away safely and efficiently. 'Electronic and mechanical safety precautions keep liquids from overflowing to guarantee the utmost safety while Formamix is in use.'



Cyberbloc_{FP}

Flat Panel Surgical C-arm

30 years experience in the field of medical imaging will convince you

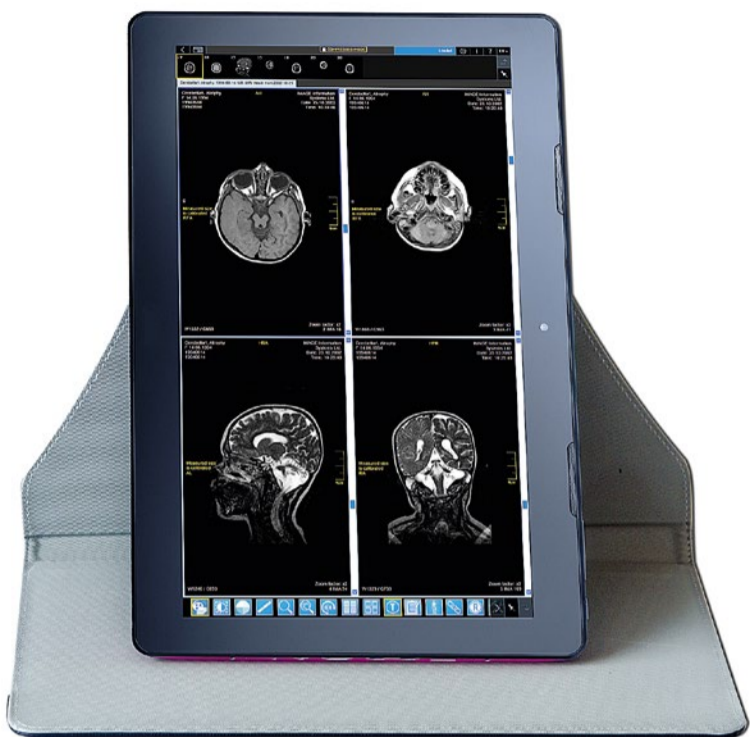
- so easy to use, so easy to move
- so much dose saving
- larger field of view than ever



Primax
international

see you on booth 10 F 74
www.primaxint.com

... always on the forefront of innovation



A world without pressure

The pioneering m

To coincide with Pressure Injury Prevention Day on 16 November, United Kingdom manufacturer Rober Ltd is again at Medica highlighting how advanced technology can help 'stop the pressure'.

The company's intensive care pressure ulcer mattress is designed to offer pressure ulcer relief to immobile and critically ill patients. 'The Wizard combines Rober's signature alternating pressure cell design with an impressive tilt facility,' the maker explains. 'This action gently turns the patient onto their side, comfortably and correctly.'

'The mattress replicates the body's natural movements by responding to a patient's weight, spontaneous movement pattern and body position. It also provides enhanced com-

fort and complete pressure elimination at regular intervals. 'The technology prevents pressure injuries from developing and also includes therapeutic properties that promote the healing of established ulcers.'



fort and complete pressure elimination at regular intervals.

'The technology prevents pressure injuries from developing and also includes therapeutic properties that promote the healing of established ulcers.'

Rober is at Medica Hall 16 / Stand G18-6

EUROPEAN HOSPITAL
European Hospital Verlags GmbH
Theodor-Althoff-Str. 45,
45133 Essen, Germany
Phone: +49 (0)201 87 126 850
Fax: +49 (0)201 87 126 864
E-mail: info@european-hospital.com
www.healthcare-in-europe.com

Editor-in-Chief: Brenda Marsh
Art Director: Olaf Skrober
Editorial team: Wolfgang Behrends, Lena Petzold, Marcel Rasch
Senior Writer: John Brosky
Executive Director: Daniela Zimmermann
Founded by: Heinz-Jürgen Witzke
ISSN 0942-9085

Correspondents
Austria: Michael Kraßnitzer, Christian Pruzinsky.

China: Nat Whitney

France: Jane MacDougall.

Germany: Anja Behringer, Annette Bus, Walter Depner, Brigitte Dinkloh, Cornelia Wels-Maug, Holger Zorn.

Great Britain: Mark Nicholls.

Malta: Moira Mizzi.

Spain: Mélisande Rouger, Eduardo de la Sota.

The Netherlands: Madeleine van de Wouw.

USA: Cynthia E. Keen, i.t. Communications, Lisa Chamoff.

Subscriptions
Liane Kaiser,
Theodor-Althoff-Str. 45, 45133 Essen, Germany

Subscription rate
6 issues: 42 Euro, Single copy: 7 Euro. Send order and cheque to: European Hospital Subscription Dept

Printed by: druckpartner, Essen, Germany

Publication frequency: bi-monthly

Representatives
China & Hongkong: Gavin Hua, Sun China Media Co, Ltd. Phone: +86-0755-81 324 036
E-Mail: gavin_hua@163.com

Germany, Austria, Switzerland: Ralf Mateblowski
Phone: +49 6735 912 993,
E-Mail: rm@european-hospital.com

Augmenting antibody services and assay development

Acquisition: BBI gains MBS

BBI Solutions (BBI), immunoassay developer and reagent supplier, acquired Maine Biotechnology Services Inc. (MBS) in July 2017, adding antibody development to the firm's end to end assay development services. This also strengthens BBI's reagents antibodies portfolio, providing a wide range of high quality biomarkers for infectious disease.

MBS, based in Portland, Maine (USA), has been a leader in custom antibody development services for over 27 years. The firm's technical team brings unique hybridoma screening and characterisation protocols to BBI clients. 'Through this acquisition, BBI Solutions now has the opportunity to partner with IVD development customers earlier in

their R&D process, delivering antibodies screened and selected specifically for their end use applications,' BBI reports.

Customer support will also be available through antigen review, cGMP antibody production, purification, and characterisation. 'Availability of in-house antibody capabilities will be particularly advantageous to lateral flow development customers who can now work with BBI from planning a reagent strategy, through to final diagnostic production,' the firm adds.

'Having one comprehensive provider will allow customers to seamlessly identify and prevent antibody performance risks, both during development and over the lifetime



The acquisition strengthens BBI's reagents antibodies portfolio

of the immunoassay kit manufacturing.' Products added to BBI Solutions from MBS include antibodies recognising myeloperoxidase, cortisol,

osteopontin, PEG, Ig controls, His-tag, norovirus, rotavirus, adenovirus, chikungunya virus, zika virus, and dengue fever.

Go to: www.bbisolutions.com, or visit www.mainebiotechnology.com to read more about BBI antibody development services.

BBI is at Medica Hall 3A / Stand 3AB02-1

New, sterile and single-use tools

mattress



'As a UK designer and manufacturer of pressure ulcer prevention technology, exhibitions like Medica are vital for us to showcase technology such as the Wizard on a global scale,' said Mike Hutson, Chief Executive of Rober. 'The exhibition once again ties in with World Wide Pressure Injury Prevention Day so it supports our ultimate aim to help stop the pressure globally.'

The House Curette and Rosen Needle

DTR Medical Ltd is at Medica Hall 16 / Stand F42



Award-winning UK manufacturer of sterile single-use surgical instruments, DTR Medical is showcasing their new House Curette and Rosen Needle at Medica this year. 'The House Curette includes sharp, dual action tips that scrape and scoop tough cortical bone during middle

ear procedures,' the firm explains. 'The double-ended stainless steel instrument has clearly labelled 2.0 and 3.0mm ends, giving the surgeon the flexibility they need.

'To enhance control, the Curette is engineered with flat, serrated 180mm handles to increase function-

ality, enabling ease of entry within the ear cavity.'

Also in DTR's expanded ENT range is a new sterile single-use Rosen Needle.

'Constructed to create a clean incision in the ear drum when used during surgeries such as Tympanoplasty,

the Needle offers a sharp tip that ensures precision you can rely on in delicate operations,' the manufacturer points out.

Expanding the portfolio further this year is the launch of a Dermatology range which includes a selection of instruments.

France, Italy, Spain: Eric Jund
Phone: +33 493 58 77 43,
E-Mail: ej@european-hospital.com

GB, Scandinavia, BeNeLux: Simon Kramer
Phone/Fax: +31 180 6200 20
E-Mail: sk@european-hospital.com

Israel: Hannah Wizer, International Media Dep. of El-Ron Adv. & PR Co., Ltd.,
Phone: +972-3-6 955 367
E-Mail: hw@european-hospital.com

South Korea: CH Park, MCI
Phone: +82 2 730 1234,
E-Mail: mci@unitel.co.kr

Taiwan: Charles Yang, Phone: +886 4 232 236 33, E-Mail: medianet@ms13.hinet.net

USA & Canada: Hanna Politis, Media International
Phone: +1 301 869 66 10,
E-Mail: hanna@media-intl.com

All company, brand and product names in this publication are the property of their respective holders. Users must obtain permission from those holders before copying or using the owner's trademarks, product and company names or logos.

34th Korea International Medical & Hospital Equipment Show

15-18 March 2018

COEX, Seoul

Please Visit us at Medica 2017 Booth No. **7.0E23**

www.kimes.kr

Think Future?

Yes



KiMES

KiMES 2018

Sponsor



Organizers Korea E & Ex Inc. / KMDICA / KMDIA

Contact Korea E & Ex Inc. / Tel. +82-2-551-0102 / Fax. +82-2-551-0103 / E-mail. kimes@kimes.kr

SonoScape



HD-500

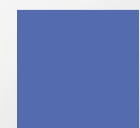
High Definition
Video Endoscopy System

Caring for Life
through Innovation



SONOSCAPE MEDICAL CORP.
Yizhe Building, Yuquan Road
Shenzhen, 518051, China
Tel: 86-755-26722890
Fax: 86-755-26722850
E-mail: Market@sonoscape.net
www.sonoscape.net

MEDICA[®]



9E25 / 10G04
in Hall 9 / in Hall 10