20 NOVEMBER 2013

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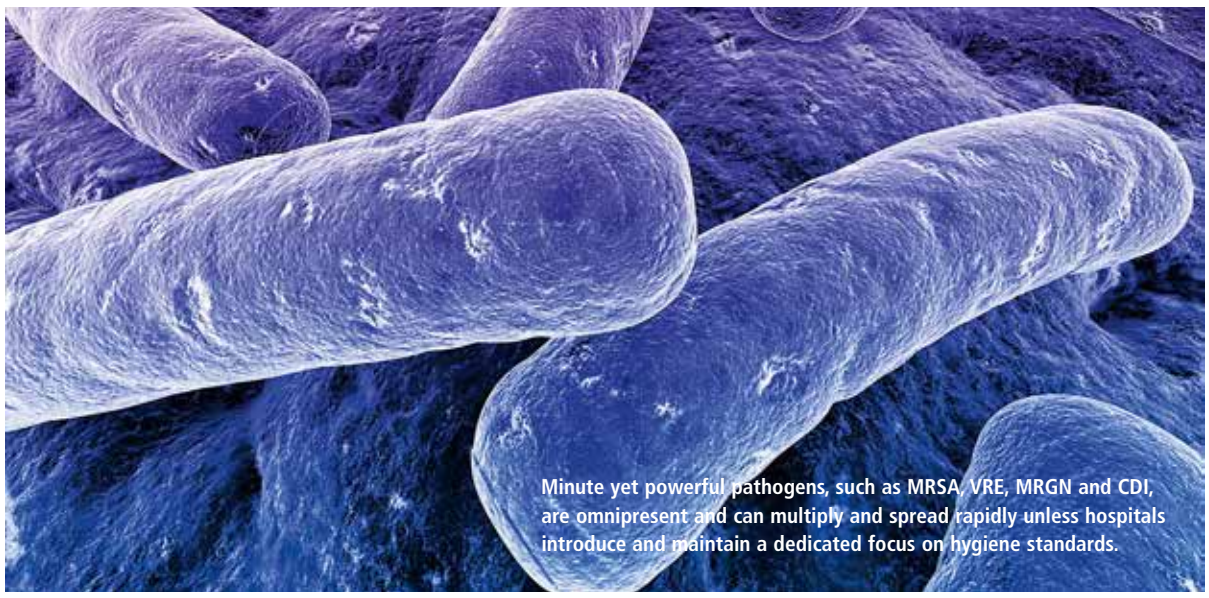
EUROPEAN HOSPITAL @ MEDICA

SPECIAL ISSUE: MEDICAL, TECHNICAL, PHARMACEUTICAL, INDUSTRIAL NEWS

DUSSELDORF • WEDNESDAY • 20 NOVEMBER 2013

Two sides of the coin

Only reduced antibiotics use and better infection prevention and control can contain nosocomial infections



Minute yet powerful pathogens, such as MRSA, VRE, MRGN and CDI, are omnipresent and can multiply and spread rapidly unless hospitals introduce and maintain a dedicated focus on hygiene standards.

The one-day course 'Infection Prevention and Control' (20 November. 9.30 a.m. - 6.00 p.m.) focuses on a vital issue at the Medica Education Conference 2013. Before this event, European Hospital@ MEDICA spoke with Professor Franz-Josef Schmitz MD, Course Chairman and Senior Consultant at the Institute for Laboratory Medicine, Microbiology, Infection Prevention and Control, Environmental Medicine and Transfusion Medicine at Mühlenkreiskliniken in Minden, about challenges and potential solutions.

Pointing at two problem areas, he said: 'More and more antibiotics are being administered in out- and in-patient treatment, which puts selective pressure on the bacteria. This means that many pathogens are increasing resistance and a decreasing number can be successfully treated with antibiotics. We also see that these resistant pathogens can spread rapidly if infection prevention and-control is inadequate.

Improving control in hospitals

'So, on the one side we have the spread of nosocomial pathogens when infection prevention and control is inadequate and, on the other, the increasing use of antibiotics, which leads to the pathogens becoming increasingly resistant against certain groups of antibiotics. The problematic pathogens are known – Methicillin-resistant Staphylococcus aureus (MRSA) Vancomycin-resistant Enterococci (VRE), multi-resistant gram-negative bacteria (MRGN) and the toxin-producing Clostridium difficile (CDI).

'In Germany, and some other countries, it took a long time to address the problems with the required intensity. Training more infection and prevention control support staff and specialists in individual hospitals – currently being implemented in this country – is a sensible measure which, in the medium and long-term, will lead to increased awareness, and which could possibly prevent the expected, potential increase in nosocomial infections and pathogens. It remains to be seen whether in fact it will also achieve a decline in the number of these infections. At the very least it's an attempt to tackle the problem and there is a realistic chance that the situation can be improved.' Although unlikely to solve the problem in the short term, the professor expects those measures to have a successful impact in five to ten years' time.

Tackling the cause of resistance – by law

'The Dutch pursue the principle that broad-spectrum antibiotics should only be used after a microbiological consultation. In Germany, doctors have the freedom to prescribe, but even here there are efforts in many hospitals to prescribe these 'reserve' antibiotics only after microbiological testing, and only after the respective approval from the local pharmacist.

'However, hospitals make up only a proportion of where antibiotics are being used, although their use, especially the perioperative administration of antibiotics, should still be reduced. Antibiotics are used far more commonly in veterinary medicine, and in (human) out-patient care. Reductions in the use of antibiotics in animal husbandry as well as in out-patient care are desirable. In animal husbandry it should certainly be possible to make this a legal requirement, but in out-patient care colleagues would need convincing and respective training should be provided.

"Medics must be educated in prevention and control"
Franz-Josef Schmitz

'For infection prevention and control in hospital, financial aspects are decisive. The more staff is made available, the easier carrying out prophylactic measures will be.'

Of one thing he is certain – only when both nurses and doctors on wards are trained in infection prevention and control will awareness be raised and infections contained. 'More awareness of this topic amongst politicians is therefore extremely desirable,' Professor Schmitz concludes.

TODAY - DON'T MISS!

MEDICA EDUCATION CONFERENCE

Venue: Congress Centre, Düsseldorf (CCD Süd), 1st floor, room 7

Wednesday, 20 Nov. 2013 ● 9:30 a.m. – 6:00 p.m.

Free-Flow: Hygiene in clinics and practices

Chair: Prof. Dr. med. Franz-Josef Schmitz, Mühlenkreiskliniken, Minden

Speakers: Prof. Dr. Michael Kresken, Paul-Ehrlich-Gesellschaft für Chemotherapie, Campus Hochschule Bonn-Rhein-Sieg

Prof. Dr. med. Colin MacKenzie, Heinrich-Heine-Universität Düsseldorf, Institut für Mikrobiologie und Krankenhaushygiene

PD Dr. med. Roland Schulze-Röbbecke, Universitätsklinikum Düsseldorf, Institut für Medizinische Mikrobiologie und Krankenhaushygiene

Dr. med. Reinold Gross, Marienhospital Osnabrück, Institut für Laboratoriumsmedizin und MVZ Weser-Ems

Dr. med. Peter Witte, Gesundheitsamt Kreis Minden-Lübbeck

PD Dr. Gregor Grass, Institut für Mikrobiologie der Bundeswehr, Hochsicherheitslabor/Spezialdiagnostik

Dr. Anton Klassert, Deutsches Kupferinstitut Berufsverband e.V.

Decubitus ulcers

UK hospital cuts cases radically

Patient Josie Doran with Diane Wake (front right), Mary Harrison (front left) and successful staff from ward 8X.

Report: Mark Nicholls

After acknowledging that too many patients were developing hospital-acquired decubitus ulcers (also known as pressure ulcers or bedsores), staff at England's Royal Liverpool and Broadgreen University Hospitals NHS Trust adopted a zero tolerance approach and prioritised action against bedsore development, which has resulted in a dramatic decrease in cases. Indeed, their efforts proved so successful that the most harmful types of bedsores have been completely eradicated from the trust's two hospital sites over the past year. Strict protocols include a thorough risk assessment to check every patient for any skin damage within six hours of hospital admission, or when moved from one clinical area to another. An individual care plan is then produced for at risk patients, with advice given about how they can help prevent the development of a pressure ulcer.

Within the hospital a registered nurse checks patients for pressure ulcers at least every eight hours and a weekly report on the incidence of any bedsores is produced where lessons learned are shared with clinicians and senior nurses.

A specialist team of Tissue Viability Nurses (TVNs) works closely with ward staff to advise and support them in care of patients admitted with a pressure ulcer to help them heal and prevent patients developing any pressure ulcers whilst in hospital. The TVNs currently see about 600 patients monthly.

All clinical staff receive annual training in bedsore management and each ward is designated a trained nurse. 'Preventing patients from developing serious bedsores is something that we are all extremely passionate about,'

Mary Harrison, the trust's leading TVN explained. 'Staff education is an important aspect of the role both in clinical practice and in teaching sessions for the multi-professional team. It is a mandatory requirement for all clinical staff to have education on the prevention and management of pressure ulcers.

'The main success is by engaging with all staff and ensuring that the prevention of pressure ulcers remains a high priority.'

The trust investment in resources to prevent pressure ulcers includes specialist beds and equipment, which are available round-the-clock.

Pressure ulcers – which can range in severity from patches of discoloured, skin to open wounds that expose the underlying bone or muscle – arise from damage to the skin and underlying tissue and are commonly caused by body weight pressing down on the skin when people are immobile for long periods or unable to shift their weight.

Diane Wake

'Our aim is to continue to reduce the incidence of hospital acquired pressure ulcers and ensure none of our patients develop an avoidable pressure ulcer,' added the tissue viability nurse who has 17 years' experience in this discipline.

Diane Wake, Chief Operating Officer and executive nurse, added that the staff cared for over 85,000 patients last year and are extremely proud that not a single patient developed a serious bedsore. The benefits to patients are huge, and the trust has not only saved on expensive wound dressings as well as nursing time, but also has gained a reputation for its bedsores initiatives, with a number of other units showing an interest in the work.

Tailored medical weighing systems and scales

Medically tailored systems, plus supportive software for diagnostics and patient counselling, as well as the new seca Keyboard Module are at Medica

seca at Medica Hall 12 / A63

The PC software seca emr flash 101 transmits measurements from seca 360° wireless products to an Electronic Medical Record (EMR) system.

Without any programming effort by the user, the software's new Keyboard Module puts the basic parameters of height and weight in any field in the patient records. The measurements are written to the field where the cursor is located, or to any easily configured field. For users the advantages are obvious – efficiency gains, saved time and prevention of manually transcribed errors.

Additionally, any user can make the connection alone in just a few steps. Because no costly programming work or software integration in the EMR system is required, challenging cost calculations are not needed.

The software is free of charge as a download from www.seca.com. The USB-Adapter seca 456 is required for reception of the seca emr flash 101 wireless data.

'seca has a unique market position with seca 360° wireless,' the firm points out. 'No other manufacturer of medical measuring systems and scales offers wireless transmission of height and weight and computerised diagnostics and treatment planning as made possible by the PC software seca analytics 115.'

The wireless seca 360°– expansions for medical practices

seca also assists in patient counselling. 'After a measurement has been made with seca 360° wireless products, the doctor diagnoses an underweight or overweight condition, the company explains. 'An informative printout of the findings is automatically generated. It makes the patient aware of health problems, provides tips on lifestyle changes and gives the patient a basis for the counselling session with the doctor.'

For weight monitoring of premature babies seca is also demonstrating a wireless baby scale for use in neonatology. 'Thanks to its very fine graduation, the scale gives the paediatrician a precise picture of the baby's development.'

At Medica visitors can see how this fast, simple medical Body Composition Analyser seca mBCA can deliver a medically precise assessment of a patient's overall health and nutritional condition. For diagnostic purposes the system breaks down weight into components of fat, muscle mass and water. This aids in the early detection of many diseases, such as overhydration or cachexia, and helps with close monitoring during treatment. 'That's why ' the firm points out, 'body composition analysis and its significance in clinical practice are among the major topics at the seca stand.

Hygiene: Back to basics

Two statements from publications by Dr Stephanie Dancer, from the Department of Microbiology at Hairmyres Hospital, East Kilbride (UK) prompted *Ralf Mateblowski* to interview Professor Markus Dettenkofer, Acting Director of the Institute for Environmental Medicine and Hospital Hygiene, Freiburg University Medical Centre about environmental and infection control

In 2009 Dr Dancer stated: 'We simply don't know how to clean our hospitals in order to create the safest environment for patient care.'
'The situation is indeed still difficult,' Prof. Markus Dettenkofer commented. 'Who has actually been interested in relevant clinical studies on cleaning and infection control in hospitals? There was a lack of lobbying and financial opportunities such as those available for studies into antibiotics. There was also a lack of randomised and multi-centric approaches. However, the situation is improving: There are now current studies, especially in the USA, and also by Stephanie Dancer – an encouraging development.'

In 2011 she said: 'Comprehensive cleaning is also easier to implement than persuading busy staff to wash their hands or by reducing empirical antimicrobial use.'
'Hand hygiene is not given enough importance. In that respect, I find Dr Dancer's statement a little too provocative. Hand hygiene is the most important part of the entire process! 'No allowances should be made in this respect, with focus only on surface disinfection. No. Hand hygiene is and will remain number one. Antibiotics stewardship is also of the greatest importance, because effective cleaning and disinfection management alone is not enough, without strict antibiotics control and comprehensive antibiotics management.

Will classic cleaning with detergents, the basic prerequisite for successful disinfection, fall into oblivion?
'This may be the case in some hospitals, especially when there is a lot of financial pressure. However, in Freiburg we have – and I say this with pride – never forgotten about cleaning! Prof. Daschner spoke out against undirected surface disinfection in favour of proper cleaning early on. We employ our own cleaning team – a rarity, as most hospitals outsource cleaning to external companies, which often results in significant problems with quality. We don't experience these problems with our in-house staff. Fluorescence markers, for instance, are suitable for simple quality control. Located in critical positions, they will remain in place after insufficient cleaning and become visible under UV lighting.

'Floors and walls are not critical surfaces – these types of surfaces are in fact hardly ever the sources of nosocomial infections – but objects and surfaces with frequent hand contact are – and here there are repeated, large shortcomings in the daily cleaning process.'

That's despite the fact that Germany is the 'world champion' in setting out guidelines. Are we good theorists but bad practitioners, and therefore third-class in our MRSA ranking?
'That's only part of the explanation; the somewhat modest performance also can be put down to modern medical routines. One advantage is that we hardly have any waiting lists here. Admittedly, there are weaknesses in our high performance medicine when you go into details. Compared to the Netherlands or Scandinavia, our infection control is still not good enough. Over the last few decades we've expanded capacities in surgery, intensive care etc. but have frequently forgotten that controlling the spread of resistance particularly depends on the details.

'We are at a critical point in Germany: Specialists as well as the general public are aware that we must carry out consistent infection prevention and control in our modern medicine. But this has its price and involves hard, interdisciplinary work. It's not simply a case of the respective hospital departments for infection prevention and control organising everything, compiling standards and then everything happening of its own accord… to the contrary. It will continue to be intensive, detailed work in daily clinical practice, without a cure-all, such as the miracle antibiotics we used to dream about. 'The significant differences between individual European countries are a challenge for us. My urgent appeal: We have to learn from one another!'

Professor Markus Dettenkofer MD, head of the Section for Hospital Infection Prevention and Control at the Institute for Environmental Medicine and Hospital Hygiene, Freiburg University Hospital since 2008, is currently Acting Director of the Institute. A specialist in Infection Prevention and Control and Environmental Medicine, he began his career as a scientific assistant in 1993. His personal commitment and 20-year experience benefit national specialist associations such as the Future Hygiene Network (NZH) and German Society for Infectiology (DGI) as well as international organisations such as the European Society for Clinical Microbiology and Infectious Diseases (ESCMID).

Ultrasound's shifting medical uses

Application-specific devices are increasing in numbers

Cephasonics at Medica Hall 16 / D18-3.

The ultrasound market is undergoing dramatic shifts – changes are occurring in the equipment markets and consequently in clinical applications where ultrasound is used. The market is increasingly fragmented in manufacturer numbers and variety of systems.

Most ultrasound machines are still built and used for traditional imaging applications such as radiology, ob/gyn and cardiology. However, the advent of technological innovation in miniaturisation, lower cost, and longer battery life is increasingly opening the door, both for established companies as well as new entrants to develop point-of-care (POC) and application-specific ultrasound systems.

According to InMedica, markets for systems designed specifically for POC solutions, e.g. anaesthesiology, musculoskeletal, and emergency medicine, are expected to grow at double-digit rates in coming years.

Application-specific devices such as breast-screening systems, ultrasonic ophthalmology systems, ultrasound-based guidance systems, and various non-invasive ultrasonic-appliances are now being developed and offered. These newer ultrasound systems are distinctive because they are designed for operation by various clinicians who are neither sonographers nor radiologists, which helps to explain their rapid growth.

A chance for newcomers

Countless manufacturers now offer systems that address the needs of specific market segments, which. are not serviced directly by the large traditional ultrasound manufacturers such as GE, Philips, or Siemens, thus providing an opportunity for new players to enter the market.

The newcomers often differentiate themselves with innovative probes and/or innovative back-end algorithms and application software. They all face the issues of high-cost and high complexity to develop their own ultrasound-specific electronics, including sophisticated digital beamformers and critical analogue and power circuitry. Though often not the basis of product differentiation, this front-end system is at the heart of any ultrasound-based system, and access to such technology allows these firms to realise their products and meet market windows.

An innovative Silicon Valley firm provides that essential enabling technology. Cephasonics' CSK9130 is a highly configurable embedded-ultrasound beamforming engine that enables companies to develop this wide variety of innovative ultrasound-based solutions.

The traditional ultrasound market has reached maturity. Like other markets that have reached this stage of consolidation, it is now fragmenting from a few vertically integrated established companies to many newer companies that are essentially system integrators. Solutions such as Cephasonics' CSK9130 are spurring market success by providing the electronics and software platform around which new ultrasonic-based procedures and appliances are built.

MEETING TODAY

MEDICA EDUCATION CONFERENCE

Venue: Congress Centre, Düsseldorf (CCD Süd), room 3

Wednesday, 20 Nov. 2013

● **2:30 p.m. – 6:00 p.m.**

Free-Flow: Personalised Medicine 1 – Biomarkers
Advances in Diagnosis – Molecular Markers

Chair: Prof. Dr. med. Josef Rüschoff, Pathologie Nordhessen, Kassel

Prof. Dr. Gabriela Möslein, HELIOS St. Josefs-Hospital, Bochum

Speakers: Günter Emons - Director Institute for gynaecology and obstetrics, University of Göttingen

Rolf Sijmons - Department of Genetics, University Medical Centre Groningen

Ian Frayling - Consultant in Genetic Pathology & Honorary Senior Clinical Research Fellow Institute of Cancer & Genetics, Cardiff University, Institute of Medical Genetics

Anke Reinacher-Schick - Head of Hämatologie und Onkologie der Med. Klinik I, Ruhr-University Bochum, St. Joseph-Hospital

Magnus von Knebel-Döberitz, Institute of pathology, University of Heidelberg

Bringing in technologie

Image fusion for prostate diagnostics

Prostate cancer is the most common cancerous disease in men. Since magnetic resonance imaging (MRI) arrived the diagnostic capabilities for early detection have improved considerably, along with more selective prostate cancer treatment. In particular, the capabilities for tissue differentiation and spatial resolution are much better with MRI compared to ultrasound imaging. However, despite these continuously developing imaging capabilities, the final differential diagnosis and clarification for an MRI result is still a biopsy. The most common type is the ultrasound-guided core biopsy, which systematically samples tissue in 12 locations where prostate cancer most commonly develops. So, why not combine the two technologies, MRI and ultrasound, to reduce the number of biopsies required and achieve higher accuracy with a new procedure?

The Urostation from KOELIS combined with Samsung Ultrasound

In partnership with the French company KOELIS, the Korean medical devices manufacturer Samsung has developed a urological workstation that combines the advantages of MRI imaging with the practical advantages of ultrasound-guided biopsy. In the Urostation, 3-D MRI images of the prostate are superimposed with live images from the Samsung ultrasound scanner taken with a transrectal 3-D ultrasound transducer.

At the Urology Clinic in University Hospital Dusseldorf, Professor Peter Albers and team are already using a combination of Samsung Ultrasound and Urostation. The clinic is a Prostate Cancer Treatment Centre certified by the German Cancer Society. More than 2,000 in-patients and 7,000 out-patients are examined and treated there every year.

Most biopsies are carried out with the Samsung-Urostation combination.

U.S. COMMERCIAL SERVICE
United States of America
Department of Commerce

USA CEO Center by US Commercial Service, Hall 16, Stand C 04
US companies have come to MEDICA to meet with potential partners from around the globe.
Set up your meeting at Hall 16, C04 or call 49-211-947-1045 or email Judy.Kornfeld@trade.gov.

Aggredyne Inc.	Blood test for personalized anti-platelet therapy
Axelgaard Manufacturing Co., Ltd.	Hydro gels, neurostimulation electrodes, surgical grounding pads
Brownmed	Innovative medical and pain relief products
CAS Medical Systems, Inc.	Tissue oximiter, blood pressure measuring, vital signs monitors
Cenorin LLC	Disinfection pasteurizers, forced air clean & sterile drying cabinets
CHD Bioscience	New broad spectrum antimicrobial products
Cincinnati Sub-Zero Products, Inc.	Patient temperature management systems
Douglas Scientific	End point PCR, Endpoint isothermal DNA amplification and more
Dymedix Diagnostics	Sensors for diagnostic sleep studies
JACE Systems	Continuous passive motion equipment
Luxtel LLC	Specialty Xenon ceramic lamps
North American Medical Corporation	Physical therapy devices
PDi Communication Systems, Inc.	Hospital grade televisions and patient entertainment systems
Pelfit Technologies LLC	High tech solutions for pelvic floor weakness
Pepin Manufacturing, Inc.	CE marked and FDA registered e-stim electrodes
Phamatech, Inc.	Drug tests for official and private testing, FDA cleared
Precision Bioservices, Inc.	Leading provider of immunological products and solutions for research
Rhythmlink International, LLC	Physical connections to record neurophysiologic bio potentials
SCIFIT, Inc.	Cardio-fitness diagnostic equipment for upper and all body exercises
Swan Valley Medical, Inc.	Urological, single use surgical instruments, CE marked, FDA cleared
Tangent Medical Technologies, Inc.	Developing and commercializing IV therapy products
ThermaSolutions, Inc.	Global leader in hyperthermia medical technology for hospitals
Vocera	Voice, text and messaging solutions for process and work flow
Weaver and Company	NuPrep skin prep gel for electrode sites on patients

novative
es together

Image fusion increases patient comfort additionally relieves the doctor in charge.
Ultrasound devices from Samsung and KOELIS´ Urostation form a strong combination and enable innovative image fusion for prostate diagnostics. The Urostation layers previously recorded 3-D MRI images of the prostate with live images from the Samsung ultrasound device. These are captured with the transrectal ultrasound probe.

'With this procedure we can sample tissue very specifically in locations that look conspicuous on the MRI images,' Professor Albers explains. 'The MRI shows up small tissue changes in the prostate at an early stage, which we would not be able to see with ultrasound alone. To take very specific tissue samples, in some individual cases we carry out MRI-guided biopsies.'

However, tissue samples are not only taken from conspicuous locations but systematically from 12 typical locations, although the doctors aim at particularly conspicuous areas. 'The hypothesis that it suffices to only limit ourselves to particularly conspicuous MRI results has not been scientifically confirmed. Two large studies are currently being carried out to clarify this issue,' he adds. A welcome side effect: Whilst MRI-guided biopsies are not usually reimbursed by health insurers, this service can now be offered to patients in the university hospital as part of these studies.

Peter Albers gained his medical degree at Mainz University (1988) and his urology residency at the Universities of Mainz and Bonn. In 1993-'94 he was research fellow at the Urology Department at Indiana University, USA. Earlier roles also include the chairmanship of the Urology Department at Klinikum Kassel (2003-2008), and Vice Chairman of the Urology Department at the University of Bonn (1998-2003). Since 2008, he has been Professor and Chairman of the Urology Department at the University of Düsseldorf.
Professor Albers´ main interests lie in uro-oncology.

More comfort for patients and improved hospital processes

Professor Albers sees the advantages of the new procedure for patients in the method itself. 'If a patient undergoes an MRI-guided biopsy he has to lie in the MRI scanner on his front for an hour with his arms over his head while we carry out a transrectal biopsy. With the capabilities of the new image fusion, we initially take the diagnostic MRI images and the patient can then lie on his back in the lithotomy position for the biopsy, with the whole procedure over in around ten minutes.' This not only makes things a lot more comfortable for the patient but also eases strain on doctors.

Hospital processes have also improved through the Ultrasound-Urostation combination. The Urology Clinic shares the MRI scanner with other clinics and the machine is only available for all examinations and biopsies one day a week. 'The capacity for MRI examinations represents a bottleneck, so we are happy to move the time-consuming biopsies from the MRI scanner to the Samsung Ultrasound-Urostation combination. This gives us more time for diagnostic MRI examinations,' the professor explains.

Further advantages of the Samsung Ultrasound-Urostation are that examinations and the localisations of biopsies are archived and each localisation can be assigned the corresponding histological result. Therefore, in the case of follow-on examinations, or control biopsies, the doctor can revert to the archived, previous results, inclusive of planning and treatment images as well as relevant diagnostic data.

Samsung at Medica Hall 9 / B60.

Finding the right partner

Samsung ultrasound scanners combined with KOELIS Urostation has proved very successful. KOELIS chose Samsung for its high level of innovative technologies, specific design, user friendliness and quality. Samsung's ultrasound systems SonoAce X8, Accuvix V10, SonoAce R7 and UGEO H60 are already compatible with the Urostation. Further systems, e.g. Samsung Accuvix A30 and future models will also be compatible.

Lighting up surgical procedures

The next generation LED lamp

The new surgical lamp Starled5 NX from Acem S.p.A. contains NeXt generation LED technology. 'The special optics of its LEDs generates a shadow-less, clear and homogeneous light assuring visual comfort and best working conditions both for the surgeon and for the medical staff,' the company reports. 'Thanks to its NeXt generation LEDs, the lamp can produce a perfect illumination under every condition generating a IR-free light, an excellent colour temperature and a practically endless life cycle at low consumptions.

The 43 LEDs produce a light spot of 21 cm at 1 m with a high illumination level of 135.000 lux (160.000 lux optional) for a steady life cycle of about 50,000 hours.

'ACRIS is the extraordinary and innovative system realised by ACEM that ensures, by the use of a microprocessor, the control of electrical curves typical of LEDs to remain unaltered over the time, but maintaining a long life cycle. The colour rendering index of Starled5 NX is 95 and its colour temperature 4,500 °K. These two values allow reproduction of the exact chromatic scale of the colours of the human body.'

To achieve a correct illumination according to the different needs the lamp can produce a focused and ambient light. The light field focusing system adjusts the light spot diameter accurately assuring an excellent sharpness of details in the operating area, the company reports.

Ambient light is managed by the ENDO function. This technology provides visual comfort as well as a correct vision of the surrounding environment thanks to the particular light beam coming from the upper part of the lamp, which is particularly suitable for minimal-invasive surgery, being ideal for the preparation and treatment during the procedure, plus monitoring of the patient and microscope operations.

The central and lateral handles facilitate movement, assuring stability and constant illumination even during the movement. The central handle also can house a video camera to record surgical operations accurately (alternatively, the video camera can be placed on a separate arm).

In smooth, resistant material, the lamp's ergonomic design not only ensures quick, easy, deep cleaning, and the shape assures visual comfort and is highly suitable for laminar flows in the operating room.

Lamp functions are managed by the digital, easy-to-read I – SENSE control panel on the cardanic structure, to adjust, for example, light intensity; light spot diameter dimension (light beam focusing); endoscopy; depth of field – for full visualisation of the operating field; a mode to synchronise controls among the Starled lamp series.

STARLED NX assures:

- High quality illumination level for each kind of surgery
- Colour temperature of 4,500 °K which represents the contrast of the surgical area perfectly
- Clear luminosity at 135,000 lux (160.000 lux optional)
- Exceptional duration with low consumptions (55 W)
- Colour rendering index of 95 (CRI)
- IR-free light without heat
- Ergonomics for extraordinary simplicity of use and easy positioning for the medical team
- I–SENSE revolutionary control system for a simple, fast and precise management

ACEM at Medica
Hall 10, booth D31.

(b)e-medic with Baaske Medical

Hall 15 - Stand E22

In the halls of the Düsseldorf Trade Show, 4,500 exhibitors from more than 60 nations have gathered to take part in Medica, the world's biggest medical trade fair. Among them – for the sixth time in a row – is Baaske Medical GmbH & Co. KG. 'Our customers are familiar with our strategy of making IT systems electrically safe,' says Andreas Baaske , CEO of Baaske Medical. 'Therefore, this year´s stand has the motto (b) e-medic.'

In accordance with this motto, Baaske Medical presents reliable and highly performant systems that are manufactured according to newest medical standards. For example an all-in-one panel PC for surgical rooms, fanless systems for patient environments, or low maintenance desktop computers with a three-stage air filter. Baaske Medical will show computers for surgical and hospitals, as well as medical device products. Not just computers are touched by the motto „(b)e -medic". On display for the first time are the prototypes of the customised Baaske socket MED 5 ZPA – the powder-coated aluminum power socket, which will be available in different colors on demand – will be on display. Also new in the programme are the Uninterruptible Power Supplies (UPS) from the company TrippLite. This system will bridge power failures up to 15 minutes under full load. A special feature of this system is the new Line-interactive voltage regulation, which at the same time also functions as an isolation transformer. The latest product innovation from Baaske Medical is called MI 1005 MB (mount box). The compact device completes the portfolio of medical network isolators of the company. As the name rightly suggests, in addition to the flexible version of the MI 1005 and the mountable Isolator MI 1005 E, a solid installation version for wall mounting is now available. The network isolators programme of the MI 1005 offers a transfer rate of 1.000 Mbit/s and 5kV insulation strength.

Baaske at Medica
Hall 15, booth E22.

The company

Baaske Medical GmbH & Co KG services are aimed at medical facilities such as hospitals, clinics and doctors' offices, as well as to suppliers, retailers and manufacturers, who are engaged in medical information technology. Baaske Medical products

Cardiology on the road

When Kathleen Retailleau MD leaves the Hôpital Civil de Charleroi she takes the cardiology practice along with her, John Brosky reports

Part of the University Hospital Centre at Charleroi, the cardiology service provides consultations for a cluster of other hospitals, polyclinics and private physicians, which means that Dr Kathleen Retailleau takes to the road several days of each week to see patients throughout the region. 'Back in the echo lab at the hospital we have all the equipment for examinations, but for visiting consultations I need to bring my own echo system,' she said, adding that at one moment she may be visiting a general practitioner's office and, later the same day, work at an out-patient clinic.

To assure a mobile capability for cardiology ultrasound her choice is the Mindray M7, a hand-carried diagnostic system.

'I tried four or five different systems before deciding that the Mindray M7 was the best suited for this assignment with the best image quality and colour mapping,' she explained. 'It's a really complete offering for cardiology practice with advanced functions such as tissue Doppler imaging and IMT [auto-measurement of carotid intimae-thickness], and very good probes for cardio-vascular exams.

'It was really complete and good for my practice whether for standard echography of the heart, trans-thoracic exams or carotid ultrasound,' to determine a risk for stroke from plaque build-up, she added.

Designed for use at the point-of-care, the Mindray M7 portable ultrasound system delivers premium imaging performance across a broad range of specialties to assure an enhanced level of diagnostic confidence and efficiency.

For cardiologists, Mindray offers a suite of specialised functions, such as Free Xros imaging for anatomic M mode, and iClear for adaptive speckle suppression to improve contrast resolution and iTouch intelligent image optimisation.

Mindray at Medica Hall 9, booth A74/A78.

With laptop-like style, robust magnesium construction reinforced with anti-shock and anti-splash features, grab-and-go carry case, the M7 is truly ready to travel,

The machine can be powered by high-capacity lithium-ion batteries or the nearest electrical outlet.

'When I compared the quality of images, performance and portability, the M7 was clearly best choice and best value,' Dr Retailleau noted.

are conducive for electrically secure information technology in patient environments.

At Medica, interested visitors can check out all the products described here, in Hall 15/Stand E22.

* Information source: Baaske Medical GmbH & Co. KG

We have entered ultrasound's re

ARFI technology lowers liver biopsy rates and soon will do far more, Mark Nicholls reports

An innovative technology is enabling radiologists to provide more accurate diagnoses.

Siemens' Virtual Touch applications with Acoustic Radiation Force Impulse (ARFI) technology are already used to great effect on patients with serious liver conditions but experts also believe the system has a role to play in other areas, e.g. examinations of the breast, thyroid and testes.

In addition to offering more accurate diagnoses, Virtual Touch applications are leading to fewer liver biopsies and reduced hospital stays with significant budgetary benefits.

Liver specialist Professor Paul Sidhu is using Virtual Touch imaging (VTi) and Virtual Touch quantification (VTq) for liver disease with ARFI and it is now becoming part of his routine clinical practice in liver assessment for patients at his hepatitis clinic at King's College Hospital, London.

ARFI is a tissue strain imaging technology that utilises sound waves to investigate the mechanical stiffness properties of tissue with VTi and VTq, which are available on Siemens' ACUSON S2000 and S3000 ultrasound systems.

As Professor of Imaging Sciences and a consultant radiologist in the KCH Department of Radiology, Professor Sidhu explained that the technology allows the radiologist to gain a more accurate measurement on a specific region of interest in the liver, rather than previously performing the task 'blindly', leading to a significantly improved diagnosis. 'With chronic liver disease patients from the hepatitis clinic it is important for the clinician to know when they develop fibrosis,' he explained. 'Previously the only way to be absolutely sure would be to do a liver biopsy. We have not completely stopped doing liver biopsies but, over the next 2-3 years, clinical practice will change where Virtual Touch will allow us to confi-

The ACUSON S3000 ultrasound system is pioneering the future of ultrasound.

dently say whether a patient has, or has not, got significant disease.'

From there, the patient can be triaged accordingly for the next stage of treatment without having undergone the discomfort of biopsy. Virtual Touch is also allowing clinicians to predict which patients might develop further complications, such as portal hypertension or cellular carcinoma.

Studies are showing that Virtual Touch is proving accurate in staging liver disease with the added benefit that the process can be conducted more frequently than biopsy and at the patient's convenience. 'The practical advantages are phenomenal,' the professor explained. 'At King's College Hospital we perform 2-3 day case biopsies a day with patients coming in at 8 a.m., having the biopsy and being sent home at 4 p.m.'

These patients occupy a day bed; there are the costs of the procedure, monitoring and staff time but,' he points out, 'by incorporating Virtual Touch imaging into a routine ultrasound examination the process is all incorporated into a one-stop 15-20 minute passage through the ultrasound department on the way to the clinic, so the cost savings implications are huge.'

Virtual Touch is easy to use he added. 'It gives you more confidence in the assessment of liver diseases. With experience, you have enough knowledge to understand when a liver may be diseased and can infer that it is perhaps fibrosed or cirrhotic but now we have a tool that can quantify that and objectively give the answer.'

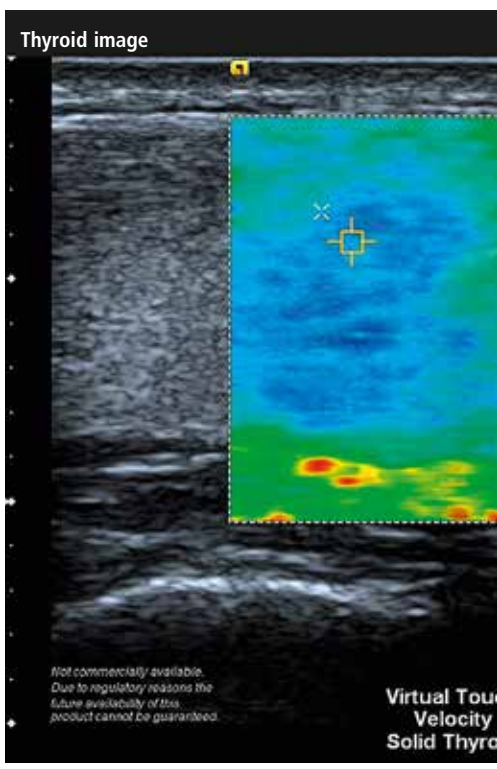
Meanwhile, in France, Dr Corinne Balleyguier at the Radiotherapy Department, Institut de Cancérologie Gustave Roussy, is using Virtual Touch IQ (VTIQ) daily for breast imaging. Beginning with analysis on B-mode imaging in breast ultrasound, she uses VTIQ with the colour map of speed in the tissue and adjacent breast tissue, followed by a quantification of shear-wave speed in tissue and normal adjacent breast tissue. 'This additional information of breast lesion stiffness, correlated to B mode features helps me to be more confident in my diagnostic decision, either for malignancy or to assess a benign lesion,' she explained.

Using VTIQ on an ACUSON S3000 ultrasound machine, this technology offers her 'more functional information about breast lesion characteristics,' Dr Balleyguier added. 'VTIQ is more reproducible than other free-hand elasticity modes, and less dependent on the pressure applied with the ultrasound probe, which can be difficult to assess when we begin with elastography.'

The VTIQ technology makes her more confident in her diagnosis in breast ultrasound as well as in echoic cysts because it allows even better assessment of the cystic content, showing very slow speed measurements. 'Now, we can reduce the use of fine needle aspiration in some particular cysts with benign findings on VTIQ,' she explained.

In solid lesions, from a personal study of 110 lesions including benign and malignant lesions, she told how B-mode imaging achieved 92% sensitivity and 62.5% specificity, with a diagnostic accuracy of 79.1%. Combined B-mode and VTIQ assessment of breast tissue abnormalities achieved an overall sensitivity of 90.3% and 75% specificity.

That better diagnostic performance has reduced the use of unnecessary biopsy. There are also other advantages. 'VTIQ now offers a very visual mode, easy to learn and to work with, which can be used in clinical practice,' she said. 'The colour map of shearwave is more likely to be used to obtain a quick analysis of a suspicious lesion and coloured map of stiffness may also be used to target the biopsy towards a more suspicious area of a lesion and obtain a more representative sample.'



enaissance period

Currently focusing on the characterisation between benign and malignant lesions, Dr Balleyguier will now evaluate treatment response after local treatment or neo-adjuvant chemotherapy.

Siemens say VTq is the first application to provide a numerical value of shear-wave speed related to tissue stiffness at a precise anatomical location, while VTi is a qualitative grey-scale map of relative tissue stiffness in a user-defined region.

The latest evolution of the technology is to bring the two together to use the high density Virtual Touch Imaging and Quantification (VTIQ) as a new diagnostic tool in diseases of the superficial organs, such as breast, thyroid, lymph nodes and testes.

Siemens Ultrasound CEO Jeffrey Bundy predicted that, in the not-too-distant future, Virtual Touch would be a 'crucial component of general imaging ultrasound examinations'. In the past, he said, 'an imaging modality just looked at structure and tissue interfaces but with Virtual Touch we are now able to look in the tissue and image structural changes within a tissue. This is able to give physicians new types of information.

'With liver exams, providing physicians with the tools that enable them to bypass an invasive procedure and still make a confident diagnosis is extremely exciting for me as an imaging provider,' he added.

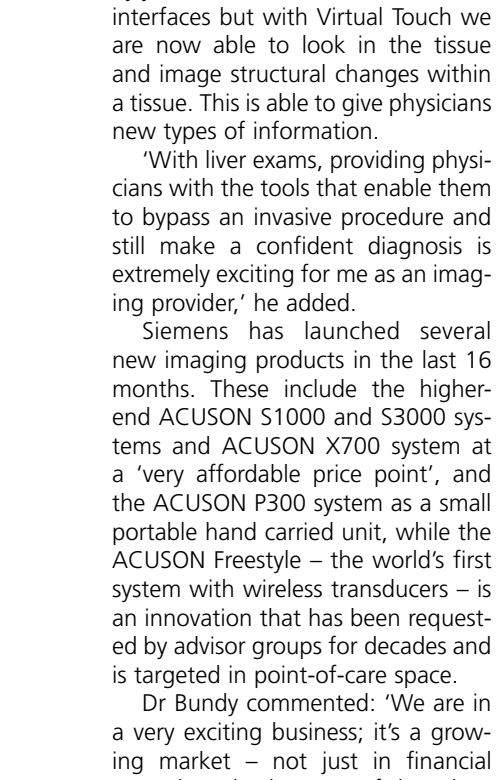
Siemens has launched several new imaging products in the last 16 months. These include the higher-end ACUSON S1000 and S3000 systems and ACUSON X700 system at a 'very affordable price point', and the ACUSON P300 system as a small portable hand carried unit, while the ACUSON Freestyle – the world's first system with wireless transducers – is an innovation that has been requested by advisor groups for decades and is targeted in point-of-care space.

Dr Bundy commented: 'We are in a very exciting business; it's a growing market – not just in financial terms but also because of the adoption and use of technology. 'Within the imaging world we can provide quick portable examinations at a reasonably low cost and with a lot of pressures on healthcare systems, we are right at the centre of what I consider to be a "renaissance period" in ultrasound.'

The ACUSON S3000 system, in which Siemens has all its Virtual Touch capabilities, brings fusion MRI and CT images together with ultrasound images in a real-time setting through eSieFusion technology.

Dr Bundy believes that Siemens expects to grow 'significantly faster than the market', particularly in the area of Virtual Touch, automated quantification tools for cardiology, Freestyle and ABVS (Automated Breast Volume Scanner) with the ability to provide imaging for women with dense breasts with Siemens 3-D total breast ultrasound solution.

Siemens is also excited about the AcuNav line of products in the catheter market, with an ultrasound transducer on the tip of a catheter, Dr Bundy added. 'It's a cardiac application, primarily in electrophysiology procedure guidance, but we are starting to see some exciting exploration in minimally-invasive valve procedures.'



Ultrasound in appendicitis re-evaluation

Boosting diagnostic accuracy and the decrease of negative appendectomy rate

Report: Mark Nicholls

Researchers have found that ultrasound has an important role to play in re-evaluating patients with findings of acute appendicitis.

Although CT is now accepted as an excellent system to diagnose acute appendicitis, misdiagnosis still occurs in routine practice, prompting a team from South Korea to conduct a study to prospectively evaluate the additional diagnostic value of ultrasound (US) re-evaluation for patients with equivocal CT findings of acute appendicitis. The research team, led by Dr Hyuk Jung Kim from the Department of Radiology at Bundang Jesaeng General Hospital, found that if there are equivocal CT findings of acute appendicitis, US re-evaluation can be used to improve diagnostic accuracy and further decrease the negative appendectomy rate.

The team focused on 869 consecutive patients with suspected appendicitis who were referred for CT. The likelihood of appendicitis was prospectively placed in five categories with US re-evaluation recommended for patients in the 'equivocal appendix' and those who probably did not have appendicitis based on CT findings. The final decision to proceed with US re-evaluation for equivocal cases was made by the treating physician on the basis of clinical and laboratory findings.

Further diagnostic value

'After adding US re-evaluation,' Dr Kim said, 'the overall negative appendectomy rate in our institution decreased from 3.4% to 2.3%.'

The team also found a number of additional diagnostic values from ultrasound re-evaluation for patients with equivocal CT findings of acute appendicitis. 'Graded compression ultrasound was helpful for distinguishing acute appendicitis from dilatation due to fluid or faeces,' he said, adding: 'ultrasound probe-induced tenderness over the appendix was also an important finding to differentiate between non-inflamed dilated appendix and inflamed appendix.

'In addition, the spatial resolution of high-frequency ultrasound image provides more detailed visualisation of appendiceal wall than that of CT.'

A further benefit for such patients, he said, is that US re-evaluation can be used to improve diagnostic accuracy and further decrease the negative appendectomy rate without increasing the perforation rate.

In his department they usually recommend APCT as a primary modality to evaluate the appendix for adults and young patients, except pregnant women and relatively thin child patients where ultrasound is recommended as the primary modality.

US use in this context has benefits for both clinicians and patients: 'When patients have equivocal CT findings of appendicitis, the clinician should decide whether to undertake surgery based on experience and the patient's clinical manifestation. If there's no surgery, Dr Kim said the patient will remain under close hospital observation. 'In this case, the risk of delayed complication, such as perforated appendicitis, will exist.

'In our study, after implementing US re-evaluation, the appendiceal perforation rate is decreased as well as the negative appendectomy rate. It could decrease the length of stay and cost of hospitalisation,' he added.

A number of other factors need consideration when using US in this way, in particular ensuring that operators are properly trained because ultrasound diagnosis is operator-dependent, Dr Kim explained.

'Patient-related factors such as age, body habitus and appendix location are important influencing factors. 'Evaluation of the appendix tip is an especially challenging part of a US exam, because in most patients the appendix tip is located in the deep pelvis. Paying close attention to the evaluation of the appendix tip can improve diagnostic accuracy.'

Dr Hyuk Jung Kim is section chief of abdominal imaging in the Department of Radiology at Bundang Jesaeng General Hospital, South Korea. He has 12 years of experience in abdominal imaging.
Ji Ye Sim, a fourth-year resident at the hospital's Department of Radiology, played a key role in the research.

eHD Ultrasound Technology

Out to optimise all aspects of imaging quality

eHD Ultrasound Technology, launched this year's ESC by Esaote, based in Italy, is a completely re-engineered system that represents a step-change in ultrasound diagnostic quality and flexibility, the company points out. Additionally, at its core, the eHD Pulser creates the optimal ultrasound beam waveform. 'This optimised and uniform acoustic field along the line-of-sight achieves ultimate image clarity with no frame rate reduction,' Esaote continues. 'eHD has also been applied to Esaote's iQProbe to further improve the transducer bandwidth and deliver increased signal sensitivity. Usability of the probe has also been improved through the development of an 'appleprobe' grip configuration for greater operator control and comfort.

Esaote at Medica Hall 9, booth A22.

'eHD has enhanced the XView algorithm to provide further significant reduction in speckle, and better visibility of internal structures without changing the overall appearance of the ultrasound image. Contrast has also been improved by increasing the signal to noise ratio and, when used with MView Spatial Combined Imaging, provides superior imaging quality for improved readability and diagnosis...The advanced Doppler technology is also updated with the introduction of eHD CFM to optimise vessel border detection with increased sensitivity and depth. For high resolution, high definition work, eHD XFlow is available to maximise spatial resolution and Doppler signal penetration.

Inside every Esaote eHD Technology optimised machine is an array of the latest visualisation tools and technologies including Virtual Navigator and multi dimensional imaging capability, ensuring the best diagnostic image is presented in the most relevant format.

'eHD is the Esaote technology to innovate ultrasound imaging and improve the system's use,' the company reports. 'It represents the attention to the diagnostic value and optimising all aspects of image quality, including probes, pulser, processing and Doppler technologies in ultrasound.'

eHD is reported to increase ultrasound scanning efficiency through imaging innovation, enhancing diagnostic value, maximising signal information and lowering power consumption.

Enhanced diagnostic value and optimised system usability are key aims in this development. Every Esaote eHD Technology machine is an array of the latest visualisation tools and technologies, including Contrast Tissue Imaging (CnTI) and Fusion Imaging, Virtual Navigation & Virtual Biopsy.

Details: www.esaote.com

Creating a new paradigm in the medical industry

The E-Cube series

Established in 2007 to develop diagnostic and therapeutic ultrasound as well as medical transducers, Alpinion Medical Systems has focused on acoustic engineering and front-end technology.

Presenting its E-Cube 9 Diamond ultrasound system at Medica, the firm reports that the system integrates its core imaging technologies 'to provide uniform and fundamentally excellent image quality throughout the whole product lifetime,' the firm reports. The system also provides consistent and high-quality images throughout a patient's care, from registration to clinical review, as well diagnostic confirmation.

FleXcan Architecture, the firm's ultrasound imaging platform, is a software driven structure that ensures stable imaging performance, easy software upgrades and uniform image quality, the company explains, adding: 'Alpinion's integrated post-processing technology set (Optimal Imaging Suite), embedded in the E-Cube 9 Diamond, creates optimised images for each application by effectively decreasing artefacts and enhancing the borderline of each organ.'

Breast and baby exams

Refined acoustic technology 'handles ultrasound signals perfectly'. Additionally, single crystal transducers based on the firm's in-house transducer R&D are applied to the E-Cube 9 Diamond, creating the world-first single crystal volume convex transducer and the high performance 60mm wide linear transducer for breast exams.

The combination of a 3-D/4-D transducer with reliable geometrical accuracy enables Alpinion's Live HQ software, and the 3-D/4-D rendering technology generates superb and realistic images of the human foetus.

The results from the system's abdominal scans are 'exceptionally excellent even from high-volume patients,' the company adds. 'Found in high-end systems, the high-density convex transducer of the E-Cube 9 Diamond heightens diagnostic confidence and offers uniform high-resolution images in every abdominal examination.'

All the E-CUBE series, including E-Cube 9 Diamond and premium class transducers, are being introduced in Dusseldorf.

Details: www.alpinion.com

Alpinion Medica Systems at MEDICA Hall 10, booth D59.

E-CUBE 9 Diamond

Ultrasound in trauma and orthopaedics

At October's annual congress of trauma and orthopaedic surgeons in Berlin, the session *Ultrasound beyond trauma and orthopaedic surgery – What can we learn from neighbouring disciplines?* exposed the unexploited potential of ultrasound for trauma and orthopaedic surgery, EH correspondent Bettina Döbereiner reports.

Although ultrasound is clearly anchored in the German Regulations on Further Education, which governs specialist training for trauma and orthopaedic surgeons, ultimately it very much depends on personal engagement and commitment as to what extent the procedure is learned and utilised in daily clinical life, said Dr Gerhard Achatz, registrar at Ulm Military Hospital. This particularly applies in the case of ultrasound applications at the interface with other medical disciplines, he believes. Thus the session also focused on paediatric ultrasound, ultrasound of the heart, thorax, blood vessels and peripheral nervous systems, along with the more common abdominal ultrasound. Initially knowledge of all those applications did not appear essential for all trauma and orthopaedic surgeons equally; however, looking beyond one's own medical field is certainly beneficial to pick up useful ultrasound examination procedures, which is definitely the case in pericardial effusion or pneumothorax diagnosis, he explained. The ability to make a differential diagnosis can be of great benefit for initial orientation and fast treatment – particularly when more specialised colleagues cannot be reached, whether in a pre-clinical setting, the resuscitation room, emergency unit or intensive care ward.

Pericardial effusion - The patient arrived in A&E unit in Ulm Military Hospital following an RTA. The ultrasound image shows a heart scanned in the subcostal plane with the Vivid E 9 in standard mode: Surrounded by fluid, the four cardiac chambers are clearly visible (black). This still image provides information about the pericardial effusion size. The haemodynamic relevance of the effusion can only be visually assessed with moving ultrasound images, where at least once heart cycle is shown in real-time (loops) and the degree of compression in the right side of the heart, and particularly in the atrium, becomes visible.

Following graduation from Ulm University, internist and cardiologist **Bernd Kühlmuss MD** became a medical officer in the German army. At this time he trained in emergency medicine. From 1996 he worked in a number of cardiac centres across Germany and in the internal medicine departments in Ulm Military Hospital and Ulm University Hospital, focusing on cardiology, angiology and pneumonology. In 2002 he became Assistant Clinical Director at the Ulm Military Hospital and in 2003 became head of Cardiology.

Dr Kühlmuss said the big advantage of ultrasound's big advantage lies in the ability to examine at the patient's bedside – live – and seeing an image within five seconds. The biggest question for cardiac ultrasound relates to pericardial effusion and its haemodynamic relevance. Although uncommon (one or two cases annually), correctly diagnosing pericardial effusions will save lives.'

Other easy to learn procedures include the differentiation between chronic and acute right ventricular pressure, the assessment of the cardiac filling volume and the evaluation of global left-ventricular function. Diagnosis of valvular heart defects and stenoses, Dr Kühlmuss said, can be taught and learned comparatively quickly; intensive training for a week is sufficient. 'The big advantage with cardiac ultrasound is that you can continue using the same transducer used for abdominal ultrasound,' he explained. Although the transducer used for echocardiography is a little slimmer, this is not a problem. 'You just need to visualise the image without the left and right border.'

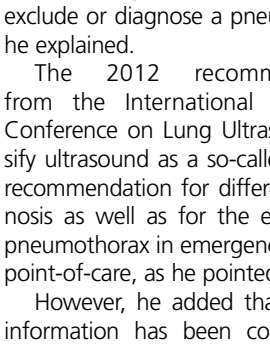
A single handed pneumothorax diagnosis?

Dr Thomas Berlet, interdisciplinary intensive care specialist at Bern University Hospital, explained that standard ultrasound scanners are sufficient for thoracic ultrasound. Next to the differentiation of bruised ribs and fractures and a diagnosis of pleural effusion, he emphasised the ability to consider or exclude a pneumothorax, which is now very easy by documenting certain artefacts (known as pleural sliding and comet-tail) caused by the normally positioned, synchronically moving lungs on the ultrasound image. These artefacts appear and disappear in synchrony with breathing (also called B-lines), and the lung pulse, which, even when the lungs don't move, becomes visible on the lung surface. The application and interpretation is easily learned: 12 exams under professional guidance suffice to safely exclude or diagnose a pneumothorax, he explained.

The 2012 recommendations from the International Consensus Conference on Lung Ultrasound classify ultrasound as a so-called grade A recommendation for differential diagnosis as well as for the exclusion of pneumothorax in emergencies and for point-of-care, as he pointed out.

However, he added that, to date, information has been contradictory; a 2012 meta-analysis evaluating all clinical studies published on pneumothorax diagnosis with ultrasound concluded that sensitivity during scanning is higher than the specificity compared to conventional X-ray diagnostics. With thoracic ultrasound he also resolves other issues in his daily work, including whether pneumonia or pulmonary oedema is present. He is convinced that, apart from pneumothorax diagnosis, these applications will soon be more common, particularly in the pre-clinical field, due to the growing spread of the smallest portable ultrasound scanners.

Gerhard Achatz MD, registrar at the Department of General Surgery as well as Orthopaedics and Trauma Surgery at Ulm Military Hospital, Germany, studied medicine at Regensburg University, became a registrar in its surgery department for two years and then as an army doctor and flight surgeon. In 2011, at the same hospital, he became a research associate in the Department for Trauma and Orthopaedic Surgery, Reconstructive and Septic Surgery and Sports Traumatology, particularly focusing on ultrasound with contrast media. Since 2013 he has led the Ultrasound Working Group at the German Society for Trauma Surgery.



Thomas Berlet MD, consultant in critical care medicine in the of intensive care department at Bern University Hospital, Switzerland, studied in Heidelberg and Cologne, and gained his postgraduate medical education in anaesthesia and intensive care in the anaesthesia and critical care department at Cologne University Hospital and in anaesthetics departments at the Bristol and Oxford Schools of Anaesthesia, UK. When portable ultrasonic devices arrived, he specialised in point-of-care ultrasound for diagnostic and interventional purposes. He has been as consultant in critical care medicine at London's Royal Free Hospital and as Clinical Director of Anaesthesia Department at a university-affiliated hospital in Herdecke, Germany.

NEW: The matchless EPIQ

Providing deeper anatomical detail and contrast resolution

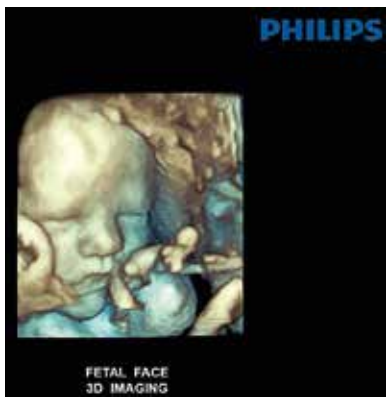
Making its debut at Medica, the extra-special ultrasound platform EPIQ, from Philips, is a brand new ultrasound architecture providing a totally new approach to ultrasound image creation thanks to nSIGHT. By combining this new imaging architecture with Anatomical Intelligence technology – a rich database of anatomic structural models and adaptive system technology – Philips has created a system that delivers ultrasound images with powerful speed and image clarity. 'Anatomical Intelligence provides advanced organ modelling, image slicing and proven quantification, making examinations easier to perform, more reproducible and delivering new levels of clinical information,' the company confirms. 'Combining this intelligent technology with the precision clarity of nSIGHT imaging makes for a faster, more intuitive ultrasound system.'

Increased image acuity - In effect, nSIGHT provides a completely new way to form ultrasound images, which results in the highly detailed ultrasound images and 'extraordinary temporal resolution', the company explains. 'The system delivers the ability to see new levels of tissue uniformity without the need of critical transmit focal zone placement, and the exceptional penetration at higher frequencies offers superb imaging on difficult patients. Philips is at the forefront of imaging technology innovation and, with EPIQ, we are pioneering a way to address significant imaging issues faced by medical professionals in cardiology, radiology and general imaging. The combination of Anatomical Intelligence and use of nSIGHT Imaging tech-nology is a major milestone in the history of ultrasound technology,' said Gene Saragnese, CEO Healthcare Imaging Systems, Philips Healthcare.

The system increases image acuity up to 76% in penetration and up to a 213% increase in temporal resolution (ability to maintain resolution at high frame rates)

Operational efficiency - Philips also adds that SmartExam increases automation and reproducibility of results, thus decreasing exam time by 30-50%, keystrokes by as many as 300 per exam, all of which results in a higher level of consistency among users.

Keen ergonomics - The design simplifies workflow and presents a new level portability. Weighing only 104.3 kg, EPIQ is the lightest and most manoeuvrable premium, cart-based ultrasound system, Philips points out. 'A noise test determined that EPIQ runs at 37-41 dB – equivalent to the sound in a library. A new tablet-like interface results in dramatic reduction in reach and button pushes, with 40% to 80% less reach and 15% fewer steps.'



'Auto Doppler takes time-consuming colour box positioning and sample volume placement from 10 steps to three steps and reduces the number of repetitive button pushes by an average of 67.9%.'

Philips at Medica
Hall 10 / A22 and B22

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Smart Fusion of modalities enhances clinical output

Adding high quality, dynamic ultrasound for hybrid imaging enables clinicians to improve detection of a range of lesions or to intervene better for improved clinical outcomes, John Brosyk reports

'We can no longer be fascinated with pictures; what we need is proof of the clinical benefit from tools and techniques,' said Professor Jose Zamorano MD, Director of Cardiology at Ramón y Cajal University Hospital in Madrid. Currently, he is building a multi-centre study of cardiovascular imaging (CVI) to evaluate the severity of ischemia using a hybrid display combining CT Angiography and 3-D ultrasound called Smart Fusion from Toshiba.

Meanwhile, at the University of Paris Necker Hospital, Jean-Michel Correas MD has also moved beyond fascination with the advanced capabilities of Smart Fusion by applying the technology to clinical practice. He has added advanced contrast-enhanced ultrasound images in real-time to both CT and MRI acquisitions better to target and treat even small isoechoic or non-visible lesions. 'There are clear benefits for lesion detection, Dr Correas said, adding, 'as well as for treatment planning with the possibility of finding new routes to the lesion, which is a key advance.'

At the University of Berlin's Charité Hospital, Thomas Fischer MD, Director of the Ultrasound Research Lab Radiology and Head of Ultrasound Diagnostics at the Institute of Radiology, finds the enhanced capabilities of hybrid imaging with Smart Fusion makes

Fusion RCC w/ contrast

navigation more comfortable for positioning and performing ultrasound-guided biopsies of prostate tumours. 'Not all forms of prostate cancer are created equal,' he pointed out. 'Certain patients, those who have a non-aggressive form of prostate cancer, will not benefit in any significant way from the therapy. Thus we need to identify the tumours that will respond to the therapy.'

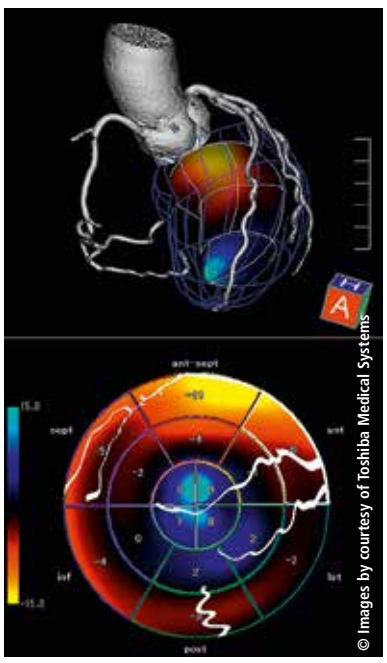
MRI remains the modality of choice for identifying the exact location of the dominant lesion in the prostate gland. For those patients who will benefit from treatment, the challenge become re-locating the tumour with an ultrasound system for guidance. 'Here the B-mode image, which is crucial for biopsy and treatment purposes, comes in,' he explained. 'Planes from both imaging modalities need to be fused as precisely as possible in order for the biopsy needle to hit the lesion. And this in turn means that I do need to see the needle.'

For this, the Smart Fusion platform offers superior image quality thanks to a special transducer developed by Toshiba. Fusing this high quality dynamic image with the static MRI acquisition of the organ is simplified with a sensor placed on the transducer handle. 'That's the trick behind Smart Fusion,' he explained. 'This sensor tells the system exactly where the transducer is positioned within the cavity. In other words, the hand movement can be quickly translated on the moving images.'

According to Dr Correas, the combination of dynamic tracking with the new transducer and the image quality effectively creates a new tool for interventional procedures. 'There is improved lesion detection and characterisation, which is the key step,' he said, adding, 'After all, if you cannot see the tumour, it will become very difficult to treat it.

'Without going into detail about the procedure itself, I can say it is rapid where volume data from CT or MRI were loaded to the Aplio 500 system to allow simultaneous dynamic display. We fix one transverse plane, locate one target point and can then fuse the images.'

The result is a clear benefit for



CVI fusion

better diagnosis, planning and treatment, '…and we can evaluate results almost immediately after ablation to be sure of correct coverage,' he said.

With a significant patient workload, the reduction in procedure time becomes an important advantage, as well as the benefit of reduced radiation exposure for patients and medical staff.

Applying this technological advance to an assessment of cardiovascular conditions is opening a new field of study for Professor Zamorano in Madrid: 'Smart Fusion in cardiovascular imaging has the potential to greatly aid in the assessment of coronary artery disease for ischemia and heart failure, an extraordinary advance through the integration of imaging information provided by the CT scan and echo.'

The resulting images display the coronary arteries and branches on a colour-coded myocardial volume, making it possible to correlate the degree of coronary stenosis with the information from myocardial strain in the surrounding myocardial territory. This holds the potential for a non-invasive assessment of myocardial mechanics and the relationship with coronary ischemia, he said. 'With CT images we get an excellent assessment of the morphology of the coronary arteries, but this is not enough for analysing coronary artery disease, which is caused by functional issues, such as ischemia,' Prof. Zamorano pointed out.

Where the CT may show a 70% stenosis in the left anterior descending (LAD) artery, he explained, 'this does not tell you a lot about the ischemia related to that stenosis.

'What we add with Smart Fusion is the data from stress echo, and now we clearly see if the area of ischemia is related to a specific coronary artery, as well as the severity of the stenosis at that level.'

'We are at the very beginning of the process, and building evidence of the clinical benefit of the CVI technique is very important.' Prof. Zamorano added that he expects to join with other centres in Europe for a clinical study to validate initial findings. 'We are a university hospital, very proud of developing a new technique, but ultimately the tools and the technique must be oriented to a real clinical benefit,' he stressed. 'So many patients are affected by ischemia, and we are sharply focused on evidence of the clinical outcomes.'

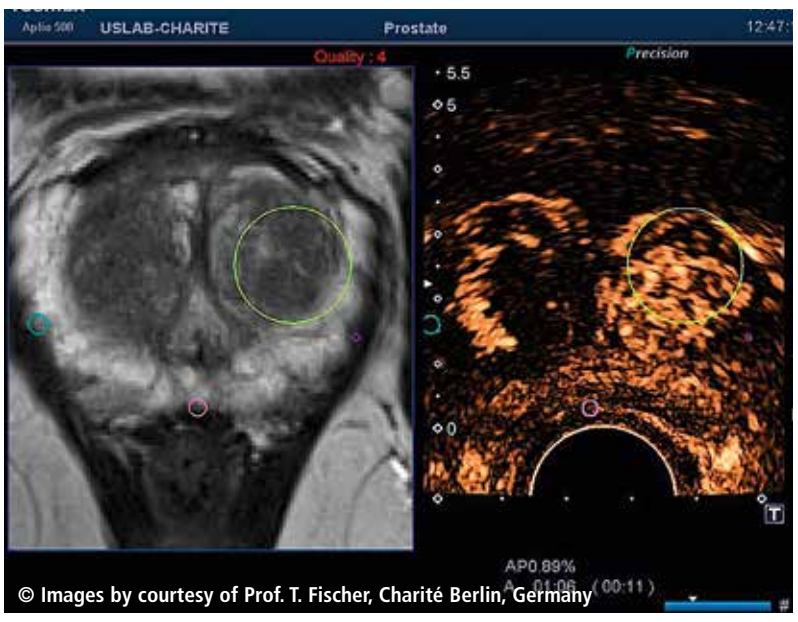


Image fusion of MRI and CEUS

Image fusion, the green circle shows the tumour in both MRI (right) and US

Lower middle class pricing yet this is top of the class

GE Healthcare stages the LOGIQ F8 world premiere at Medica 2013

LOGIQ F8 is the name of a new concept that offers premium equipment in the lower price segment for the very first time. 'Even though the system is classified as belonging to the lower middle class from the viewpoint of price, its image quality, fitments and spectrum of application are all impressive,' explains Heiko Dudwiesus, officer-in-charge of marketing the ultrasound systems at GE Healthcare, Germany. 'The device has been created to far exceed the minimum quality requirements for screening or preliminary investigations. This means that primary care investigators in practice or in emergency admissions units can perform largely complete and valid ultrasound examinations.'

This concept was made possible through the integration of innovations from the premium segment of the LOGIQ family. With a 19-inch screen, the viewing monitor is deemed generously dimensioned in this category. It can be turned and swung in all spatial axes and is height-adjustable in such a way that optimal viewing angle is guaranteed under all imaginable examination conditions, the company reports.

'The comfortable operation through a large 8.4-inch touchscreen is equally unusual in this category,' the ultrasound expert explains. All operating fields can be individually configured and adapted to the personal pattern of work. 'To prevent the examiner from being always confronted with all operating elements,' he points out, 'only the required fields for the current examination are displayed.'

Additionally, assisting systems, such as *Scan Coach* and *Scan Assistant*, guide the user through examinations and measurement programmes in a manner that guarantees high-level consistency and reproducibility. Difficult measurements requiring a high level of precision, such as measuring the thickness of the intima media on the carotid artery, are performed by the system independently and with maximum precision after the positioning of a window.

Yet, even the image quality of this newcomer is convincing. 'Speckle Reduction Imaging' reduces granularity that is typical of the conventional ultrasound section diagram and ensures a fine graduated image, which renders the finest gray tone differences and thereby, also hardly recognisable lesions are clearly discernible. Moreover, uncompressed raw echo signals are saved and archived thanks to the processing of raw data. By this means, setting faults can still be corrected even after 'freezing in'.

Heiko Dudwiesus concludes: 'We're glad to be able to offer smaller practices an instrument concept in LOGIQ F8 containing numerous premium elements, at a fair and affordable price.'

GE Healthcare at Medica Hall 10, booth A56.

A new computed ultrasound

Curefab CS, the newly released and latest generation of Computed Sonography (CS) technology from Curefab GmbH, provides superior objective vascular diagnostics without having to expose patients to the harmful radiation and nephrotoxic contrast media required for CT and MRI scans, the company reports. 'The Curefab CS system can be used for abdominal aortic aneurysm (AAA) screening and monitoring, as well as for EVAR follow-up examinations, including endoleak detection, localisation, and classification,' the firm explains. 'The Curefab CS device can be attached to any ultrasound system currently on the market to generate CT-like 3D volumes of the complete aneurysm region.'

Now, for the first time, ultrasound can be used to generate high-resolution 3-D images of the abdominal aorta suitable for diagnosis and review, the firm adds. 'Curefab CS's 3-D volume reconstruction enables the assessment of the examination region from arbitrary viewing angles, while multiplanar reconstruction (MPR) of the 3-D volume provides valuable insight into the area of interest.

The system's software is also reported to deliver accurate measurements of both the diameter and volume of the aneurysm sac.

In addition, the visualisation features enable reliable detection and classification of endoleaks. Combined with contrast-enhanced ultrasound, a Curefab CS 3-D CEUS scan contains the complete contrast washout to determine the inflow and outflow of the leak for reliable and conclusive classification of endoleaks, the firm adds.

The company also adds that the system 'provides a non-invasive, cost-effective, fast, accurate means for medical diagnosis while significantly reducing the level of observer dependence in ultrasound imaging.

The device has been created for a wide range of medical applications for vascular and oncological imaging, and also to support diagnosis and evaluation of abdominal aortic aneurysms, plaque analysis, carotid artery stenosis graduation, imaging of peripheral arteries and catheter access pathways, and measurement of tumour volumes.

Details: www.curefab.com

Curefab CS provides high resolution 3D ultrasound for non-invasive, cost-effective and fast diagnostics for a wide range of medical applications.

The Curefab system can be attached to any ultrasound system currently on the market.

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