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

Long-term use doubles tumour risk

Mobile phones

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Long-term use doubles tumour risk

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, 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 coordinated 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. 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.

In Denmark, fewer people normally held their phones, usually held their phones, 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 13 countries participating in the Interphone Project - are now planned, to confirm any effects of mobile phone use.

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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 qualified and well-motivated nurses for nursing care.

Among the participants, Professor Klaus Zapotocky, 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 holds 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-

The 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.

Nurse 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
Nursing care crisis

...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 sector 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.

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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 sensitivities 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 new 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.

**Medical markets**

**Contrast media and radiopharmaceuticals**

Europe’s contrast media and radiopharmaceuticals markets are seeing some segments grow whilst others saturate, 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 Sivivad 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$77.5-4 million in 2003 and are expected to grow at a compound annual growth rate (CAGR) of 6.8%, to reach US$123.8 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.

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**Korea - 3D-xTended Imaging™ (or 3D-XI), a new diagnostic ultrasound imaging processing package, developed specifically for the ultrasound system Accurix X4, has been launched by Medison, which reports that the system has three innovative imaging applications.**

The 3D-XI package enables more extensive and thorough image processing capabilities, not previously available in the ultrasound industry. This is based on utilizing 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 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-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.

Multi-Slice View is imaging technology which enables you to examine and view 3-D volume data in various planes in unlimited iterations. 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 corona, 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 specializes 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.**

**Website:** medison.com

**NEW**

**Three image processing applications for 3-D**

- **The Frost and Sullivan report 'The Contrast Media and Radiopharmaceuticals Market in Europe'** (code: 3929)
- **For an analysis overview that provides an introduction to this, please send your name, title, company name, phone number and address to: katja.feick@frost.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, large-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 the R&D investment in software-based ultrasound platforms and 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, Department 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 cardiac 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.
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...
increasing diagnostic accuracy and image interpretation, and the use of computer-aided detection (CAD) to increase diagnostic accuracy and reduce medical errors. Thus, the head coil must enable UIC researchers to detect suspicious regions peripherally, without fixating on the specific spot. In fact, Dr Krupinski said, they may fixate on a suspect-able feature and then search for it, rather than consider other possibilities.

In addition, Dr Thullhorn 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 each skill as reading, music and mathematics.”

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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 exhibit, 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 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 as 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 - micromixers instead of a motor provide the necessary pressure for moving liquids. The material, a plastic, is also the essential component in micromotors with snake-like winding channels because modern cutting 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 laboratory tests. There are many new low-cost applications that are introduced, such as urinary pathologies or oncological diseases (e.g. myeloma or leukaemia), and which shows increased uric acid and globulin content, will be presented by Hochschule Neanderthain.

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.

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-operations.

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.

Neurology - The prototype of a new sensor-based helmet, which supports a precise medical diagnosis of neurological-related symptoms of defective muscular contractions in the neck-/back area (cervical dystonia) along with disorders of head movements, will be demonstrated by Duisburg-Essen University. This consists of a light, mobile, cabilexus 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 area is not suppressed but desynchronised. When nerve cells want to fire overly synchronously, they are distracted by target-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.

Unipet 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 urea, acid and globulin content, will be presented by Hochschule Neanderthain.

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www.BERCHTOLD.de

www.BERCHTOLD.de

Info@BERCHTOLD.de
Fax +49 (0) 74 61/181-200
Tel. +49 (0) 74 61/181-0
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Research on display

Universities demonstrate advances

2004@MEDICA
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 already developed its offer in this field. Today, nanocomposite coatings with a wide range of properties – hydrophilic, conductive, transpar- ent, 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 Möller, 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 ‘microart’ 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.

CompMED - Hall B

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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,

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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 usable 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.

- **Electro-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 Ivacare, 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 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 Produktdesign, 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:

- **Bücherfahrt,** made by Bergische Universitat 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-end 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:

- **Caulfit,** a four-layered mattress with remote control, made by Indes Medical Design, in the Netherlands. **Easy Reach Shelves,** made by Tech Dong Oy of Finland, which can be folded down with a single hand movement; and **Audible,** an advanced MP3 Player, created by Cnai Larsen, 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 telecommunication 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 an alarm centre for the monitoring and sending of alarms and messages of an emergency or to issue an alarm function 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 IKN 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/dhvbgjpa.ja)

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 insurers-approved unit, the Dect voice-linked alarm unit 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 only on one, or 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.

Details: Bernd.Fischer@damovo.com.
And: www.damovo.de

Ten medical scales and measuring systems

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.

A NEW STANDARD OF FLEXIBILITY IN TRACHEOSTOMY TUBES.

There’s a new standard in tracheostomy: TRACOE vario – a soft, flexible tracheostomy tube with patented, variably adjustable neck flange. To achieve a perfect fit in any patient, it’s easy to slide the flange to a new position, where it clicks into place [a]. There are also two soft, pliable wings on the flange that can be rotated either together [b] or independently of one another [c].

TRACOE vario comes in four different versions: reinforced with a metal spiral or nonreinforced with x-ray contrast line, both with or without a low-pressure cuff.

Details:
Tel. +49 - 69 - 665 668 - 0, Fax - 10, www.tracoe.com

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USA - The NeoPAP Neonatal CPAP System provides low levels of pressure to assist breathing in newborn infants with a wide variety of respiratory difficulties. Using a servo controlled delivery system, air and oxygen delivery can be adjusted from 2 to 10 cm H2O pressure, with a flow generation capacity up to 20 L/min.

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 helps 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
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, Global Business Unit Manager, Healthcare, and IT & Telematics at MGB, 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 - it's cordless phones and pagers - into the healthcare environment, they are quicker and effective. 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 include having information and instructions flowing to the right people at the right time, improved care and safety. For example, alarms and emergencies can be responded to more quickly, and the patient's safety improved. The longer-term benefits include more efficient workflow through the hospital and reduced length-of-stay, not to mention relieving stress and at the local level. 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 telecommunication and IT infrastructure, and with technical and administrative systems such as accounting, building management and security systems. This means that vital information needed 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 is 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, updating 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 doctors, 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 service.

As healthcare professionals consider how they can move their IT 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 now and existing investments in IT and communications.

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By Dahn Jubell, Global Business Unit Manager, Healthcare, and IT & Telematics at MGB

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 Dongwoong Lee*, assis tant professor in the School of Information Sciences and Technology at IST, and -W-C Lee, an associate professor in the School of Information and Knowledge Management, by Dongwoong 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, links between users and databases and filters or cuts 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," Dongwoong 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 current databases. That difference not only makes the security check of QFilter very practical, 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

Beyond your imagination.
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By Dahn Jubell, Global Business Unit Manager, Healthcare, and IT & Telematics at MGB

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
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An X-ray examination, performed in a small hospital in a remote region, is received via a phone line by a 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 diagnosis. Now all the participants would be underused. However, for those with only one radiologist, a telemedicine 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’.

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 understaffed. However, for those with only one radiologist, a telemedicine colleague based somewhere else in Germany could undertake on-call duty and/or weekend cover for that single employee.
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.

DataSwiss Solutions AG 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 licens- ing of concurrent users with full access to all functions. This tech-

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

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 per-

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 $10.5 million to $136.5 million by 2010.

Based in Taegerwilen, the firm has independent branches in Miami, Fla., USA, and Dortmund, Germany. Three administration markets are targeted for Swiss-

care telematics.’ Discussions have been planned to examine whether the medical documentation, the preservation of confidentiality as the measure of planned patient auton-

ic Prescription File and the Elec-

and, the firm adds, SwissCare

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

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 situations, pharmaco-

medicines, and the electronic doctors’ reports and an electronic- ic 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 (pro-

tegnet project office) and industry BITROM e.V. and VHI. Illustrate a broad range of aspects at the central presentation introduction of the Electronic Health Card, the Elec-

and to secure the integrity of the medical documentation, the pro-

The Patient Factor - A separate theme, dealing with the Electronic Health Card issue, poses the question: ‘The Patient at the Cen-

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Agfa wins teledem award and aims at imaging centres

USA/Belgium/Germany/Poland - Imaging centres are the fastest growing segment of the U.S. radiology market. At present, there are around 5,000 of these, plus 3,000 community hospitals with stand-alone imaging departments in the US. The number of imaging centres has increased by 12% to 10% annually for the past three years and this strong growth is expected to continue. And, currently the Belgium firm Agfa is introducing its Practice Management System (PMS) to this market, where it will demonstrated at this year’s RSNA (Chicago - 26 Nov - 3 December).

Tailed for the needs of North American imaging centres, the PMS comprises a complete solution with scheduling, reporting, workflow management, work list integration, billing and practice business analysis, as well as seamless integration with Impax, Agfa’s PACS solution. The system will enable the centres to swiftly move from analogue to digital technology, optimising their workflow efficiency, Agfa reports. The firm also produces imagers and imaging workstations. The Gold medal-winning portal for Danish healthcare portal Sundhed Danmark, a healthcare portal that enables patients to communicate with their doctors via the internet, has become the overall winner for business in The Wall Street Journal Europe’s annual Innovation Awards, sponsored by Accenture, the management consulting and technology services organisation.

The gold-medal winning portal was created by the Danish Pharmaceutical Association (DPA) who reasoned that a health portal could provide a significant benefit for Danish citizens and physicians could provide a significant benefit for Danish citizens and physicians. It was created the Danish Pharma- cists Association (DPA) who reasoned that a health portal could provide a significant benefit for Danish citizens and physicians. It was reasoned that a health portal could provide a significant benefit for Danish citizens and physicians. It was reasoned that a health portal could provide a significant benefit for Danish citizens and physicians. It was reasoned that a health portal could provide a significant benefit for Danish citizens and physicians.

The 2004 European Health Care Congress, to be held during Medica in Düsseldorf (22-24 Nov), has been set up to focus on European cross-border health care services, the strategies and action plans of the accession states, European law in healthcare, the funding of the European health systems, pharma location, and hospital care - and, naturally, e-health and telematics. The conference, to enable two or more physicians at different hospitals to discuss the shared images in a comfortable and user-friendly manner. The telemedicine is to become the preferred method of treatment. Most pharmaceutical products are only available from a pharmacy via a doctor’s prescription, but for patients wanting only a quick telephone consultation with their doctor the only time available for this is a one-hour period each morning.

Since May 2001, Sundhed.dk, users can access over 3,000 items that provide detailed information on everything from ways of preventing illness, and they can talk to a panel of experts, buy medical items, book online appointments and request prescription renewals, etc. Additionally, if a user fills in what medicines, pills and remedies s/he is taking, the website will identify any problems that might cause. The health portal has received 40-45% of the 125 million hits to Danish health sites annually. Sundhed Danmark now plans to expand the Sundbed.dk portal, and is currently testing a system to enable health workers on home visits to download patient records from a central database to a PDA. “Our vision is to become the preferred site for Danes to get effective medical advice and easy solutions to health-related problems. After just one and a half hours, Sundhed.dk became the number one Danish health portal, and this award is a very welcome recognition of our work,” said Lars Mortensen, CEO of Sundhed.dk.

Agfa’s Impax CS5000 clinical review workstation. If a second reading or consultation is needed with doctors at other hospitals, DICOM images are sent to the other hospital’s IMPAX CS5000 workstation or to a shared central web server located at Stralsund University. In both cases, the patients must give formal consent to do so. Moreover, image transfer takes place through a secured transmission, safeguarding the integrity and usefulness of the patient’s images. When accessing the central server, authorised users must go through an authentication procedure before being able to view images.

The conference at each of the five hospitals digi- tal images from MRI and CT can be transmitted, safeguarding the integrity and usefulness of the patient’s images. When accessing the central server, authorised users must go through an authentication procedure before being able to view images. The conference at each of the five hospitals digital images from MRI and CT can be transmitted, safeguarding the integrity and usefulness of the patient’s images. When accessing the central server, authorised users must go through an authentication procedure before being able to view images.

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Happy birthday! 30-year-old sterclin celebrates at MEDICA

108 years ago Vereinigte Papierwarenfabriken (VP) began processing and printing 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 1970s, 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 products, under the brand name sterclin. Today the VP Group, based in Freiburg, Franconia, has two production facilities in the Netherlands, employs 150 people worldwide and boasts sales of around 35 million euros. Additionally this year, sterclin is celebrating three decades of success, which the firm partly attributes to increasingly rigid requirements for hygiene and medical technology.

Both sterclin 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 sterclin 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.).

ITALIAN LANGUAGE

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30-year-old sterclin celebrates at MEDICA

108 years ago Vereinigte Papierwarenfabriken (VP) began processing and printing 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 1970s, 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 products, under the brand name sterclin. Today the VP Group, based in Freiburg, Franconia, has two production facilities in the Netherlands, employs 150 people worldwide and boasts sales of around 35 million euros. Additionally this year, sterclin is celebrating three decades of success, which the firm partly attributes to increasingly rigid requirements for hygiene and medical technology.

Both sterclin 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 sterclin 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.).

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<table>
<thead>
<tr>
<th>Hall 1</th>
<th>product</th>
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</tr>
</thead>
<tbody>
<tr>
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<td>A 02</td>
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<tr>
<td>Injections aids, neuropens</td>
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<td></td>
</tr>
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</table>

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<tr>
<td>Nucleic acid purification products</td>
<td>C 16-2</td>
<td></td>
</tr>
<tr>
<td>Hormone determination, immuno assay</td>
<td>A 60</td>
<td></td>
</tr>
<tr>
<td>Care testing products, illness and condition detectors</td>
<td>E 26</td>
<td></td>
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<tr>
<td>Centrifuges, osmometers</td>
<td>A 47</td>
<td></td>
</tr>
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<td>C 29</td>
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<tr>
<td>Collagen, medical plastics, life simulation models</td>
<td>A 45</td>
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<tr>
<td>Bandages, tube and catheter holders</td>
<td>C 16</td>
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<td>Vase dispensers, disposable vases</td>
<td>E 46</td>
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<tr>
<td>Advanced healing</td>
<td>G 06</td>
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<tr>
<td>Oxygen masks</td>
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<tr>
<td>Anaesthesia, safety devices, medication delivery</td>
<td>H 30</td>
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<tr>
<td>Tracheostomy tubes and related products</td>
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<tr>
<td>Publishers</td>
<td>E 15</td>
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<td>Korea Int’l Medical &amp; Hospital Equipment Show</td>
<td>E 23</td>
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<td>MRI, anaesthetic and CC monitoring</td>
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<tr>
<td>Electrocardiography, ultrasound gel</td>
<td>D 41</td>
<td></td>
</tr>
<tr>
<td>CT, X-ray, ultrasound</td>
<td>C 60</td>
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<td>Anaesthesia, safety devices, medication delivery</td>
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<td>Ultrasound</td>
<td>B 60</td>
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<td></td>
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<td>F 13</td>
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<td></td>
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<td></td>
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<tr>
<td>Cardiography, sensors, pulse oximeters, monitoring</td>
<td>D 42</td>
<td></td>
</tr>
<tr>
<td>Respiratory equipment</td>
<td>B 03</td>
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<tr>
<td>Software-based ventilators</td>
<td>F 29</td>
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Hall 12 product: Critical care, surgical workplaces, cardiopulmonary equipment
Booth: D 51/52

Hall 13 product: Dialysis, infusion, respiratory
Booth: F 65

Hall 14 product: Medical lighting
Booth: D 20-3

Hall 14 product: Medical lighting
Booth: A 34-8

Hall 14 product: Microscopes and microscope slides
Booth: B 24-8

Hall 14 product: X-ray equipment
Booth: E 74

Hall 14 product: Monitoring
Booth: A 10

Hall 16 product: Blood flow measurement equipment, US
Booth: E 76

Hall 16 product: IT solutions for hospitals
Booth: G 52

Hall 16 product: Barcodes, printers
Booth: E 19
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.

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. The study confirmed that the new filter has an affinity to all types of prions including aggregated, denatured and non-natural prions associated with the New York Institute of Basic Research, confirming that the same technology reduces infectious scrapie prions from red blood cell concentrates. The study confirmed that the new filter has an affinity to all types of prions including aggregated, denatured and non-natural prions associated with the New York Institute of Basic Research, confirming that the same technology reduces infectious scrapie prions from red blood cell concentrates.

The vCJD study used human red blood cell concentrates contaminated with about 108 infectious units of human vCJD from trans-fused blood. About 10% of the prions associated with the New York Institute of Basic Research, confirming that the same technology reduces infectious scrapie prions from red blood cell concentrates.

The firm says that a particularly unique feature in the cobas range is the linking of clinical chemistry, heterogeneous immunodiagnostic tests and homogeneous immunoassays to be combined in one system as a consolidated serum workplace.

The compact analytical system was specifically designed to meet needs in the molecular diagnostics market. A modular design and numerous upgrade options give the cobas 6000 flexibility to adapt to changing laboratory diagnostics needs. "With a parameter menu of over 150 tests and applications, this second generation of automated modular analyzers provides a wide diagnostic spectrum for the clinician to satisfy the needs of over 95% of laboratory diagnostic tests", Krasnoff points out. "Additional components such as a pre-analysis system, additional reaction vessels and novel new markers enables cobas 6000 to be built up into a complete laboratory solution. This concept thus offers a high degree of investment security especially for medium-sized laboratories."

The firm is also studying use of the Leukotrap Prion Reduction Filter, 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.

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.

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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 overall 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 distribution (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.
The world’s smallest heart pump

Insertion without surgery

The world’s smallest heart pump, 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.

The implanted pump assisted the 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 use, low radiation, low cost, and possibly transplant, and increasing cost-effectiveness, especially when you consider the alternative to using this, 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 lightweight device HeartStart MRx, recently launched by Philips Electronics, is a monitor/defibrillator designed with a breadth 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 poor light 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 cardiology, 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 defibrillator, so that the pads can remain in place while a patient is transferred from one department to another.

THE COMPACT MONITOR/DEFIBRILLATOR FOR HOMES, EMERGENCIES AND HOSPITALS

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 breadth of features and capabilities to meet the technical demands of advanced cardiac life support-trained (ACLS) caregivers in attending emergencies and in hospitals.

The device is also compatible with Philips’ patient monitors, affording hospital personnel easy patient transitions 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 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 3,700 euros.

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The advertisers on this page are seeking such partnerships, with like-minded distributors. So, if you have the right skills and contacts, visit their stands. 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 Düsseldorf GmbH and Schöffling (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, including the first patents and licenses for biosensors and surgical products for minimally invasive surgery (MIS) - a technique invented in the former Soviet Union.

Medica Business Centre: Hall 7 (North Entrance)

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 Droge & Cump.

‘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 services.’

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 agreements,’ said Dr Dominik Merensch, healthcare expert with Droge & Cump. 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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Drop by and see us at hall 3 E26
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 previous mobile C-arms. The firm makes use of the latest technology, such as CT and MR, and view it directly in surgery. Syngo also enables simple system integration into the clinical data network because it supports all Emor 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 Helger 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 500 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 system reports, adding that the system offers increased imaging power with its generator output of 2.1 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 modalities, such as CT and MR and view it directly in surgery. Syngo also enables simple system integration into the clinical data network because it supports all Emor 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 Helger 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 500 application-specific pro-

New mobile C-Arm System on show at Medica

By Karen Dente

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, monitoring and/or further treatment. In the study, most of the two hundred patients (age range: 7-94 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-

Adapted MRI aids brain tumour removal

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

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. EuroMedical’s Gamma camera features a specially designed 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.

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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 13B7 785). This device represents a completely new advance in VitreoRetinal surgical instrumentation, incorporating many innovative user-oriented design features, and including safety, quality 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-cular 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 materials may be either fluid or gas (air or a special gas that is biocompatible and of very low water solubility). Intraocular 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 C3F8.

* "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.
Health care starts with hygiene

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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 lighting 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,' he said.

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 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 melanin 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-

...
light with high colour temperature. Dimming the three lights during operation give different outcomes. The only light to maintain its high stimulating effect when operated at reduced luminance is the gas discharge light with opto-mechanical 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 65plus), 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 test this outcome in a study to prove the hypothesis,” Prof Gail 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 the tests in winter, with the other 25 people performing them in summer, to determine whether their performance depended on the 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 a5 value for the halogen light with high colour temperature was 0.50, whilst for the one with lower colour temperature the a5 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 tests in winter, with the other 25 people performing them in summer, to determine whether their performance depended on the season.”

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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 562 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 156 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 4,300K, as is irradiated by a CHROMOPHARE D 65plus 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 (3,400K) 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-up 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 Deckhorn, engineer and Product Manager, GfL-Lights, Berchtold.

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

<table>
<thead>
<tr>
<th>Light Type</th>
<th>TN</th>
<th>a5, undimmed</th>
<th>a5, dimmed</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chromophare X 65</td>
<td>4300K</td>
<td>0.60</td>
<td>0.60</td>
<td>optomechanical dimming</td>
</tr>
<tr>
<td>Chromophare D 65plus</td>
<td>4300K</td>
<td>0.59</td>
<td>0.51</td>
<td>electronic dimming</td>
</tr>
<tr>
<td>Comparative light</td>
<td>3400K</td>
<td>0.45</td>
<td>0.38</td>
<td>electronic dimming</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Reference light (3,400K)</th>
<th>CHROMOPHARE D 65plus (4,300K)</th>
<th>Relative difference</th>
<th>Statistical error probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance capability</td>
<td>485</td>
<td>502</td>
<td>3.5%</td>
</tr>
<tr>
<td>(mean total number of questions answered)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power of concentration</td>
<td>195</td>
<td>205</td>
<td>5.1%</td>
</tr>
<tr>
<td>(mean total number of questions answered correctly)</td>
<td></td>
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</tbody>
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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 corps of the US Air Force.

The doctor has a large full-time practice and describes her role as a doctor for 28 years as "being in a front line war." For example, she has been a senior gastroenterologist at Mayo Clinic in Rochester, MN. For the past decade she has been a senior gastroenterologist at Mayo Clinic in Rochester, MN.

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 unExpertise with weakness and will not work in a specific case, 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 recognises 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-medical treatments include daily aerobic exercise, a good diet, and prioritising duties and obligations to include only those that are absolutely necessary. Time spent in outdoor or in contented conversations with family is balm. A new interest or hobby can be a surprising effective lateral exit from a 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. Dr. Wilson, 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..."
new child, so is more tired and less sexually available.

Sometimes men also feel they are not measuring up as a father, which causes an experimental 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 feel that his relationship with his own father becomes more ambivalent as the father declines mentally and physically. This expe-

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, particu-

larly if the deceased is someone his own age or younger, can also bring him face to face with his own mor-

tality.

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 coun-

selling to sort through his priori-

ties, look back on his life’s path and accomplishments, and formulate new goals for the second half of his life." She also provides other sug-

gestions to help the situation.

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

ward to it. But other people do not complain about the behavour-

ial changes of alcoholism at this point. Ten percent of the popula-

tion 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 child-

hood trauma before they had a language of emotion may never have coped with the shame and sufferings. These men are particu-

larly vulnerable to dependency on alcohol as they reach midlife and decide they need help to make themselves known. Alcohol is used to suppress those feelings.

Prescription drug dependence - This is equally dangerous. Dr Wil-

son points out. Often due to a chronic pain, a person can become addicted to narcotics and it may change his personality and his abi-

ty 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 50’s so they can add emotional coher-

ence. But the emerging feelings may bring a stable situation down, so being aware of the Shadow and the Azmanas may be helpful, and vigilance for alcohol dependency is always wise, Dr Wilson warns.

Dr. Wilson has focused her med-

ical practice on middle people and, in a series of books, observes what keeps people healthy and what makes them miserable. She emph-

asises what can help them to do help-

themselves and thus avoid medical problems later on. She also advises on quality of life, weight gain, fatigue, depression, and erectile dysfunction.

Dispensaries From The Front-


In the same month Greenwich Med will publish Breast Ultrasound. The Essentials, a superbly illustrated paperback by M Stockley, of the De-

partment of Imaging and Radiology, School of Health and Social Care, South Bank University, London, and Dr E Denton, Consultant Radiologist, Nor-

folk 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 Stockley and E Denton. ISBN 1.84410.1765. 39.73 euros)
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 the complications of immobility, will demonstrate its innovative wares at Medica.

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.

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.

The Triadyne Proventa is one of the most advanced and comprehensive critical care systems providing, 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.
Scalp electrodes may boost brainpower

USA - Experiments to boost brain activity in animals took place in the 1960s, but although these indicated possibilities, people linked the concept with electroconvulsive therapy - controversially used on chronic and 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 100 volunteers taking part, was an itchy sensation where the electrode had been placed on the scalp.

After applying the current, researchor MenakaIy, 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. After a total of 90 seconds most people manage about 20 words, she pointed out. However, the volunteers could name about 30 words more 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 Iyry said the current might change electrical properties of brain cells in the pre-frontal 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. Adding-

thinking to work a computer

For many paralyzed 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 type, 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 implant- ed 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 calling on 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 theoretical- ly tap into 100 neurons,” says Jon Mikuleck, an investigator on the team based at the Sargent Rehabilitation Centre in Rhode Island.

“This makes the technology safer 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

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 University of Sydney.

Dr Brown, who won a National Science Scholarship to work in the University of Sydney, was the only 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 drugs for two weeks
● Drug users who do not use Ecstasy (they were mainly mari- juana users)
● People who use no illicit drugs

The average memory deficit was significant, compared with the other two groups, he said. In this research he utilised advanced cogni- tive psychology research tech- niques, 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 partic- ipants, leaving only about a 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 fac- tors could contribute to the observed effects,” John Brown explained. “But we’ve been able to rule out age, sex, level of edu- cation, estimated IQ, current and past mental health and alcohol as causes of the deficits.

However, he added that Mari- juana had some effect ‘... but only accounts for a proportion of the deficit. In particular, the average rate at which Ecstasy users learnt new information under diffi- cult conditions was significantly lower than that of marijuana users.

For larger studies are needed to more fully investigate the precise role of marijuana, as well as amphetamines, he said, ‘but it appears from this research that Ecstasy is a principal cause of the memory deficits’.
**Fighting infections**

**Feasible methods of infection control**

1. **Waste Management**: Prompt, appropriate disposal of waste is essential to prevent the spread of infections.
2. **Hand Hygiene**: Frequent hand washing is crucial in healthcare settings to reduce the risk of cross-contamination.
3. **Environmental Cleaning**: Regular cleaning and disinfection of medical equipment and surfaces is necessary to prevent the growth of microorganisms.
4. **Personal Hygiene**: Staff should maintain good personal hygiene to prevent the transfer of infections.

**Challenges in infection control**

- **Staff Compliance**: Ensuring all staff members follow infection control protocols can be challenging.
- **Resource Constraints**: Adequate funding for infection control measures may be limited.
- **Patient Non-compliance**: Some patients may not follow hygiene guidelines, increasing the risk of infections.

**Solutions for enhanced infection control**

- **Improved Training**: Regular training for staff on infection control practices.
- **Technology Integration**: Utilizing technology, such as automatic hand sanitizers, can improve adherence.
- **Policy Development**: Establishing clear policies and guidelines for infection control.

**Key metrics for evaluating infection control effectiveness**

- **Infection Rates**: Monitoring the incidence and prevalence of infections.
- **Outbreak Management**: Effective response to outbreaks to prevent their spread.
- **Staff and Patient Satisfaction**: Surveys to assess perceptions of infection control measures.

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**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.

**Czech Republic** - 50% of its hygiene products, cellular 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 modern factory and distribution centre in Eastern Bohemia, complete with detailed instructions for grade medical products production.

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**Breathable medical fabric as 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 fabric 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".

Because of the fabric's features a responsive, monolithic fabric 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 fabric points out. This breathable fabric is certified to EN384 (viral barrier), with the monolithic technology providing the maximum viral protection available.

**Czech Republic** - 50% of its hygiene products, cellular 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 modern factory and distribution centre in Eastern Bohemia, complete with detailed instructions for grade medical products production.

Last year Batist implemented a quality management system according to ISO 9001:2000 and ISO 13485:2000 to cover all its activities, combined with certification by the TÜV Rheinland Group, which also CE certifies Batist products.

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

Floral gifts for patients create additional 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 bouquet. 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 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
- Automatic communication system in the space where there is an ecoVaas dispenser when a defective vase unit is removed.

TopLine, a revolutionary development for the preparation of care utensils.

TopLine, probably the most perfect appliance on the market.

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 its ease of use, making the nursing staff’s job so much easier. The machine’s appearance, its impressive power, its cleaning system with lifting jets, its ultra-efficient disinfection technology, its drying system, the innovative MIKE.2 controls using infrared 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, freestanding, and complete care units can also be chosen. Meiko also

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 ‘...discreet, 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 technology allows the utensil to be gripped immediately after the end of the program,’

http://www.meiko.de · e-mail: info@meiko.de

MEIKO Maschinenbau GmbH & Co. KG
Englerstr. 3 · 77652 Offenburg · Germany
Telephone 0781 / 203-0 · Telefax 0781 / 203-1299

http://www.meiko.de · e-mail: info@meiko.de
Can dogs detect cancer?

**The nose knows**

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, convinced Carolyn Willis, senior research scientist at the Department of Dermatology, Aberdeen 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 carcinomas of the bladder (27 samples used for training; 9 used for formal testing), 108 male and female controls (diagnosed 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 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 taught 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 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 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 BIOM readers worldwide. Some correspondents were dismissive, 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 critics 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 urine samples 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 detect the urine from smokers. Specifically, 41% of selected urines were from self-described ‘vague or cancer 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 BIOM website).
Is your department involved with telemedicine in the community? If so, what do you use of this kind? Do you consider that your equipment is:

- I can purchase from manufacturers directly
- Not currently be available from manufacturers

Other information requirements - please list:

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<th>Medical Conference/Institution</th>
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2. Your Job

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3. How Many Beds Does Your Hospital Provide?

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<td>No</td>
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4. What Subjects Interest You in Your Work?

| Medical Innovation/hospital equipment | X-ray, Ultrasound, CT/CTA, MRI/CT/MRA | Yes |
| Clinical research, treatments, equipment | Yes |
| Surgery, plastic surgery | Yes |
| Anaesthesia and ICU equipment | Yes |
| Intensive care unit | Yes |
| Laboratory equipment | Yes |
| ICU | Yes |
| Neurosurgery | Yes |
| Endo-anesthesia | Yes |
| Radiology | Yes |
| Imaging | Yes |
| Digital X-ray | Yes |
| MRI | Yes |
| CT | Yes |
| PET | Yes |

5. Where Are You Located?

| Southwest | Yes |
| Northeast | Yes |
| Midwest | Yes |
| South | Yes |
| West | Yes |

6. What Are Your Goals for the Next Three Months?

| Increase in patient throughput | Yes |
| Improve quality of care | Yes |
| Reduce costs | Yes |
| Increase revenue | Yes |
| Expand services | Yes |

7. What Are Your Concerns?

| Staff shortages | Yes |
| Financial constraints | Yes |
| Regulatory changes | Yes |
| Space constraints | Yes |
| Technology upgrades | Yes |
| Patient satisfaction | Yes |

8. What Are Your Plans for the Next Three Months?

| New facilities | Yes |
| New technologies | Yes |
| New programs | Yes |
| New services | Yes |
| New partnerships | Yes |

9. What Are Your Priorities?

| Patient safety | Yes |
| Quality | Yes |
| Efficiency | Yes |
| Technology | Yes |
| Space | Yes |

10. What Are Your Challenges?

| Staff availability | Yes |
| Staff retention | Yes |
| Staff recruitment | Yes |
| Staff education | Yes |
| Staff development | Yes |

11. What Are Your Opportunities?

| New markets | Yes |
| New partnerships | Yes |
| New technologies | Yes |
| New services | Yes |
| New facilities | Yes |

12. How Do You Plan to Achieve These Goals?

| Increase patient throughput | Yes |
| Improve quality of care | Yes |
| Reduce costs | Yes |
| Increase revenue | Yes |
| Expand services | Yes |

13. What Are Your Concerns?

| Staff shortages | Yes |
| Financial constraints | Yes |
| Regulatory changes | Yes |
| Space constraints | Yes |
| Technology upgrades | Yes |

14. What Are Your Plans for the Next Three Months?

| New facilities | Yes |
| New technologies | Yes |
| New programs | Yes |
| New services | Yes |
| New partnerships | Yes |

15. What Are Your Priorities?

| Patient safety | Yes |
| Quality | Yes |
| Efficiency | Yes |
| Technology | Yes |
| Space | Yes |

16. What Are Your Challenges?

| Staff availability | Yes |
| Staff retention | Yes |
| Staff recruitment | Yes |
| Staff education | Yes |
| Staff development | Yes |

17. What Are Your Opportunities?

| New markets | Yes |
| New partnerships | Yes |
| New technologies | Yes |
| New services | Yes |
| New facilities | Yes |

18. How Do You Plan to Achieve These Goals?

| Increase patient throughput | Yes |
| Improve quality of care | Yes |
| Reduce costs | Yes |
| Increase revenue | Yes |
| Expand services | Yes |

19. What Are Your Concerns?

| Staff shortages | Yes |
| Financial constraints | Yes |
| Regulatory changes | Yes |
| Space constraints | Yes |
| Technology upgrades | Yes |

20. What Are Your Plans for the Next Three Months?

| New facilities | Yes |
| New technologies | Yes |
| New programs | Yes |
| New services | Yes |
| New partnerships | Yes |

21. What Are Your Priorities?

| Patient safety | Yes |
| Quality | Yes |
| Efficiency | Yes |
| Technology | Yes |
| Space | Yes |

22. What Are Your Challenges?

| Staff availability | Yes |
| Staff retention | Yes |
| Staff recruitment | Yes |
| Staff education | Yes |
| Staff development | Yes |

23. What Are Your Opportunities?

| New markets | Yes |
| New partnerships | Yes |
| New technologies | Yes |
| New services | Yes |
| New facilities | Yes |

24. How Do You Plan to Achieve These Goals?

| Increase patient throughput | Yes |
| Improve quality of care | Yes |
| Reduce costs | Yes |
| Increase revenue | Yes |
| Expand services | Yes |
The most important question these days is: what can we do to improve the quality of care while reducing costs? For us, the answer is clear. By combining trendsetting medical equipment with innovative IT we will increase the efficiency of clinical processes.

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Proven Outcomes.

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