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NOVEMBER 2004

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Mobile phones

Wandering around MEDICA 2004 with your mobile phone pressed to your ear? These devices have swiftly become vital auxiliaries in our working days as well as private lives. But is there any truth in the beliefs that their use could harm our health? According to newly published research, yes.

Exposure to radiofrequency when using a mobile phone for ten or more years could double the risk of developing an acoustic neuroma tumour (a benign growth in the head), concluded the authors of a new Swedish study published in the journal *Epidemiology* (Lönn S, Ahlbom A, Hall P, Feychting M, 15. 653 - 659. 2004. PubMed). However, the researchers pointed out that their findings do not indicate an increased risk of acoustic neuroma related to short-term mobile phone use. 'We were surprised by the results, but the outcome is

continued on page 2

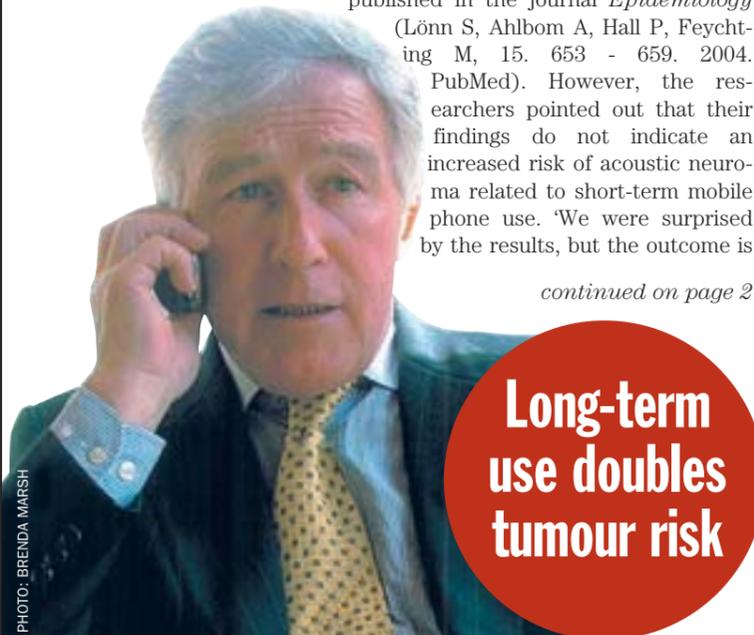


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said the researchers, translates into double the risk of developing acoustic neuroma.

It was also noted that all the additional cases occurred on the same side of the head to which patients normally held their phones.

This was a relatively small study, and the effect will have to be confirmed using larger groups, however, it is considered the first to show clear evidence that mobile phone use could increase the risk of developing that type of tumour.

Sweden is one of the 13 countries taking part in the Interphone Project, being co-ordinated by the World Health Organization's International Agency for Research on Cancer (IARC) in Lyon, France. Set up in 1998 - to investigate whether exposure to the radiofrequency electromagnetic fields from mobile phones could produce adverse effects on health - the final results are expected to be released early next year.

The first results for the Interphone study were reported last January, from Denmark. In this, no link between

phone use and the frequency of tumours was found by researchers at Copenhagen's the Institute of Cancer Epidemiology, but they had found that, when tumours did occur the average size was significantly larger for regular mobile phone users than nonusers.

In Denmark, fewer people took part in this study than in Sweden - 106 acoustic neuroma patients and 212 healthy controls were involved - but Jørgen H. Olsen, head of the Danish institute, has confirmed the Karolinska results are convincing. They both used the same methods but, he added, differences in results might be explained by the bigger sample size. He also queried one aspect of the Swedish research - the fact that when asked which side of the head they usually held their phones, tumour patients' responses might have been influenced by the presence of their tumours.

Prospective studies - following 250,000 people in five of the countries participating in the Interphone Project - are now planned, to confirm any effects of mobile phone use.

By Christian Pruszinsky, reporting from Austria

Speakers at the recent Vienna Health Talks (Wiener Gesundheitsgespräche), which focused on The nursing crisis - Professional training in healthcare for nursing and social care, expressed extreme concern that Austrian society appears to be indifferent to the dire need to secure sufficiently well-trained and well-motivated nurses for nursing care.

Among the participants, Professor Klaus Zapotoczky, director of the Institute for Nursing Science at the Johannes Kepler University in Linz, Austria, identified four main concerns:

- Austrian healthcare favours hospitals. In no other country are so many people hospitalised (see illustration). This implies that the hospital sector binds the majority of nurses and, to a great extent, nurses' professional perspectives are limited to hospitals. Consequently, the non-hospital sector, and above all preventive care, suf-

Long-term use doubles tumour risk

continued from page 1

quite clear. We are convinced of the quite strong risk due to the use of mobile phones, and are waiting for confirmation from the other research groups,' says Anders Ahlbom, an epidemiologist at the Karolinska Institute and member of the research group.

The team studied the incidence of acoustic neuroma, a tumour that grows on the nerve connecting ear to brain. Generally, the chance of developing this kind of tumour is 1 in 100,000.

In their population-based case-control study the team focused on all cases diagnosed with acoustic neuroma in 1999 to 2002 in certain areas of Sweden. The patients' ages ranged from 20-69 years. Controls were randomly selected from the study base, and stratified on age, sex, and residential area. In total, 148 acoustic neuroma patients and 604 healthy controls participated. 14 of the neuroma patients had regularly used mobile phones for over ten years, compared with 29 of the controls. This,

Nurse shortages are global



ICN investigation indicates threat to care quality

Switzerland - Initial results of The International Council of Nurses' (ICN) investigation of the global nursing workforce confirm that the supply of nurses in many countries, both low-income and high-income, is failing to keep pace with increasing demand, threatening improvements in care outcomes.

'Nursing shortages are not just a 'problem for nursing,' said ICN president Christine Hancock. 'They are a health system problem, which undermines health system effectiveness and requires health system solutions. Without effective and sustained interventions, global nursing shortages will persist, undermining attempts to improve care outcomes and the health of nations.'

The report is the first result of ICN's programme to examine the crucial issue of global nursing shortages. It will be complemented by a series of issue-based papers examining specific global and regional aspects of the nursing workforce in more detail. Together, these will inform a high level meeting addressing solutions to the challenges ahead.

The ICN is a federation of 125 national nurses' associations representing the millions of nurses

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Nursing care crisis

fers not only from a shortage of nurses, but also poor training structures and concepts.

- The non-hospital sector, particularly co-operation between physicians in private practice and the nurses, must be re-designed and optimised. Moreover, management of the interface between hospital and non-hospital sectors needs to improve. In most countries the introduction of academic professional training has strengthened the image of the nursing professions. In Austria, Vienna's university offers a degree course and an MA programme in nursing science. However, currently there is no graduate degree programme for nursing science that leads to a doctoral title. Consequently, the alumni - mostly female - of these programmes are faced with a factual and very unfortunate devaluation of their academic studies.

- Care services for elderly and old people already need to employ more qualified nurses, because

families are decreasingly able to take on nursing tasks themselves. Therefore, families should be effectively strengthened and supported. New partnership principles and new, specialised training courses need to be developed that are based on a qualitative and quantitative analysis of the status quo as well as future demand. Private initiatives of and with foreign nurses - mainly from the Czech Republic and Slovakia - are only an interim solution.



Klaus Zapotoczky

- For nursing professionals, increasing pressure - in terms of quality and quantity - and the inability of current healthcare systems to tackle the problems, create resignation and burn-out, and many quit the profession altogether. If we want nurses to identify with their profession and to receive more financial and social recognition so as to remain in this field, health politicians, and the competent players in healthcare, must act swiftly and responsibly. In the interest of the weakest area of the care chain - the patient (and we are all potential patients) - the entire healthcare system needs to be redesigned.

Independent evaluation is needed to ensure high-quality care on all levels.

The professor also highlighted two further potential problems:

- ? A trend towards 'Americanisation' of healthcare, which will make it increasingly expensive and simultaneously inefficient.

- ? A further segmentation of the system linked to greater bureaucracy in the nursing sector. Bureaucracy can indeed provide more detail and render a system more precise, he said, but the system, as a whole, must never compromise its humane and patient-centred mission.

worldwide. Established in 1899, the council works to ensure quality care and sound international health policies. The new global analysis, to be published in English, French and Spanish (www.icn.ch/global/shortage.pdf) aims to identify policy and practice issues and solutions that is aimed at consideration by governments, international agencies, employers and professional associations when addressing the supply and utilisation of nurses.

The report points to:

- a link between adequate nurse staffing levels and positive care outcomes.

- The ratios of nurse:population vary over a hundredfold in different countries - ranging from under 10 nurses per 100,000 population to over 1,000 nurses per 100,000.

- The average nurse:population ratio in high-income countries is almost eight times greater than in low-income countries.

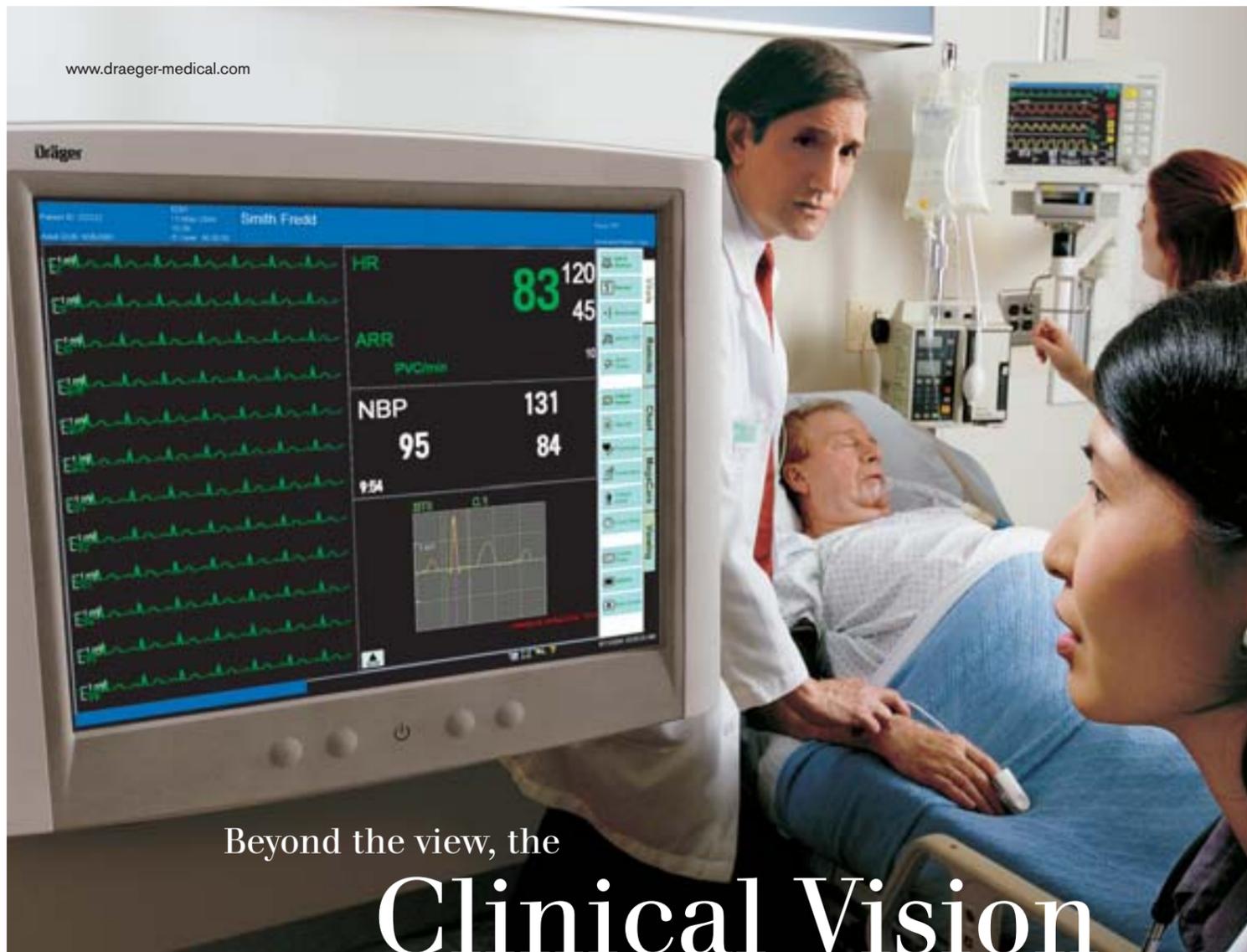
- Many countries, particularly in Africa, Asia and Central & South America, struggle to provide a minimum level of nurse staffing. A recent estimate indicates that sub-Saharan African countries have a shortfall of over 600,000 nurses, in terms of meeting the Millennium Development Goals.

- There is often a poor distribution of available nurses, with rural areas in developing countries the most underserved.

The report points to three main, critical challenges related to nursing shortages, which include Sub-Saharan Africa - The impact of HIV/AIDS on the nursing workforce; internal and international migration, and achieving effective health sector reform.

The report also highlights four components of a policy framework to address nursing shortages: workforce planning; recruitment and retention; deployment and performance, and utilisation and skill mix.

The report stresses that policy interventions must be appropriate to the country context and objectives and emphasises that the need for effective policy intervention requires leadership and stakeholder involvement.



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Europe's contrast media and radiopharmaceuticals markets are seeing some segments grow whilst others near saturation, according to a report from marketing consultancy Frost & Sullivan (F&S). Growth in contrast media sales, e.g. for X-ray/computed tomography (CT), is slumping, largely due to new technologies needing less contrast agents. However, growth in magnetic resonance imaging (MRI) and ultrasound is exceptional.

A similar situation prevails in radiopharmaceuticals, with positron emission tomography (PET) agents growing at a far faster rate than other segments. Apart from saturation in some of these, the market is also experiencing a fair amount of price erosion, which is slowing overall growth.

'However, MRI contrasting agents and PET radiopharmaceuticals are showing tremendous growth potential and helping to balance the effects of market saturation and price erosion in the overall contrast media and radiopharmaceuticals market,' said Srividya Badrinarayanan, Research Analyst at F&S. 'Companies that overcome the pricing threats and introduce cost-effective and enhanced imaging agents are well poised for success.'

European sales of contrast media generated revenues of US\$779.4 million in 2003 and are expected to grow at a compound annual growth rate (CAGR) of 6.8%, to reach US\$1238.3 million in 2010, according to the F&S analysis. Radiopharmaceuticals generated revenues of US\$415.9 million

in 2003 and are forecast to grow at a CAGR of 6.4% to reach US\$643.6 million in the corresponding period.

'In particular, the MRI segment - which currently contributes a sizeable portion of the contrast media market's revenues - is expected to

show double-digit growth over the forecast period (2003-2010). This is due to the increased number of MRI procedures being undertaken and resultant installation of MRI equipment. The focus on MRI contrast media has also grown due to its superior contrasting features and wider application,' the report pointed out.

'While the market anticipates the introduction of new products - particularly in the MRI contrast media and ultrasound segments - the slow rate of product adoption by physicians and technologists is bound to be a limiting factor. This disinclination to adopt new products is attributable to the price sensitiveness of the market.' The situation is particularly apparent in countries such as France and the UK, said Ms Badrinarayanan.

Unclear reimbursement policies and pricing are also restraining market growth, the report claimed, pointing to individual countries with different reimbursement policies for contrasting agents, and some with no clear guidelines. Germany and Italy, for example, have such strict policies that participants are uncertain about introducing products there. Additionally, reimbursements from

authorities can be meagre, causing physicians to shun high-cost, though effective, products.

However, there is scope for expansion, said F&S. 'As the competition increases and products reach maturity, the focus on research and development is expected to rise - bringing in a surge of new products. However, the R&D departments of industry participants are also likely to face greater pressure to develop more cost-effective products that offer equally good, if not enhanced, performance to meet the needs of end users.'

F&S anticipates a spate of mergers and acquisitions, as seen between Amersham plc by GE Medical Systems, which united an imaging company and contrasting agent firm.

'Apart from the increasing focus on fast-growing segments such as MRI and PET, the rising interest in ultrasound contrasting agents and therapeutic pharmaceuticals resulting from greater awareness of cancer diagnostics and cancer therapeutic agents is helping promote the growth of the overall market,' Ms Badrinarayanan concluded.

The Frost and Sullivan report 'The Contrast Media and Radiopharmaceuticals Market in Europe' is coded: B428. For an analysis overview that provides an introduction to this, please send your name, title, company name, phone number and e-address to: katja.feick@frost.com

Medical markets

Contrast media and radiopharmaceuticals

Korea - 3D-eXtended Imaging™ (or 3D-XI), a new diagnostic ultrasound image processing package, developed specifically for the ultrasound system Accuvix XQ, has been launched by Medison, which reports that the system has three innovative imaging applications.

in addition to the ability to perform in-depth analysis on the resulting ultrasound images and data. Included in 3D-XI are Multi-Slice View, Oblique View and VolumeCT.'

Medison (est. 1985), which pioneered the first commercial real-

Three image processing applications for 3-D



'The 3D-XI package enables more extensive and thorough image processing capabilities, not previously available in the ultrasound industry. This is based on utilising 3-D volume data obtained from a normal 3-D scan and processing the data into the exact images and information the physician wants to view and diagnose. All three imaging applications that make up the 3D-XI package allow for more precise and accurate diagnoses, in

time 3-D ultrasound scanner, reports that the Multi-Slice View transforms 3-D volume data obtained from a regular ultrasound scan into a series of sequential images captured in intervals of 0.5mm (minimum) to 3mm (maximum) segments. This enables instant viewing for analysis and understanding of more in-depth data, thus empowering users with more diagnostic confidence and accuracy.

'Oblique View is imaging technology which enables you to examine and view 3-D volume data in various planes in without limitations. This process allows for more complete visual examination and better understanding of the correlation between organs within the region of interest,' says Medison.

VolumeCT is a tool for understanding relationship of coronal, sagittal and axial views of a 3-D data set in a 3-D environment and visually being able to express that relationship. All planes, as well as the volume data set are adjustable and can be manipulated to obtain the exact image and data information for more accurate and optimal examinations.

Historically, these imaging technologies have only been available in more expensive CT and MRI systems but now, for the first time, Medison says it has made a successful adaptation for the diagnostic ultrasound market. 'In addition to being more economical when compared to CT and MRI examinations, it is also safer in that it is based on current ultrasound standards and therefore there is no need to deal with adverse radiation issues.'

MEDICA 2004 - Medison, which specialises in diagnostic ultrasound systems, from portable to 3-D and 4-D, is based in Seoul and has sales office in over 100 countries (annual revenue: \$150 million). The firm's products will be on show at Medica.

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'A visual stethoscope'

Portable mini cardiovascular US



hardware miniaturisation in a new, patented design. 'Vivid i is a remarkable example of how GE is pioneering technologies that will change the way healthcare is delivered to patients,' Joe Hogan noted.

'Echocardiography is about to undergo a major change,' said Professor George Sutherland, Depart-

ment of Cardiology, St George's Hospital in London, UK, who has used the equipment. 'With its ease of movement and diagnostic image quality, this portable ultrasound system makes it easier for the doctor to go to the patient to perform an ultrasound scan, rather than the reverse. In intensive care and car-

diac examination rooms this is a marked advantage.'

GE received 510k clearances from the USA's Food and Drug Administration (FDA) and CE Marking certification for Vivid i in 2004. The system has now become commercially available. .

Details: www.gehealthcare.com.

Vivid i - the first miniaturised cardiovascular ultrasound (US) system to provide high-performance, full-featured imaging in a lightweight design - was launched a few months ago by GE Healthcare (a unit of General Electric Co). With this development, said Omar Ishrak, president and CEO of GE Healthcare's Ultrasound unit: 'The freedom that laptops and PDAs brought to business will now be available in healthcare.'

'Vivid i addresses one of the biggest challenges physicians face in caring for their patients - access to complete, real-time information,' explained Joe Hogan, president and CEO of GE Healthcare Technologies. 'As GE Healthcare continues to improve on the portability and convenience of ultrasound technology, I believe it will become the visual stethoscope of the future.'



The firm reports that the Vivid i offers the functionality and high performance of full-featured, larger-scale systems - but GE's engineers developed the system by miniaturising the components of a premium echocardiography system weighing over 400 pounds (180 kilograms), to provide a portable system weighing just 10 pounds (less than five kilograms). Its portable and wireless design now makes diagnosis at a patient's bedside or other location feasible. The system also has wireless capabilities, so files can be transferred instantly from the system to consultants.

Within GE Healthcare, Vivid i is being called an 'imagination breakthrough' product, which leverages up the R&D investment in software-based ultrasound platforms and

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9.4 scanner

Decoding the human brain

The University of Illinois Chicago (UIC) recently unveiled 'the world's most powerful magnetic resonance imaging machine for human studies, capable of imaging not just the anatomy but metabolism within the brain'. This technology, UIC explained, will allow metabolic imaging that will help researchers to understand the workings of the human brain, detect diseases before their clinical signs appear, develop targeted

drug therapies for illnesses, such as stroke, and provide a better understanding of learning disabilities.

'Central to the technology is a 9.4-tesla magnet, larger than any other human-sized magnet, built by GE Healthcare, a unit of General Electric Company. A tesla is a large measuring unit of magnetic strength,' the researchers said. 'This technological leap forward is as revolutionary to the medical community as the transition from

radio to television was for society,' added Dr Keith Thulborn, director of the UIC Centre for Magnetic Resonance Research. 'GE's magnet is introducing a whole new dimension to imaging by enabling researchers to better understand how the human brain thinks, learns, fights disease and responds to experimental therapies.'

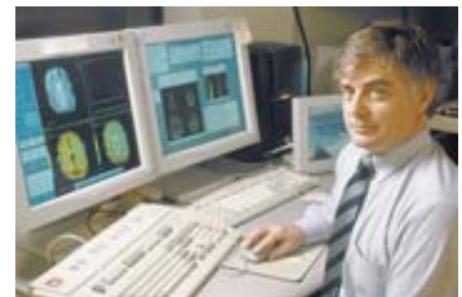
'UIC's new Centre for Magnetic Resonance Research, featuring GE's 9.4-tesla magnet, will be a pre-



mier international centre for human brain research,' Thulborn said. 'What we learn here in Chicago will be shared with researchers and physicians around the world.'

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An MRI machine images internal structures of the body using magnetism, radio waves and a computer. A circular magnet surrounds the patient and creates a strong magnetic field that aligns atoms in the body. A pulse of radio waves then rearranges them, creating a signal that is passed to a computer,



Dr Keith Thulborn

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DANGER The false negative mammogram

In some countries a failure to diagnose breast cancer when it is present is the most common cause of medical malpractice litigation. Half the cases that result in payment to a claimant had 'false negative' mammograms.

Is breast cancer always detectable? In mammography sensitivity is of great importance and involves several factors, including the interpretive skill of the radiologist. Radiologists have long known that some breast cancers are undetected on screening mammograms - for a variety of reasons - but they can also be missed for no other reason than distraction or inattention of the screening radiologist. (In 1981 Forrest and Friedman noted that nodules, clearly present on chest radiographs, were missed 60% of the time by interpreting radiologists, and in 1993 Harvey et al studied mammograms and found similar results).

Interpreting medical images is complicated, involving the simultaneous processes of scanning, perceiving, interpreting, and decision-making. In a Forum this year on the subject of how Radiologists really think, the Society for Computer Applications in Radiology (SCAR) sought to examine approaches



Headcoil - the device in which the head is placed to image the brain

producing an image.

The current industry standard for MRI systems is 1.5 tesla, which limits researchers to imaging water molecules. As a result, only anatomical changes can be detected and monitored, UIC researchers pointed out. By contrast, the 9.4-tesla magnet, which is three times more powerful than current state-of-the-art clinical MRI magnets and more than 100,000 times stronger than the earth's magnetic field, will enable UIC researchers to detect signals from sodium, phosphorus, carbon, nitrogen, and oxygen - the metabolic building blocks of brain function and human thought. 'Brain scanning is pushed to the limit with the current technology - we need the sensitivity of the 9.4-tesla magnet to go beyond anatomic imaging to metabolic imaging. 'Metabolism provides the energy that drives brain function and

therefore offers the key to uncovering the mysteries of the mind,' explained Dr Thulborn, who worked with GE researchers to develop the 9.4-tesla MRI system. 'The work we're doing, mapping human thoughts, brings so much promise to the future of medical research, specifically to our ability to really understand more about brain diseases,' he added. 'The medical and social implications of this technology include more personalized healthcare and earlier intervention to prevent disease.'

In addition, Dr Thulborn plans to apply the 9.4-tesla system to observing and potentially treating

cognitive learning disorders, such as attention deficit disorder: 'If we can understand how children learn, we can tailor educational programs to better teach them, regardless of whether they have learning difficulties. By understanding the different ways that the brain learns, more efficient and effective learning programs can be produced for such skills as reading, music and mathematics.'

About the University of Illinois at Chicago

UIC ranks among the nation's top 50 universities in federal research funding and is Chicago's largest



university with 25,000 students, 12,000 faculty and staff, 15 colleges and the state's major public medical centre. A hallmark of the campus is the Great Cities Commitment, through which UIC faculty, students and staff engage with community, corporate, foundation and government partners in hundreds of programs to improve the quality of life in metropolitan areas around the world. For more information about UIC, visit www.uic.edu.

Details: www.uic.edu and www.gehealthcare.com

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To err is human - and radiologists are only human

to the diagnostic process. Dr Elisabeth Krupinski, research professor at the University of Arizona, used eye-tracking data to help determine a radiologist's interpretive process and to explore why errors occur. She found that they often approach an image with a preconceived notion about what they are viewing. Radiologists also have the ability to detect suspicious regions peripherally, without fixating on the specific spot. In fact, Dr Krupinski said, they may fixate on a suspected lesion and not see it. She categorized three types of errors. Search errors, where a radiologist's eyes don't land anywhere near a possible abnormality; recognition errors, in which a radiologist does not see at all, and decision errors, where the radiologist does not believe that a suspicious region warrants further investigation.

At the Annual Conference of the Radiological Society of North America (Chicago, Nov 28 - Dec 3) the Society for Computer Applications in Radiology (SCAR) will further promote its initiative 'Transforming the Radiological Interpretation Process' (TRIP). Subjects will include: image processing and visualisation; human perception and image interpretation, and the use of computer-aided detection (CAD) to increase diagnostic accuracy and reduce medical errors. (ph)

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ComPaMED displays raw materials, components, parts, packaging and services for use in the medical supplies industry. 239 companies are participating in this year's exhibition, about a third from Germany, and some 64% from other countries. **Klaus Jopp**, science and technology writer, reports

'Increasing miniaturisation combined with simultaneous integration of functions is a key theme of global product development in the most diverse application fields,' observed Professor Jürgen Fleischer, chair of the Institute for Production Technology at the University of Karlsruhe. In particular, this significantly applies to medical technology - which receives major inspiration from ComPaMED. On one hand, the focus is on materials that

Micropumps, biochips,

are prerequisites for permanent system reduction and, on the other hand, these innovative materials require that their manufacturing and forming processes are co-developed.

ThinXXS GmbH, for example, will present minute pumps and mixers for use in medical technology. Dr Thomas Stange, the firm's head of marketing, said, 'We are creating the prerequisites for diagnostic equipment

directly on the patient.' Minute pumps are as indispensable in these lab-on-a-chip systems as in many other fields of medicine. The latest product from this firm is barely larger than a euro coin and weighs less than a pencil. It pumps up to six millilitres per minute but consumes less than 0.2 Watt in the process. An unusual pump drive is responsible for this high throughput - piezoceramics instead of a motor provide the necessary

pressure for moving liquids. The material, a plastic, is also the essential component in micromixers with snake-like winding channels because modern casting technologies allow it to be worked so that the liquids in the canals are mixed fast and effectively.

'There is a clear vision behind systems that need our components: there's a rush to make test strips, such as those in conventional pregnancy tests, as accurate as current labo-



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Germany - Innovative exhibits, study results and activities in neurology, urology, surgery and prosthetics will be demonstrated by members of eight research-institutes from various universities at the Forschungsland North-Rhine-Westphalia joint stand at MEDICA. (Hall 3 - stand D 93).

Bio-engineering - Aachen University of Applied Sciences, in Jülich, will introduce its Centre of Competence in Bio-engineering, where applications range from the analysis of artificial skin to the development of drug delivery systems. With the involvement of several scientists from various universities, this joint project cross-links existing specialist knowledge and promotes scientific co-operation.

Orthopaedics - The University Hospital Aachen has been working on a layering system to optimise bonding between plastics and metals by PVD silica layering, so as to prolong the periods between surgical interventions.

Universities
demonstrate
advances

Research on display



Neurology - The prototype of a new sensor-based helmet, which supports a precise medical diagnosis of neuronal related symptoms of defective muscular contractions in the neck/nape area (cervical dystonia) along with disordered head movements, will be demonstrated by Duisburg-Essen University. This consists of a light, mobile, cableless helmet and a traditional PC with diagnostic software, which enables precise, dynamic recording of head movements to gain a quantitative comparison of the course and intensity of an illness, as well as quantifiable cause/effect schemes.

The Jülich Research Centre has developed a method for deep-brain stimulation to treat patients suffering Parkinson's disease, with just a few side effects. A brain pacemaker transmits electrical impulses that are not continuously stimulating, but which singly and individually meet demands, when needed. Nerve cell activity in the brain's overactive areas is not suppressed but desynchronised. When nerve cells want to fire overly synchronously, they are distracted by targeted stimuli.

Urology - Prostate cancer ranks second among the most common causes of cancer deaths. But although early diagnosis raises men's chances of recovery to 90 %, not enough men recognised the value of

prostate-specific-antigen (PSA) tests. A team from the urology clinic at University Duisburg-Essen will offer visitors PSA tests as well as results during MEDICA.

Uripet L, an inexpensive rapid testing system for diagnoses and for monitoring the course of several urological and haematological diseases (e.g. myeloma or leukaemia), and which shows increased uric acid and globulin content, will be presented by Hochschule Niederrhein.

Imaging - The Gelsenkirchen University of Applied Science will present an advance in 3-D ultrasound (US) imaging, demonstrating the identification and accurate measurement of a malformation and the defective positions in an infant's hip joint.

Surgical assistance - Siegen University will present a universal surgical assistance system that integrates surgical tools for computer and robot-assisted surgery. The software, called modiCAS (modular interactive computer-assisted surgery), has an independently applicable module that enables computer-based, pre-operative planning. During surgery, an assisting mechatronic system can be used, which, with its precise positioning and guidance of surgical instruments, helps the surgeon - particularly in new and minimally invasive procedures - and facilitates surgical results that are precisely reproducible.

nanomedicine...

ratory tests,' Dr Stange said. Then, a mere few drops of biofluid will provide results on a whole series of illnesses - at a patient's bedside.

To achieve this, suitable sensors are needed, and not only here, but in many other systems. Custom-produced for clients by Campus Micro Technologies GmbH (CMT, Bremen), these measure pressure, acceleration, humidity, ultrasound or fluid state etc. Matthias Wenzel, project manager for Biomedical MEMS at Campus, added 'Another important possibility for use are telemetric implants that send data from the body's interior to external recipients.' CMT cooperates with the development centre of Microsystems Centre Bremen (MCB) and the consignment manufacturer MST/MEMS Waferfoundry microFAB Bremen GmbH. As a result, it offers a broad spectrum of the most current manufacturing technologies in microelectronics and microsystems technology.

Plastics gain new importance in medicine - Due to their excellent forming qualities, low weight and favourable economics, plastics continue to rise in importance in medical technology. As a result, the demand for suitable processing methods such as laser welding is increasing. The essential advantages of laser technology, e.g. in microfluids, are: no involvement of supplementary work materials such as adhesives, no additional abrasion impurities, the most flexibility and quality. Due to microscopic requirements, Nd:YAG lasers with highest brilliance are used. Look among the mixers and microfilters on display to find examples of plastic welding.

Sensors in medical technology must be small and antiseptically encapsulated as well as have a high performance. Laser welding is ideal for this purpose. Since the laser beam applies the fusion heat extremely precisely, the welding seams may be drawn close to the temperature- and vibration-sensitive sensor and electronic components - without affecting the surface quality. In some cases, metal wires are embedded in plastics using laser beams - strictly speaking, this is not welding but nevertheless a combination that must meet certain stability requirements. Membranes, sensors and electronics play a decisive role in many implants. As a rule, they must be welded or encapsulated using microseams without affecting actual functions. These are also ideal situations for laser welding. An example is the processing of hearing aids - in this case, membranes are welded so that the very small components are connected without heat distortion but the mechanical requirements for stability and density are still ensured. For example, Carl Baasel Lasertechnik GmbH & Co. KG, a company in the Rofin group, and others, will present laser systems for these uses at the ComPaMED show.

Nanomedicine: a brilliant future - According to a study by the market research company Frost & Sullivan, nanomedicine

faces a great future. Rajaram Sankaran, an analyst at Frost & Sullivan, reported: 'Given the possibility of directing active therapeutic agents directly to their target and, consequently, of reducing side effects, nanomedicine might significantly increase the quality of life of many patients.'

Currently, pharmaceutical and

biopharmaceutical companies are conducting intensive research on these new methods of drug administration. Nanotechnology has clearly developed further in ComPaMED's area. Möller Medical GmbH & Co. KG has steadily developed its offer in this field. Today, nanocomposite coatings with a wide range of properties -

hydrophilic, conductive, transparent, corrosion-resistant - are available for the most varied substrates.

This type of surface modification, with high chemical resistance and temperature durability (up to 600°C), is currently available for steel, aluminium, brass, copper, glass and plastics (ABS, PMMA, PC and PA). The coating is applied using the sol-gel process, which has acquired great importance in nanotechnology. Sabine Stein-Wehinger, who is in charge of the Coatings division at M'ler, envisions the firm's next objective as antibacterial coating based on nanosilver.

There can be no doubt: small to tiny components, functional surfaces and innovative materials will play an important role at ComPaMED 2004 - which includes the forum 'Microtechnology and Medical Technology', during which leading representatives of the 'miniature arts' will present about 20 lectures. In these, they will cover the entire exciting field of medical microtechnology, ranging from legal questions regarding product liability and market assessments, to novel sensors and transponders for telemedicine.

ComPaMED - Hall 8

smiths



Innovation in Life Support and Care

The familiar and trusted names of **Portex, Deltec, Pneupac, Graseby, Wallace, pvb, BCI, Level 1, Bivona and DHD** have merged their business units into one global company: **Smiths Medical**.

Smiths Medical offers market-leading solutions in two major areas: **Anaesthesia & Safety Devices** and **Medication Delivery & Patient Monitoring**. These two areas cover airway management, pain management, needle protection, arterial blood sampling, temperature management, critical care monitoring, hospital and ambulatory infusion, vascular access, in-vitro fertilisation, surgical drainage and insulin infusion.

Across the world there is now one name that sums up quality, safety, innovation and value in medical technology. That name is **Smiths Medical**.



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Many ingenious designs and inventions, set to enhance the lives of the disabled, were shown at November's International Rehacare Trade Fair in Dusseldorf. The best of these have won the European Commission's first **Design for All and Assistive Technology Awards**.

Brenda Marsh, Editor in chief, 2004@MEDICA, reports

Rehacare: changing lifestyles for the disabled

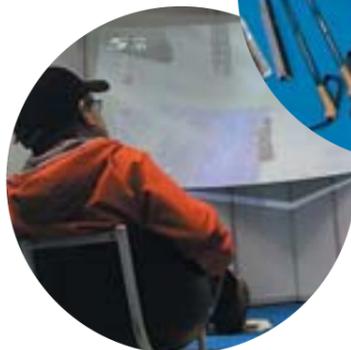
One of the frustrating aspects of life for a paraplegic is the inaccessibility of many places, as well as barriers to participating in certain sports. The pinnacles reached by disabled contestants in the Paralympic Olympics, and events such as the London Marathon, are therefore not only inspirational, but a spur to inventors, who often push the boundaries of design to present physical possibilities often only dreamed about. I was therefore particularly delighted to find that the following inventions had gained top honours at Rehacare this year:

● **Sport sled**, made by Tojo of Finland, which won a prize in the Culture, Leisure and Sport category. The sled, for disabled or able-bodied users, has attachments to make it useable for fitness training, balancing exercises - and even roller-skating.

● **Hippocampe**, a waterproof vehicle that can cross rough terrain with ease - traversing sand, pebbles, grass and so on. This offers wheelchair users the chance to explore places where they may never have gone before. In the *Culture, Leisure and Sport* Category, this won the French company, Vipamat top honours.

● **Elektro-Rollstuhl Typhoon** - this high-tech but affordable wheelchair has six wheels and a maximum speed of over 12km/h, and handles impeccably whether indoors or outdoors, says the maker Invacare, of Germany, which gained the *Mobility and Transportation* category prize for this design.

● **Parkwalker** was designed to help those suffering Parkinson's disease. Software, contained in a mobile mini computer to be worn on the user's belt or in a pocket, displays moving visual cues in the



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user's peripheral visual field within specially adapted glasses. This won the *Jury's New Territory Award* for its maker Parkaid Srl, of Italy.

Communication is another vital area for those with disabilities. Developments in this field not only augment many people's contact with the world at large, but can also save their lives in emergencies. Thus mobile phones, the Internet, and much else have enhanced many aspects of disabled living. The following are fine examples in new developments:

● **Butler**, a locatable mobile phone contains an emergency function that alerts relevant services of the owner's exact location when pressed. Made by Binom Produkt-design, in Germany, this gained first place in the *Communication and Information* category.

● **Hausnotruf-Telefon**, a home emergency telephone also took top honours in that category. Although everyone can use the device, it is particularly helpful for those with visual impairments, hearing defects and tactual problems because, for example, it has larger buttons and a user-friendly volume control. In an emergency, a relay for help can be activated via the phone or a portable transmitter, which can be worn around the neck. The maker: DFG Deutsche Fernsprecher GmbH.

Reading is one of life's great escapes. However, for those with sight impairment many great books, or educational material, are still not accessible via reading aids.

Thus very welcome inventions presented with awards were:

● **Bücherfuchs**, made by Bergische Universität Wuppertal, Germany. This prototype machine automatically turns each page of a book, scans it and stores the pages electronically. This device won the *Jury's Integrated Solutions Award*.

● **Livereader** is a high-res digital camera that provides real time audible output for the user as it scans text. Made by Livereader GmbH, from Germany, this won in the *Lifelong Learning* Category.

Dressing can be worrying for those with vision impairment, and can result in a sometimes curious and embarrassing combination of clothing.

● **Marta Mei**, from Milan's Politecnico, delighted judges with her **Listening to the Clothes** entry in the *Daily Living* category. Aiming to help partially sighted or blind people to co-ordinate their clothes when dressing, she devised a way of fitting garments with tags that relay to the wearer the item's colour, fabric, etc.

Other exemplary winners included **Cairlift**, a four-layered mattress with remote control, made by Indes Medical Design, in the Netherlands; **Easy Reach Shelves**, made by Tech Desing Oy of Finland, which can be folded down with a single hand movement; and **Audible**, an advanced MP3 Player, created by Carin Larsson, from Umeå Institute of Design in Sweden, which makes music more accessible to everyone.

Personnel security

Dect messaging, a voice-linked personal alarm unit that recently received the German accident insurers' GS mark for safety, is the first to fully integrate personal emergency alarms into a telecommunications device, says its manufacturer, Damovo GmbH & Co KG.

Damovo volunteered for the accident insurer testing of the unit, and adjustments were made to the software to satisfy all requirements, e.g. programming of

a few, transmitters, but takes place within an infrastructure with many base stations.'

A standard interface connects DECT messaging to an existing nurse call system and sends patients' emergency calls directly to mobile terminals carried by medical staff, who only need use the one terminal for mobile speech communication and SMS services. If a crisis arises, a doctor can be consulted direct.

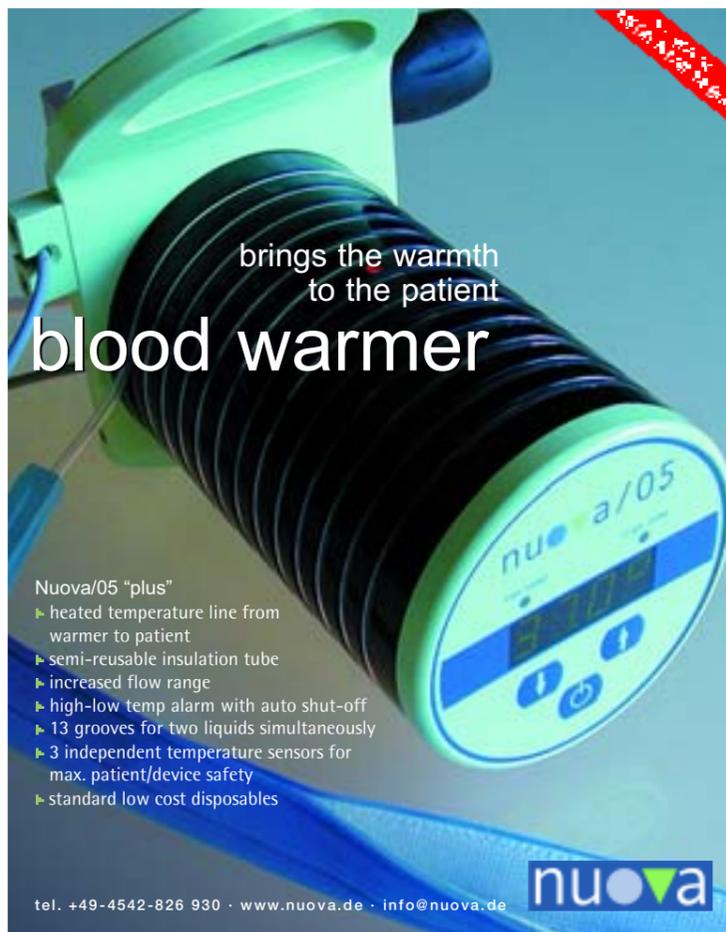
emergency power supply to guarantee that the unit can be used around the clock,' the firm adds. 'For safety reasons, a technical alarm is activated in the event of technical errors such as departure from the area covered by the signal, flat battery, interrupted radio communication, failure of system components and a failed self-test.'

A further advantage is that different functions - e.g. personal security, SMS transmission or connecting existing customer systems - can be provided as modular options, the firm points out.

Damovo, which has over 26,000 international clients and employs over 2,200 people worldwide, and an annual turnover of around a billion euros, is now seeking more distributors for the Dect system.

Currently Damovo is mainly active in Australia, Brazil, Germany, the United Kingdom and Italy, and is also represented in Argentina, Belgium, France, Hong Kong, Ireland, Colombia, Mexico, Poland, Portugal, Slovakia, Sweden, Switzerland, the Czech Republic, Hungary and Venezuela.

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Insurers approve new personal alarm device

The messaging system can reduce response times in emergencies



Comprehensive terminal self-tests - Self-testing is automatically activated when the unit is switched on or taken out of the charger, when an alarm is answered, and after technical faults, the firm reports. 'All the terminals' alarm functions are checked. All the alarm system's components are also constantly monitored by periodic self-testing. The central components have an

an alarm centre for the monitoring functions and a series of security functions, such as availability of the terminals and periodic terminal self-testing, were implemented.

The device was certified according to DIN standard VDE V 0825-1 and the accident insurers' guideline BGR 139, valid until 31/12/08. The Electrical Engineering Committee, within the German Federation of Institutions for Statutory Accident Insurance and Prevention (HVBG), in Cologne, took charge of the assessment, and technical tests took place at the accident insurers' testing and certification unit, in Dresden.

(Certification details: www.hvbg.de/d/bgp/pz).

Due to a history of accidents or risk level in some workplaces, accident insurers stipulate the use of a certified personal alarm system in some circumstances. As an accident insurer-approved unit, the Dect voice-linked alarm means only one staff member need be deployed in hazardous workplaces, whereas formerly a second person had to be present, Damovo points out. 'The market favours mobile communication via a speech terminal over rigid paging technology, which is becoming obsolete,' said Martin Beck, Damovo's Business Manager. 'When you have only one terminal for monitoring, sending alarms and messaging, it's easier to use and provides a quicker response in an emergency. Paging systems offer only limited speech transmission, so there is no ability to consult with someone in an emergency or to issue an alarm verbally, for instance. This meant that paging-based solutions could only ever be extensions of a mobile speech communication solution and never an integrated system. So the voice-linked personal alarm unit is more secure because the signal transfer is not based on one, or



Ten medical scales and measuring systems

NEW

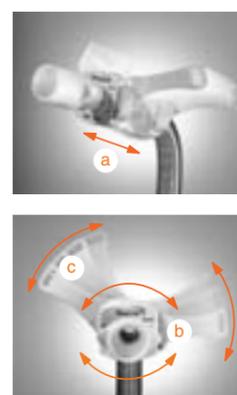
Ten high-tech, well-designed baby scales, measuring station and column scales, all new to seca's product range, will be launched at Medica this year, along with current models from Seca's range of intelligent, practical weighing and measuring solutions.

The products will be arrayed in target groups at the 100 m² stand (Hall 12, stand A 63), so that visitors can quickly find what they want.

seca Vogel & Halke GmbH & Co. KG, Hamburg also reports that it will have a special 'Marketing' information centre on the stand this year, to supply information about advertising and sales measureS to interested trade and sales partners. For those who take part in seca's survey, there's also a chance to win a complete seca campaign individually tailored to their needs.



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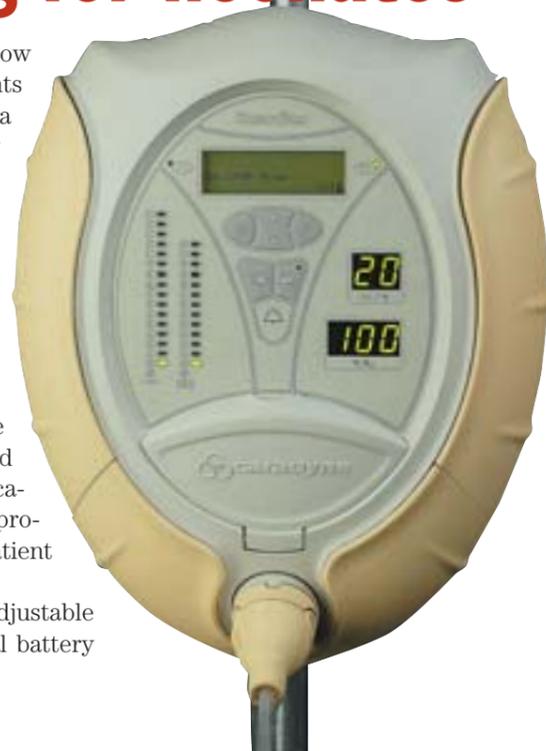
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'This unique technology uses servo controlled proportional solenoids that ensure accurate control of pressure, compensates for interface leaks and allows for the use of smaller prongs, which help to reduce the risk of septal damage to the newborn,' said its manufacturer Respironics Inc, a Pennsylvania-based firm that focuses on sleep and respiratory products and distributes these in over 100 countries. 'The device also employs advanced humidification technology that delivers optimal humidification and warming that increases patient comfort and provides a minimal 'rain-out' and crusting around the patient interface.

'Additionally, the NeoPAP has several alarms with adjustable volumes and a remote connection as well as an internal battery for easy transportation.'

Details: www.respironics.com



Medical tubing

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Teleflex Medical is a key business segment within Teleflex Incorporated, and since 1989 has supplied products and services for anaesthesia, urology and surgery. Since the firm acquired Hudson RCI in June, it now provides, under the globally known brand names Rusch and

Hudson RCI, a complete range of anaesthesia and airway management products, such as tracheal tubes and intubation aids, tracheostomy tubes and laryngoscopes, products for regional anaesthesia, respiratory care, oxygen and aerosol therapy, humidification, filtration and products for temperature management.

The firm's urology and endourology range also extends from Foley catheters, ureteral catheters and stents to products for percutaneous nephrostomy, suprapubic bladder drainage, closed urinary systems, through to specially designed catheters for homecare.

Surgical closure, ligation and cardiovascular devices include the brands Pilling, Weck, CVolutions, Pleur-Evac and Deknatel.

These products will be on show at MEDICA - Hall 9 - 37A.



Medication delivery systems on show

New infusion set cleared by FDA

Earlier this year, Smiths Medical (which focuses on anaesthesia and safety devices for medication delivery and patient monitoring (products: airway management, pain management, safety devices, temperature management, diabetes, infusion, vascular access, etc) acquired the US respiratory care device company DHD Healthcare from Riverside Capital of Cleveland, Ohio.

DHD products for respiratory care include those for positive



expiratory pressure therapy for chronic lung disease cases; incentive spirometers used post-operatively to improve lung function, and devices to help patients inspire nebulised drugs from an inhaler. In late 2003, DHD had acquired a range of specialised nebulisation systems, incorporating heaters and humidifiers, and oxygen delivery products.

Recently Smiths Medical received 510(k) Pre-market Notification market clearance from the US Food and Drug Administration (FDA) for its Cleo 90, a new subcutaneous infusion set. Infusion sets, the firm explains, are a key element of an insulin pump system, delivering insulin in a flow path connection between the pump and the wearer.

The all-in-one design of the Cleo 90 features an automatic needle retraction system to reduce accidental jabs, a skin-like adhesive dressing that breathes yet keeps water out, and a hidden insertion needle that helps when injecting small children and those with needle-phobia. A 360° site connectivity option provides total tubing direction control, allowing users to wear what they want, when they want, the firm points out.

The Cleo 90 will be released early in 2005.

Smiths Medical products can be viewed in Hall 6 - H30.

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Moving towards a pan-European health network

Earlier this year, the European Commission (EC) launched its e-Health action plan, which aims to get European healthcare providers to use communication and information technologies to support healthcare services



By Dahn Jubell, Global Business Unit Manager, Healthcare, Ascum Wireless Solutions

One key aim is to have fixed and wireless health information networks widely implemented by 2008 - with the longer-term goal of a seamless, integrated pan-European health network. However, as Dahn Jubell of Ascum Wireless Solutions points out, there are already significant benefits to be gained by healthcare providers from smart integration of wireless communications at the local level.

If there are two words that summarise the benefit of fully integrating wireless communications systems - such as cordless phones and pagers - into the healthcare environment, they are quicker response. In the demanding and highly complex environment of a busy hospital, integrated wireless communications speed up response by getting the right information to the right people at the right time. Complex processes are linked simply and effectively at the right points; information flow between departments is enhanced.

The obvious and immediate benefits of having information and instructions flowing to the right people at the right time are improved care and safety. For example, alarms and emergencies can be responded to more quickly, and waiting times can be reduced. The longer-term benefits include more efficient workflow through the hospital and reduced length-of-stay, not to mention relieving stress and strain on medical personnel. Investments in information technology are better utilised, as bottlenecks in information flow between departments are removed.

Wireless communication systems can be integrated seamlessly with existing systems such as Electronic Patient Record (EPR), Hospital Information System (HIS), Radiology Information System (RIS) and Laboratory Information System (LIS). They can also integrate with existing telecoms and IT infrastructure, and with technical and administrative systems such as accounting, building management and security systems. This means that vital information from any source can be delivered promptly to medical and other personnel, wherever they are working - whether through a voice call, standardised alert or text message - and whatever device they are using.

An example of how this works is in hospital radiology departments. While examining some new scans, a radiologist notices that an X-ray image shows a left foot, but it's marked as the right foot. She doesn't know who is authorised to make a correction at this time of night, so she opens up the wireless correction application in the RIS and makes a note of required corrections. The system sends a message to the authorised person who is walking along a corridor two floors up, who immediately acknowledges the job. The corrected record is saved in the archive - ensuring more efficient and reliable tracking.

In another ward, a consultant

physician receives a text message on her cordless phone to let her know that the results of a patient's lab tests are ready - and they need her urgent attention. She immediately sends a message to a group of porters, and the nearest one available acknowledges and is on his way to take the patient to the consulting room within seconds. This process eliminates the need for follow-up calls and checks - saving time and boosting efficiency.

A key point to make here is that there is no single wireless technology or standard that is the 'best'. Whether we're talking analogue or digital cordless, wireless LAN or voice-over-IP, each technology has its own merits and can be used for

different purposes in a complementary way. The greatest benefits come from being able to integrate the most appropriate and cost-effective technologies successfully to deliver the required services.

As healthcare professionals consider how they can move their ICT systems forward towards the European Commission's objectives, they should bear in mind that there is a lot they can do today - through smart integration of wireless communications - to help them make the best use of any new and existing investments in IT and communications.

New route to data security

Washington, D.C. - An advance in data protection software '... that can more quickly and efficiently ensure databases don't release unauthorised information,' was described this month at the ACM Conference on Information and Knowledge Management, by Dongwong Lee *, assistant professor in the School of Information Sciences and Technology (IST), Penn State.

Presenting a paper titled: QFilter: Fine-Grained Run-Time XML Access Control via NFA-based Query Rewriting', he explained that the software, QFilter, 'sits' between users and databases and filters or culls out unauthorised requests for data

before a database responds to a query. 'We have shifted the thinking from data filtering to query filtering - a practical solution to the ongoing problem of database access controls,' Dongwong Lee explained.

Currently protecting databases via only authorised personnel access, is managed through access control-modules built separately into individual databases. QFilter can implement database security without those modules, Dr Lee said, which means it can be used with off-the-shelf databases and without requiring substantial changes to existing databases. 'That difference not only makes the security check of QFilter very practi-

cal, but it also significantly improves query-response time by rejecting unauthorised requests early on.'

Other technologies for restricting access to databases include view-based technology, which creates different data views for each user, so that the database no longer has to check users' credentials, improving speed. However, as the number of users requesting access grows, or views need to be updated frequently, this technology will have maintenance and storage issues, the researchers pointed out. 'The issues are what technology is fastest, what requires the least storage and what requires the least amount of changes to existing databases. Compared with competing

techniques, QFilter is better on all three.'

To capture and determine who can access what information, QFilter uses a specialised computation model: non-deterministic finite automata (NFA), which stores a large number of access control policies in an efficient and non-redundant fashion, they reported. 'NFA monitors when users' queries pass through and filters out parts of queries asking for unauthorised access.'

* Co-authors: B Luo, an IST doctoral student; P Liu, an assistant professor of information sciences and technology at IST, and -W-C Lee, an associate professor in the department of Computer Science and Engineering). Details: www.psu.edu

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MEDICA 2004
HALL 10, F 67

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MEDICA meet.IT

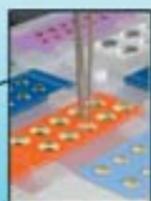
350 exhibitors will showcase information and communications technology (ICT) at Medica Media (telemedicine), Medica Vision (presentations of research institutes) and Medica meet.IT (Hall 16).

According to a recent study conducted by Mummert Consulting and the F.A.Z. Institute, over one in two German hospitals (54%) have earmarked major funds for IT investment from now until 2005.

Following its successful debut in 2003, the MEDICA meet.IT user forum - co-ordinated by the umbrella organisation Information Technology in Health Care (Informationstechnologie im Gesundheitswesen svitg e. V.) will again provide added value to the programme of events. Software users from hospitals will present papers with proposals and case studies on the installation and use of new IT applications.



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Stand No. A27
Hall 13

Uroplasty, world leader in tissue bulking technology for the treatment of urinary and faecal incontinence, wishes to appoint distributors already working in the fields of urology, gynaecology and proctology. Countries of specific interest include: France, Scandinavia, Germany, Spain, Asia Pacific and Eastern Europe.

Uroplasty BV., Hofkamp 2, 6161 DC Geleen, The Netherlands.



DataSwiss Solutions HQ in Taegerwilen

What's new in telemed? Plenty

An X-ray examination, performed in a small hospital in a remote region, is received via a phone line by a resident radiologist in a larger facility. In a while, s/he faxes a diagnosis back to the point of care and treatment begins. No waiting for patient transportation, discomfort, time loss, or even great expenditure. Neat!

Naturally telemedicine was quickly assimilated into healthcare - but it is also ever advancing. That's why IT and telemedicine are among the centre stage players at Medica 2004.

In Germany, neurologists in various states have been participating in a telemedicine model project by transmitting computer tomograph (CT) images of brain injuries for diagnoses. Now all the participants - 113 neurosurgical facilities with 5,300 beds - are linked by teleradiology, and about 50 small hospitals have acquired a CT to transmit images via a network service for resident radiologists' assessments.

An analysis of over 64,000

patients, who were examined at the small hospitals, showed that one in eight was a critical emergency, and the method could result in earlier diagnosis and treatment.

Teleradiology is attractive and feasible for hospitals with about 200 beds. Every third German hospital has 100 to 250 beds, but few could afford an in-house radiology department and, given their low number of CT examinations, a radiology team would be underused. However, for those with only one radiologist, a teleradiology colleague based somewhere else in Germany could undertake on-call duty and/or weekend cover for that single employee.

In Germany, telemedicine requires a permit (Radiology Regulation) if X-rays are involved. A hospital must obtain a permit if it does not have a radiology on-call service for night, weekend and holiday operation. However, an unlimited teleradiology operation is also possible. The prerequisite: there must be a 'need with respect to patient care'. The

definition of what this means lies within the powers of the state social service ministries and their executive organ, professional supervision.

While there is discussion in this country about what form a standardised national permit requirement for teleradiology would take, teleradiology itself is beginning to globalise. Examinations in Scandinavia are being evaluated in Spain. Similarly, intercontinental teleradiology was established long ago, for example between Saudi Arabia and the USA,

At this year's trade show, telemedicine applications and presentations by universities, as well as aspects of cross-border telematics, and reports and experiences from experts in this field, should prove a cutting edge experience in the Medica Media section - Hall 16.

In the same hall (Clinic IT), and Hall 17 (Practice IT), manufacturers of medical IT systems will also introduce products and services. Exhibitor/products details: www.medica.com

Switzerland 'SwissCare is easy to install and use, whether in a huge university hospital with 5,000 users, or a small nursing home with five users,' Thai Ludwig, CEO of DataSwiss Solutions points out. 'The installation of one system is totally sufficient. Hardware requirements on the clients and server side are minimal. Browsers to access the system enable licensing of concurrent users with full access to all functions. This technology enables our distributors to offer highly competitive prices in every market segment, and make good profits at the same time.'

Depending on the country, our turnover estimates vary between \$105 million to \$365 million by 2010.'

Based in Taegerwilten, the firm has independent branches in Miami, Fla. USA, and Dortmund, Germany. Three administration markets are targeted for SwissCare: acute hospitals, rehabilitation clinics and nursing homes of any kind and size, '... even complete chains of healthcare facilities', the firm adds. The software runs in any language, Thai Ludwig underlined, and indicated that the firm is primarily looking for sales orientated

companies in the healthcare sector, with contacts in hospitals, nursing homes, etc. 'not just well established IT organisations'.

The rollout of SwissCare is perfectly timed, he says. 'The horizontal and vertical integration of various healthcare facilities, as well as DRGs, the electronic patient record and electronic patient cards, are prime concerns in healthcare circles. The goal is inter-sectoral real-time management of patients' treatment paths, country and even continent-wide - needs that traditional IT systems cannot solve or fulfil satisfactorily. So it's not surprising that international market research consultancies acknowledge web-based HIS as having extremely good growth prospects in markets in all countries.'

The firm is offering distribution agreements (even exclusively) for single market segments as well as whole countries. Full 6-8 week training courses for IT and sales staff are provided in Switzerland, and, the firm adds, SwissCare experts will also provide local support to partners.

MEDICA 2004 - The SwissCare system will be demonstrated in **Hall 16, stand 16 G 52** (with RAG Informatik), where potential distributors will be welcomed for discussions.

Further details:
www.dataswiss.com

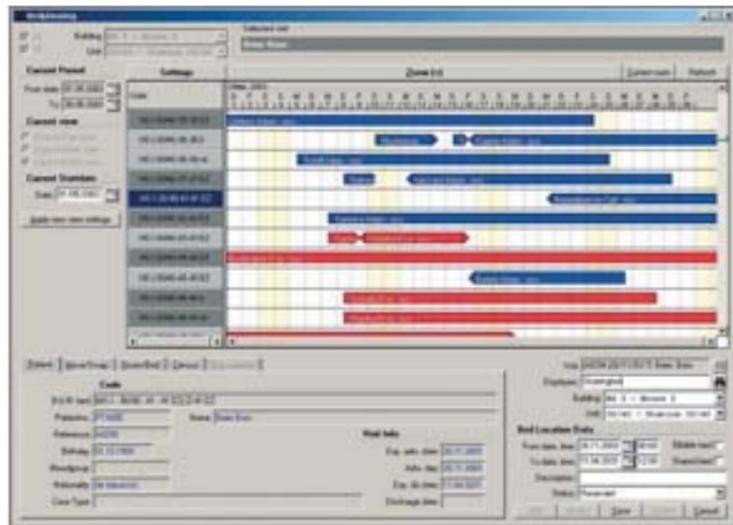
DataSwiss Solutions AG, which produces the healthcare information system (HIS) SwissCare, is seeking IT distributors in Europe and Asia. This system, based on 'Progress Dynamics', is internationally standardised and already used in Germany, Switzerland, the Netherlands and the USA.

distributors

A timely B2B IT opportunity



Thai Ludwig: 'Web-based IT systems are the future, with billion dollar healthcare market prospects'



The multi-lingual SwissCare system is geared for administration in hospitals, rehabilitation clinics and nursing homes

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The electronic health card

The electronic health card will be introduced across Germany in 2006 and decidedly change the German health system and its organisational structures. Issued to about 80 million insured persons, the card requires networking by over 350,000 doctors, 21,000 pharmacists and 300 official health insurers. If an insured person consents, the card will carry data relevant to emergency services, pharmaceutical documentation, electronic doctors' reports and an electronic patient file. This topic will be highlighted in MEDICA MEDIA, this year (Hall 17).

Current status of introduction - The German Federal Ministry for Health and Social Security, the autonomous administration (protego-net project office) and industry (BITKOM e.V. and VHitG) illuminate a broad range of aspects at the central presentation *Introduction of the Electronic Health Card, the Electron-*

ic Prescription File and the Electronic Patient File - Status of the Preparation Work. Norbert Paland, a senior official of the Health Ministry, will chair the event on 24 November. Reinhold Mainz is responsible for the coordination.

Preliminary results of the solution architecture, based on the autonomous administration's legal mandate and issues regarding the status of the telematics framework architecture and the telematics infrastructure, will be a central focus. This industry will also present solution concepts, for example, how cost effective solutions to introducing the Electronic Health Card can be implemented more quickly and economically.

MEDICA MEDIA expands on these themes during complementary events. Questions regarding documentation expenses, the envisioned security infrastructure to prevent unauthorised access

and to secure the integrity of the medical documentation, the protection of confidentiality as the measure of planned patient autonomy, the issue of acceptance and cost/benefit relationships will all be discussed.

The Patient Factor - A separate theme, dealing with the Electronic Health Card issue, poses the question: 'The Patient at the Centre?'. Discussions have been planned to examine whether the new technological and economic dimensions will establish the patient as an individual and, as a result, progressively make the patient the focus of the healthcare system. Workshops on telemonitoring, mobile communications and Smart Home - Networking for Health & Comfort are pillars supporting the larger issues, say the organisers. 'Accompanying presentations enable our expert audience to inform itself about the latest technical developments in healthcare telematics.'

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Happy birthday!

30-year-old stericlin celebrates at MEDICA

108 years ago Vereinigte Papierwarenfabriken (VP) began processing and imprinting papers. Ten years later the firm registered a design for paper carrier bags, perhaps making VP the inventor of those daily items in our lives.

However, in the 70s, on machines formerly used to produce packaging for bakeries, VP began to make sterilisation packaging and indicators for hospitals and industry. Quick success in this new field saw the creation of its Flexible and Medical Packaging Division, and a separate production line was created to manufacture medical prod-

ucts, under the brand name stericlin. Today the VP Group, based in Feuchtwangen, Franconia, has two production facilities in the Netherlands, employs 150 people worldwide and boasts sales of around 35 million euros. Additionally this year, stericlin is celebrating three decades of success, which the firm partly attributes to increasingly rigid requirements for hygiene and

medical technology.

Both stericlin packaging and its manufacturing environment have been continuously developed and, the firm adds, these go beyond European and international standards to guarantee product safety. Today, production takes place in clean room conditions with a quality control system covering all aspects, including high performance, precision printing and coating facilities and significant R&D investment.

'Comprehensive product information, and the provision of continuing education for users, are additional important preconditions

for a high level of application safety,' the firm adds. 'Our stericlin academy is a forum for employees in the sterilisation departments, which functions as a place for those involved in practical day-to-day methods to exchange information. It also provides information about standards, guidelines and trends and provides the opportunity for customer-oriented continuing education with many dates scheduled in alternating regions.'

Nowadays the medical division is considered the most important segment within the VP Group. The hospital products included system packaging (see-through packages,



paper bags, crepe paper and non-woven wrapping materials, filters, etc), and sterilisation indicators (Bowie & Dick test systems, batch control indicators, labels, etc).

LABELS & BARCODES

Sato appoints new MD



Oliver Zeeb,
Managing
Director

Germany - Oliver Zeeb (40) has become Managing Director of Sato Deutschland, the German subsidiary of Japan's SATO Corporation. The firm (founded in 1940) specialises in data collection systems (DCS) and Radio Frequency Identification (RFID) technology, manufacturing high-performance industrial printers and OEM printer modules for labelling machines, as well as compact, mobile direct thermal and thermal transfer label printers as used in the retail trade. The SATO range is complemented by layout and publishing software for professional label design, and by a variety of consumables such as carbon ribbons and labels.

'RFID technology is taking off, and remains a key focus at SATO. We intend to build upon our already very strong position in this market,' said Oliver Zeeb, speaking from the firm's HQ in Bad Homburg, Frankfurt, where he is now overseeing the firm's sales, consulting and services in Germany, Austria and Switzerland. (Other European subsidiaries: Sato UK Limited and Sato Europe NV).

The new MD's previous roles include European Sales and Marketing Director for thermo-analytical equipment manufacturer Netzsch Gerätebau, and European Sales/ Marketing Director at Steag Hamatech, which manufactures production systems for optical storage media. In his new position, Oliver Zeeb has succeeded Morihito Suzuki, who has been appointed to a senior management role at the firm's HQ in Japan.

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Hall 1 **product** **booth**

 Laboratory automation **A 02**

 Injections aids, neuropens **F 11**

Hall 7 **product** **booth**

 **Publishers** **E 15**

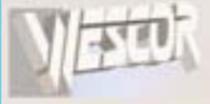
 Korea Int'l Medical & Hospital Equipment Show **E 23**

Hall 3 **product** **booth**

 Nucleic acid purification products **C 16-2**

 Hormone determination, immuno assay **A 60**

 Care testing products, illness and condition detectors **E 26**

 Centrifuges, osmometers **A 47**

Hall 9 **product** **booth**

 Ultrasound/MR **A 22**

 MRI, anaesthetic and CC monitoring **B 61**

 Electrocardiography, ultrasound gel **D 41**

 CT, X-ray, ultrasound **C 60**

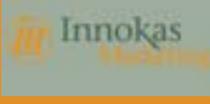
 Anaesthesia, safety devices, medication delivery **A 34**

 Ultrasound **B 60**

 Blood pressure solutions, telemedicine **C 52**

 CT, MRT, X-ray, ultrasound **D 05**

Hall 4 **product** **booth**

 PTC treatment, electrosurgery, physiotherapy, rehabilitation **C 29**

 Collagen, medical plastics, life simulation models **A 45**

Hall 10 **product** **booth**

 OR lighting and tables, telemedicine **C 42**

 Endoscopes, telescopes, electronic devices **F 67**

 Endoscopy, ophthalmology **F 13**

 Surgical equipment, endoscopy **D 57**

 CT, MRT, X-ray, US, patient monitoring, IT **A 18**

Hall 5 **product** **booth**

 Laundry equipment **D 12**

 Patches **B 39**

Hall 6 **product** **booth**

 Disposables **C 14**

 Bandages, tube and catheter holders **C 16**

 Vase dispensers, disposable vases **E 46**

 Advanced healing **G 06**

 Oxygen masks **B 41**

 Anaesthesia, safety devices, medication delivery **H 30**

 Tracheostomy tubes and related products **D 05**

Hall 11 **product** **booth**

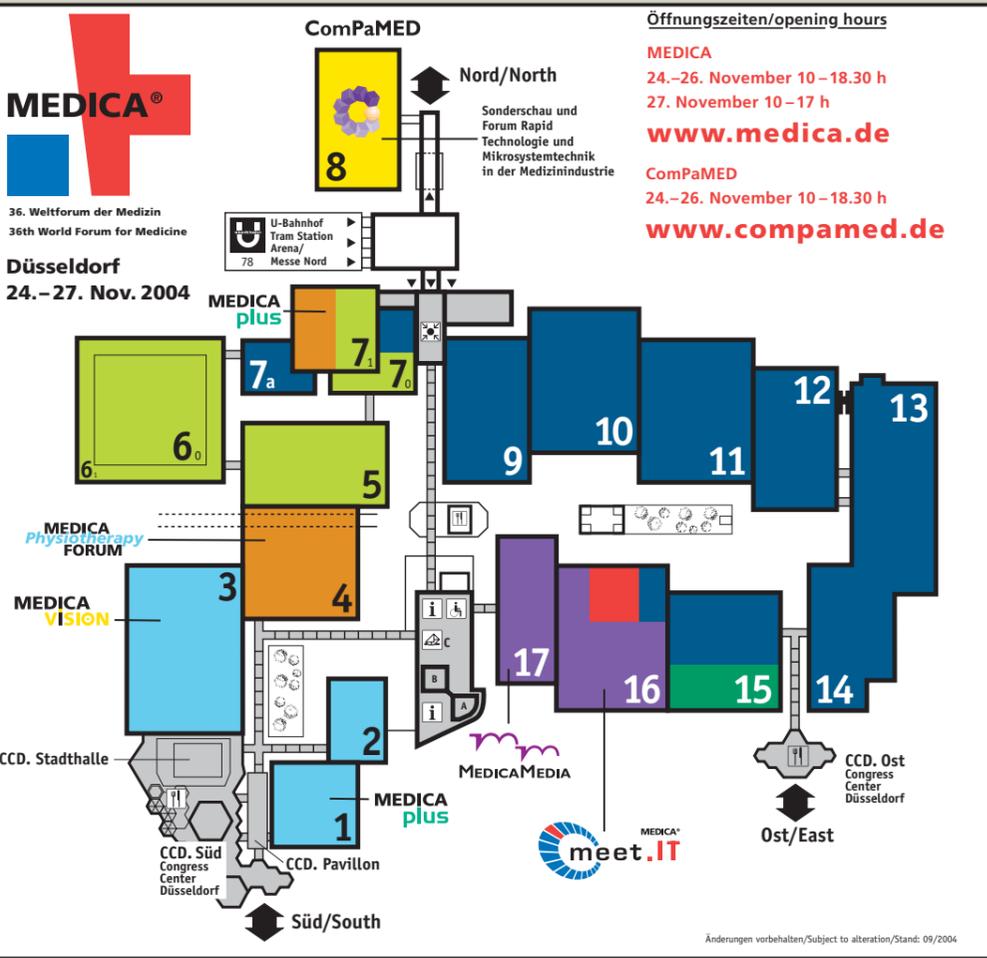
 Lighting systems **B 26**

 Critical care, anaesthesia, patient monitoring **J 39**

 Cardiography, sensors, pulse oximeters, monitoring **D 42**

 Respiratory equipment **B 03**

 Software-based ventilators **F 29**



Hall 14	product	booth
	Medical lighting	D 20-3
	Medical lighting	A 34-8
	Microscopes and microscope slides	B 24-8
	X-ray equipment	E 74
	Monitoring	A 10
	Physiotherapy, splints, bandages	D 60
	Respiratory, ventilators, X-ray shields etc.	B 20-6
	Surgical instruments, implants	G 20
	Respiratory products, sensors, blood management	B 06
	Physiotherapeutic massage equipment	D 60
	Mass flow meters, ventilator tester, respiratory	F 51
	Innovative technologies made in Germany	D 06/G 05

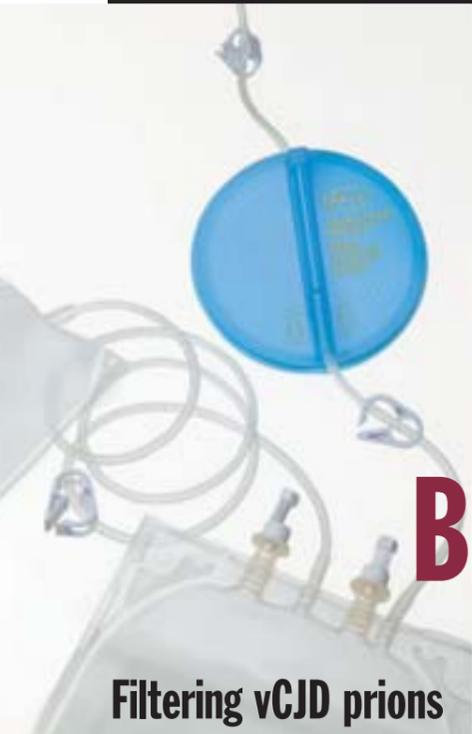
Hall 12	product	booth
	Critical care, surgical workplaces, cardiopulmonary equipment	D 51/52
	Medical lighting	F 62
	Sterilization, disinfection, sanitary	A 65
	Sterilization, disinfection, cleaning, autoclaves	D 33

Hall 16	product	booth
	Blood flow measurement equipment, US	E 76
	IT solutions for hospitals	G 52
	Barcodes, printers	E 19

Hall 13	product	booth
	Dialysis, infusion, respiratory	F 65
	Stents, catheters and related technologies	E 88
	Oxygen equipment	F 80
	X-ray	E 28
	Stimulation equipment for diagnostics & therapy	C 62
	Monitoring, sensors	C 62
	Incontinence	A 27

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Hall 17	product	booth
	Communication, IT, telemedicine	C 46



Filtering vCJD prions

USA - In the past year, two probable cases of human-to-human infections caused by variant Creutzfeldt-Jakob disease (vCJD) prions transmitted via blood transfusions have occurred. There are no clinical signs or symptoms of vCJD for many years, and the only reliable tests to determine who has the disease are performed post-mortem. So, we do not know how many people may harbour vCJD, yet still donate blood. Therefore, reliable filtering out of prions from donor blood is vital.

Now a new study, conducted at a leading European prion research institute, indicates that a filtering device can reduce infectious vCJD prions from red blood cell concentrates below the limit of detection.

The vCJD study used human red blood cell concentrates contaminated with about 108 infectious units of human vCJD from transgenic mice. The concentration of infectious vCJD prions in the red cell concentrates was measured before and after filtration with a Pall Leukotrap Prion Affinity Reduction Filter, using the Western blot assay. The researchers concluded that the results suggest that the filter could be used to

remove different strains of infectious prions, including vCJD.

Samuel O Coker, PhD, Principal Scientist and Technical Director of Pall Medical, which makes the filter, presented the results at the recent AABB annual meeting. He has also reported on findings from an additional study, conducted with the New York Institute of Basic Research, confirming that the same technology reduces infectious scrapie prions from blood. Both vCJD and scrapie are transmissible spongiform

scrapie. Among the three controls where scrapie was confirmed, only two had previously displayed clinical symptoms of the disease. No animals in the test arm had any clinical signs of the disease.

The Leukotrap Affinity Prion Reduction Filter was designed to reduce leukocytes (white blood cells) as well as infectious prions - cell-associated and non-cell associated - in a single step. About 60% of prion infectivity in blood resides in leukocytes (cell-associated) and about 40% in plasma

Blood transfusions

encephalopathies (TSEs) that cause fatal, neuro-degenerative prion diseases in humans and animals.

The research with infectious scrapie prions was a follow-up study that evaluated the efficacy of the Pall filter to determine whether a test group of animals receiving the filtered red blood cells had the prion disease, versus a control group that received unfiltered red cells. The study confirmed that three animals in the control group, which received unfiltered scrapie infected blood, contracted scrapie, determined by post-mortem autopsy. None of the test group, which received the filtered blood, had

(non-cell associated). The firm also reports that the new filter has an affinity to all types of prions including aggregated, denatured and normal.

Eric Krasnoff, Chairman and CEO, Pall Corporation, said, 'We are moving forward as quickly as possible so that this new technology can be made available worldwide.'

Early next year, Pall expects to launch the filter in Europe, with a Council of Europe (CE) mark.

The firm is also studying use of the device to aid in the detection of bovine spongiform encephalopathy (BSE) in cattle before it enters the food supply.



LSM 5 LIVE on the new, upright Axio Imager confocal microscope

Capturing momentary movements

Germany - Carl Zeiss has launched the LSM 5 LIVE, a confocal live cell laser-scanning microscope, which is part of the LSM 5 family. 'This completely new optical concept, designed for studies of living specimens, is totally different from other systems and opens a new time window for confocal microscopy,' Zeiss explains. 'The unique combination of scanning speed, image quality and sensitivity provides exclusive insights behind the scenes of cellular

motion and interaction.'

Collecting up to 120 confocal images per second, at a resolution of 512 x 512 pixels, the LSM 5 LIVE scans about 20 times faster than other confocal systems, while producing outstanding image quality and exceptional sensitivity, the firm adds. With precise optics, a creative beam splitter and innovative beam shaping, the LSM 5 LIVE opens up new horizons: fluorescence yield on the borders of the possible.

'With virtually 100 % excitation efficiency and highly efficient emission yield, the new Achrom-Gate beam splitter guarantees maximum performance even on thick or weakly fluorescent specimens - regardless of the colour of the excitation light.'

'New ultra-fast Z-drive solutions permit 3-D image stacks to be acquired every second, especially useful for developmental biologists.'

'Precisely tuned zoom optics and a sophisticated scanning concept permit the size and position of the scan field to be varied precisely, without simultaneously changing major optical parameters of the system.'

'Individually adjustable and variable confocal pinholes ensure high confocality in all channels. This flexibility allows the optimum combination of spatial resolution and signal-to-noise ratio for every specimen and experiment.'

'Finally,' the firm adds, 'the ultra-fast confocal live cell imaging system from Carl Zeiss is based on the LSM 5 software concept and completed by new software packages, such as the new Visual Macro Editor for automated workflows with Drag&Drop functionality.'

A new generation of modular analytical instruments

Switzerland - Cobas is a new brand name that covers all Roche Diagnostics products and services for professional in-vitro diagnostics, including those used for laboratory, near-patient, and molecular diagnoses. The new equipment range, first presented publicly at the Con-

The compact analytical system was specifically designed to meet needs in the medium-sized laboratory. A modular design and numerous upgrade options gives the cobas 6000 flexibility to adapt to changing laboratory diagnostics needs. 'With a parameter menu of over

Cobas 6000



gress of the American Association of Clinical Chemistry, in Los Angeles this July, will be demonstrated at this year's MEDICA.

The firm says that a particularly unique feature in the cobas range is the linking of clinical, chemical and immunological modules, allowing clinicochemical methods, homogeneous immunoassays and heterogeneous immunodiagnoses to be combined in one system as a consolidated serum workplace.

150 tests and applications, this second generation of automated modular laboratory devices covers a wide diagnostic spectrum, sufficient to satisfy the needs of over 95% of routine requests,' Roche points out. 'Additional components such as a pre-analysis system, information technology and innovative new markers enable cobas 6000 to be built up into a complete laboratory solution. The equipment concept thus offers a high degree of investment security especially for medium-sized laboratories.'

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Look like an apple? Is your heart ok?

USA - The location of body fat is more important than total body fat when predicting future heart attacks in elderly women, according to researchers at the Wake Forest University Baptist Medical Centre, Winston-Salem, N.C.

'In the over-70 age group, overall obesity did not predict heart attack risk,' lead researcher Dr Barbara J Nicklas explained. 'It didn't matter how much fat the older woman had - what mattered was where that fat was stored.'

Results from the study, published in the *American Journal of Epidemiology*, indicated that intra-abdominal fat, or fat stored in and around the internal organs, is most predictive of heart attack risk.

'People with higher levels of intra-abdominal fat tend to be apple-shaped rather than pear-shaped,' Dr Nicklas said. 'As we age, fat is stored in the abdomen more than anywhere else, which isn't good because it's now associated with heart attacks. The best way to lose that fat is to lose over-

all body fat through exercise and diet.'

Initially healthy 70-79-year-old men and women, enrolled in the Health, Aging and Body Composition (Health ABC) Study, were eligible if they reported no life-threatening illness e.g. cardiac disease, and no difficulty walking a quarter of a mile, climbing 10 steps or performing basic activities of daily living.

The researchers first measured total body fat as well as fat distrib-

ution (waist-to-thigh ratio, waist circumference, and intra-abdominal or visceral fat). Participants were contacted every six months for the next 4-1/2 years to collect data about hospitalisations or major outpatient procedures for heart attack.

Intra-abdominal fat was found to be a risk factor for heart disease, even if women did not have any other risk factors. 'Women who had a heart attack during the course of the study had approximately 27%

more intra-abdominal fat at the start of the study,' said Dr Nicklas. 'This risk factor was independent of total amount of body fat, diabetes, blood pressure and blood lipid levels.'

One surprising finding was that intra-abdominal fat was not a predictor of heart attack in men aged 70-79. 'My theory is that men who had high levels of fat would have experienced heart disease earlier than in their 70s; therefore, they weren't eligible for our study. I

wouldn't be surprised if we did a study of men in their 50s and 60s we would see abdominal fat as a strong risk factor for a future heart attack,' Dr Nicklas pointed out.

Knowing more about intra-abdominal fat as a cardiac disease risk factor could lead to early screening, she added. However, although waist size is an easy way to screen, this did not turn out to be an accurate predictor of heart attack in this study. A CT scan to assess abdominal fat stored beneath the skin and how much is in the abdominal cavity, or muscle wall, would give better screening - but that's expensive.

NEW

Two in one: the ECG- stethoscope



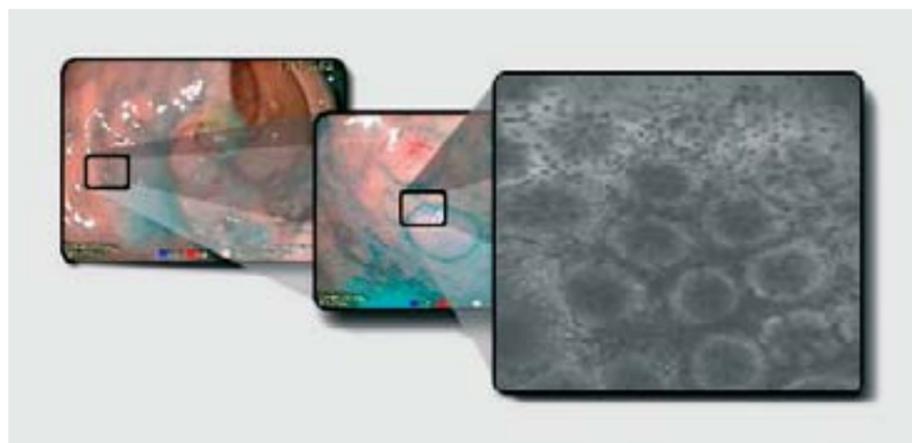
A highly innovative ECG-stethoscope will be launched at Medica by the firm Pulsonic. Named SonoPlus 3000, this very small device has a matchbox-shaped miniature monitor, situated over the instrument's microphone membrane. Three small, flat gold electrodes at the bottom register an ECG in real time, when the stethoscope is placed on the chest.

The device has several assets; for example, it can automatically detect a pacemaker, and also will record up to 16 minutes of an ECG. Pulsonic is in **Hall 9 stand A48**.



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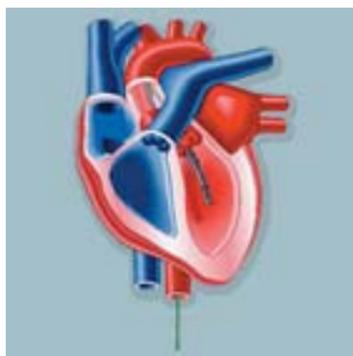
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The world's smallest heart pump Insertion without surgery

UK -The world's smallest heart support system, a 4mm-wide device, has been inserted into the heart of a British patient - without surgery. The device was inserted into an artery in the groin and passed on, up into the heart, by doctors at the NHS Hammersmith Hospital.

using these pumps, particularly in patients with very diseased or damaged hearts, means that we can now successfully treat patients that otherwise would not have been possible.'

The Impella Recover LP 2.5 left ventricle percutaneous placement pump, manufactured by German company Impella Cardiosystems,

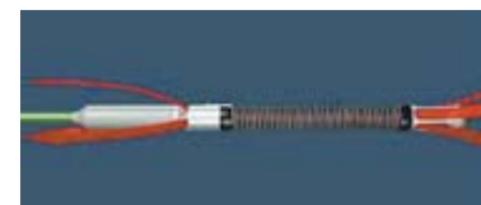


patient's heart in the crucial few hours after coronary artery bypass surgery, and was removed a day later (if necessary it can remain there for up to five days).

The pump has already been used on other patients in Europe. In the UK, Peter Smith, consultant cardiac surgeon at Hammersmith Hospitals NHS Trust, said: 'This new impeller pump technology will revolutionise the way we deal with heart disease,' said. 'The ease of

sits in the left ventricle, explained Dr Kevin Beatt, one of assisting cardiologists, and '... despite its tiny size can pump up to 2.5 litres of blood every minute.' The small size, he said, means only a tiny hole is made in the groin artery, then guide wires take it to the right place, and X-rays are used to check its position. The pump uses an electrical motor connected to a 3mm wire that extends out of the patient to be connected to a battery and control pack the size of a small laptop computer.

'These devices are becoming increasingly cost-effective, especially when you consider the alternative to using them, which includes repeat invasive surgery and possibly transplant, and extended stays in hospital,' said Peter Smith. 'We have been astounded by how well this has worked, and have high hopes for the future of this technology.'



The device is inserted via an artery in the groin



The compact monitor/defibrillator for homes, emergencies and hospitals

The lightweight device *HeartStart MRx*, recently launched by Philips Electronics, is a monitor/defibrillator designed with a broad range of features and capabilities to meet the technical demands of advanced cardiac life support-trained (ACLS) caregivers in attending emergencies and in hospitals.

Philips reports that the device has the longest battery-powered operating time, as well as the largest colour display and fastest time to shock of any monitor/defibrillator, taking less than five seconds to administer a shock. The device also features automated self-tests that check for readiness.

In the field, the HeartStart MRx has an easy-to-read, backlit, colour display, which gives better visibility of vital information for emergency crews working in poorly lit settings. This larger display provides highly organised patient data to support decision-making and maximise responsiveness, the firm points out. The device also has a CompactFlash data card that automatically captures critical patient data, allowing emergency teams to seamlessly transfer this to hospital-based caregivers and enabling users to analyse, track and exchange patient data.

In the hospital, the device also meets a variety of monitoring and defibrillation needs. Designed with alarms and algorithms consistent with Philips' patient monitors and cardiographs, the HeartStart MRx can be used as a crash cart defibrillator, critical care transport monitor, cardioverter, pacer and AED. Its multifunction defibrillator pads are compatible with the Philips defibrillators, so that the pads can remain in place while a patient is transferred from one department to another. The device is also compatible with Philips' patient monitors, affording hospital personnel easy patient transi-



tions from a HeartStart MRx to a Philips, Hewlett-Packard or Agilent bedside monitor.

The HeartStart MRx also enables basic life support (BLS)-trained first responders in a hospital setting to administer a shock in AED mode to a patient in cardiac arrest prior to the code team's arrival.

*** The 'living room' defibrillator at MEDICA** - Philips will present its talking automatic defibrillator HeartStart, for use during a cardiac emergency at home. The firm reports that, because an emergency doctor is not always on the spot and brain damage may occur in as little as 3-4 minutes, this instrument verbally and visually explains how to attach the measurement electrodes that will independently trigger a shock when needed.

In the US, the survival rate has increased from 5% to over 40% when using this method, Philips reports.

This device is about the size of a first aid kit, weighs 2 kg and costs about 1,700 euros.

Hall 10 - stand A 22

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Thumbs up for med-tech services

Germany - Over 90% of hospitals are satisfied with the quality of services provided by medical technology companies, according to a joint study conducted by Spectaris and the consultancy Droege & Comp.

'New forms of partnerships open new possibilities for the manufacturers,' Spectaris reports. 'Be it equipment installation or maintenance, user training or management of spare parts: the domestic companies offer comprehensive service.'

Respondents to the survey also reported being satisfied with a secure, continuing operation and non-bureaucratic range of services, and said costs were important but not the decisive factor.

Economic and administrative aspects and general technical services have rarely been described as core competencies, so the study is thought to open new perspectives for medical technology companies. For example, 14% of the hospitals said they plan to outsource sterilisation, equipment maintenance and logistics. Medical technology manufacturers are considered interesting potential partners in those endeavours. 'Offering additional services enables medical technology companies to use successful customer-provider relationships as a platform to generate additional business and to secure current business with hospitals which require outsourcing-partners,' said Dr Dominik Mersch, healthcare expert with Droege & Comp. However, he pointed out that medical technology companies must be prepared for the time when hospitals will demand more flexibility in pricing, as well as a more individual and expanded range of consultancy and services.

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Additionally, about a thousand new medical technology business contacts, in over 60 countries, are offering or requesting products, authorised agents, joint ventures, patents, licences and services, and even mergers and acquisitions of entire companies, via the **Medica Business Centre (MBC)**, organised by Messe Dusseldorf GmbH and Schillinger (BDU) Laudenbach. During the fair a database will also provide access to a further 2,000 to 3,000 medical business contacts. Then, after

Medica, all business contacts' details are compiled under the title 'Medica Business Report', and produced in book form or as a CD-Rom.

Valuable consultations with business experts and personnel consultants are also organised by the centre.

Celebrating the Centre's 20th anniversary, the organisers report that about 14,000 business contacts from over 115 countries have been marketed there, including the first patents and licenses for biosensors and surgical products for minimally invasive surgery (MIS) - a technique invented in the former Soviet Union.

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Arcadis Varic, a new mobile C-arm made by Siemens Medical Solutions, of Siemens AG, will be on show at Medica. This is the first system of a new generation of mobile C-arms offering a host of new possibilities for use in operating theatres.

One of the distinctive features of the Arcadis Varic is excellent image quality: a 1024 x 1024 (1K2) image matrix available from image acquisition through to processing and documentation provides the highest standard in image quality, differentiating it from previously available mobile C-arms, the firm

ties, such as CT and MR, and view it directly onscreen. Syngo also enables simple system integration into the clinical data network because it supports all Dicom 3.0 functions and PACS systems. 'This, in conjunction with its intuitive interface, which helps decrease staff training time, will result in superb workflow and efficiency in the operating theatre and improved clinical results,' said Holger Schmidt, President of Special Systems Division, Siemens Medical Solutions.

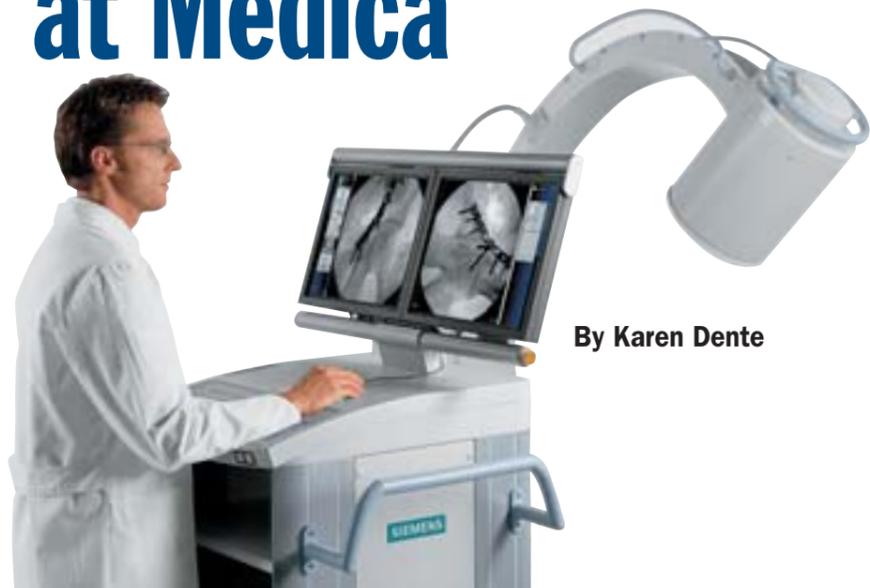
The new C-arm is supplied with an examination task card covering

a wide range of applications (up to 100 application-specific programmes are available) from orthopaedic and trauma to vascular surgery. Using Virtual Patient Anatomy (VPA), a specific task card programme is selected for each different application. The VPA is a graphically oriented anatomical map that provides customized imaging power to ensure best image quality at minimal dose. An additional feature of the Arcadis Varic is the inclusive digital navigation interface, which offers advantages during intra-operative procedures. Through this, the sys-

New mobile C-Arm System on show at Medica

reports, adding that the system offers increased imaging power with its generator output of 2.3 kW, allowing for a wide spectrum of different applications in orthopaedics, trauma, and vessel surgery. Imaging efficiency is thereby maintained, even in difficult-to-image obese patients, for example, or for examinations of high-density body regions e.g. between pelvis and spine.

The new Arcadis Varic incorporates syngo, a user-friendly software platform that enables clinical staff to retrieve and display patient data and images from other modal-



By Karen Dente

Adapted MRI aids brain tumour removal

25% of imaged cases revealed the need for surgical strategy to change

In a single surgical procedure physicians can remove brain tumours plus all residual cancer, when aided by an adapted magnetic resonance imaging (MRI) scanner, according to research conducted by Associate Professor Dr Christopher Nimsky and a team at the University Erlangen-Nuremberg, Germany. The study results, published in *Radiology* this October (2004; 233:67-78), revealed that the additional use of

intra-operative MR-guidance changed the surgical strategy in one in four cases. 'Imaging during surgery provides intra-operative quality control. It presents valuable information during the procedure that allows the surgeon an opportunity to adjust the strategy,' said Dr Nimsky.

During surgery (without intra-operative imaging) small parts of a tumour can be missed, generally resulting in repeat surgery, moni-

toring and or further treatment.

In the study, most of the two hundred patients (age range: 7-84 years) had glioma or pituitary adenoma. They were examined with a 1.5-T MR imager equipped with a rotating operating table and located in a radiofrequency-shielded operating theatre. A navigation microscope, placed inside the 0.5-mT zone, and used in combination with a ceiling-mounted navigation system, enabled integrated micro-

Detecting tumours

The mini ambulatory gamma camera

France - Minicam, a small, ambulatory gamma camera produced by Euromedical (Eurorad Group), is the first of its kind to be EC marked for medical and surgical use, and is already at work in at the Institut Curie Institute and Gustave Roussy Institute, as well as in locations in Spain, the Netherlands and the United-Kingdom.

Specialising in intra-operative detection, the maker says the camera was developed to precisely locate radioactive-tagged tissues (sentinel node, tumour etc.) emitting gamma radiation, thus ensuring 'the smallest possible incision, making for less mutilating surgery'.

With CdTe technology detector head (camera) and g-Cam electronics module, the Minicam system is reported to detect a sentinel node or tumour in one minute. 'Specially designed for small operative fields, the Minicam also helps to ease congestion in conventional nuclear medicine departments, that can thus

be reserved for examinations requiring more cumbersome equipment,' the firm adds.

Connected to a desktop computer, the Minicam system provides visualisation of images being taken (an acquisition software installation disk is supplied). The detector head,

made with cadmium telluride detectors (CdTe or CdZnTe), is designed for low-energy detection (30 - 200 keV). 'It has excellent spatial resolution and provides high quality pictures,' the firm points out.

The electronics module contains all modules needed for signal processing, and the software programme enables users to select the kind of picture wanted, as well as various acquisition parameters.

A Geomed Assisto fixing arm (stand) is supplied with the system, which is installed on a cart for easy transportation.

Eurorad-Euromedical has specialised in detectors and semiconductors for nineteen years, and worldwide, has 30 distributors. Over 500 of the firm's gamma probe systems, for intra-operative detection, have been installed internationally. Details: www.em-instruments.com

NEW for ophthalmic surgery

The Boreas Gas/Air infusion System - a new device that delivers a known, precise mix of gas and air at a pressure set and controlled by the operator, will be launched and demonstrated at Medica by Primax Surgical Ltd. (stand 13B 78-5). 'This device represents a completely new advance in Vitreo-Retinal surgical instrumentation, incorporating many innovative user-oriented design features, and including safety, reliability and clinical security as fundamental design principles,' the manufacturer reports. 'The surgeon has, for the

first time, complete management of the gas mix by percentage, volume and pressure.'

Vitreo-retinal surgery includes techniques used to repair retinal detachment, to remove intra-ocular foreign bodies, and to manipulate the retina. Both internal and external surgical approaches are employed, according to specific clinical indications. During surgery it may be necessary to inject adjunctive fluids to achieve internal tamponade, pressure maintenance and closure of retinal breaks. Tamponade materi-

als may be either fluid or gas (air or a special gas that is biocompatible and of very low water solubility). Intra-ocular gases are retained for a temporary period, a duration that depends on the solubility of the gas.

During vitrectomy surgery the gel in the posterior segment of the eye (vitreous humour) is removed, using a special suction cutter. During this procedure intra-ocular pressure is maintained by continuous infusion.

Following the vitrectomy, air or gas may be used to replace the infusion fluid so that the surface properties are exploited to achieve or maintain closure of a retinal break. If air is used, the solubility of nitrogen and

oxygen in water cause the air bubble to be reabsorbed over a period of a few hours or a few days (depending on its original size). The re-absorption is determined partly by the surface area of the injected bubble and partly on the water solubility of its component gases.

If a longer tamponade period is needed, one of the special biocompatible gases of low solubility is chosen, e.g. sulphur hexafluoride SF₆, perfluoroethane C₂F₆, and perfluoropropane C₃F₆.

'The Primax Surgical Limited Boreas gas/air infusion instrument mixes and delivers a known precise mix of gas and air at a pressure set

and controlled by the operator - at a known definable volume,' the company points out. 'The system contains robust and elegant routines and system controls to ensure that the user has complete confidence in the key parameters: type of gas; gas mix; infusion pressure and infusion volume.'

Safety Components include: fail safe multiple step pressure control; micro-processor controlled delivery; digital and audible information display and warning; automatic switch-over to air in the event of a gas max exhaustion, to maintain intra-ocular pressure at all times.

tem can interact with software such as 2D NaviLink, allowing surgical instruments to be superimposed on-screen in the X-ray image and permitting the physician to detect the precise position close to a millimetre.

The system is compact in size and light, making it easy to manoeuvre inside a confined operating theatre. Ergonomically shaped steering handles and brake levers, with intelligent colour coding, make handling easy: even untrained medical staff can adjust the C-arm without unnecessary physical strain, Siemens reports.

The U.S. Food and Drug Administration (FDA) cleared the new system early this year for use in the USA, where it is already used in several high-end medical centres, including the Columbus Medical Institute, Queens, New York.

scope-based neuronavigation. The extent of resection depicted at intra-operative imaging, surgical consequences of intra-operative imaging, and clinical practicability of the operating theatre set up were analysed.

The team reported that there were 77 resections with a transphenoidal approach, 100 craniotomies, and 23 burr-hole procedures. In 55 (27.5%) of the 200 patients, intra-operative MR imaging had immediate surgical consequences (e.g. extension of resection in 39% of patients with pituitary adenoma or glioma). In 108 patients the navigation system was used, and for 37 of those patients, functional imaging data were integrated into the navigation system. There was nearly no difference in quality between pre and intra-operative images. Intra-operative workflow with intra-operative patient transport for imaging was straightforward, and imaging in most cases began less than two minutes after sterile covering of the surgical site. No complications resulted from high-field-strength MR imaging.

The researchers concluded that the high-field-strength MR imager had been successfully adapted for intra-operative use with the integrated neuro-navigation system. Intra-operative MR imaging provided valuable information that allowed intra-operative modification of the surgical strategy.

Although high-field MR produces better image quality and reduces scanning time, this is still a very expensive procedure. However, as time goes by, Dr Nimsky said he could envision that flat MR scanners would be set up beneath operating tables to provide real-time feedback to a neurosurgeon without disturbing the surgical procedure.

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Germany - A study has shown that good illumination from surgical light reduces fatigue and improves concentration. Performed jointly by Ilmenau University of Technology and Berchtold GmbH & Co. KG - the specialist surgical lighting manufacturer based in Tuttlingen - Professor Dietrich Gall, head of the Lighting Technology Department at the university, directed the research.

The study investigated the effects of surgical light, which is usually of high intensity, on surgeons' physiology. 'In the past the

researched. So far, research has developed furthest on the stimulating effects of light, which arise due to stimulation of receptors on the retina, which, unlike photoreceptors, make no contribution to vision but rather, upon stimulation, inhibit the secretion of melatonin hormone in the pineal gland. Melatonin controls the circadian rhythm. It is secreted in periods of darkness and generates a trigger that reduces cardiovascular activity and induces fatigue. Light in the morning inhibits melatonin secretion, which increases cardio-



Study highlights changes in surgeons' concentration and fatigue levels

The right light

lighting in operating rooms had only been considered from the viewpoint of its intended use, i.e. in terms of the illumination of structures, said Volker Dockhorn, engineer and product manager of BERCHTOLD's surgical light programme. 'We are extending this approach by considering it also as a form of radiation that acts on the surgeon. Viewed in this respect, light is characterised not only by its intensity but also by its dose. And like any dose of radiation light has a physiological effect on the organism of the person exposed to it.'

For years it has been known that light has physiological effects, however, in many respects, the exact nature of those effects remains to be

vascular activity. Several studies have demonstrated that melatonin can significantly reduce jet lag symptoms, and travellers crossing time zones have used it successfully for some years.

In 2001 lighting scientists succeeded in determining the spectral effect curve in melatonin-inhibiting cells of the retina. Today it is known that melatonin inhibition peaks at 450 nm in the continuous visual spectrum, i.e. in the blue spectral range. Light containing a large proportion of blue wavelengths therefore inhibits the secretion of melatonin in the pineal gland. If, on the other hand, these blue wavelengths are absent (reddish light), melatonin secretion is uninhibited, which produces fatigue. This makes sense - considering that the evening sun sends out a reddish light that creates a tranquil, sleepy atmosphere. The

activating effect of light thus depends on its spectral composition.

According to engineer Manfred Scholz, head of surgical light development at BERCHTOLD, those insights brought new perspectives to the development of state-of-the-art surgical lights.

In 2002, Professor Gall succeeded in describing the circadian effect of light in mathematical terms. He defined the circadian effect coefficient (a_{cv} coefficient) as the ratio between the visual utilisation effect (which takes the photoreceptors' effect curve into account) and the circadian utilisation effect (which takes the effect curve of the circadian retinal receptors into account). So it became possible to measure the circadian effect of light.

For the first time a simple means of describing the physiological effect of light is provided. 'Our goal was to determine whether surgical lights of different spectral composition, i.e. different colour temperatures, have different physiological effects on the surgeon exposed to them. In other words, we wanted to see whether there are surgical lights whose spectral composition makes it possible to deliberately reduce fatigue and improve wakefulness in surgeons working at night,' Volker Dockhorn explained.

Table 1 presents results of measurements of the circadian effect coefficient (a_{cv} coefficient) for three surgical lights, one gas discharge light (BERCHTOLD CHROMOPHARE X 65), one halogen light with a high colour temperature of 4,300K (BERCHTOLD CHROMOPHARE D 650plus) and one halogen light of comparable size from a French manufacturer with a lower colour temperature of 3,400K and a large red component. All lights were first measured at a luminance of 100,000 lux and subsequently with luminance dimmed to 50%.

The table shows that the gas discharge light achieved the highest circadian effect coefficient, followed closely by the halogen light with high colour temperature. By comparison, the surgical light with low colour temperature showed a poorer performance, achieving a circadian effect coefficient approx. 25% below that of the halogen

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light with high colour temperature. Dimming the three lights during operation gives a different outcome. The only light to maintain its high stimulating effect when operated at reduced luminance is the gas discharge light with optomechanical dimming. By contrast, electronic dimming of the halogen lights results in an altered colour spectrum, impairing the physiological effect of these two lights.

'We are pleased that we have succeeded in developing our gas discharge technology, in that it provides the surgeon with the best possible physiologically stimulating effect,' Manfred Scholz said.

The results described would suggest that the gas discharge light CHROMOPHARE X 65 and the halogen light CHROMOPHARE D 650plus, with its high colour temperature (4,300K), cause less fatigue, whereas one would expect operations performed under a halogen light with a lower colour temperature (3,400K) to cause greater fatigue in the surgeon, especially when surgery is performed at night.

'We wanted to verify this outcome in a study to prove the hypothesis,' Prof. Gall explained. 'So we turned to scientifically accredited performance and concentration tests, which, in our study, were carried out by 55 participants, split into two groups - one with 30 people, to carry out

d2 test was then performed - a scientifically established test to determine a subject's performance capability and power of concentration. The sequence in which the lights were used was altered from one test to the next. 50% of the participants began the tests under the light with the high colour temperature (BERCHTOLD), and subsequently, having been allowed an appropriate adaptation interval, performed them under the reference light with the lower colour temperature. The other 50% began the tests under the reference light.

Results for the group performing tests in winter are shown in Table 2. Participants working under the BERCHTOLD light answered 502 questions, on average, whilst those working under the reference light answered only 485 questions, on average. This is equivalent to a 3.5% improvement in performance

by those working under the BERCHTOLD light. Statistical error probability was 0.069 in this case, i.e. only slightly short of the significance threshold (0.05), and it is therefore justified to point to a trend here.

If - as a means of determining power of concentration - the number of questions answered correctly is considered, the difference becomes even more pronounced. Under the BERCHTOLD light, an average of 205 questions were answered correctly, whereas under the reference light only 195 questions were answered correctly. So the number of errors made under the BERCHTOLD light was, on average, 5.1% lower than in the case of the reference light. This result is subject to an error probability of 0.041, i.e. within the significance threshold of 0.05. Therefore, in winter, a significant

increase in power of concentration, and a decrease in error frequency, were found in work performed under a BERCHTOLD light with a high colour temperature of 4,300K.

By contrast, when tested during the summer, participants' performance was practically the same for the two lights, so no difference in exposure effects was found. Learning effects in the course of the test were observable, but these were cancelled out in the outcome by altering the order in which lights were used.

'We eliminated all device-related or test variables that might have influenced the outcome, so as to obtain a meaningful result, free of side-effects,' said the study director Dr Cornelia Vandahl, an engineer at TU Ilmenau. 'It was interesting to see such a great difference in outcome between winter and summer tests. Evidently the

participants were already fully charged up with light in the summer, whereas in winter people tend to lack light, making an appropriate choice of lighting all the more important.'

The scientists presume that the results would diverge even more if the tests were carried out at night, when melatonin blood levels are higher. However, as it was, even tests carried out during the afternoon or evening showed a clear trend and, in some part, also significant results that appear to confirm the results of the physical measurements.

Thus the study has proved that a high colour temperature of 4,300, as is irradiated by a CHROMOPHARE D 650plus light has the effect of enhancing a surgeon's performance capability during the winter (trend). Work performed under a surgical light of low colour temperature (3,400 K) is subject to a significantly greater error frequency. During surgery at night, when the surgeon's melatonin blood level is high, this effect is presumed to be particularly pronounced. Follow-on studies are planned.

'Our most important insight from the study,' said Volker Dockhorn, 'has been the realisation that we must bring the human being, i.e. surgeon, into the focus of our considerations. If an intelligent choice of spectral range enables us to support the surgeon in his work, to draw on his full power of concentration for a difficult emergency operation at four a.m. and the frequency of errors attributable to a lack of concentration is reduced to the degree found in this study, then we have definitely made a big step forward.'

BERCHTOLD now plans to continue the study, using a larger group of participants.

Source: Volker Dockhorn, engineer and Product Manager, OR-Lights, Berchtold.

TABLE 1

	Tn	a _{cv} undimmed	a _{cv} dimmed	remark
Chromophare X 65	4300 K	0.60	0.60	optomechanical dimming
Chromophare D 650 plus	4300 K	0.59	0.51	electronic dimming
Comparative light	3400 K	0.45	0.38	electronic dimming

Results of measurements of the circadian effect coefficient for three surgical lights. All lights were first measured at an luminance of 100,000 lux and subsequently with luminance dimmed to 50%

TABLE 2

	Reference light (3,400K)	CHROMOPHARE D 650plus (4,300K)	Relative difference	Statistical error probability
Performance capability (mean total number of questions answered)	485	502	3.5%	0.069 (trend)
Power of concentration (mean total number of questions answered correctly)	195	205	5.1%	0.041 (significant)

Results of performance and concentration tests in the winter

the tests in winter, with the other 25 people performing them in summer, to determine whether their performance depended on a season.'

To achieve the best possible comparison, experiments were limited to a study of the difference in effect between the two halogen lights, which initially irradiate a similar spectrum. The difference in colour temperature between these two lights comes about through selective filtering of the wavelength spectrum by light manufacturers.

The irradiated surface was flat, and its reflectivity was therefore higher (76%) than is usually the case with human tissue. For this reason the luminance of both lights was adjusted to 40,000 lux, by altering the size of the light field. The light field diameter was the same for both. The a_{cv} value for the halogen light with high colour temperature was 0.59, whilst for the one with lower colour the temperature the a_{cv} value was 0.45.

Participants were unaware of which light they were being exposed to in the test. To induce a general state of fatigue, such as results through mental work, the participants were asked to solve arithmetical problems under time pressure. This being achieved, the

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Dr Kathleen W. Wilson attended medical school at the University of Iowa, and trained for five years at Mayo Clinic in Rochester, MN. For the past decade she has been a senior internal medicine doctor at Ochsner Clinic, New Orleans. Prior to this, Dr Wilson was a Lt. Col. in the medical corp. of the US Air Force. Specialities: internal medicine and gastroenterology.

The doctor has a large full-time practice and describes her role as a doctor for 28 years as 'being in a front seat in the drama of life'. Among Dr Wilson's other books is *Brain Maintenance: How To Prevent Stroke and Delay Dementia*



Much has been written about women and the mid-life crisis, but the changes men must also face have often been ignored - yet those changes can lead to the destruction of everything they have worked for in their public and private lives, as well as their own and their families' happiness.

In her book, *Dispatches From The Frontlines of Medicine: Your Husband's Health: Simplify Your Worry List*, Dr Wilson points out that, up until his mid-40s, a man may remain emotionally repressed. However, as men move

depression. Sometimes a wife has to alert the doctor to her husband's depression before the doctor can ask about it during a clinic visit.

Affairs - Why do they often happen in this period? 'One theory,' says Dr Wilson, 'is The Shadow. For every step forward in life, a person had to say 'no' to something else. For every moment spent studying or working, that time was not spent on the riverbank in the warm spring sun. But the path not taken does not go away. Instead, it is called The Shadow. It gathers strength, and can hit with terrific emotional impact at midlife. The

all men have some feminine aspects, but these are suppressed as people go about their daily roles. As both men and women reach midlife, they seek a wholeness, an amalgamation of their other half. The beloved in an affair may be the mirror of a man's Animus, his own soul reaching out to be complete, and the woman is mistaken for this entity. The Animus may have a tremendous emotional wallop.

'Practically speaking, pornography has changed the way men look at their love lives. When they watch it on the internet or on adult channels, they imagine that they

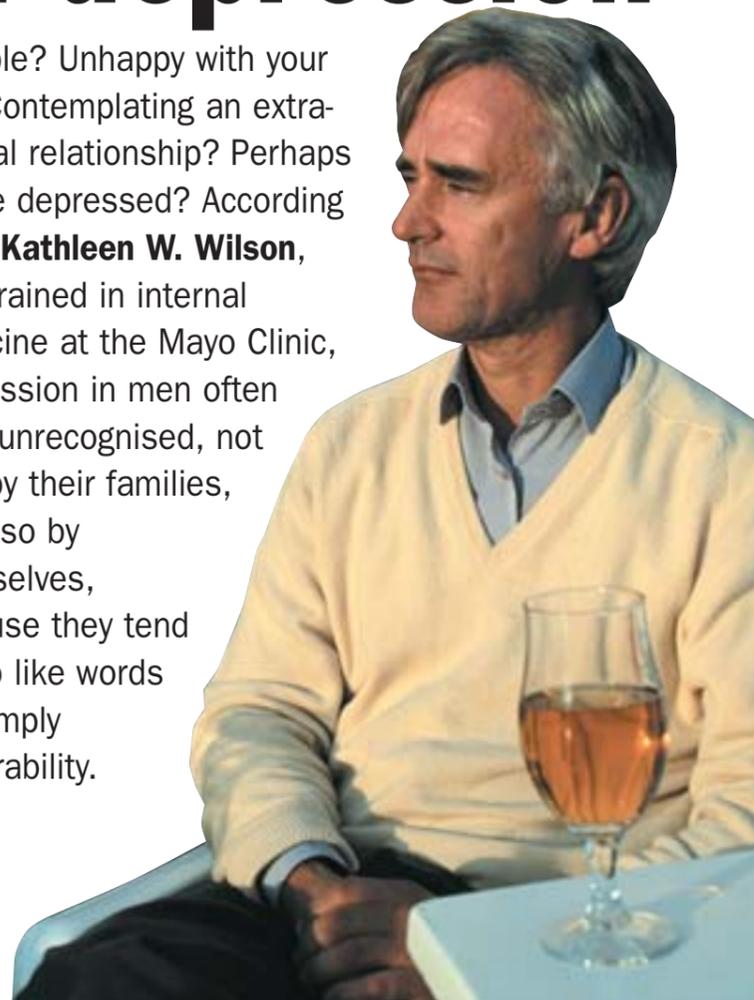
Men and depression

into their 40s and 50s the connections among their brain cells increase in complexity, and this translates into more thinking and feeling. 'The wonderful part is that a man can change, no matter how emotionally limited his parents were, and become loving, positive, and generative,' Dr Wilson points out. 'But sometimes these brain changes can collide with perimenopausal irritability at home that affects many women at the same age.'

Depression - may present itself as anhedonia, where a man loses his joy, his sense of pleasure, glad feelings when he sees his wife and children, and the satisfaction of past accomplishments. Irritability and anger are other symptoms of depression in men, the author points out. 'Male depression can be more difficult to treat because of potential sexual side effects of antidepressants that worry a man even more. Counselling helps but only if a man avails himself of the confidential relationship. Often he equates seeing a mental health expert with weakness and will not go.'

If the standard treatment of antidepressants and counselling will not work in a specific case, the non-medicinal treatments include daily aerobic exercise, a good diet, and prioritising duties and obligations to include only those that are absolutely necessary. Time spent outdoors or in contented conversation with his family is balm. A new interest or hobby can be a surprising effective lateral exit from a

Irritable? Unhappy with your lot? Contemplating an extra-marital relationship? Perhaps you're depressed? According to **Dr Kathleen W. Wilson**, who trained in internal medicine at the Mayo Clinic, depression in men often goes unrecognised, not only by their families, but also by themselves, because they tend not to like words that imply vulnerability.



doubts about whether a person did the right thing, regrets for the love or fun or kindness for which he did not take time, may be idealised in another person, often younger.

'Another theory is the Animus. All women have some masculine aspects to their personalities, and

have been missing out on what is rightfully theirs. Often they do not stop to think that what is shown on the screen is seldom what real people enjoy. This notion of having missed something may cause them to seek an affair.' And they often just happen without much thought about the consequences, the doctor continues. Affairs do not always mean that the marriage was unhappy, or that the spouse who strayed wanted it to end. Often, the person who had the affair regrets it and wants to be forgiven. This is hard for every family. Counselling with a good marriage counsellor, who believes in saving the marriage; truthfulness on behalf of the erring spouse, and of course, stopping the affair completely are first steps to save a marriage. A word of caution: do not give sexual details to the wronged spouse because this causes painful obsessions. Most people do not realise what a tremendous asset a good, long-term marriage is emotionally and materially until it has been lost.'

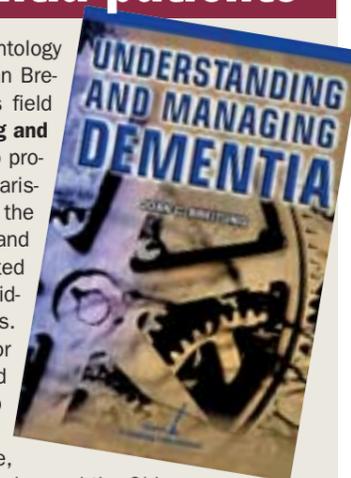
Sons and fathers - Depression and unease may follow after fatherhood. Soon after the birth of his first child, a man may experience emotional pain because he feels a loss in the relationship with his wife, who is naturally dividing attention between husband and

Caring for dementia patients

With extensive clinical practice in gerontology and geriatrics, nursing professional Joan Breitung has taught and published in this field for 35 years. In her book **Understanding and Managing Dementia** the author aims to provide better understanding of conditions arising from the disorder, and to alleviate the strain caused by so many unforeseen and atypical behavioural problems presented by the patients. Carers will find her guidance particularly useful on a daily basis. This, and the resources provided for nurses, administrators, caregivers and families, should also help readers to make informed decisions.

Topics include: Alzheimer's Disease, Ageing and Memory Impairment, Depression and the Older Adult, Families and Issues of Ageing, Living Arrangements and the Latest Treatment Options.

Understanding and Managing Dementia, by Joan Breitung RN, MA, MSN. (ISBN: 09707558 4 8. pb. 176pp. Price: £19.95. Pub: Merit Publishing International) is available through Amazon, bookshops and libraries. www.meritpublishing.com



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Sometimes men also feel they are not measuring up as a father, which causes an experiential gap between who they want to be and who they are. They may feel shame over these ambivalent feelings toward their sons, feelings they may only be able to process later in their forties, when time and resources allow.

Similarly, in his forties a man may find that his relationship with his own father becomes more ambivalent as the father declines mentally and physically. This expe-

ward to it. But other people do not complain about the behavioural changes of alcoholism at this point. Ten percent of the population has the genetic predisposition to become alcoholic and this is how it starts. Each person has to decide for himself whether or not he is alcoholic and if his life has become unmanageable. If alcohol has hurt him and those he loves, Alcoholics Anonymous is still the best way to get sobriety.

Men who suffered early childhood trauma before they had a language of emotion may never have coped with the shame and

Are you affected?

rience will be more intense if antagonistic feelings between father and son were never acknowledged or resolved.

The midlife crisis - By his mid 40's, given a degree of success that can release him from constant work, a man starts to want the pay off for years of effort and self denial - and to be valued and loved. By age 50 he also realises that he will soon be old and that his body and energy may deteriorate before he gets his share of fun out of life. Then, Dr Wilson explains, he feels the need to seek gratification before it is too late.

Emotional shock from the loss of a family member or friend, particularly if the deceased is someone his own age or younger, can also bring him face to face with his own mortality.

He may never have spoken to his wife about his inner feelings, and it is now even more difficult to share any of his emerging concerns. 'This man,' says Dr Wilson, 'needs counselling to sort through his priorities, look back on his life's path and accomplishments, and formulate new goals for the second half of his life.' She also provides other suggestions to help the situation.

Alcoholism - Alcohol dependence is common in midlife men who work at difficult, stressful jobs, and reach for alcohol at the end of the day to relax. This pattern is a dependence, says Dr Wilson. 'Those who drink every day are usually preoccupied with that drink at the time of day they look for-

suffering. These men are particularly vulnerable to dependency on alcohol as they reach midlife and the unresolved feelings start to make themselves known. Alcohol is used to suppress those feelings.

Prescription drug dependence - This is equally dangerous, Dr Wilson points out. Often due to a chronic pain, a person can become addicted to narcotics and it may change his personality and his ability to function as a human being. Chemical dependency often requires treatment by a specialist in chemical dependency and pain management.

In summary, the good news is that the brain continues to mature in men as they move into their 50s so they can add emotional coherence. But the emerging feelings may bring a stable situation down, so being aware of the Shadow and the Animus may be helpful, and vigilance for alcohol dependency is always wise, Dr Wilson warns.

Dr. Wilson has focused her medical practice on midlife people and, in a series of books, observes what keeps people healthy and what makes them miserable. She emphasises what people can do to help themselves and thus avoid medical problems later on. She also advises on quality of life, weight gain, fatigue, depression, and erectile dysfunction.

Ref: **Dispatches From The Frontlines of Medicine: Your Husband's Health: Simplify Your Worry List** by Kathleen W. Wilson MD. 211 Pages. US\$14.95 ISBN 0-9742976-1-5.

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Many medical publishers will display their publications in various halls at Medica this year - as will our company European Hospital Verlags GmbH - and we would like to meet you (if you'd like to discuss ideas for future editorials, company news, or your advertising needs, we'll be happy to help). Simply head for Hall 7, Stand E 15, to meet with us and collect copies of our issues.

We not only publish the @MEDICA series (which includes the issue you are now reading) but also the pan-European, bi-monthly, full-colour journal EUROPEAN HOSPITAL, which covers healthcare delivery and politics as well as advances in all medical fields.

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Guides to imaging

A new book by mammographer Professor Laszlo Taba, Head of the Department of Mammography at Falun Central Hospital, Falun, authored with Dr Tibor Tot at the Department of Pathology and Clinical Cytology, will be published in December by Thieme

The Art and Science of Early Detection with Mammography, based on Professor Taba's experience and lecture courses worldwide, introduces a systematic method for interpreting mammographic images - to reduce the chance of missing very subtle pathologic findings.

(The Art and Science of Early Detection with Mammography. ISBN 3.13.135371.6. 195.86 euros).

In the same month Greenwich Med will publish **Breast Ultrasound. The Essentials**, a superbly illustrated paperback by M Stocksley, of the Division of Imaging and Radiology, School of Health and Social Care, South Bank University, London, and Dr E Denton, Consultant Radiologist, Norfolk and Norwich Hospital. The volume is targeted at a broad audience, ranging from trainee radiographers to qualified radiologists, for whom the authors provide basic information needed to begin performing breast ultrasound. They also cover the full spectrum of what can be seen in daily practice, and include 60 'classic' case studies, as well as rare or more easily misinterpreted cases. (Breast Ultrasound - The Essentials, by M Stocksley and E Denton. ISBN 1.84110.1761. 39.73 euros)

Scientific healing

A large number of wounds treated by healthcare providers around the world are complex, life threatening or difficult to heal. However, advances in technology have now made wound management a less daunting task - both in and out of hospitals - and has saved costs as well as improved the lifestyle of countless patients. KCI, a firm specialising in the R&D and the production of advanced wound healing therapies, and products to treat the complications of immobility, will demonstrate its innovative wares at Medica



RotoRest

'The RotoRest is a critical care therapy system indicated for the treatment and prophylaxis of pulmonary complications associated with immobility, including Acute Lung Injury (ALI), Acute Respiratory Distress Syndrome (ARDS) and Pneumonia. RotoRest is the only system dedicated to mobilizing and delivering Kinetic Therapy to patients with spinal injuries while offering the greatest degree of turning of any automated system.'



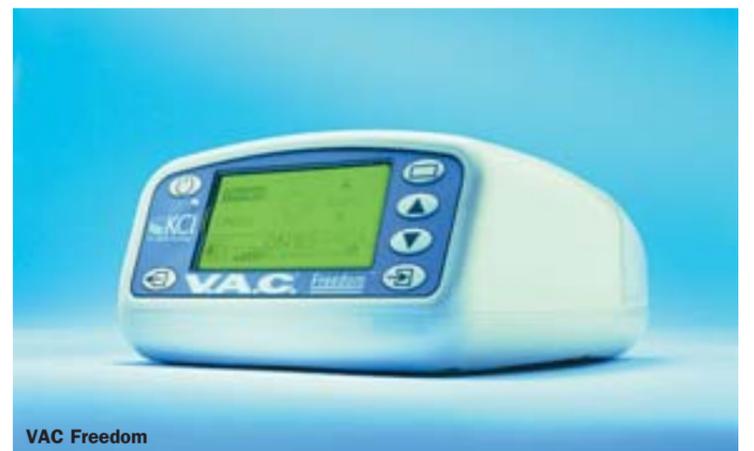
V.A.C. ATS Therapy Unit

Immobility in critical care

The firm's 'Kinetic Therapy' aids in the treatment and prevention of pulmonary complications associated with immobility. 'By providing slow, gentle, side-to-side rotation of the patient, to an angle between 40 and 62 degrees, Kinetic Therapy has been shown to improve the delivery of oxygen to the blood, reducing the risks of ICU-acquired pneumonia, respiratory tract infections and ventilation time. Over 55 clinical studies have demonstrated the clinical and cost-effectiveness of Kinetic Therapy.' Its use and effectiveness, the firm points out, can therefore reduce the overall length of stay in the ICU, which brings significant cost savings.

'The Triadyne Proventa is one of the most advanced and comprehensive critical care systems pro-

viding, not only Kinetic Therapy, but also percussion therapy and low air loss therapy, which helps to prevent pressure ulcer development associated with immobility,' the firm adds.



VAC Freedom

KCI's products will be displayed at MEDICA Hall 6 - Stand G06

V.A.C. GranuFoam Heel Dressing

Technology has brought many welcome aids to the difficult task of wound management and healing. Such advances include V.A.C. Therapy, which uses controlled, negative pressure on a wound site, and has been clinically shown to promote healing and reduce the cost of treating patients with wounds of different aetiologies

Produced by KCI (founded 1976), which focuses on technologically advanced therapeutic medical devices for wound healing and products to prevent and treat

causes of pressure ulcer development, such as pressure, shear and friction. Additionally, with exclusive rights to use the proprietary Gore-Tex fabric, some of KCI's key therapies, e.g. TheraKair and TheraPulse ATP, can also deliver low air loss therapy, which helps to manage the skin's microclimate, another key factor in the treatment of pressure ulcers, the firm explains.

For patients with oedema, these two products can also deliver pulsation therapy, said to gently massage the skin and improve capillary and lymphatic circulation.



TheraPulse

the complications of immobility, V.A.C. Therapy was joined this year by V.A.C. Freedom, designed specifically for ambulatory patients, and more recently by V.A.C. GranuFoam Heel Dressing, a treatment for one of the most anatomically difficult areas of the body. Designed to fit the contours of the heel this new dressing is set to greatly improve the efficiency of managing heal wounds.

KCI is also proud of its therapies for the management of the major

'TheraPulse ATP also saves nursing time and the potential of staff injury through an automated wound care turn of approximately 25°,' the firm points out.

Moira Allan, who nurses at Ninewells Hospital, UK, confirmed this: 'The wounds of our elderly and dependent patients have healed very well because the body positioning and turning that TheraPulse ATP provides is excellent. Our manual handling issues have also been reduced.'

Thinking to work a computer

For many paralysed patients the only way to control computers is by using their eyes or tongue, which needs training and skill. For many years researchers have tried another route to this end, and now a device containing 100 electrodes, developed by Cyberkinetics, of Foxborough, Massachusetts has been implanted in the brain of a quadriplegic patient and has enabled him to check his e-mails and play computer games via his thoughts.

So far, this is the most sophisticated of such devices, which tap into neurons, to have been implanted in a human.

In June 2004, surgeons implanted BrainGate (the device) into the motor cortex of the 24-year-old quadriplegic, enabling each of the hundred electrodes to tap into a neuron in his brain.

Since then, the researchers have reported that the patient has been able to control his computer, as



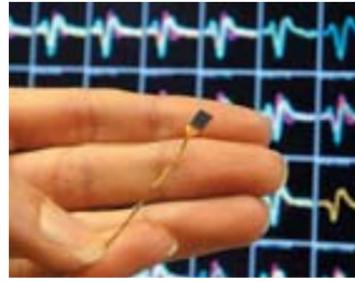
well as television, not just 'single-mindedly' but whilst also carrying out other tasks, such as talking or moving his head. This promising result has opened the way for the device to be implanted into four more patients. But BrainGate's creators argue that such techniques only give a general picture of brain activity, and that the more direct

approach allows more numerous and more specific signals to be translated. "This array has 100 electrodes, so one can theoretically tap into 100 neurons," says Jon Mukand, an investigator on the team based at the Sargent Rehabilitation Centre in Rhode Island.

This makes the technology faster and more flexible, he argues. "It's far more versatile when one can get a larger number of neurons."

Meanwhile, work is continuing in Atlanta, Georgia, on a device that might read brain activity without neuronal contact. The

100 electrodes aid e-mail transmission



award winning research firm Neural Signals, working on its 'Brain Communicator Project', has patented a conductive skull 'screw', to be situated under the skull, but outside the brain. Rather like a precise electroencephalo-

gram (EEG) this records from local field potentials over the surface of the cortex, and the signals can be used to activate a switch to provide communication, the firm reports.

Before implantation, MRI functional scanning is carried out on the patient to check for any brain activity, even if there may be no movement. No patient-initiated movement is needed, the research firm says. After the device is emplaced, users receive initial training on how to move and click a computer mouse cursor anywhere on the monitor screen, to type text, surf the web, and to control other tools in their environment.

Ecstasy drug affects memory

Sydney, Australia - The drug Ecstasy adversely affects the memory those who take it, according to research carried out by John Brown, a PhD student at the School of Psychology, the Australian National University (ANU), who presented finding from his four-year study at the Australian Psychological Society conference in October.

The average memory performance was examined in 30 people from three groups:

- Ecstasy users who had not used any drug for two weeks
- Drug users who do not use Ecstasy (they were mainly marijuana users)
- People who use no illicit drugs.

Although evidence has accumulated on the neurotoxicity of Ecstasy, standard clinical neuropsychological tests have often failed to reveal reliable memory deficits in

Ecstasy users, he pointed out. Using a commonly used test, only small deficits in the average memory performance of Ecstasy users were identified, compared with the other two groups, he said. In this research he utilised advanced cognitive psychology research techniques, developed as part of this research project. 'This new test revealed relatively large memory deficits that appeared to be due to problems in processing information at the time it is being stored, rather than failures in holding information in memory or to retrieving it later on.'

10 sets of triple, unrelated words, e.g. spanner, dingo, muffin, were quickly read aloud to all participants, leaving only about a one second gap between each group. Participants then had to recall as many of the triple words as they could.

The results were significant enough to suggest that Ecstasy users may experience functional deficits in demanding situations in normal life. 'A number of factors could contribute to the observed effects,' John Brown explained. 'But we've been able to rule out age, sex, level of education, estimated IQ, current and past mental health and alcohol as causes of the deficits.'

However, he added that Marijuana had some effect '... but only accounts for a portion of the deficit. In particular, the average rate at which Ecstasy users learnt new information under difficult conditions was significantly lower than that of marijuana users.'

Far larger studies are needed to more fully investigate the effects of stimulants such as methamphetamines, he said, 'but it appears from this research that Ecstasy is a principal cause of the memory deficits'.

Scalp electrodes may boost brainpower

USA - Experiments to boost brain activity in animals took place in the 1950s, but although these indicated possibilities, people linked the concept with electroconvulsive therapy - controversially used on chronically depressed patients - and research did not progress.

Now, however, a research team has used electrodes placed, for 20 minutes, across the front of the head, and a current of two thousandths of an ampere, to check whether it improved verbal skills. Presenting their findings at the annual meeting of the Society for Neuroscience, the team said the only side effect reported by the 103 volunteers taking part, was an itchy sensation where the electrode had been placed on the scalp.

After applying the current, researcher Meenakshi Iyer, in a team led by Eric Wassermann at the National Institute of Neurological Disorders and Stroke, in Bethesda, Maryland, asked the volunteers to name every word they could think of that begins with a certain letter. In about 90 seconds most people manage about 20 words, she pointed out. However, the volunteers could name about 20% more words than the controls, who also had had electrodes attached, but with no current administered. Additionally, when a smaller current - a thousandth of an amp - was used, no effect was demonstrated.

The application's effect has not been explained, but Dr Iyer said the current might change electrical properties of brain cells in the prefrontal cortex, through which it passes, and as a result cells fire off signals with more ease.

This research was inspired by the work of researchers studying the effect on the brain of magnetic fields, which some think might be a useful therapy, for example, to treat dementia. However magnetic fields can cause seizures. Addition-

ally, generating them needs larger equipment than electrodes, so this work on low electric currents could provide a safer, easier alternative.

Further safety tests are underway, after which the procedure may be tested on patients with frontal temporal dementia - which causes speech problems. Whilst using a current is not expected to cure the problem, Ms Iyer said it might become a useful partner for drug treatment.

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Over one million health service workers to receive training

Chris Beasley, the UK's newly appointed Chief Nursing Officer (CNO), has announced that over a million people working for the country's National Health Service (NHS) are to be given infection control training to raise standards of hygiene - and they will have to demonstrate their ability to reduce the risk of healthcare associated infections, including MRSA.

Chris Beasley explained that a number of ways to control such infections had been set out in a *Matron's Charter*, published in October, Chris Beasley pointed out during a recent conference, but added that a new *Knowledge and Skills Framework*, within the government's new and far-reaching *Agenda for Change* pay scheme, will guide staff on how they can play a part in maintaining high standards of cleanliness. 'All staff covered by the *Agenda for Change*, whether nurses, healthcare assistants, porters or cleaners, must show that they can develop and apply the appropriate knowledge and skills to reduce the risks of healthcare associated infections. Personal development plans will give staff and managers an opportunity to identify how to raise standards of cleanliness. So the *Agenda for Change* will not just be good for nurses' pay and careers but it will also be another weapon against the number one concern for patients.'

This development followed an announcement by the Health Secretary, John Reid, at the Labour party conference in October, that outsourcing contracts for NHS cleaning would be cut - almost immediately - to bring cleaning back into the domain of NHS staff workers, a move wel-

comed by health workers' unions, which had complained that private companies had gained contracts from the NHS by cutting staff numbers and wages.

Prior to the Health Secretary's announcement much public concern had been expressed in the press regarding hygiene standards in the country's hospitals and, most recently, an under-cover TV documentary had been broadcast, in which a microbiologist examined swabs taken from six hospitals. In all of these he had found antibiotic-resistant bugs in public areas used by patients. The documentary also included film of clinical waste left outside a cardiology ward, used surgical gloves left on a waste paper bin that was positioned near a public lift, a rubbish container overflowing with toxic waste, and other disturbing evidence of non-hygienic practice.

It has been reported that about 5,000 people die annually from methicillin-resistant staphylococcus aureus (MRSA) infection in the UK, a figure that is challenged by the MRSA Support Group, which believes the number to be perhaps four times higher. The government has also announced that an audit of deaths from healthcare associated infections will be introduced in 2006.

The Patients' Association reported that one of the problems in the UK is high bed occupancy, which gives insufficient time to thoroughly clean beds before new patients arrive. In countries such as Switzerland, the association pointed out, fumigation and cleaning of beds, between patients' use, is more the norm.

Fighting infections

France - The Medical 15, a new 15 kg medical 'pass-thru' washer from Danube International, was designed with double opposed doors separated by a sanitised partition to prevent cross contamination. For use in small clinics and nursing homes, the firm reports that the price is near to that of a basic front load washer extractor.

Danube (est. 1947) based in the Loire region of France, exports products to 52 countries, including the USA, and countries in South America and the Far East.

The range includes front-loading washers from 6-55 kg, side-loading washers (including gas heated washers) from 27-67 kg, tumble dryers from 6-65 kg and barrier washers from 15-67 kg. Finishing equipment includes dryer ironers with widths between 1.4 m to 3.2 m; cylinder diameters of 200 mm, 320 mm and 500 mm, and optional feeders, folders, cross-folders and stackers.

Assets

Washer extractors have a high G-factor (350G on front loading models, 440G on side loaders and barrier machines). Water consumption is averages 11 litres/kg to 13 litres/kg. Residual humidity on side-loading machines and on barrier washers is around 35%, which saves energy during drying.

Dryers have direct drive with a frequency converter, rather than a belt, and a reverse action. (Belts mostly cause dryer problems in laundries, says Danube).

In the past three years the firm has been patented three developments:

- 2001: An automatic speed system, which allows linen to go straight from washer to ironer without having to adjust ironer speed manually, because calculations and adjustments are automatic and consider fabric and room humidity.



Safer laundry

No nosocomial infections

- 2002: A 15 kg barrier washer (smallest on the market) that was launched at Texcare. Suitable for nursing homes, for example, this costs the same as a standard washer, making it 'extremely good value,' says Danube.

- 2003: An automatic weighting system. Now available as an option for washers or barrier washers, it monitors and tracks loads - each can have a number that is linked to detergent and water use for the cycle used.

Quality control approval

ISO 9001/2000, plus required country approvals, e.g. CE, CSA and ETL for USA, etc.

Distributors

The firm wants more distributors with local knowledge and contacts. The firm has a registered training centre, where Danube's service engineers will train the distributor's service staff (they will also be on hand to help with future large

installations when commissioning advice is needed)

Danube provides a video-conferencing service for service engineers, suppliers and sub-contractors, and its website provides technical help, e.g. on safety aspects, maintenance instructions, technical drawings, electrical diagrams and interactive 3-D drawings (engineers watch, in virtual mode, a machine under construction).

Other web-based advice focuses on laundry design and sizing for prospective users. A questionnaire, covering the work and type of laundry to be processed, helps Danube to calculate the type, capacities and number of machines needed - as well as a laundry layout.

'Distributors prepared to be proactive will have not just a high quality product at competitive prices,' says Danube. 'They will also have all the resources they need to make the partnership profitable for both parties.'

www.danube-international.com

Monitoring sterilisation



UK - The Azo Bowie and Dick type test packs, made by Vernon Carus Ltd, can be used in 134° & 121° cycles. These non-toxic tests incorporate advanced indicator inks that enable accurate interpretation of results and promise no fading or colour change when kept as a permanent record.

The packs come with interpretation wall charts, and conform to European Standard EN867 Part 4.

A major supplier to the NHS, with over 30 years of experience in the healthcare market, Vernon Carus recently reorganised its business into three divisions, which cover peri-operative care, infection control and wound care. Products will be on show at MEDICA - Hall 6 - B40.

Sourcing essentials

France - Medical rolls, wipes, hand towels, toilet paper - these are among the indispensable day-to-day disposables that are critical to hygiene. The French firm Global Hygiene (est. 1956), exports about 25% of its products throughout Europe and in North Africa. These include commodities and consumer goods for surgeries/hospitals, healthcare furniture and equipment - and plain or colourful paper disposables, which will be on show at MEDICA in Hall 7 - level 1, F15.

Bandages from Bohemia

Czech Republic - 50% of its hygiene products, cellulose wadding, fixation and elastic bandages and other medical products are exported by Batist s.r.o, which was established in 1992 and, by 1998, had opened a modernised factory and distribution centre in Eastern Bohemia, complete with clean rooms for sterile medical products production.

Last year Batist implemented a quality management system according to EN ISO 9001:2000 and EN ISO 13488:2000 to cover all its activities, combined with certification by the TÜV Rhineland Group, which also CE certifies Batist products.

This year, at MEDICA, the firm will display products in Hall 5 - K11.

NEW

'Breathable' medical fabric is a viral barrier

Finland - A new fabric, named **Breathable Viral Barrier (BVB)**, has been launched by Ahlstrom, which produces high performance fibre-based materials for niche markets worldwide. The firm reports that BVB innovatively combines raw materials and fabric construction, which, used in medical gowns, provides the highest level of viral protection and a greater degree of comfort in warm conditions, due to its 'breathability'.

'Triple-layered, the fabric features a responsive, monolithic membrane sandwiched between inner and outer fabrics made of continuous fine filaments. The inner layer provides a soft touch to the wearer's skin while the outer layer provides additional repellency and strength,' the firm points out. 'The BVB fabric meets ASTM F1671 (viral barrier), with the monolithic technology providing the maximum viral protection available.'

The inner membrane 'breathes'



because of the molecular diffusion of water vapour through the thickness of the film, explained Rahul Dharmadhikary, Medical Fabrics Technical Manager at Ahlstrom. 'The inner membrane automatically responds to rising body temperatures that doctors, nurses and other medical personnel experience in high-stress situations, especially in the operating theatre, by increasing the rate of moisture transfer. The BVB fabric allows the wearer to perspire without trapping him or her inside a non-breathable shell.'

Other gown fabrics currently on the market use micro-porous films, which, by definition, have holes and cannot provide the same protection as Ahlstrom's fabric.'

Ahlstrom produces high performance fibre-based materials serving niche markets worldwide. Ranked among the top 10 non-woven fibre manufacturers, its engineered fabrics are used in industrial products as well as everyday consumer products, and are used in healthcare, transport, packaging, home and office, examples: surgical gowns, tea bags and wipes. The company (est. over 150 years ago) is headquartered in Helsinki, operates from 16 European, Americas and Asian sites, employs approximately 6,500 people and serves customers with sales networks and production facilities in over 20 countries. Annual net sales of Ahlstrom's fibre solutions reach over 1.5 billion euros.

www.viralbarrier.com

Thermal disinfection for instruments

The disinfection unit Hydrim L110WD, with integrated metering device for liquid media, cleans, rinses, and thermally disinfects instruments within 67 minutes. The unit, mainly used in neurosurgery, ENT, ophthalmology and gastroenterology, has a switchable, fast and efficient turbo-drying process, ideal for subsequent sterilisation after packaging, the maker reports. 'For use in ophthalmology, the unit comes with a special basket, with Luerlock connectors for hollow body instruments. Drying air is then conducted through individual instruments.'

www.scican.com



Disposable vases

Floral gifts for patients create addition tasks for busy hospital staff; vases are in constant demand, need storage space, may break, and must be cleaned by someone after use.

An excellent and novel alternative is ecoVaas, a dispenser that supplies a variety of disposable vases made of ecological paper.

Placed at visitor arrival points, e.g. outside lifts or entrances to wards, the ecoVaas dispenser has a diagram to help visitors select the type of vase to purchase to suit the size of their bouquets. Then all that's then needed is water. Later, when the flowers wilt, the ecoVaas is simply thrown away.

Hygiene

Stagnant water is not hygienic. The risk from vases waiting around to be cleansed is eliminated when using the disposable vases

Economics

Less water and disinfectant are consumed, less storage space is needed, and there's less work for staff. In addition, hospitals using ecoVaas receive a percentage of total vase sales.

Charity

ecoVaas sets aside a percentage of sales to support charities, such as the Romania Charity Children



Concept for cut flowers cuts work

Association. Part of that sum is also put at the disposal of the hospital to donate to a charity of its own choice.

Design

These paper vases are stylish and add brightness to wards. ecoVaas also reserves the design of one vase for talented, though as yet unknown artists. Every four years, artists are invited to submit artwork, and an expert jury selects a winner. A copy of the winning artwork, with the artist's name, is then displayed on each dispenser, and a vase with the artwork is used in all ecoVaas dispensers for five years, helping the artist to gain public recognition in Europe.

ecoVaas services include:

- Installation of vase dispensers
- Complete maintenance of dispensing machines
- Prompt refill of empty vase units (an automatic communication system in the vase dispenser relays when an ecoVaas is needed).

'In the unlikely event of a malfunction, the system remains operational via temporary deactivation of the defective vase unit,' the supplier reports. 'Within 24 hours, ecoVaas will see to it that all vases are once again available.' Additionally, free vase tokens are issued if the supply should be interrupted. Details: www.ecovaas.com

NEW

Faultless cleansing for utensils

TopLine, a 'revolutionary' high-tech range of cleaning and disinfection equipment, for washing, rinsing and disinfecting bed-pans, urine bottles, commode buckets and other care utensils, will be demonstrated at MEDICA by the manufacturer Meiko Maschinenbau GmbH & Co KG (Hall 12 Stand A65). 'The new line, says Meiko, 'is particularly remarkable for their ease of loading, making the nursing staff's job so much easier. The machine's appearance, its impressive power-cleaning system with lifting jets, its ultra-efficient disinfection technology, its drying system, the innovative MIKE.2 controls using infra-red technology and much more, are all new,' the firm points out.

Further advantages include the self-cleaning wash-chamber, sound-proofed operation and a guarantee for consistently achieving cleanliness and hygiene.

According to a hospital's available space, the choice of machines includes wall mounted, free-standing or built-in, and complete care units can also be chosen. Meiko also



points out that all machines are quick and easy to install because they are delivered ready for connection to a power supply.

Standing and cabinet models have manual door operation or AT models with automatic door opening, according to customers' needs.

Utensils are placed in easy-to-use brackets on the appliance's open door, outside the wash-chamber. Once the door is closed, utensils are emptied automatically, a system which is '... discrete, operator-friendly and avoids the spread of unpleasant odours,' the firm adds.

'Microprocessor controls with optimal fine-tuning to meet hygiene requirements allow the machines to be individually adjusted to match customers' needs.

The programme selected automatically starts at the touch of a button on the brand-new, easy-to-understand switch display. A short, normal or intensive program can be chosen as needed. Additionally, a new cooling technique allows the utensil to be gripped immediately after the end of the program.'

www.meiko.de

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Can dogs detect cancer?

UK - Dogs are well known for their extraordinary scenting ability; it has been said they can detect one molecule of something interesting up to two kilometres away. Could this skill be turned to medical advantage?

Several anecdotes about dogs sniffing at moles on their owners, which subsequently turned out to be cancerous, led Carolyn M Willis, senior research scientist at the Department of Dermatology, Amersham Hospital, to investigate this reported phenomenon with fellow researchers. 'I was sceptical,' she said, 'so wanted to design a simple experiment to test it.'

The team focused on 36 male and female patients (aged 48-90 years) presenting with new or recurrent transitional cell carcinoma of the bladder (27 samples used for training; 9 used for formal testing); 108 male and female controls (diseased and healthy, aged 18-85 years - 54 samples used in training; 54 used for testing).

'We wanted to make sure it was the cancer the dogs were smelling, so we ruled out other urine abnormalities by having control samples with blood, proteins, leukocytes and other abnormalities by using urine from patients with non-cancerous urological disorders,' Carolyn Willis said.

Trainers from the UK charity Hearing Dogs for the Deaf trained six dogs, of varying ages and breeds, for seven months, to detect cancer. In this course, the dogs were trained to lie down in front of a urine sample from a cancerous bladder.

In a final, double-blind experiment, each dog underwent nine separate tests in which they were

shown an array of seven urine samples, one of which was cancerous, and told to lie next to the cancerous one. On 22 out of 54 occasions dogs identified the cancer sample correctly - a success rate of 41% (95% confidence intervals 23% to 58% under assumptions of normality, 26% to 52% using bootstrap methods) compared with 14% expected by chance alone. 'Multivariate analysis suggested that the dogs' capacity to recognise a characteristic bladder cancer odour was independent of other chemical aspects of the urine detectable by urinalysis,' the team reported, concluding that dogs can be trained to distinguish patients with bladder cancer on the basis of urine odour more successfully than would be expected by chance alone. This suggests that tumour related volatile compounds are present in urine, imparting a characteristic odour signature distinct from those associated with secondary effects of the tumour, such as bleeding, inflammation, and infection.' Those volatile organic chemicals may include alkanes and alkenes.

(It is interesting to note that, during the experiment, the dogs

The nose knows

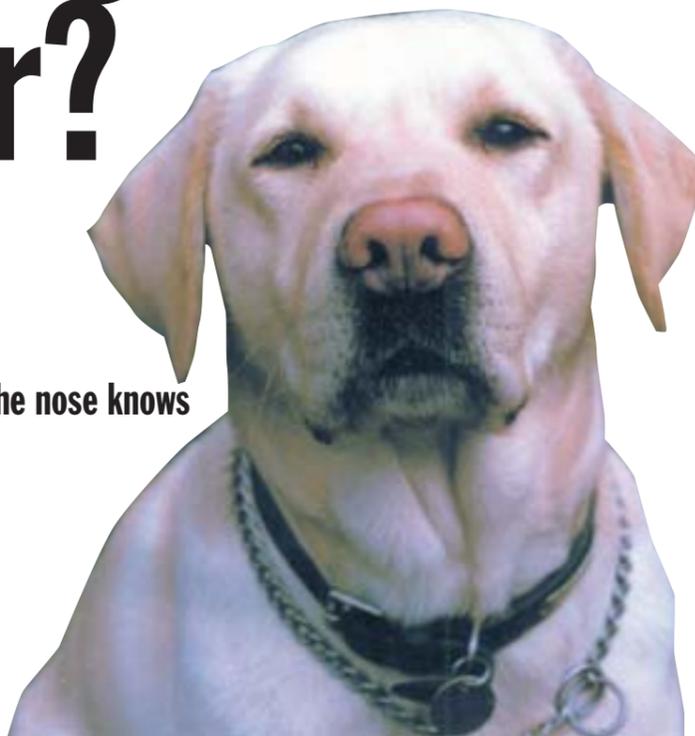


PHOTO: BRENDA MARSH

consistently chose one control sample that had come from a donor who had tested negative for bladder cancer. However, following another test, this donor was found to have a kidney tumour).

Although the dogs' choice rate is neither accurate nor practical enough to consider diagnostic testing, Carolyn Willis said if the pattern of chemicals detected by the

dogs could be identified, a non-invasive early detection screening process might be evolved for bladder cancer.

The team's findings, published in the British Medical Journal (vol 329, p 712 - Olfactory detection of human bladder cancer by dogs: proof of principle study), provoked a large response from BMJ readers worldwide. Some correspondents were derisory, some dog owners welcomed the study of something they already believed existed, and

some researchers applauded it for further opening up this question.

In answer to criticism about lack of consideration for elements such as smoking, the researchers pointed out that comprehensive data on each participant, including occupation, dietary intake, hobbies, medication, and, most importantly, smoking habits, was considered. 'We specifically designed the training regimen to take into account the association between smoking, bladder cancer and the possible presence of tobacco related odours in the urine. During training, the dogs were taught to ignore the urine of control individuals who smoked, and were presented with positive bladder cancer urines from non-smokers, as well as smokers. In the evaluation tests, all runs containing a bladder cancer patient who smoked included at least two controls who were smokers.'

'We did not measure metabolites from tobacco in the urine, but based on self-report there was no obvious tendency for the dogs to preferentially select the urine from smokers. Specifically, 41% of selected urines were from self-described "current or recent smokers" compared to 43% of non-selected urines. 37% of selected urines were from individuals who reported smoking one or more cigarettes on the day before their urine sample, compared to 33% who reported smoking no cigarettes on this day.'

'Moreover, adjustment for smoking status has essentially no effect on the observed association between presence of cancer and odds of selection.'

(Worth a visit to the BMJ website).

GLOBAL



EVENTS

2005

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5-8 Edinburgh, Scotland

EAHO VI

2nd Quadrennial Meeting of the World Federation of Neuro-oncology.
www.fecs.be

7-11 Florence, Italy

International World Congress of the Society of Thoracic Radiology

www.docguide.com

7-11 Strasbourg, France

Neurochirurgie 2005

www.docguide.com

7-13 Miami Beach, USA

13th Scientific Meeting & Exhibition of the Int. Society for Magnetic Resonance

www.ismrm.org

8-11 Lisbon, Portugal

ICNC 7

Int. Conference of Nuclear Cardiology
www.escardio.org

9-11 Stockholm, Sweden

12th European Congress of Clinical Neurophysiology

www.docguide.com

13-17 Vienna, Austria

10th World Congress of Cancers of the Skin

www.docguide.com

19-21 Kaunas, Lithuania

5th Congress of Baltic Association for Maxillofacial and Plastic Surgery

www.balticconference.com/bamps2005

21-26 San Antonio, USA

AUA - Annual Congress of the American Urological Association

www.auanet.org

28-31 Vienna, Austria

Euro-anaesthesia 2005

www.docguide.com

30-June 1 Madrid, Spain

CNIO Cancer Conference: MAP Kinases and Cancer

www.uicc.org

30-June 3 Dublin, Ireland

ESPR - Congress of the European Society of Paediatric Radiology

www.espr2005.com

JUNE

6-8 Manchester, UK

UK Radiological Congress 2005

plus exhibition
www.ukrc.org.uk

8-11 Vienna, Austria

EULAR 2005

European Congress of Rheumatology

8-12 Halifax, Canada

4th World Conference on Breast Cancer

8-12 Prague, Czech Republic

10th Symposium European Society for the Study of Purine and Pyrimidine Metabolism in Man

11-14 Taipei, Taiwan

1st International Congress of IASSID-Pacific

19-26 Sweden

European Federation of Audiological Societies

22-25 Madrid, Spain

2nd Latin American Congress on Qualitative Health Research

23-25 Cancun, Mexico

1st Latin American Congress in Aging Male

26-30 Montreal, QC, Canada

International Interdisciplinary Congress on Emergencies

JULY

2-6 Athens, Greece

IX European Congress of the International Society of Blood Transfusion

3-9 Positano, Italy

Europe/Asia Medical & Legal Conference

16-19 Los Angeles, USA

9th Annual Meeting of the International Association of Medical Science Educators

24-29 San Francisco, USA

Meeting of the International Union of Microbiological Societies (IUMS)

AUGUST

15-19 Sydney, Australia

11th World Congress of Sport Psychology (ISSP)

18-19 Sydney, Australia

Partners in Pain: Patients, Clinicians and Pain Management

26-28 Sydney, Australia

4th Int. Conference on Oro-facial Pain and Temporomandibular Disorders

SEPTEMBER

3-7 Sydney, Australia

International Society of Developmental Biologists 2005

4-7 Lisbon, Portugal

9th International Conference on Methods and Applications of Fluorescence: Spectroscopy, Imaging and Probes

14-17 San Diego, USA

14th International Congress and Endo Expo 2005

15-21 Rome, Italy

Pan Europe Asia Medical & Legal Conference

18-22 Melbourne, Australia

7th World Congress on Inflammation

18-23 Bethesda, USA

14th International Pigment Cell Conference

18-22 Breckenridge, USA

Tissue-Selective Nuclear Receptors

22-26 Nashville, USA

27th Annual Meeting of the American Society for Bone and Mineral Research - ASBMR 2005

22-26 New Delhi, India

Interim Meeting of World Federation of Sleep Research Societies

28-2 Oct San Francisco, USA

American Academy of Family Physicians Annual Meeting

2-7 Rio de Janeiro, Brazil

International Phlebology XVth World Conference

15-18 Berlin, Germany

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NOVEMBER

2-5 Toronto, Canada

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3-5 Mumbai, India

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Are you in charge of your department's budget? Yes No

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I tell the purchasing department what we need Yes No
I can purchase from manufacturers directly Yes No

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relatively modern Yes No
state-of-the-art Yes No

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If so, what do you use of this kind?

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Is your department linked to an external computer network? Yes No
Is your department involved with telemedicine in the community? Yes No
Do you consider your department is under-staffed? Yes No
Are you given ample opportunities to up-date knowledge? Yes No
Do you attend congresses or similar meetings for your speciality? Yes No

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2004@MEDICA issue

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EUROPEAN HOSPITAL



Published by: EUROPEAN HOSPITAL Verlags GmbH, Höherweg 287, 40231 Düsseldorf
Phone: +49 (0)211 7357 532
Fax: +49 (0)211 7357 530
e-mail: info@european-hospital.com

www.european-hospital.com

Editor-in-Chief Brenda Marsh
Art Director Mary Pargeter
Executive Directors Daniela Zimmermann, Reiner Hoffmann
Editorial Assistant Denise Hennig
Founded by Heinz-Jürgen Witzke

Correspondents
Austria: Christian Pruszinsky. **Belgium:** Hannes Frank. **Czech Republic:** Rostislav Kuklik. **Finland:** Marti Kekomaki. **Germany:** Anja Behringer, Annette Bus, Heidi Heinold, Max Heymann, Peter Howieson, Prof Tinneberg, Holger Zorn. **Great Britain:** Brenda Marsh. **Italy:** G. Sinaccio. **Poland:** Piotr Szoblik. **Spain:** Eduardo de la Sota. **Sweden:** Ake Spross. **Switzerland:** Jacqueline Merlotti. **USA:** Karen M Dente, Ivan Oransky, Craig Webb.

UK editorial address
55 Wey Meadows, Weybridge
Surrey KT13 8XY

Subscriptions
Denise Hennig, European Hospital,
Höherweg 287, 40231 Düsseldorf, Germany

Subscription rate
12 issues: 74 Euro, single copy: 6.16 Euro. *Send order and cheque to: European Hospital Subscription Dept*

Finishing media technique jöhri, Weilerswist, Germany
Printed by Frotischer Druck, Darmstadt, Germany

Publication frequency bi-monthly
European Hospital ISSN 0942-9085

Advertising:
Ted Asoshina, Japan, +81 3 3263 5065
Ben Chen, Taiwan, +886 2 8712 2385
Denise Hennig, Germany, +49 211 7357 532
Juri Laskin, Russia, +70 95 2711 006

Simon Kramer, BeNeLux, GB, Scandinavia, France
+31 180 6172 26
C.K. Kwok, Hong Kong, +85 2 2890 5510
C.H. Park, South Korea, +82 2 3644 182
Hanna Politis, USA, Canada +1 301 8696 610

Germany
Head Office Düsseldorf
European Hospital, Höherweg 287,
40231 Düsseldorf, Federal Republic of Germany
Tel: +49 211 7357 531, Fax: +49 221 7357 530
e-mail: dz@european-hospital.com

GB, Scandinavia, BeNeLux, France
Simon Kramer, Willem Alexander Plantsoen 25,
2991 NA Barendrecht
Tel: +31 180 6172 26, Fax +31 180 6200 20
e-mail: sk@european-hospital.com

Hong Kong, China
Eastern Source Int. Media Centre, C K Kwok,
25/F Great Smart Tower, 230 Wanchai Road,
Wanchai, Hong Kong
Tel: +85 2 2890 5510, Fax: +85 2 2895 1443

Japan
Echo Japan Corporation, Tetsuzo Asoshina,
Grande Maison Room 303
2-2 Kudan Kita, 1 Chome Chiyoda-Ku
Tokyo 102, Japan
Tel: +81 3 3263 5065, Fax: +81 3 3224 2064
e-mail: ta@european-hospital.com

South Korea
Far East Marketing Inc, C H Park,
Room 1806/7, Golden Tower Building, 191, 2-ka
Choongjung-ro, Sedoemun-ku, Seoul, Korea
Tel: +82 2 3644 182/3, Fax: +82 2 3644 184
e-mail: chp@european-hospital.com

USA & Canada
Media International, Hanna Politis, 8508 Plum
Creek Drive, Gaitherburg, MD 20882, USA
Tel: +1 301 8696 610, Fax: +1 301 8696 611
email: hp@european-hospital.com

Taiwan
Jurassic Communications Corp., Ben Chen,
2F-3, No. 147, Lung Chiang Rd., Taipei 104, Taiwan
R.O.C.
Tel: +886 2 8712 2385, Fax: +886 2 8712 2618
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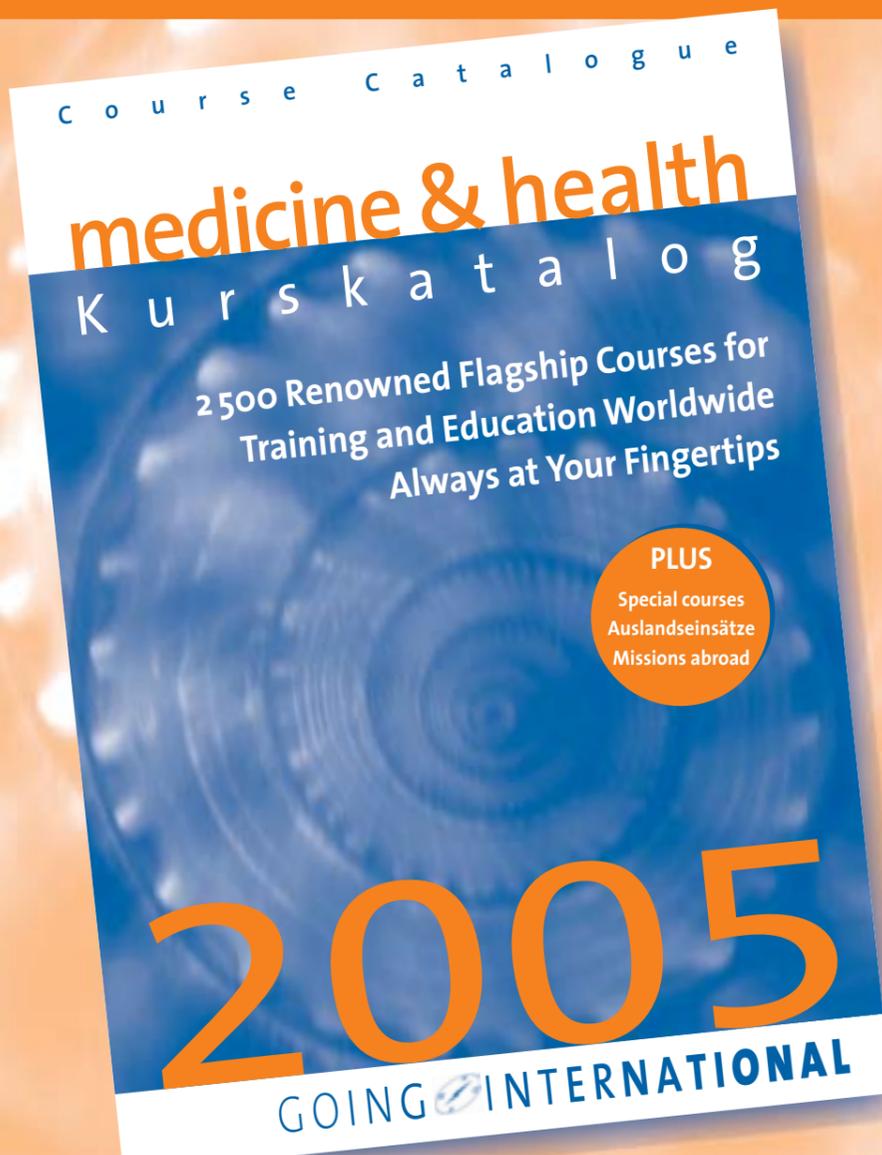
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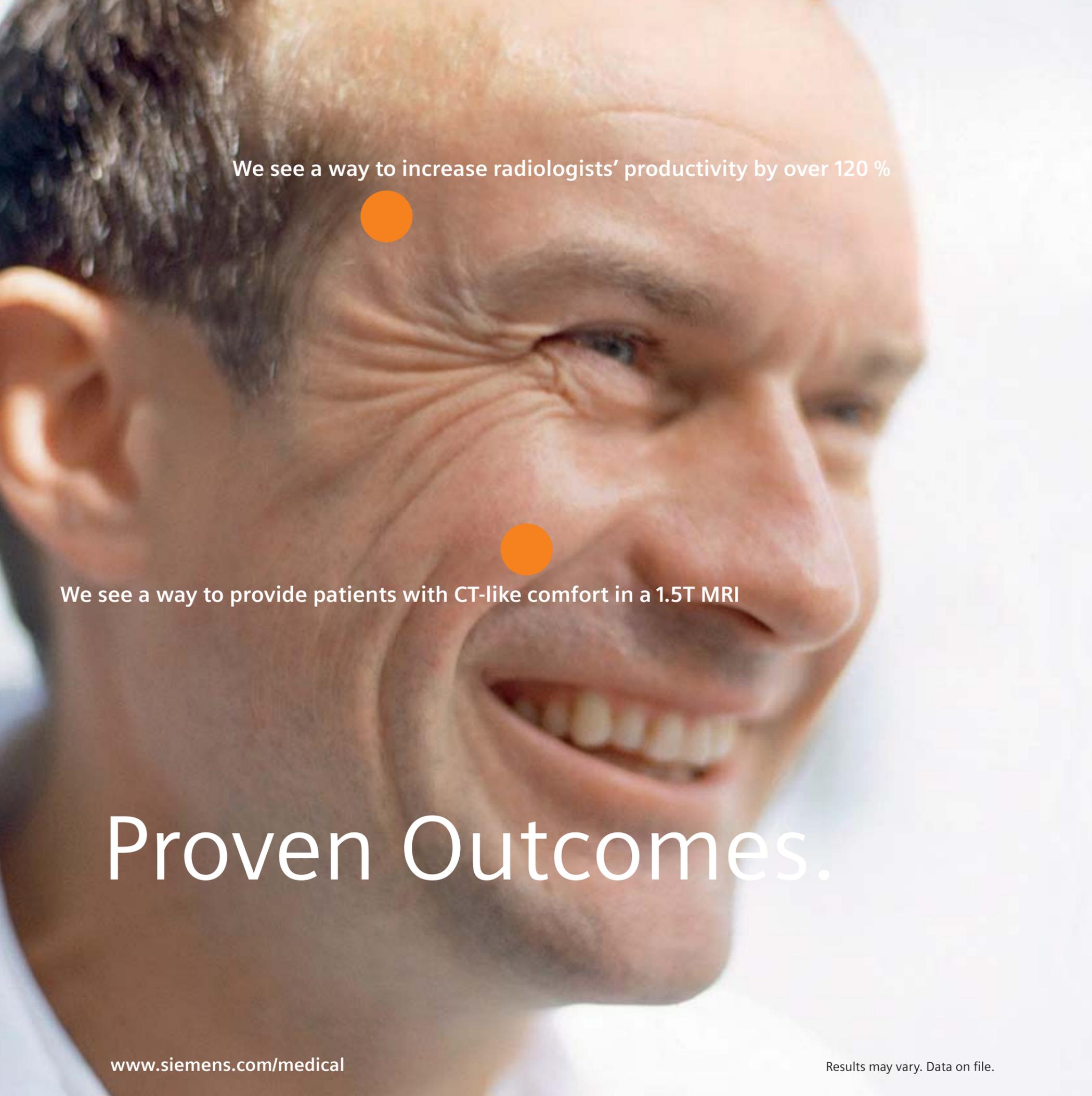
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