

EUROPEAN HOSPITAL

THE EUROPEAN FORUM FOR THOSE IN THE BUSINESS OF MAKING HEALTHCARE WORK

VOL 16 ISSUE 6/07

DECEMBER 2007

Season's Greetings



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Dear Readers

What a year 2007 has been in terms of medical developments and news, as well as our own partnerships and readership levels. Once again, we have been privileged to receive your contributions for our European Hospital issues, which have spread knowledge as well as enhanced interest in this and our other publications and our new inter-active website. All of these efforts serve healthcare providers and manufacturers alike and, ultimately, this sharing of knowledge disseminates to the most important people — the patients.

As a result of all our combined activities, EH has gone from strength to strength and we have enlarged our editorial and marketing teams internationally. In addition, as many of you know, we now even publish a Russian language edition of European Hospital.

And so, as 2007 draws to a close, we thank you and wish you all an excellent 2008 in all your health giving endeavours and roles, as well as for you all, personally.

Best wishes
The EH team

P.S. Not all of our journalists, contributors and representatives could be represented in the above images in time for our Christmas deadline. Nonetheless, they echo our thanks to you all.

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MEDICA 2007

A global festival of ingenuity

Germany — Once again MEDICA 2007 drew healthcare professionals — this year around 137,000 — to attend the congress and view the enormous number of medical products demonstrated by over 4,300 exhibitors.

Medica Media, the Telemedicine Trade Forum and Theme Park, offered practise-oriented events and workshops to support cross-national knowledge and technology transfer embracing current topics such as the electronic health card and medical data networks.

Compact medical devices were another focus of interest for point of care use. These included smaller, portable ultrasound machines and next generation home testing systems that feature Bluetooth interfaces and online connectivity — for example to transmit a patient's blood-glucose levels automatically to an electronic database.

Devices to actively integrate the health-conscious patient in relation to prevention as well as quicker treatment were also shown. By quickly and simply measuring body parameters

such as ECG or blood pressure and wirelessly transferring them to the treating physician, such units promise major advantages, especially for the long-distance surveillance of the chronically ill or for pain relief therapy.

The Medica Congress featured more than 150 seminars and lectures. Disease prevention, state-of-the-art diagnostics, emergency medicine and other important topics were discussed. At the 30th German Hospital Conference, which aimed to 'Shape the Future', 1,800 participants received perspectives from around 2,100 German clinics regarding tension between fee-per-case invoicing, increasingly fierce competition and the desire for the best possible treatment quality.

Next year Medica will celebrate its 40th year. It is already the world's biggest medical trade fair, yet ever-expands its space so that global ingenuity can be encountered first hand by healthcare specialists.



Fully adjustable electric intensive care beds

Hill-Rom's TotalCare adjustable electric hospital air beds were designed for the ease of use in intensive care units by providing special features that allow unrestrained access to tend patients.

By using button control on the FullChair patient position mechanism the position of immobile patients can be easily and frequently changed, even to an 'up-in-chair' position.

The optional SpO2RT module offers percussion and vibration therapies, as well as a continuous lateral rotation feature to aid in the prevention and treatment of pulmonary complications related to immobility.

In addition, to minimise the risk of decubitus ulcer development, all TotalCare beds have an enhanced pressure relieving surface.

Seen at this year's Medica...

Automated urinalysis systems



precise results, Roche reports. The fully automated analysis system Urisys 2400 has a colour touch screen for use in larger laboratories. In this device, up to 400 Combur test strips are held in a cartridge. 'The user-friendly handling and flexible software facilitate "walk-away" times of up to 20 minutes,' Roche points out.

Roche's product portfolio includes three systems for urinary diagnostics, all of which use the proven Combur test strips.

The test strip reader Urisys 1100 provides fast, standardised results and avoids errors with visual evaluation. Pathological results are clearly highlighted on the display and weekly calibration with a control test guarantees

The cobas u 411 analysis system connects to the laboratory data processing system. A semi-automated, optional barcode reader and sediment terminal support an efficient daily routine. A USB connection, with easy to use via a touch screen, facilitates secure archiving of data or the uploading of new software versions.

Digital X-ray unit with a wireless detector

Siemens Medical Solutions, which launched Ysio wi-D — its first digital X-ray unit equipped with a wireless detector — at Medica, said it combines all the advantages of digital X-ray imaging with the flexibility of an X-ray film cassette. The wireless detector can be removed from the examination



table and placed almost anywhere to perform examinations without the need to mobilise or reposition a patient, for example from a wheelchair.

The Ysio wi-D's overhead support, examination table and the Bucky wall unit were specially designed for digital X-ray imaging. Using a button the system can take up to 1,000 different positions, easily circumnavigating obstacles in an X-ray room. The system features pre-assigned organ programs and operators can quickly change settings on the colour touch screen display of the tube assembly, or on a remote control.

Siemens reports that the new system supplies excellent image quality; via WLAN, the data is transmitted to the diagnostic workstation, where it can be processed with DiamondViewPlus software to enhance and optimise image detail contrast and noise level.

Given its flexibility, short examination time and image quality the system should increase daily patient throughput considerably.

Bespoke operating theatres from Berchtold

Berchtold's inviting booth at Medica displayed its full range of equipment for operating theatres, and the company's special *Supersuite* concept also attracted considerable interest. The latter provides a special customer service combined with products. Each individual hospital surgical unit is analysed according to its particular workflow and, based on this, Berchtold's experts provide an individual operating theatre design with the necessary equipment, as well as project management and installation.

In terms of individual products, the firm's *Operon Positioning Solutions* division has become a main driver of ongoing growth with its range of application-focused surgical tables, all of which can be modified for specific surgical specialties. The latest model — *Operon D 750* — has an integrated, button-operated hydraulic drive for easy operation.

The company also presented a visual comparison of various operating theatre lighting technologies, showing the explicit differences between halogen lamps, discharge technology, LED lighting and the firm's BRITe technology.

At Medica, Eliseba Pacella, the company's Marketing Manager, noted: 'The run of visitors was immense and very international, and they were impressed that we have evolved into such a complete solution provider. In times of purchase rationalisation this marks a crucial competitive advantage.'



A new, multi-purpose interactive multimedia system

Currently used in pilot projects in the UK and the Netherlands, the new CareServant system from Philips, is an interactive multimedia system for use by hospital patients as well as staff.

Coming in two versions — touch screen or interactive TV with control unit — the single platform enables access to information, communication and entertainment services; so patients can watch television and videos, access the internet, listen to music, make phone calls or play games. They can also obtain information about the clinic, answer queries about their own condition, or simply request services or order a meal.



Hospital staff also can access the CareServant at the point of care, to check medical data or they can send messages to patients. An additional asset is that the system can be set to switch off at a set time, for example when used in children's wards.

For safe identification two options are available: a password or an RFID smartcard. Also, if a patient is relocated and identifies him or herself at the new location all the individual's patient data is immediately transferred without staff intervention.

Among added services: a link to the hospital's prepay or invoicing system.

Even more advanced



Introducing an instrument that goes beyond previous standards of performance: the Model 3320 osmometer. Numerous customer suggestions have helped produce a truly impressive, state-of-the-art solution for freezing-point measurement. Simplified architecture supports maintenance-free operation. Ergonomic design provides seamless test procedure workflow. A user-selected calibration routine optimizes instrument linearity and precision. Altogether, the Model 3320 delivers the kind of performance that laboratories have come to expect from Advanced Instruments.

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Quality NIV masks



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Non-invasive ventilation (NIV) is often chosen in cases of acute respiratory insufficiency, because modern respirators offer response times of milliseconds, so technical hurdles are overcome. Dräger pointed out that one problem remains: the ready availability of high-quality leak-proof ventilation masks.

At Medica 2007, the company presented their solution: ergonomically designed NIV ventilation masks with adjustable fixation for the full face. The ClassicStar and NovaStar offer maximum contact and high patient comfort. Leakages due to monitoring interruptions and PEEP losses despite mechanical compensation no longer compromise the efficiency of the therapy.

ClassicStar is a disposable mask with 6-point headgear. Nova-Star is semi-reusable; it could be used up to five times after disinfection.

A soft gel cushion and adjustable forehead support avoid decubitus on the nose bridge. Four magnetic clips secure the mask.

Both masks are suitable for pressure-supported spontaneous breathing and for controlled assisted ventilation. An optional anti-asphyxia valve ensures convenient access to room air in the event of reduced pressure as well as CO₂ elimination.

Precision cutting for knee and hip endoprosthetics



Komet Medical presented its range of high-quality *Evolution* sawblades. These are coated with gold-coloured titanium nitride to ensure precise, clean cuts without excessive contact pressure. They can also be reprocessed for further use.

Available for all commonly-used prostheses, the warp-resistant stainless steel instruments allow surgeons to cut and prepare bones precisely and almost without vibration, Komet pointed out.

Komet Medical has also launched a new *Blade Centre* online-service to provide medical specialists with a quick source of detailed information about the firm's vast range of blades as well as, for example, instrument compatibility with existing systems, simply by clicking on the required selection criteria. Orders or requests for a free sample can also be placed online.

Displaying innovative components, complex micro and nano technology, once again COMPAMED confirmed its reputation as the leading international trade fair for upstream suppliers to the medical products manufacturing sector. Under the banner 'High-tech for Medical Devices' more than 13,000 visitors flocked to halls 8a and 8b at the Düsseldorf trade fair centre to view products from 460 companies.

Among the highlights were innovative micro pumps that allow mixing of gas and liquids (Bartels Medizintechnik GmbH), and sensors and components (Aceos GmbH) for breath-by-



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breath O₂ and CO₂ measurements in neonates for early detection of lung or cardiovascular diseases.

Carl Zeiss Industrielle Messtechnik GmbH presented high-precision systems for quality assurance and functional control of miniaturised components. With

their flexible multi-sensors the models O-Inspect and F25 offer tactile and optical measurement of micro- and nano-sized components in one step, Zeiss explained.

Around 10% of exhibitors showed foil and film packaging for sterile products. For example, since

COMPAMED expands in space, exhibitors and visitors

August this year, Bischof + Klein GmbH & Co KG, a European full-service provider that emphasises the need to meet the highest hygiene requirements, said that it has performed all extrusion, printing and packaging steps under one clean room roof.

The focus for COMPAMED 2008, which will take place in tandem with MEDICA (19-21 November), will be on mobile telephony and PDA computers for the growing Ambient Living Systems (AAL) market. Micro systems offer sensory functions and their data transfer capabilities that may revolutionise healthcare delivery to patients living at home.

our family portrait



Offering optimal images, and unique strengths and characteristics, our family of computed radiography systems are our pride and joy. The multi-application CR 35-X is enhanced by its incredibly small footprint. The athlete of the family, our "do everything" CR 85-X, has a unique 10-cassette drop-and-go buffer to support the most demanding radiology departments. Its sibling, the compact but powerful CR 30-X tabletop, facilitates smaller facilities to go digital smoothly without any compromise on image quality. While the talented DX-S redefines CR, supporting the toughest examinations in the most challenging environments with DR-like image quality and cassette flexibility. Of course, with our MUSICA² latest generation smart imaging processing and the NX User Station image identification and control tool, all can integrate with your facility's PACS, RIS and HIS for an economical and effective transition to digital. So, whatever your facility size or need, we can offer the right CR system. It's a family commitment you can count on.

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Now, tell us more about your work, so that we can plan future publications with your needs in mind. Please put a cross in the relevant boxes.

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2. YOUR JOB

Director of administration Chief medical director Technical director

Chief of medical department/type _____

Medical practitioner/type _____

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3. HOW MANY BEDS DOES YOUR HOSPITAL PROVIDE

Up to 150 151-500 501-1000 more than 1000

None, (not a hospital/clinic)

4. WHAT SUBJECTS INTEREST YOU IN YOUR WORK?

Surgical innovations/surgical equipment Radiology, imaging/high tech advances

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Ambulance and rescue equipment Pharmaceutical news

Physiotherapy updates/equipment Speech therapy/aids

Nursing: new aids/techniques Laboratory equipment, refrigeration, etc.

Hospital furnishings: beds, lights, etc. Hospital clothing and protective wear

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ESPECIALLY FOR DOCTORS:

Please complete the above questions and we would like you to answer the following additional questions by ticking yes or no or filling in the lines as appropriate.

What is your speciality? _____

In which department do you work? _____

Are you head of the department? Yes No

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

How much influence do you have on purchasing decisions?

I can only present an opinion Yes No

I tell the purchasing department what we need Yes No

I can purchase from manufacturers directly Yes No

Do you consider that your equipment is out-dated Yes No

relatively modern Yes No

state-of-the-art Yes No

Do you use/buy second-hand equipment? Yes No

If so, what do you use of this kind? _____

Is your department linked to an internal computer network? Yes No

Is your department linked to an external computer network? Yes No

Is your department involved with telemedicine in the community? Yes No

Do you consider your department is under-staffed? Yes No

Are you given ample opportunities to up-date knowledge? Yes No

Do you attend congresses or similar meetings for your speciality? Yes No

This information will be used only in an analysis for European Hospital, Höherweg 287, 40231 Düsseldorf, Germany, and for the mailing out of future issues.

EH 5/07

NEWS

1st Russian EH competition winner

The prize: Champions League football plus a fitness check-up at medicos.AufSchalke

After **Dr Sergej Pavlov**, director of performance and cardio-diagnostics at the Moscow Science Centre for Sports Medicine, won our Readers Survey competition (4/07), he and a friend shared an unusual prize – three days in Gelsenkirchen, Germany, the home of the Premier League football team FC Schalke 04, and of the team's professional health and fitness partner, medicos.AufSchalke, a renowned sports medicine and rehabilitation clinic.

Their agenda included fitness and football with a two-day manager health check-up for Sergej, and watching the Champions' League game between FC Schalke 04 and Rosenborg Trondheim in Gelsenkirchen-Schalke.

'European Hospital's idea to offer Russian readers articles in their native language is great. So I participated in the reader survey to support this initiative. Of course, I'm delighted that I won,' said Sergej. For he is cardiologist and specialist in sports and internal medicine, who is responsible for the health of top Moscow athletes, what medicos.AufSchalke had to offer was of great interest. During his two-day health check-up he was assessed from head to toe: lung function, lactate values, thyroid function, musculoskeletal system and more. Based on the results, a personalised nutrition programme was compiled and a health-oriented fitness regime was devised.

Following all the strenuous exercises, Sergej used the medicos.AufSchalke regeneration facilities, which include



Sergej Pavlov, winner of our Readers Survey competition, with his trainer during health check-ups at Medicos.AufSchalke, and with Hans Oehl, spokesman of Medicos.AufSchalke

massage and sauna and use of the luxurious Courtyard of the Mariott Hotel.

With a staff of around 100 people, the Moscow institute provides in- and out-patient services, caring for top swimmers and gymnasts as well as the professional football teams Spartak Moscow, Dynamo Moscow and Lokomotiv Moscow. 'I was particularly keen to see the services the clinic offers because it is also used by the FC Schalke 04 Premier League football team. We, and above all Zurab Ordjonikidze, our managing director at the Moscow Science Centre for Sports Medicine, are always looking at ways to optimise our performance diagnostics,' he added.

Along with their medical professional interest, the Moscow and the Gelsenkirchen institutions share a passion for football. Watching the Champions League match from the comfort of the VIP lounge of Veltins-Arena, Sergej's rooting for the home team appeared to inspire FC Schalke 04 to thrash Rosenborg Trondheim 3:1.

Clinic details: www.medicos-aufschalke.de
www.mnpccsm.ru



At the Veltins Arena, before the Champions League match between FC Schalke 04 and Rosenborg Trondheim



At the stadium, from left: Meike Lerner, of European Hospital, Hans Oehl, spokesman of medicos.AufSchalke, Sergej Pavlov and our Russian Correspondent Sergey Bezrukov

Шальке - первоклассный футбол и отличная спортивная подготовка

EUROPEAN HOSPITAL представляет победителя опроса читателей во время пребывания в г.Гельзенкирхене

Сергей Павлов – это тот счастливчик, который стал победителем опроса читателей, опубликованного в 4-ом издании EUROPEAN HOSPITAL за 2007 год. Три спортивных дня провели господин Павлов и его коллега в городе Гельзенкирхене, Германия, в одной из известных спортивно-реабилитационных клиник „medicos.AufSchalke“. Апогеем пребывания стало посещение гостями футбольного матча Лиги европейский чемпионов между немецкой командой FC Schalke 04 и Rosenborg Trondheim из Норвегии, естественно в VIP-ложе футбольного стадиона Veltins-Arena в г. Гельзенкирхене.

«Я считаю, что идея EUROPEAN HOSPITAL публиковать для российских читателей статьи на русском языке, просто замечательна. Своим участием в опросе читателей и тем самым участием в лотерее я хотел главным образом поддержать данное начинание. А то, что при этом я стал победителем этого розыгрыша, доставляет мне особую радость» - говорит господин Павлов, руководящий отделением фитнес-диагностики Московского научно-практического центра спортивной медицины и в связи с этим интересующийся также с точки зрения профессионала работой своих коллег из клиники „medicos.AufSchalke“. Спортивный врач, кардиолог и терапевт, который в своей повседневной работе занимается обследованием ведущих спортсменов в Москве, сам был подвергнут двухдневному диагностическому обследованию с головы до ног на предмет определения состояния его здоровья и спортивной формы. В ходе этого

обследования проверялись функции лёгких, показатели лактации, функции поджелудочной железы и опорно-двигательного аппарата и по его результатам была составлена персональная программа питания и программа упражнений на тренажёрах. Предложение „medicos.AufSchalke“ по диагностике состояния здоровья и спортивной формы включает в себя, само собой разумеется, также и регенеративную часть в виде массажа и сауны, а пребывание в прилегающем к клинике отеле Courtyard by Mariott завершает программу отдыха.

«Мне очень интересно познакомиться с возможностями клиники, которая обслуживает игроков профессиональной футбольной команды FC Schalke 04. Так как, мы в нашем Московском научно-практическом центре, и прежде всего директор нашего центра Зураб Орджоникидзе, постоянно ищем пути оптимизации наших диагностических услуг» - объясняет господин Павлов. Центр располагает амбулаторным и стационарным отделениями, в которых трудятся около ста сотрудников, обслуживающих ведущих спортсменов таких видов спорта, как плавание, спортивная гимнастика, а также и спортсменов московских профессиональных футбольных команд, таких как Спартак, Динамо и Локомотив.

Оба института объединяет не только общие направления медицинской деятельности, но и страсть к футболу, так что пребывание на матче Лиги европейских чемпионов в VIP-ложе стадиона Veltins-Arena между командами FC Schalke 04 и Rosenborg Trondheim можно рассматривать как удавшийся прощальный вечер. При этом поддержка со стороны нашего победителя принесла успех команде FC Schalke 04, которая выиграла матч со счётом 3 : 1.

Дальнейшая информация: www.medicosaufschalke.de / www.mnpccsm.ru

Want a second opinion? Ask the computer

New mammography CAD software supports diagnosis



At RSNA 2007, Daniela Zimmermann of European Hospital spoke with Ram Balasubramanian (RB) (left), Carestream Health's CAD Business

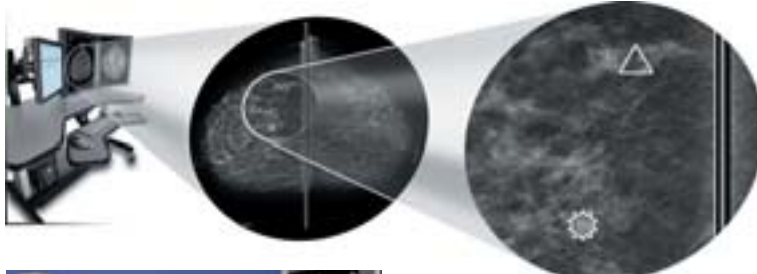
Manager for Europe, the Middle East and Africa, who presented the company's latest equipment designed for digital mammography.

The target customers for the Kodak Digital Mammography CAD System are mainly screening centres with a high daily patient flow, explained Ram Balasubramanian. Using the system they capture the images from their digital mammography systems. Soon, he added, they will be able to do this not only from the Kodak CR but also from other companies' FFDM systems. 'We've installed units in five countries since October, and have received only positive feedback. All units are implemented in combination with a separate computer to process the images with algorithms and generate a CAD report, which is then sent to the workstation. This report consists of a small file that provides information about where suspicious areas are located, the type of cancers detected and the position of those cancers. All this information can be matched with the images acquired, so the CAD mats overlay the images and show where the cancer could be. The

mammography CAD can detect densities, architectural distortion and clusters of micro calcification and give doctors a second chance to review those suspicious areas.'

DZ: *Could the CAD for mammography seduce a physician into relying on those results without examining the images themselves — is that a danger?*

RB: No, our system should be seen as a second opinion. The doctor



still goes through the read as normal the first time, but CAD offers the opportunity for a second read and therefore a chance for the doctor to return to suspicious areas. For example, if there is calcification, the CAD indicates where it is and the doctor can say: 'I have already seen it'. Or it might

Radiologists frequently have limited time when examining mammography images, especially under screening conditions. In addition to their training and experience, the computer can offer beneficial support in the detection of breast cancer, due to special Computer Aided Detection (CAD) software solutions

happen that the physician missed it, but has the opportunity to go back and double check.

Actually, studies showed that radiologists have a sensitivity between 60-80%, which means that between 40-20% of cancers will remain undetected. It's not because

radiologists are insufficiently trained, but because they have to read the images very quickly and some lesions are very subtly presented. CAD is a tool that supports the doctor; it does not deliver a diagnosis. Studies confirm that CAD could significantly increase sensitivity, even if there are two doctors reading the mammograms, by up to 20%.

Carestream Health is not the only firm to offer such a CAD solution. What makes your system different?

The radiologist often only looks at the CAD mats, but what makes the

difference is the performance and database. We have over 1,000 CR mammography systems installed around the world, so have had the opportunity to collect a lot of data for our CAD and we receive considerable feedback from our customers on how to improve our CAD algorithms. We also reinforce our team of image capture scientists with our CAD algorithm developers to create a fully integrated mammography CAD algorithm. The other advantage that Carestream Health can provide is our service and support, particularly in Europe, where we have a large and dedicated support organisation that smaller CAD vendors have difficulty matching.

Due to its apparently greater accuracy than digital mammography, MR Mammography is increasingly discussed. Is this a strong competitor against your solutions?

MR sensitivity seems to be higher, but X-ray is still the standard of care, primarily because of cost. So, in my opinion, MR will remain a follow-up examination and not replace X-ray, especially for screening.

Two mammograms on one screen

The first 15 megapixel DICOM display

The first 15 megapixels display, which enables radiologists to monitor two mammograms on one screen, was launched at RSNA 2007 by the Japanese firm Totoku.

The MS51i2 is based on a patent-pending ISD-technology (Independent Sub-pixel Driving) that produces an excellent depiction (without degradation) of an original image captured by the modality device. 'Currently, monitors can display images with a maximum of five megapixels, whereas the detectors of many vendors can theoretically show 67 million image pixels. So our 21.3 inch monochrome display is coming far closer to the possibilities that modern radiological equipment offers,' explained Dirk Cordt, General Manager Sales & Marketing, Totoku Europe GmbH.

While a pixel pitch of five megapixels displays is 165 µm, the new display achieves 55 µm in sub-pixel chain direction via the newly developed ISD technology. To display an overall image that has a resolution higher than the monitor can reproduce, the image is converted into a lower resolution image with a certain amount of data loss. A resolution of 15 megapixels offers an image reproduction without image degradation.

Until now, economies of scale have made development of such a display cost prohibitive. With the introduction of the MS51i2, Totoku said it now realises resolution levels of 15 MP as a breakthrough in softcopy diagnostic environment at a reasonable price.

Besides the new ISD technology, Totoku's display offers a new Special AR (Anti-Reflection) Coating that tackles properties of focus, noise reduction, contrast, and viewing angle achieving film-like black and accurate image reproduction. Common Anti-Glare (AG) coated displays causes focus loss due to diffused reflection and increased noise because of the diffused light that overlaps with the displayed images. Therefore, some displays used in diagnostic imaging require such finite depiction that radiologists prefer a non-AG coated display, thus sacrificing reflective benefits but gaining a crisper image. The special AR coating is a surface treatment that solves this problem, and provides imaging without compromises, Totoku pointed out. 'Of course it was necessary to adapt the software and make it suitable for 15 megapixels and already the first companies are aiming to do that. One well-known Japanese modality manufacturer is adapting its software to work with the 15 MP display,' Dirk Cordt added.

Totoku will commence production of the MS51i2 in January 2008.

Details: <http://www.totoku.com/display/>

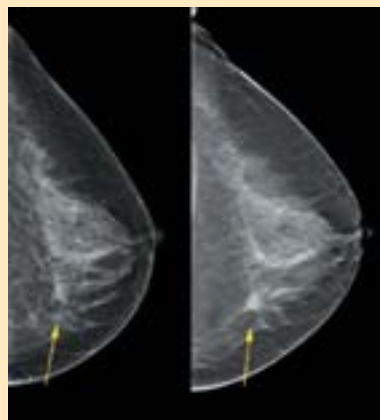
Digital mammography and tomosynthesis

It is hoped that a new technology, digital breast tomosynthesis or 3-D mammography, will overcome three drawbacks of traditional screening mammography: discomfort with breast compression, cancer concealed within overlapping tissue and the limited number of views.

All the major women's imaging companies are rushing to introduce breast tomosynthesis. Boston-based Hologic appears closest to going to market.

Two studies that used the Hologic technology were published recently. During the late breaking news event at the RSNA in November, Elizabeth Rafferty MD, Director of Breast Imaging at the Massachusetts General Hospital, Boston, and colleagues, reported on a reader study involving 12 radiologists who examined over 300 cases gathered from clinical sites in the USA and Europe. The researchers found that these radiologists demonstrated statistically significant better performance in reading cases with breast tomosynthesis combined with digital mammography than when using digital mammography alone. 'Across the spectrum of age and experience, every reader performed better,' Dr Rafferty noted.

The researchers estimated that digital breast tomosynthesis in conjunction with digital mammography can reduce the screening recall rate in a normal screening population by 40%. 'That's because tomosynthesis gives you the value of being able to correctly dismiss summation shadow or overlapping structures, more accurately characterise lesions and



A suspected cancer with microcalcifications is better appreciated in the tomosynthesis slice (right image) than on the digital mammography image

still see calcifications,' she explained, adding that breast tomosynthesis '... had far more impact than we even thought it would'. The modality will 'take away the guesswork', she said: an important claim considering that currently-used mammography can miss some 20-30% of breast tumours. In addition, there were highly significant improvements in radiologist performance when analysing masses.

In another breast tomosynthesis study using the Hologic technology, radiologist H J Teertstra and a team at the Netherlands Cancer Institute in Antoni van Leeuwenhoek Hospital (NKI-AVL), Amsterdam, examined women to see whether the method is suitable for detecting lesions that were not seen during screening programmes that used conventional analogue mammography (see interview with Dr Teertstra, European Hospital

'A combination of modalities is more effective in breast cancer detection'

Mammography Special, issue 4/2007). In the first 300 women examined, breast tomosynthesis detected cancer in two women that were missed with conventional digital mammography.

One major issue with 3-D imaging in general has been the belief that 3-D would bring with it an increase in radiation dose for the patient. Dr Rafferty's team found that two rounds of digital breast tomosynthesis from different angles actually generated a lower dose of radiation than a single round of digital mammography.

As for how long it will take for breast tomosynthesis to catch on with radiologists, Dr Rafferty said: 'That really comes down to comfort level [of the radiologist]. The fact that CAD has caught on so quickly really shows how radiologists are not confident at interpreting mammograms.'

Initially it is likely that breast tomosynthesis will be used as an adjunct to digital mammography. Dr Rafferty and colleagues, as well as Hologic, one of the manufacturers developing the new technology, believe that, if it is introduced in this way, radiologists will more easily accept the modality.

The results of these two studies strengthen Hologic's efforts to be first to market breast tomosynthesis and enhance the company's position that breast tomosynthesis, based on their selenium direct to

digital detector, offers a superior breast tomosynthesis system. Hologic is awaiting FDA approval of digital breast tomosynthesis and believes that this equipment could become clinically available as early as mid-2008.

In addition to work on breast tomosynthesis, Hologic showcased two new Selenia digital mammography options of considerable interest at the RSNA show – Selenia S and a tungsten X-ray tube Selenia system.

Selenia S, offered at a lower price point than the popular Selenia system, is optimised for screening mammography, satellite offices or mobile environments. Selenia S can be upgraded to include all diagnostic tools found on Selenia.

While radiation exposures in digital mammography are already very low relative to the patient benefit from early breast cancer detection, Hologic offers a tungsten X-ray tube with rhodium and silver filters Selenia system. The use of a tungsten X-ray tube enables dose reductions of around 30%, while maintaining the excellent image quality already achieved with Selenia, Hologic reports. 'The new system also offers superior performance for some of the advanced applications under development, such as digital breast tomosynthesis, iodinated contrast, and dual energy breast imaging.'

Increased general awareness of issues surrounding hormone replacement therapy, and the fact that Austria is currently the only country among the EU-15 without a comprehensive early screening programme for breast cancer, led Health Minister M Rauch-Kallat to have the parameters for comprehensive mammography screening examined. The immediate result of the study, carried out by the Austrian Federal Institute for Healthcare (ÖBIG), is a pilot project that will include mammography screening for 70,000 women, aged between 50 and 69 years, in two Vienna districts and in Vorarlberg. A second research programme is to target women with a genetic disposition for the disease, and a third programme targets women who have undergone hormone replacement therapy for long periods of time.

Around 4,500 women in Austria develop breast cancer annually; 1,600 die from the disease. The objective is to lower the mortality rate by a third through systematic screening programmes. Comparative figures from the EU-15: 220,000 cases of the disease with 75,000 deaths; 25,000 women who might have been saved through screening.

The EU commission, along with the WHO — among other things based on relevant experience gathered in Sweden and Finland — estimate a 30% reduction in the

breast cancer mortality rate if all member states introduce high quality mammography screening, including a second opinion for each case and follow-up examinations for conspicuous cases.

The authors of the ÖBIG report Mammography Screening Austria, published in 2004, state that a comprehensive national early screening programme can save 500 lives annually, but that the Austrian healthcare system currently does not have the appropriate, essential framework for a quality-supported screening programme based on EU guidelines (training, technological quality assurance, breast cancer register). The maximum costs (calculated without accounting for possible synergy effects regarding locations, technology and staffing) are estimated to be around €22 million annually.

Details: www.oebig.at
likarz@oebig.at

A private foundation for breast health

Founded in Vienna in 2002, the private, charitable Foundation for Breast Health, which is funded by sponsors, donations and the organisation of events and charity actions, has since been successfully working towards the

Austria Mammo-screening moves on

EH correspondent H-C Pruszinsky reports

following ambitious objectives:

- Saving lives through education about screening and promoting lifestyle changes.
- Promoting research projects aimed at improving the prevention, early detection and treatment of breast cancer, or those that work towards the psycho-oncological and psychosocial care for breast cancer patients and their families.

The Foundation's Board is made up of opinion leaders from medical, business and political fields in Austria. The Foundation currently supports the following projects:

1. Prevalence of pre-malignant and malignant lesions in prophylactic mastectomy specimens of BRCA1 carriers in a control group comparison

BRCA1 mutation carriers have a high risk of developing breast cancer (BC). Risk management may entail early radiological screening or a prophylactic mastectomy (PM). The operative treatment strategy involving PM compared with surveillance strategy could gain additional importance for the mutation carriers if the histologically examined mastectomy specimens show numerous pre-malignant and malignant changes despite radiologically unremarkable results. This is why the study retrospectively examined how the

histological specimens of the PM preparations of the BRCA1 carriers differed from those in the control group.

The study included 24 healthy mutation carriers and 28 BRCA-1 mutation carriers suffering from breast cancer who had undergone a bilateral prophylactic mastectomy (BPM) or a mastectomy of the contralateral breast (CPM) following unremarkable, pre-operative radiological findings. To compare the occurrence of premalignant and malignant lesions a control group was matched to the respective ages and states of the disease. The group comparison was carried out with t-Tests for dependent samples and the Wilcoxon Signed Ranks Test.

The entire group of mutation carriers differed significantly with regards to the occurrence of premalignant or malignant changes from the matched control group (42.3% vs. 5.8%; $p < .001$). The sub-group comparison of the healthy mutation carriers as well as the carriers who had already developed the disease compared with the members of the matched control group showed a significant difference in the occurrence of premalignant and malignant changes (45.8% vs. 0%; $p = .002$; 39.3% vs. 10.7%; $p = .03$). Carcinomas were detected in 5.8%

(3/52) of the mutation carriers and premalignant changes in 36.5% (19/52) of the PM specimens.

2. Early detection of breast cancer and ovarian cancer through the identification of new tumour markers via surface-enhanced laser desorption/ionisation (SELDI-) mass spectrometry

New methods for the early detection of breast and ovarian cancers need to be developed. The objective of this project is to find protein patterns that may facilitate the early detection of breast and ovarian cancer. Serum and tissue samples are analysed with the most up-to-date techniques: combined application of a solid-phase extraction of serum proteins and surface enhanced laser desorption/ionisation mass spectrometry (SELDI-MS).

The characterisation of the detected proteins could establish a new generation of tumour markers and contribute towards a better understanding of the pathogenesis of breast and ovarian cancer.

So far the researchers have gathered samples from 356 breast cancer patients and 81 mutation carriers. DNA and serum samples are also available for most of these patients, and with some patients it was possible to obtain tissue samples of the actual tumours. The researchers also set up a database which makes the processing of data and samples easier.

Details: www.brustgesundheit.at

Spain

About 50% of 40-70 year-old women have been screened, Dr Eduardo de la Sota reports



Randomised trials in Europe and the USA have shown the benefit of screening women ages 40-70 years.

Encouraged by the success of these trials, many Scandinavian countries now offer screening mammography to their populations as a public health service. These service screening programs have reduced breast cancer deaths as much as 63% among women who were screened. In the US, where 61.5% of women age 40 and older report having had a mammogram in the preceding year, death rates from breast cancer have been falling despite an increasing incidence of the disease. The American Cancer Society recommends that annual screening mammography begin no later than age 40 years, as Stephen Feig, at the Department of Radiology, University of California, points out.

In Germany, for example, S Diekmann has revealed data that suggests the early detection of breast cancer by mammography screening can reduce mortality by about 25%. Intensified monitoring of women with a family history of breast cancer and regular general screening have recently been introduced in Germany. The screening programme is expected to be fully established by 2008. Following its successful introduction (participation rates between 65 and 80%), the German screening program will be conducted and evaluated in accordance with the European

guidelines.

Interesting conclusions concerning Mammography use in Spain arise from the Agencia de Evaluación de Tecnologías Sanitarias (Health Technology Assessment Agency), Instituto de Salud Carlos III (Institute of Health Carlos III), Madrid, Spain. They conducted a cross-sectional population survey of a representative sample of women aged 40-70 (2,409 women).

Data collection took place using a questionnaire addressing the dependent variable (mammography use) and the independent variables (socio-demographic and socio-health factors, and women's knowledge and attitudes). Mammography use was defined as having received at least one screening test in the previous two years.

In conclusion, after the introduction of screening programmes, almost half of Spanish women aged 40-70 had received mammography. Invitation to screening, visit to a gynaecologist and women's attitudes are the main reasons for undergoing tests. Women over 65 years of age and/or those in a lower socio-economic level warrant special attention.

In Spain, most of the screening programmes using mammography begin at age 50, but some communities, like Navarra and Valencia, are starting at the age of 45. The programmes include women up to 70.



United Kingdom

Text messages remind women about appointments. Brenda Marsh reports on the country's flourishing and expanding breast screening programme



The use of telecommunications by the National Health Service (NHS) continues, and another small development is set to improve the breast screening service.

Because 82% of the UK's adult population own a mobile phone, and text messaging has been proved to be an effective way of communicating with patients, the Tower Hamlets Primary Care Trust, London, has partnered with iPLATO, which specialises in mobile health promotion. Under the scheme, supported by the Public Health Team, twenty general practitioner (GP) surgeries will use the iPLATO patient care messaging system to send text messages that will remind patients in good time about their breast screening appointments. 'We have chosen to test whether text messaging can help promote breast screening and the iPLATO platform has demonstrated success in other areas of public health,' explained Ian Basnett, director of the Public Health Team.

If women want to use this free reminder service all they need do

is give their mobile phone numbers to their GP's surgery.

The NHS Breast Screening Programme was set up by the Department of Health in 1988 in response to the recommendations in a Breast Cancer Screening report published in 1986. This British programme became the first of its kind worldwide to invite women for screening. Progress by date:

● **1991** – A report by the Department of Health Advisory Committee suggested that the programme would save 1,250 lives annually by 2010.

● **Mid-90s** — National breast screening coverage was achieved.

● **1995** – The programme was commended as a 'model service' in the Health Select Committee's third report into breast cancer services.

● **2000** – Research proved that the screening programme had lowered mortality rates from breast cancer in the 55-69 age group.

● **2000** – The publication of *The NHS Cancer Plan* in 2000, led to expansion of the NHS Breast Screening Programme, to include

women up to and including those aged 70.

● **2006** – Up to March of this year, figures showed that 75.9% of women aged 53-64 resident in England had been screened at least once in the previous three years.

● **2005-2006** — More cancers were detected in this period than in any previous year, 13% more than in 2004-05, 62% above those of 2000-01 and 143% more than a decade ago. Over 13,500 cases of cancer were diagnosed in women screened aged 45 and over, of which 8,824 were diagnosed in the target age group, 50-64.

● **2007** – In September, a new Cancer Reform Strategy has proposed that, to improve cancer care, there will be increased access, reducing waiting times and expanded screening for breast and bowel cancer. Appointments with specialists will be guaranteed within two weeks of referral for all patients with breast problems and not only those with suspected cancer. In addition, the 62-day referral-to-treatment guarantee is to be expanded, enabling hospital specialists and screening centres to 'fast track' patients. The age range of women eligible for breast screening will, over time, be increased to ages 47 to 73. An additional 200,000 women will be screened annually.

To date the UK breast screening programme has screened over 19 million women and detected c. 117,000 cancers. The latest research shows that the NHS Breast Screening Programme now saves some 1,400 lives annually in England alone.

The NHS Breast Screening

France

'Are government screening targets achievable?' asks *EH* correspondent Jane McDougall

Launched in January 2004, France's nationwide breast cancer screening programme aims to provide, by 2010, a mammogram every two years for at least 80% of women aged between 50 and 74. However, according to the latest figures from the health watchdog InVS (l'Institut de Veille Sanitaire) now 49.3% of the targeted population has been screened. While representing a significant achievement, and a steady increase over the past four years (33% in 2003, 40% in 2004, 45% in 2005 and 49% in 2006) it is still short of the figure required to have significant health benefit. Independent surveys have shown that, to reduce breast cancer mortality by 20-30%, at least 70% of the healthy population over 50 years of age needs to be screened.

The government believes strongly in this initiative and the possible reasons for low response have been carefully analysed. A qualitative survey carried out in eight different towns interviewed 70 women in the target group. Some women had never had mammography because they were scared; their attitude is fatalistic, it is better not to know because nothing can be done. This comes from their misconceptions of breast cancer and its treatment. A second group considered that state-organised screening is for 'other people', the masses, and of lesser quality because it's free. This latter attitude explains why nearly 70% of women questioned say they have had a

mammogram in the past year but the national screening programme averages less than 50%.

Marked differences are seen between regions. Each local authority is responsible for the implementation of the screening programme in their department. Brittany, a generally rural region, has over 60% uptake compared with Paris, which has the lowest at 26.8%. We made some enquiries in the Parisian area. In a handful of women (aged 65-70) we discovered an unawareness of the national

screening programme and no information provided by GPs. Even if they had asked for a preventative mammogram this was given privately.

Doctor Michèle Vincenti, a regional director of the programme in Seine-Saint-Denis (NE Paris), explained that one problem in France is in the culture of the medical profession, which is reluctant to suggest organised screening as they feel, unwarrantedly, that they lose control of the patient's care. In this

department, which has been involved in pilot programmes since 1989, there is a highly structured campaign of communication with nearly 90% of registered radiologists involved in the programme. They are concentrating communication via women's associations and health groups rather than the medical profession.

A cross-sectional questionnaire-based study carried out in seven departments in 2005 appears to add weight to Dr Vincenti's claim. Of the women who underwent a private mammogram, 57% suggested that this alternative to the national screening programme was advised by their doctors.

In 2006 the National Cancer

Institute (INCa) launched a nationwide, televised campaign emphasising the benefits of the screening programme, especially the high standards demanded by EU guidelines and the important double-reading of all mammograms. The Health Authority (CPAM) backed this up with a newsletter to all general practitioners (GPs) reminding them of the key role they play in influencing their patients' choice. A spokesperson from the InVS said 'uptake rates improved between 2005 and 2006 as more departments entered the national screening programme and we expect to see this trend continuing in the figures for 2007, but it is still too early to say when we will obtain the target.'

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Programme is nationally coordinated. It sets national standards that are monitored through a national quality assurance network. England has a national co-ordination office in Sheffield and an advisory committee that oversees the programme and reports to government ministers.

The service provides free breast screening every three years for all women aged 50 and over. Today around one-and-a-half million women are screened in this country annually. Women aged 50-70 years are now routinely invited. As this is a rotating service between GP practices, not all women are invited as soon as they become 50-year-olds. However, the first invitation is received before aged 53. (Women under 50 are not usually invited for routine screening, because mammograms are not as effective in pre-menopausal women, due to breast density. However, those at risk, or those concerned about a specific breast problem can request NHS screening).

Today, the UK has about 80 breast screening units, each inviting a defined population of eligible women (aged 50 to 70) through their GP practices. Women are invited to a specialised screening unit, which can be hospital based, in a mobile unit, or permanently based in another convenient location, e.g. a shopping centre.

Two views of the breast are obtained - craniocaudal (from top) and mediolateral (into the armpit diagonally across the breast). According to research, this increases small cancer detection rates by up to 43%.

In England, the budget for the breast screening programme is now estimated to be £75 million — about £37.50 per woman invited, or £45.50 per woman screened.

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SECTRA

A NEW DIMENSION

STEREOSCOPIC DIGITAL MAMMOGRAPHY

Stereoscopic digital mammography, a new diagnostic technique capable of producing three-dimensional (3-D) in-depth views of breast tissue, could significantly reduce the number of women who are recalled for additional tests following routine screening mammography.

Results of a clinical trial being conducted at Emory University Breast Clinic, in Atlanta, were presented at the annual meeting of the *Radiological Society of North America* (RSNA).

'Standard mammography is one of the most difficult radiographic exams to interpret,' said David J Getty PhD, division scientist at BBN Technologies of Cambridge, Mass. 'In a two-dimensional image of the breast, subtle lesions may be masked by underlying or overlying normal tissue and thus be missed, and normal tissue scattered at different depths can align to mimic a lesion, leading to false-positive detections.'

Stereoscopic digital mammography consists of two digital X-ray images of the breast acquired from two different points of view separated by about eight degrees. When the images are viewed on a stereo display workstation, the radiologist can see the internal structure of the breast in 3-D. In the ongoing clinical trial, researchers use a full-field digital mammography unit modified to take stereo pairs of images. The workstation enables the mammographer to fuse the stereo image pair and to view the breast in depth. 'Stereo viewing is the only way to see the structure within the breast volume in true depth,' said Dr Getty, who has worked on the development of this technology for the last 12 years.

As of July 2007, 1,093 patients at elevated risk for developing breast

cancer were enrolled in the trial. Each patient received a full-field, standard digital mammography screening examination and a full-field, stereoscopic digital exam, which were then read independently by different radiologists.

A total of 259 suspicious findings were detected by the

combined mammography procedures and referred for additional diagnostic testing, including biopsy when indicated. Of those, 109 were determined to be true lesions. Standard mammography missed 40 of the 109 lesions while the stereoscopic exam failed to detect 24.

'Our early results suggest that

stereo digital mammography could contribute to the earlier detection of cancer,' Dr Getty pointed out. 'A small percentage of the additional lesions missed by standard mammography but detected by stereoscopic mammography will turn out to be cancerous.'

Of the 259 findings, 150 were false positives, meaning further testing revealed that no abnormality was present. Standard mammography yielded 103 false positives; stereo mammography yielded 53.

'In our study, stereo digital mammography reduced false positives by 49 percent,' said Dr Getty. 'This could have a

significant impact by halving the number of women who are needlessly recalled for additional diagnostic work-ups, resulting in a large savings in cost and patient anxiety.'

By the end of the clinical trial this December, 1,500 women at elevated risk of developing breast cancer will have received both the stereo and standard digital mammography screening examinations.

Offering wide-scale stereoscopic digital mammography would entail minor changes to digital mammography equipment and software, Dr Getty added.

Source: RSNA

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seca GmbH has launched its newly designed website. Customers can now select a country to gain information in their own language (wherever possible), and then view three product categories – medical, specialist and private, each containing information already available in seca's printed catalogue. Downloadable user manuals and product specifications are also available.

Also, along with clear photographs that show major features of the products, about 10 are shown in use in short videos.

The website includes a search tool and, under Technical Support, local phone numbers are listed for immediate assistance, and there are e-mail forms for contact with local sales and customer support services.

The password-protected pages for seca's partners and dealers are to provide standard information as well as technical and marketing materials necessary to implement seca's sales in their areas.

MR SPECTROSCOPY

High specificity and sensitivity in the identification of breast cancer

USA - MRI is playing an increasingly important role in breast cancer screening in the US, especially in the screening of high risk patients. It has proven to be more sensitive than mammography examinations, but is less accurate in the differentiation between benign and malignant lesions. Doctors still recommend breast biopsy procedures of suspicious MRI findings. As a recent study from scientists at the Memorial

Sloan-Kettering Cancer Centre, New York, USA, shows, MR spectroscopy is a safe and efficient method for the identification of breast neoplasms, that has potential to significantly reduce the need of MRI guided breast biopsies in the future.

'With MRI we scan a part of the body and generate an image that can be used for the diagnosis of malignant lesions. MR spectroscopy scans a part of the

body as well, but it generates a graph that gives information about the biochemical composition of the area we are examining,' explained Lia Bartella MD, director of breast imaging at Eastside Diagnostic Imaging in New York City. Dr Bartella and colleagues most recently examined 32 cases of non-mass enhancing breast lesions in women aged 20-63, using proton magnetic resonance spectroscopy

(*Radiology* 10/2007).

'Proton magnetic resonance spectroscopy (H MRS) can be performed on a clinical MRT with at least 1.5T. It adds only 10 minutes to a standard MR examination and spectroscopy sequences, for scanning, are commercially available as is the software for off-line data processing. In the study we used a breast coil and noninvasively measured the levels of choline



Lia Bartella MD, Director of Breast Imaging at Eastside Diagnostic Imaging, New York City

compounds. Tumours showing elevated choline levels are likely to be malignant,' Dr Bartella added.

The team found positive choline findings in 15 of 32 lesions, of which 12 lesions finally were proven to be malignant. H MRS had a high specificity of 85% and a sensitivity of 100%, which means a reasonable number of breast-biopsies could become unnecessary.

'MRI guided needle biopsy is a pretty safe procedure as, unlike with other tumours, there is no spread of tumour possible. But 80% of all breast lesions biopsied are found to be benign. During our research we found that MR spectroscopy in our group of patients (*Radiology* 06/2006) could have spared 57% of these biopsies, while missing none of the cancers.'

Although MR spectroscopy is already in clinical use to diagnose brain and prostate tumours, it is not used clinically for examining the breast at the moment. Dr Bartella hopes, that in the future, this examination may be able to eliminate many expensive biopsies for indeterminate lesions found during a breast MRI examination.

'MR spectroscopy of the breast is still a research tool, but it may become part of the standard breast MRI examination. It may also be used to monitor and predict the response to neo-adjuvant chemotherapy in the future. But to achieve this, the MR spectroscopy needs to be advanced technically,' Dr Bartella concluded.

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NEW

Sweden – Sectra, which develops IT systems and products for radiology, mammography and orthopaedic surgery, has announced an agreement with Swedish research firm Synthetic MR AB, developer of analysis and imaging methods for synthetic magnetic resonance, for its new software-based technology to be offered as a clinical application in Sectra's PACS for radiology.

'We are highly impressed by the efficiency enhancement in magnetic resonance examinations that may potentially be achieved with Synthetic MR's software,' said Torbjörn Kronander, President of Sectra Imtec AB. 'It provides time-savings for patients, hospital personnel and technicians as well as facilitating and improving the analysis of MR images.'

The annual RSNA meeting is a harbinger of trends in diagnostic imaging. RSNA 2006 was a banner year for breast imaging. The formal presentation of the results of the Digital Mammographic Imaging Screening Trial (DMIST), a five-year long project with almost 50,000 participants, to evaluate in clinical trial the effectiveness of digital mammography, compared with traditional analogue film mammography, stimulated new interest and a higher awareness that a mix of diagnostic imaging technology used on an individualised basis, could identify breast cancer earlier.

It also generated sales. Over the past 12 months, sales of digital mammography systems soared, with about 25% of US medical centres that offer mammography adding units or converted entirely to digital. The fact that digital mammography can provide better breast cancer detection in a select population subgroup was widely publicised in both the consumer and medical press, leading to greater awareness by patients and their doctors. The publicity increased demand for digital mammography in the US, whether patients are better served by it — or not.

At RSNA 2007, breast imaging was the topic of the prestigious Annual Oration in Diagnostic Imaging. Dr Lawrence W Bassett, distinguished pro-

fessor of Radiology, Dr Christiane Kuhl, and colleagues, received an excellence award for this clinical study at the American Society of Clinical Oncology's conference.

According to Debbie Thomas, a vice president of Aurora Systems, a Massachusetts-based manufacturer of a fully integrated, dedicated breast MRI imaging and biopsy system: '2007 has been a breakout year for breast MRI.' She reports that Aurora's sales soared in the past 12 months, with its systems now installed in over 30 locations throughout the US, Europe, and Asia. In 2007, Aurora opened offices in Taiwan to facilitate sales demand in Asia.

In August 2007, Paramed Medical Systems, headquartered in Genoa, began introducing Aurora's mobile systems in Northern Italy, where lack of equipment is creating patient waiting times of up to six months. Dr Massimo Calabrese, radiologist at the University Hospital San Martino, Genoa, reported that a three week use of a mobile breast MRI mitigated its long MRI waiting list.

Major international vendor representatives at the RSNA this year reported unofficially that interest in breast MRI has been very strong among their customers. Attendance at all scientific sessions on breast MRI

The 'buzz' about breast MRI

fessor of breast imaging at the University of California — Los Angeles' School of Medicine, discussed the challenges breast imaging has faced over the past 40 years, as well as advances and utilisation trends of the technologies of breast ultrasound, digital mammography, breast MR and interventional procedures that have made this a high tech field.

Basset noted that almost half of all age appropriate women in the USA receive annual mammograms, and referenced a survey that claimed 75% of practices in the US offer breast MRI.

Using breast MRI for screening of high risk women generated significant interest in 2007. In March, the American Cancer Society issued new guidelines for breast screening as an adjunct to mammography. An international panel of experts from Canada, the Netherlands, the United Kingdom, and the USA recommended that women with a lifetime risk of breast cancer of 20% or greater, and women exposed to chest radiation between the ages of 10 and 30, qualify as high risk individuals. The ACS recommended that both mammography and MRI be initiated at age 30 on an annual basis.

The new ACS guidelines supported recommendations made in October 2006 by London's National Institute for Health and Clinical Excellence (NICE) and the National Collaborating Centre for Primary Care. NICE recommended that MRI screening be routinely offered to high risk women. Andrew Dillon, NICE Chief Executive, stated that the combination of MRI and mammography was especially valuable to young women with the BRCA1 gene.

A University of Bonn study published in The Lancet (8/11/07) announcing that breast MRI identified 92% of ductal carcinoma in situ, compared with a 56% detection rate for mammography, received widespread international clinical and consumer press attention.

'Just talk or actual implementation?' asks Cynthia E Keen, reporting from the RSNA

topics were filled to capacity.

Breast MRI may be the 'buzz' word at this year's RSNA, but the question remains, can governments and private

insurers afford to pay for these screening examinations? And, how can an insufficient number of breast MRI specialists read a significantly increased volume?

A breast MRI in the US can cost \$1,000-\$1,500, ten times the typical cost of a mammogram. In this country, among a population of 86.3 million women over the age of 30, 1.82 million are at high risk. If all were to have MRI screening, the annual cost would be around \$1.4 billion.

As yet, no US statistics are available to determine the extent to which MRI screening is being adopted. Publicly available Medicare statistics have not yet been issued for 2007, and because this represents a population over age 65, it will not be a good measurement for estimation. US health insurance companies are the best source, but they are not required and typically do not disclose reimbursement submission information. Spokespersons for both the American College of Radiology and the American Cancer Society are unaware of any initiative currently being undertaken to determine utilisation.

No reports have yet been published about workload overload caused by an increase in MRI screening on breast MRI specialists. Confirma Inc, a developer of application specific computer-assisted detection (CAD) software for MRI, has a product designed to automate analysis, reporting and interventional planning of studies. According to Wayne Wager, the firm's president and CEO, its software 'enhances the quality, standardisation and efficiency of breast MRI studies' as well as helping to increase the productivity of radiologists interpreting these examinations.

Tabletop imager produces hard copy

At the RSNA fair, Agfa HealthCare introduced the DRYSTAR AXYS tabletop imager, a compact hardcopy system designed to fit a full range of applications including mammography, CT, MRI and CR, as well as direct radiography (DR). 'The solution is currently the only tabletop dry hardcopy printer on the market that meets the stringent mammography requirements of the US market,' Agfa reports.

Being compact, this multi-application system, which incorporates Agfa's Direct Digital Imager (DDI) technology, can be installed in space-restricted areas, to produce mammography-quality images with 508 dpi image resolution, very short access time

and full flexibility with two film sizes on-line, Agfa points out.

The award-winning Direct Digital Imaging (DDI) software, which includes A#Sharp technology, controls every pixel in an image for excellent and consistent image quality, Agfa adds, resulting in enhanced imaging capability, for sharper image quality across all applications.

Input trays can be loaded with media in daylight without concern for ambient light. Two fully flexible input trays accept five media sizes and three film types (blue-clear-mammography). The compact design means that it can be installed in space-restricted environments or, using an optional mobile mounting kit,



in mobile vans.

The DRYSTAR AXYS has already been installed, at the 414-bed acute care Ev. Jung-Stilling-Krankenhaus in Siegen, Germany, since early September, where it is being used for mammography. 'The system reliably prints excellent, premium quality breast images, which is indispensable in discerning small and subtle structures of the mamma,' said Dr Dieter Hebborn, intern at the Radiology Centre.

Philips: MammoTrak – a new dedicated solution for MR mammography



Guido Stomp, Business Line Director of MR, Philips Medical Systems

At RSNA 2007, European Hospital visited Philips Medical Systems which presented their latest equipment for magnetic resonance mammography. Daniela Zimmermann, of European Hospital, spoke with Guido Stomp, Philips' Business Line Director of MR, about the company's new dedicated solution for breast imaging – the MammoTrak – which he describes as a dedicated breast imaging trolley

Guido Stomp: There is a shift in the US towards using MR for the detection of breast lesions. The American Cancer Society recommends MRI as a screening tool for high risk breast cancer patients, as an add-on to other modalities like X-ray mammography or ultrasound. It has a very high sensitivity and specificity, especially when it is used in conjunction with contrast agents. Most radiologists using breast MR are very satisfied with its efficacy and usability.

We do a lot of research in various areas. Currently we are focusing on making MR mammography simpler and more accurate. We received requests for breast solutions from hospitals worldwide, that's why we are launching MammoTrak which will become available some time next year.

You showcase the MammoTrak as one of the highlights at your booth. What exactly is it?

GS: We had breast coils and techniques for breast MRI before, but have now pulled all these components together. The MammoTrak is designed to screen a large number of patients with excellent image quality. Our solution is a dedicated coil on a trolley that enables the physician to position the patient in such a way that both the diagnosis and a breast biopsy, if required, can be performed. Most specialists



The MammoTrak for breast imaging – optimal patient comfort for optimal workflow

recommend MRI-guided needle biopsies on tumours of unknown distinction.

For women, these are always scary procedures. So we paid a lot of attention to the well-being of the patients and came up with a solution that minimizes a 'MR-tunnel experience': on the trolley the patient is comfortably positioned feet first and with her stomach on the mattress. This may sound trivial, but in MR patient handling is increasingly becoming a bottleneck. Radiology departments can lose five or 10 minutes if an anxious patient needs to be calmed down – that's why we looked at the details. MammoTrak can be used with several trolleys, which means one patient can be prepared while another one is being scanned.

This allows radiologists to diagnose as many patients as possible.

So, MammoTrak will optimise workflow?

GS: Yes, it is a dedicated breast imaging solution that enables radiology departments to increase their MRI throughput. The MammoTrak option also includes special analysis software that enhances the workflow even further. MammoTrak can raise efficiency and help reduce costs and it also allows waiting lists to be reduced more quickly. This is a particular objective of healthcare authorities in many countries, especially in the context of the rising demand for MR-procedures. The reaction on our work-in-progress system has been very positive.

The industry focus: MR-Mammography

MR mammography appears to have been proven as more accurate in terms of sensitivity, specificity and positive and negative predictive value in high-risk patients, and so the number of examinations increases continuously — particularly in the

and a proprietary shim produces large, homogeneous elliptical field of view, Aurora adds. In addition, it has an integrated, user friendly MRI-guided interventional system with specially designed needle guidance that can accommodate most core biopsies or vacuum-

channel coil array enables individual positioning of the coil for each patient; they can be moved medially and laterally, as well as posteriorly towards the axilla and chest wall, which leads to an increased image quality compared with traditional tabletop coils.

Due to an improved overall signal to noise ratio, image quality is reported to be clearer. In addition, a complete, open medial and lateral access to the breast allows interventions to all breast areas. Thanks to interventional grids that can be moved towards the axilla and chest wall, the system provides access to lesions in the inner upper and outer upper breast quadrants.

For patient comfort and to ease pressure points (e.g. diaphragm and sternum) Sentinelle has added adjustable padding made of visco-elastic foam.

Philips Medical Systems also displayed its latest developments for MR-mammography (see EH interview with Guido Stomp in this issue). Furthermore the company recently published an abstract that confirmed MRI as a promising modality for future breast cancer diagnosis. 'MR Mammography has evolved as a diagnostic adjunct for many aspects of breast imaging, but the area where it shows the most benefit is in high-risk patients. MR Mammography can be beneficial in terms of patient management and cost reduction for care, as it impacts treatment in nearly 50% of cases. While the benefits of MR mammography are clearly understood in terms of sensitivity, specificity, positive predictive value

and negative predictive value, exactly how these figures are affected by various combinations of risk factors is yet to be understood as is the impact of early diagnosis on morbidity and mortality.' (*Magnetic Resonance Mammography in High-risk Patients - Bernadette M. Kaufman - 1 October 2007*)

Top: Evaluation of patient with known invasive ductal carcinoma in the right breast. Aurora 1.5T Dedicated Breast MRI System reveals an additional occult cancer in the left breast

Below: Known Paget's disease of the left breast in nipple area. No mammographic abnormality identified. The Aurora 1.5T Dedicated Breast MRI showed ductal enhancement in upper medial left breast, revealing DCIS in both sites



The Aurora 1.5T Dedicated Breast MRI System with Bilateral 3-D SpiralRODEO is the only FDA cleared, dedicated and integrated MRI system designed specifically for breast imaging

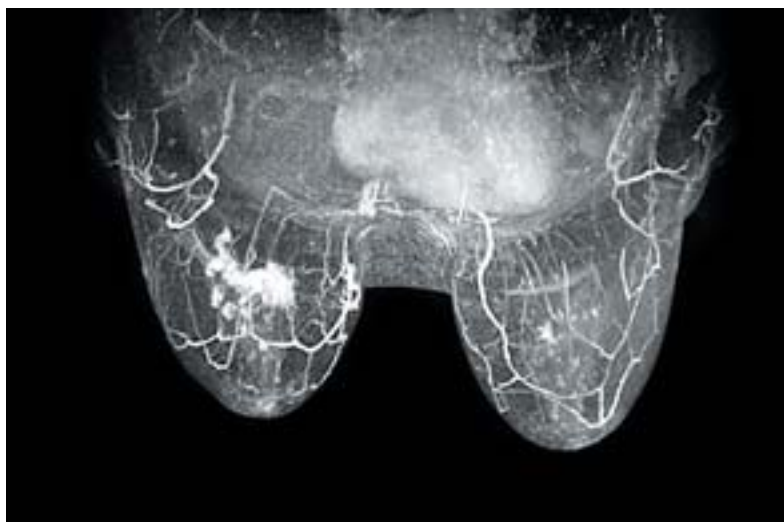
USA. Thus the demand for specific equipment & technologies, e.g. MR tables for mammography also continues. At RSNA 2007 several companies displayed such products.

Aurora Imaging Technology Inc. presented its Aurora 1.5T dedicated Breast MRI System, a fully-integrated MRI system designed specifically for 3-D bilateral breast imaging and intervention. The firm reports that it fully covers the breasts, chest wall and axillae in a single scan without any loss in image contrast or resolution. The magnet optimises breast imaging

assisted biopsy devices. The system operates with the company's AuroraCAD software.

A massage-type table, contoured for breast anatomy, minimises the risk of motion artefacts while a patient lies prone, with arms forward and down for more comfort. Another patient-friendly feature is the feet-first entry that minimises claustrophobia.

Sentinelle Medical showed its Vanguard Breast MR Auxiliary Table, which is combined with GE's MR-technology, (Siemens is in development). The table's eight-



Ultrasound technology may reduce breast biopsies



were classified as malignant, which was confirmed in 17 cases by a needle-guided biopsy. Of the 105 lesions predicted as benign, all were biopsy-proven benign. 'Elasticity imaging has a high specificity,' said the head of this study, Richard G. Barr, professor for radiology at the North-eastern Ohio University College of Medicine and Radiology at the Southwoods X-Ray and MRI, Ohio, USA. Prof. Barr hopes that the use of elasticity imaging will help to reduce the number of breast biopsies for many patients. The results of the Barr study are presently being validated in comprehensive studies in Europe and elsewhere in the United States.

Elasticity imaging illustrates the relative stiffness of tissue compared with its surroundings. As tissue undergoes pathologic changes, its relative stiffness will change. The stiffness of the tissue as well as its size compared to the B-mode image provides further insight into potential pathology.

eSie Touch Elasticity Imaging has been available on the Acuson Antares 5.0 ultrasound system premium edition since March this year.

eSie Touch Elasticity Imaging, a new method in ultrasound, demonstrated by Siemens Medical Solutions in March at the European Congress of Radiology, is an adjunct to regular breast ultrasound examinations, and may provide a clinically relevant differentiation of benign and malignant tissue. Several studies have shown promising results, and suggest the method could reduce the number of unnecessary breast biopsies.

The software for this diagnostic advance is offered with the 5.0 release of the Acuson Antares ultrasound system, premium edition.

Clinicians use the application to generate an elastogram, which provides additional information about mechanical properties, e.g. the stiffness of breast lesions. Siemens reports that the method offers a significant improvement in the acquisition of the data — in most cases, the heart beat and the breathing of the patient will provide a sufficient movement to generate the elastogram.

In one published study, 80 patients with a total of 123 suspicious lesions were examined. Using elasticity measurements from the eSie Touch Elasticity Imaging application, 18 lesions

MicroDose enters Belgium



The 310-bed St Trudo hospital, which serves the Zuidwest Limburg and south Vlaams-Brabant regions, has become the first in the country to order a Sactra MicroDose Mammography digital system from the IT and medical-technology firm Sactra.

About two million Belgian women undergo breast scans (both diagnostic and screening procedures) annually. With this order, the hospital will provide mammography examinations with the lowest radiation dose on the market, the company reports. 'The Belgian market for digital mammography is taking off and most hospitals are now digitising their mammography operations,' says Wim Schuur, Vice President Sales and Marketing of Sactra's medical operations in the Benelux region. 'At the same time, care quality awareness is increasing. We provide customers with systems that promote the development of safe digital mammography screening for women. Accordingly, we are well

positioned to take advantage of this growing market.'

The order also includes the firm's breast imaging PACS to process and archive patient data and images. This system will be integrated with the existing hospital image management system and, combined with the mammography system, form a complete digital solution.

'We chose Sactra MicroDose Mammography because we foresee throughput and ergonomic advantages but, most importantly, we will avoid exposing women to higher radiation levels than necessary. This will be of great benefit to women as well as our practice,' explained Dr S Verhamme, head of the hospital's radiology department, and breast radiologist Dr G Vandenberg.

Sactra MicroDose Mammography is based on unique detector technology that counts every X-ray photon — considered by many to be the X-ray technology of the future.

RSNA 2007

Like magicians, manufacturers vie to pull ever more surprising items out of the technology hat. **Guido Gebhardt** reports on the world's biggest gathering of radiologists and showcase for related equipment

Kalender's development of multi-slice-spiral CT that this technology was revived and the four big manufacturers began a 'slice-race'. The number of detector rows increased annually. The current benchmark is 320 slices, but as talks with numerous radiologists show, even they have lost track – with so many tube and detector technologies, rotation times and generator outputs.

Dear manufacturers stop this silly race and agree on the dose for a standardised examination with preset resolution. For example, tell radiologists how long a cardiac examination with an isotropic spatial resolution of 400 μm takes and which dose is applied. The best system is the system with the

largest diagnostic benefit and the most minimal patient dose.

A similar development to that of the slice-race is happening in display systems. Here the manufacturers are presenting monitors with resolutions of up to 16 megapixels. However, a

Visitor numbers were up 4% on those of 2006, when 62,000 people attended the RSNA

resolution of five megapixels is more than adequate for mammography. A 30 inch 16 megapixel display therefore allows simultaneous visualisation of two mammography images on the same screen. The annoying border between the images disappears. Some regret this because they prefer to position two monitors at a slightly blunt angle to one another to avoid reflections. Current display technology is more than sufficient for diagnostic requirements. What X-ray films could display has been more than outperformed by digital imaging.

The future focus will be on improvements in radiological, diagnostic workflow along with more comfortable design of working environments for radiologists who now spend far more time in front of screens than before.

C-arms

The real highlight in modalities was the angiography system manufactured by Siemens. A C-arm mounted on an industrial robot caused an enormous stir among RSNA visitors. Fascinated by their

own technological developments, the engineers demonstrated how the C-arm was able to stop with accuracy to the nearest millimetre whilst the robotic mechanics are working in the background. No projective direction is out of reach for modern system control. Moreover, the system moves the tube and flat detector with such speed into all spatial directions that it appears to be almost magic (perhaps the work of those Las Vegas magicians Siegfried and Roy and their white tiger is about to jump through the great C).

At the other end of the exhibition Medtronic also presented a C-arm, though of far smaller design. This mobile and compact system can take about 400 images of a patient during rotational movement and produce a multi-plane 3-D reconstruction in about 30 seconds, taking postoperative quality control to new dimensions.

IT/Telemedicine and globalisation

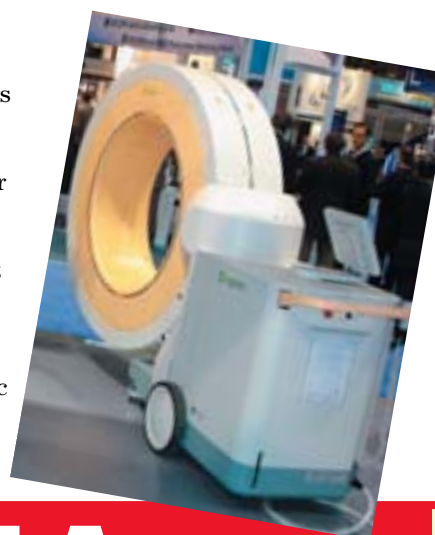
Philips presented the *Reading Room 20/20*, where future radiologists would be able to analyse diagnostic images of

USA - At the 93rd Congress of the North American radiologists (RSNA – Radiological Society of North America) in Chicago this November, it was ever clearer that new technologies are driving imaging to unseen levels, which in turn has led to significant scientific discoveries in diagnostics and intervention.

This year's spotlight focused sharply on computed tomography.

The madcap slice race

In the early 1990s computed tomography (CT) was on the brink of collapse. It was not until Willi



The Aquilion ONE 320-slice CT

As expected, Toshiba unveiled its new CT-scanner. However, instead of the long awaited 256-slice technology, the company threw down the gauntlet to its competitors by introducing the Aquilion ONE 320-slice CT.

Toshiba describes this system as a dynamic volume CT scanner that can capture a large volume of data, 16 cm, per gantry rotation, which allows it to visualise the entire brain or heart in



just one rotation, obviating the need splice images together from multiple passes. The fast rotation speed, 0.35s, means a significant reduction in motion artefacts, a problem in certain patient groups e.g. paediatrics. These improvements contribute to greater patient safety, the shortened scanning time reduces the amount of contrast medium used and exposure to radiation is lower, Toshiba pointed out.

The volume data acquired for the heart in one rotation does not require helical scanning; this means the exposure is reduced by three-quarters compared with a conventional CT-scanner. Low exposure doses make repeated scanning of the same region possible, leading to dynamic volume imaging. These dynamic images are quite unique, 3-D images of joint movement, normal respiration and contrast medium flow to vital organs are now easily acquired and can be analysed in real time. This modal-

ity promises to lead to new and exciting diagnostic imaging techniques.

The Aquilion One, which secured 510(k) clearance in October, has already been installed in five facilities worldwide.

At Toshiba seminars, *The Realities of 256 CT*, leading international experts spoke of their experiences with this new technology. Focusing on dynamic volume imaging, Dr Patrik Rogalla of Humboldt University (Berlin, Germany) described how pathological changes in the pancreas, which are in complete agreement with post-operative pathology, now can be clearly visualised through the Aquilion One. With conventional CT-scans, this had been impossible. Dr Kieran J Murphy of Johns Hopkins Hospital (Baltimore, USA) explained how the introduction of the Aquilion One will lead to significant changes in the flow of diagnosis in CT examinations.

Philips' iCT



The 256-slice Brilliance iCT scanner, the Philips flagship product, was also on show at the RSNA, where the company spoke of its ability to produce high-quality images with exceptional acquisition speed, including complete coverage of the heart and brain. This system is so powerful that it can capture an image of the entire heart in just two

beats, while incorporating Philips technology that has reduced radiation doses by up to 80%, the company reports.

Brilliance iCT and a new 64-channel system both feature Philips Essence technology, which consists of new X-ray tubes, detectors and reconstruction design elements — technology to provide detailed, clear 3-D images of an entire organ, including the heart and brain, as well as the changes over time.

To share information, all images also can be accessed on any computer in a hospital or by colleagues and researchers remotely.

The scanners deliver key clinical insights for a wide range of applications in radiology and cardiology, while the enhanced visualisations will be valuable for doctors diagnosing and treating problems within the heart, Philips points out. 'The Brilliance iCT scanner is also designed to reduce patients' exposure to X-rays. The scan is much quicker, as the machine's X-ray emitting gantry – the giant ring-shaped part that surrounds the patient – can rotate four times in a single second, which is 22% faster than current systems.

In addition, five research projects highlighted by the company, one of which — Spectral CT imaging — aims to quantify the amount of calcium in tissues, such as calcified plaques and the ability to differentiate multiple contrast agents from anatomical structures in one-pass CT scans.

The company reports that, up to now, more than 30 CT systems with Essence technology have been shipped.

CT AT RSNA

Reviewed by
Meike Lerner

Adaptability: The one for all

With the new Somatom Definition AS (Adaptive Scanner), Siemens has developed a scanner that for the first time adapts to virtually any patient and clinical need, the firm reports.



The Somatom Definition AS is the first scanner to combine such dynamic components as the Adaptive Dose Shield with a scan field of up to 200 cm and the 78-cm gantry opening. This allows fast and problem-free head-to-foot scanning, even for poly-trauma patients. 'The unequalled high temporal resolution of up to 150 ms – combined with extremely fast coverage with up to 128 slices per rotation – makes crystal-clear images possible, free of movement artefacts, of even the finest anatomical details. This permits, for example, highly accurate measurement of stenosis and/or precise planning for stent implantation,' Siemens pointed out.

Another feature is the new Adaptive 4D-Spiral. The continuous movement of the patient table permits a larger area to be imaged, so that entire organs and their functions can be examined with a single scan. In a stroke situation, for example, the entire brain perfusion can be displayed. 'We hope we can diagnose

stroke earlier than before,' said Werner Bautz MD, Director of the Institute for Radiology and Medical Director at the University Hospital Erlangen.

Minimally invasive procedures will also become faster and more certain. Biopsies of suspicious tumour tissues can, for the first time, be performed with the help of 3-D image guidance.

GE Healthcare's Gemstone

Under the banner *HDCT technologies*, GE Healthcare showcased recent technical and clinical advances from a portfolio of CT technologies that the company intends to incorporate into its next generation CT scanners. 'HDCT technologies represent a dramatic departure from recent CT industry trends, but one that – at its core – is aligned with the real diagnostic goals that clinicians are demanding for their patients,' said Gene Saragnese, vice president of GE's CT business. 'We believe HDCT technologies are transformational and we're excited about the clinical possibilities that they may enable.'

Trying to solve the paradox of a step-function improvement in image clarity, while simultaneously reducing patient dose, require returning to the fundamentals behind spatial resolution, low contrast discrimination and dose efficiency.

GE engineers and scientists are working on completely revamping the entire CT imaging chain – from the X-ray tube through the detector and data acquisition system — even rewriting the way images are reconstructed for the first time since CT was invented.

Additionally, materials scientists are reformulating new CT detector material. This new scintillator material is, literally, a gem. Because of its unique optical properties it is based on the brilliant garnet gemstone (also, incidentally, once believed to have healing properties). When modified to enhance its X-ray-scintillating behaviour, the Gemstone CT detector is being designed to provide significant improve-



Whether this scenario allows better sleep for radiologists remains to be seen.

Many other valuable RSNA highlights were less obvious than some of the already mentioned, intriguing presentations.

Lifelong learning

The four-day BOOST programme (Bolstering Oncoradiologic and Oncoradiotherapeutic Skills for Tomorrow) was among the new courses. There was also a

comprehensive seminar on interventional oncology that ran through five afternoons, along with a concomitant Cardiac CT case study and one-day symposium on quality improvements in molecular imaging.

As every year, the Lakeside-Centre showcased a range of courses and seminars on clinical PET and PET/CT imaging in oncology, as well as sessions on the gastro-intestinal tract, musculoskeletal diagnostics, paediatric and neuroradiology. At two seminars on financing participants learned how to develop successful strategies for

property investments or the running of pension programmes.

One of the markers of the annual RSNA's success is the comprehensive choice of 1,765 scientific papers, 604 posters and 1,498 presentations on 16 radiological sub-topics. The entire palette offers a unique opportunity for lifelong learning, as well as making contacts with fellow professionals.

With a stronger than ever presence, the IHE initiative (Integrating the Healthcare Enterprise) held numerous demonstrations, courses and exhibitions on the integration of IT systems such as KIS, RIS and

PACS. These have achieved a high degree of technological maturity, with advantages from integration and communication capacities. After many years of a bias towards IT the ratio between modalities and software appears to be more like 1:1 now, although it is becoming difficult to ascertain where the PACS starts and the equipment stops.

Inevitably, this inspiring range of presentations and new products will continue at the European Congress of Radiologists (ECR) in March 2008.

And, next November, the 94th RSNA will open its doors to reveal more radiological marvels.

patients under ambient lighting, with IT user interface and design '... to create a collaborative environment that positions radiologists as the key diagnostic consultant at the centre of the disease management process,' Philips explained.

GE presented solutions to optimise radiological workflow.

Teleradiology applications based on video phones with wall projections of 2m x 5m that make it hard to distinguish whether a colleague – the one you are discussing a case with – is in the same building, country or even continent, will be at the centre of radiology in the future. The globalisation of radiology is on the move. The setting up of service centres across the globe – as in private industry where it is based on the knowledge that it is 'always daytime somewhere in the world' – is now an aspect radiology, numbering the days when emergency radiology service have to be provided to cover the night. Soon CT images of patients from night time accidents on a European road will be diagnosed in Asia, Australia or America.

ments to X-ray conversion speed and other properties required to support step-function improvements in spatial resolution. It is also being designed to enable advanced CT applications such as material decomposition and monochromatic imaging, which may revolutionise the diagnostic content from CT exams in the years.

Engineers are also finding a way to acquire helical dual energy data with improved temporal registration, using only a single source and detector. Utilising a prototype HDCT imaging chain, the kVp of the X-rays can be switched from 80 kVp to 140 kVp, and back, in less than a blink of an eye (< 1 msec). With HDCT technologies, GE engineers are demonstrating dkVp acquisitions with temporal registration approximately 150 times better than those obtained by current technologies, the company said.

In addition, through the introduction of projection-based dual energy data processing, GE developers have been recently reconstructing monochromatic CT images that show reduced beam-hardening artefacts, and subsequently more accurate CT numbers. This potentially fulfils truly quantitative CT examinations.

With a clinical eye toward potential support of multiple application dual energy helical studies, HDCT technologies' single source/detector approach naturally provides a full 50 cm scan field of view (SFOV) — twice as big as that currently available.

The clinical potential of dual energy CT may finally be unleashed by HDCT technologies' ability to natively support monochromatic whole body helical examinations. Potential clinical applications may include calcium/iodine separation, accurate auto-bone removal in 3-D assessments, material decomposition, and artefact-free images in areas previously rendered less diagnostic by beam-hardening, GE concluded.

Where's Parker's lab report?

Where's Parker's X ray?

Where's Parker, anyway?

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Hand-held Dopplers for venous assessment

Screening in primary care to detect and prevent potential vascular problems is becoming increasingly important, due to ageing populations — many with cardiovascular risk factors such as obesity and diabetes. For arterial and venous assessment, Huntleigh Healthcare produces hand-held ultrasonic Dopplers, the Dopplex range.



David Ward, Western European Sales Manager, Huntleigh with EH correspondent Jane MacDougall at Medica

With 20 years experience, Huntleigh has targeted community healthcare — and district nurses in particular — because that's where venous assessments take place. The company's Western European Marketing Director, Derek Ward, explained that, although preventive medicine is the ideal use for the Dopplex range the biggest area of application is for leg ulcers. Using the hand-held Doppler, measurement of ankle-brachial pressure index (ABPI) can indicate whether an ulcer is arterial or venous in origin. Also, as part of standard procedure, the Doppler is used on the other leg to assess potential risk. The range has also been helped by the United Kingdom's NICE guidelines that insist that, before a patient undergoes any type of compression treatment, either intermittent or bandages, a Doppler test must be carried out to assess the extent of circulatory damage.

Huntleigh has heeded the needs of healthcare workers, spending time to educate primary care workers, again particularly nurses. Seminars and practical workshops have been organised, sometimes in conjunction with a strategic partner such as Smith and Nephew, which supplies compression bandages, to raise awareness of the importance of the ankle-brachial index as an indicator of all cardiovascular risks. Though they show no symptoms, many people are affected by peripheral artery disease. These people are at a high risk of stroke and heart disease. The Dopplex low-cost audio-only range makes this type of community screening cost-effective and practical.

Higher up the range is the RD2, a bi-directional Doppler with photoplethysmography capacity. Based on the determination of the optical properties of a selected skin area, automatically calibrating for skin thickness and tone, emitted infrared light can determine the length of venous refilling, venous competence, whether insufficiency is superficial or deep, and screen for the absence of deep vein thrombosis (DVT) with a simple dorsiflexion test. This device is particularly designed for use in A&E departments, medical assessment units, GP practices, leg ulcer clinics and pre-anaesthetic assessment.

To facilitate use, the Dopplex range also comes as a series of kits. For diabetic foot assessment, the Dopplex DFK contains everything to fully assess neuropathy, ABPI and toe brachial pressure index, Derek Ward explained. The ABPI kit enables complete assessment of venous competence in physically normal or oedematous limbs. Varying cuff sizes enable the extent of obstruction to be traced. Finally, to assess peripheral arterial disease, there is the PAD kit.

All hand-held models come with a manual, stereo headphones and a gel-soft carry bag, which, with the probe, weigh about 300g.

Contact for details: darren.meilak@huntleigh-diagnostics.co.uk www.huntleigh-healthcare.co.uk



X-ray imaging

The first portable wireless digital solution

'The new Pixium Portable 3543 with integrated image pre-processing software is the first portable, wireless digital imaging solution in the world for X-ray examinations,' its manufacturer Thales Components & Subsystems.

The Pixium Portable detector features a low-power Wi-Fi connection. The lack of cables means that medical workers can work more closely with patients in any areas. 'It also provides the needed freedom to capture difficult or unusual X-ray projections. The Pixium Portable can even be used where Wi-Fi is unavailable, simply by using a cable connection,' Thales points out.

The large image (35 x 43 cm) produced supports all kinds of X-ray examinations. 'The detector is light, compact and easy to transport and handle. It is extremely robust, enabling it to support heavy weights, or even accidental drops. Image previews take less than three seconds, ensuring a quick, comfortable examination for patients and higher productivity for practitioners. It features the Pixium cesium-iodide scintillator, offering high X-ray absorption capacity, reducing exposure to the patient while ensuring high-quality images,' Thales adds.

The detector is also reported to be easy to integrate in radiography systems for digital or conventional X-ray rooms, as well as mobile units. Image pre-processing software handles image acquisition, calibration and formatting.

'This innovative system reflects the expertise in radiological imaging offered by Thales and its specialised subsidiary Trixell, a joint venture with Siemens and Philips. The technology employed by Trixell, based on cesium iodide scintillators coupled with an amorphous silicone photodiode array, has gradually become the global benchmark,' Thales points out.

Based in Vélizy, France, the company employs 68,000 people in 50 countries — 22,000 of them R&D engineers. Along with X-ray detectors, Thales also develops and manufactures equipment for use in defence, aerospace and security. Its forecast for 2007 revenues is in excess of €12 billion.

SURGERY

Who is Christian Kandlbauer?

By Christian Pruszinsky

Does the name of this 20-year-old Austrian mean anything to you? Probably not. However, he will make history in the world of European Neuroprosthetics. Christian Kandlbauer is the first European to have been fitted with a thought-controlled arm prosthesis. In 2005 he lost both arms in an electrical accident.

With his team, Professor Manfred Frey, Head of Plastic Surgery at the Vienna General Hospital, spent six hours implanting the thought-controlled arm prosthesis. In November 2007, the patient presented himself to the public, alongside his team of doctors.

'After my accident I was always dependent on other people's help in my daily life. Now I'll soon even be able to return to my old place of work,' Christian proclaimed confidently. He is the first patient outside the USA and only the third person worldwide to have undergone trials with a 'bionic' prosthesis.

Nerves activate sensors

The aim of the operation was to reroute intact parts of the nerve cords leading from his brain to his arms to certain muscles within his chest. Professor Frey and team localised chest muscles that corresponded with movements of the patient's left arm and fitted them with sensors to send signals to the prosthesis. Months of training followed, for his muscles needed to be powerful enough to send strong impulses to the sensors and have a sufficient growth of the nerves. Today, Christian can move the prosthesis with his thoughts.

Mass production in three or four years

'The prosthesis is a medical and technological sensation,' exclaimed Hans Dielt of Otto Bock Healthcare, Vienna. It presents enormous progress compared with conventional prostheses. As mentioned, the intelligent prosthesis can be con-



By focusing his thoughts, Christian Kandlbauer moves his prosthetic arm

trolled via nerves that were originally responsible for arm movements. Thus it can give the user seven degrees of freedom, i.e. seven active joints and many more possibilities for action. The user has more active joints at his disposal and at the same time can control them. Unlike conventional prostheses, with this one the user does not need to rethink his movements. The patient carries out his movements intuitively and the prosthesis then carries out these transmitted orders. The user interacts with his 'phantom' arm.

A complex operation involving a rerouting of the nerves is the prerequisite for this system. Through this selective nerve transfer the signals that were originally responsible for controlling arm movements can be used to control the prosthesis. The prosthesis shaft is fitted with electrodes that receive those control signals. Within the prosthesis, a complex electronic analysis procedure transmits the signals received and recognises the desired movement.

The Otto Bock Research Centre in Vienna is the only European institution involved in the *Revolutionising Prosthetics* project, which is run by DARPA (*Defense Advanced Research Projects Agency*) in the USA, which also involves teams at Johns Hopkins University and Northwestern University. The objective of the project is the development of arm prostheses with 22 degrees of freedom (movement).

SURGICAL SITE INFECTIONS

Surgeons urged to improve their methods to reduce risks to patients and high costs to hospitals. **Ian Mason** reports from Madrid



Surgical site infections (SSI) are now the major complication of surgery. 'We must improve outcomes,' urged **Professor Metin Cakmakci**, Medical Director and Chairman of Surgery, Anadolu Medical Centre, Istanbul, Turkey (above) and President-Elect of the Surgical Infection Society Europe. 'Hospital administrators have to be involved. Prevention of SSI must be led from the top down. The hospital leadership is responsible for patient safety,' he added. According to figures he presented around one in thirty surgical patients will suffer an SSI, although he believes the true figure could be double this, because many infections only become apparent after a patient has been discharged.

Prof. Cakmakci was speaking at the *European Symposium on Surgical Site Infection*, held in Madrid in association with the Surgical Infection Society Europe and supported by the surgical products manufacturer Ethicon. The symposium was attended by hospital managers, surgeons, hygienists, nurses, infection control staff and intensive care specialists from across Europe.

An important step to cut SSI is the correct use of antibiotics. Currently more than half of surgeons are failing to administer prophylactic antibiotics at the right time and to discontinue them promptly. 'Many surgeons are giving too much antibiotic therapy by continuing treatment for too long after surgery. Studies show that when administered, antibiotics should be given an hour prior to surgery and discontinued within 24 hours of the operation.'

Nosocomial infection following routine surgery has been shown to increase the average cost of a hospital stay by 2117 Euro in the UK. In many countries, soaring levels of MRSA infection have worsened the situation:

'Infection with *Staphylococcus Aureus*, increases the 90-day postoperative mortality rate more than 12-fold. There is a greater length of hospital stay and a median hospital cost for patients with MRSA of more than \$60,000 (40,443 Euro) higher than for uninfected control patients,' the professor added. 'SSIs are adverse events compromising patient safety — we should put them in the group of medical errors — the problem is a quality issue and we have to approach that problem with quality tools.'

Professor Lorenzo Dominioni (Centre for Thoracic Surgery, University of Insubria, Varese, Italy) said that, of 3,000,000 in-patient surgical procedures carried out in Italy each year, about 150,000 (5%) would result in an SSI. For a superficial SSI this would typically mean an extra two days in hospital and extra costs of 1060 Euro (wound care and antibiotic therapy). However, for a deep SSI the additional hospital stay rises to five days and additional costs to €6,050. The most serious organ-space SSI may require an extra 10 days in hospital and lead to additional costs of €9,320.

Professor Miguel Cainzos (Dept. of Surgery, Hospital Clínico Universitario Medical School, Santiago de Compostela, Spain) a former President of the Surgical Infection Society Europe, said that septic complications could increase the hospital length of post operative stay by 22 days.

In one study, the use of triclosan-coated sutures for the closure of the sternal incision reduced the rate of wound infections from 6% (non-coated sutures) to zero. The additional cost of the coated-suture was \$9 (€4) and cost per infection prevented \$11,200 (€7547 Euro).

Professor Axel Kramer (Institute of Hygiene and Environmental Medicine, University of Greifswald, Germany)

echoed the comments of Professor Cainzos about the use of antibacterial coated sutures. The use of antiseptic impregnated surgical suture material, he said, had been shown to reduce surgical site infections.

The rationale for the use of antibacterial coated sutures is that the presence of any foreign material in a surgical wound increases the risk of postoperative wound infections. Furthermore, sutures in contaminated areas enable bacterial microorganisms to penetrate into deep tissues. 'The inoculum of micro-organisms necessary to cause a wound infection is 10,000 fold lower with foreign material in the wound. Furthermore, biofilm formation around suture material protects microorganisms from host defence mechanisms,' he said.

Professor Kramer also addressed wound antisepsis. He said that a European panel consisting of German, Austrian, and Swiss clinicians and researchers had evaluated wound antiseptics and made a consensus recommendation on the basis of a critical assessment of efficacy and cytotoxicity from in-vitro data test results in animal wounds and clinical studies.

Surgeon **Dr Kemal Rafila** (Anadolu Healthcare Foundation, Istanbul, Turkey) added key steps to reduce SSI include the maintenance of surgical patients at the right temperature peri-operatively, with optimum levels of blood glucose control and blood oxygen tension. In addition, patients should not be shaved prior to surgery, but in the sterile environment of the operating theatre, and then removing hair only with clippers.

Professor William De Groote (Head of Orthopaedic Surgery, St-Jan Hospital, Brugge, Belgium) said that surgical site infections could not only have a devastating impact on patients, but also on the surgeon, who may experience emotional problems due to guilt. In orthopaedic surgery, an infection following total hip replacement might increase hospital stay by six weeks and increase costs by €25,000, he said.

SLEEP APNOEA

Sweden - Enormous medical and clinical issues are caused by general lack of awareness about obstructive sleep apnoea (OSA) and the possible connection with cardiovascular disease, according to experts at a round-table discussion on Syndrome Z and OSA.

'Several studies point to the correlation between OSA and metabolic diseases,' said Professor Patrick Levy, Director of the University Sleep and Respiratory Research Team, Inserm ERI17, University J Fourier, Grenoble, France. 'For instance, regarding hypertension, a component of the metabolic syndrome, a recent study from our research group shows that as many as 67% of patients suffering from OSA are suffering from hypertension. We need to re-evaluate the metabolic syndrome to include OSA, a combination called Syndrome Z.'

Lack of knowledge causes casualties and cardiovascular problems

Syndrome Z is the term used to explain the connection between OSA and conditions that together form the metabolic syndrome. The metabolic syndrome, which affects about 25% of the world's population today, includes cardiovascular risk factors such as diabetes, abdominal obesity, high cholesterol and high blood pressure.

OSA occurs when breathing stops during sleep, often combined with heavy snoring. Common symptoms during the day are sleepiness, tiredness, headaches, concentration difficulties and a depressive tendency. Estimates are that 4% of all men between 30 to 79 years of age and 2% of all women suffer from OSA. Metabolic syndrome and OSA together may form a deadly combination due to cardiovascular complications.

Despite the availability of effective treatment, OSA remains an under-diagnosed and under-treated condition, largely due to a lack of awareness among physicians and the public.

Numerous studies have proven the link between OSA and metabolic diseases but the roundtable participants agreed that more research is important to further demonstrate the exact relationship between the different conditions.

'For clinical purposes, it is very important to point out the co-existence of OSA and other metabolic conditions such as diabetes,' added Professor Igor Harsch, Head of the Department of Endocrinology and Metabolism, University of Erlangen, Erlangen, Germany.

It is a healthcare management issue, said Professor Helmut Teschler, Head of the Department of Pneumology and Sleep Medicine, Ruhrlandklinik, Essen, Germany, who provoked agreement when he added: 'We must convince the authorities that it is always worth screening patients suffering from metabolic diseases for OSA. Patients that have symptoms for OSA should always be treated with CPAP (continuous positive airway pressure) before obesity surgery is suggested.'

The panel established four other necessary future activities to tackle the problem:

- Increase awareness of OSA within the medical community and the general population
- Seek the European Respiratory Society's assistance with increasing awareness
- Increase education relating to sleep disorders during medical studies/training
- More research on OSA, the metabolic syndrome and Syndrome Z is needed.

The meeting, initiated by the manufacturer ResMed, which specialises in sleep and respiratory medical equipment, was held in conjunction with the European Respiratory Society's annual congress in Stockholm.

Further details: <http://www.syndromez.com>.
www.resmd.com.

Go to: www.criticalcarenews.com A NEW WEB RESOURCE FOR INTENSIVE CARE CLINICIANS

Sweden - A peer-to-peer ventilation information source for intensive care clinicians worldwide has been launched by Maquet Critical Care. The web site aims to become a leading forum for intensive care staff interested in clinical applications in ventilation therapies.

The site will host an extensive amount of peer-to-peer material

in different ventilation therapies, where physicians share their experiences by means of interview articles and patient case reports. Along with literature reference lists and abstracts of topical subjects in ventilation therapy, e.g. ALI/ARDS and NAVA (Neurally Adjusted Ventilatory Assist), visitors to the site will be able to view lectures

on these topics from internationally known intensive care researchers.

Critical care staff will also find tutorials on the latest topics in ventilation therapy. Visitors interested in these breakthrough ventilation therapies, such as NAVA, will easily locate all peer-to-peer materials by selecting the clinical application topic. In

addition, an up-to-date diary of seminars and workshops will be listed.

'We aim for www.criticalcarenews.com to be a premier resource for intensive care clinicians all around the world to share experiences in ventilation therapies with each other,' explained Dan Rydberg, Managing Director of Maquet Critical Care. 'The site will be a great asset for those strongly committed to their profession.'

The website offers free access to medical professionals.



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10th International Symposium Diagnostic and Therapeutic Endoscopy



As head of the 10th International Symposium next year, Professor Horst Neuhaus MD (left), said this event promises to promote

knowledge about the evidence-based use of diagnostic and therapeutic endoscopy, new endoscopic techniques with evaluation of their clinical use and cost efficiency, the trend towards increasingly unclear borders between gastroenterology and surgery, optimum endoscopic methods for each individual case, the range and application of endoscopic instruments, appropriate management of unsuccessful interventions or those with complications. 'Against this background and in consideration of the very positive response to the last symposium the concept of this event will essentially be kept the same, with a few variations', he added.

Live demonstrations, mini-symposia, state of the art lectures and discussions

On both congress days, international experts will carry out live endoscopies, demonstrating established and new methods,

instruments and tricks from various centres. These will be transmitted in HDTV quality to the auditorium by the Department of Endoscopy at the Evangelisches Hospital in Düsseldorf. 'Moderators will interact with, and between the endoscopy teams and the audience,' Prof. Neuhaus explained. 'Mini-symposia and state of the art lectures will complement these sessions, with the topics reflecting suggestions and requests made by the participants along with emphasis on new developments in endoscopy and minimally invasive technologies.'

International outlook

'The rapid developments in endoscopy are taking very different courses worldwide, partly due to different patient groups, research activities and payment criteria. New technologies are increasingly being developed and evaluated abroad. Such tendencies can have an impact on patient care,' the professor pointed out. 'The necessary exchange of experience, opinions and guidelines will be facilitated through the international composition of the team of experts. Continuous, simultaneous translation will minimise any potential language barriers.'

Congress details: www.cocs.de

A MODERN SENSOR SYSTEM FOR HIGH END DEVICES



The sophisticated sensor system identifies each individual endoscope and detects leakages

The latest generation of the Olympus endoscope cleaning machine ETD3 includes a sophisticated sensor system made by m.u.t AG, of Wedel, Germany. Due to these units identification, leak detection and disinfection verification run automatically.

For identification of individual endoscopes each is equipped with a RFID chip. A corresponding reader recognises the signal and identifies the medical device when it is inserted into the washing chamber. Special reading antennas overcome limitations caused by the all-metal machine structure.

The important task of leakage testing - to assure full functionality -

is accomplished by a method based on pressure measurement. This technique counts the pressure drop over a short period of time by using values down to five mbar.

The special flow control system guarantees a continued flow of the disinfection liquid through the endoscope tubes. A miniaturised flow rate sensor, working on the magnetic-inductive principle (MID), can measure flows less than 50 ml per minute with high precision, m.u.t. reports, adding that all units are connected to a local bus system, which is also accessible via networks such as the internet or a telephone line for the remote management of the machines.

The diagnosis and treatment of small bowel diseases are difficult because they affect a less accessible area than other others in the gastrointestinal tract. Balloon enteroscopy is a fairly new but promising technique, although, due to the complex double balloon setup and time-consuming preparation, this has been a rather difficult procedure.

However, this year, Olympus Medical Systems Europa GmbH launched the *EnteroPro*, a single balloon enteroscope system that it reports is simple yet efficient for the diagnosis and treatment of the small bowel. 'The operator only



Random biopsy has been a recommended procedure for cancer surveillance in patients with ulcerative colitis (UC). However, prospective studies have shown that chromoscopy with target biopsy is an alternative strategy for the diagnosis of dysplasia in UC. Narrow band imaging (NBI) system is a novel illumination technology for endoscopy characterised by lights of wavelength with narrow bands. NBI system with short wavelengths of the haemoglobin absorption bands enhances vasculature within and beneath the

Small bowel diseases

Diagnosis and treatment with a new, single balloon enteroscope system

needs to manipulate one single balloon, thereby reducing examination time.'

With the launch of this product the company has expanded its range of capsule and small bowel endoscopes and EndoTherapy products for the diagnosis and treatment of small bowel conditions.

Key features of the system – Along with the ease of setting up and simple operation, Olympus points out that the EnteroPro provides high image resolution and improved

insertability (it has a (NBI) and it is compatible with existing Olympus systems.

Setting up – First water is used to wet the inner surface of the splinting tube, which is attached to the balloon control unit (sold separately), then the scope is passed through it. The system is controlled by repeatedly inflating and deflating a single balloon using a remote control. This eliminates the need for complex operations, thereby reducing the time required for examinations, Olympus adds.

structure was classified into honeycomb-like pattern, villous pattern or tortuous pattern. The honeycomb-like pattern was crowding of round capillary vessels in honeycomb appearances. The villous pattern was characterised by a cerebriform structure. The tortuous pattern was defined as a pattern composed of round or ovoid structures of various sizes.



or villous pattern (0.4%, p=0.003). The sensitivity and specificity of protruding lesions under conventional colonoscopy for the diagnosis of dysplasia were 40.0% and 93.8%, and those of tortuous pattern under NBI colonoscopy were 80% and 84.2%.

Recent advance in the endoscopic technology has shown that magnifying chromoscopy and fluorescence endoscopy with 5-aminolaevulinic acid sensitisation are a promising procedure for the detection of dysplasia in patients with UC. However, those

Dysplasia and ulcerative colitis

Diagnosis, using magnifying colonoscopy with narrow band imaging system

mucosa of the gastrointestinal tract. It has been confirmed that the NBI system is sensitive for the diagnosis of spread and invasion depth of oesophageal and gastric cancers. We thus applied NBI colonoscopy with a magnifying instrument to cancer surveillance for patients with UC.

During a nine-month period, we performed surveillance colonoscopy in 46 UC patients with a magnifying colonoscope (CF-260ZI, Olympus, Tokyo, Japan), which was connected to a prototype NBI system. The NBI system was composed of a narrow-band illumination device and a video processor (XCV-260HP, Olympus, Tokyo). The illumination was composed of 415nm and 540nm wavelength, which conformed to the absorption wavelength for haemoglobin. We first searched for sharply demarcated, protruding lesions under conventional colonoscopy. We then changed the mode of observation to NBI colonoscopy, and apparently flat mucosa at each segment was observed. The protruding lesions and the flat mucosa were further observed by NBI magnifying colonoscopy at a maximum of €70 magnification, and the surface

By **Takayuki Matsumoto MD** (above), of the Department of Medicine and Clinical Science, Graduate School of Medical Sciences, Kyushu University, Fukuoka, Japan

By means of conventional colonoscopy, a total of 20 protruding lesions were found in 12 patients. These 20 lesions and other 276 areas of flat mucosa were surveyed by NBI colonoscopy. Histologically, five of the 296 sites were diagnosed as dysplasia. The dysplastic sites comprised two protruding lesions and three flat areas. The relative frequency of occurrence of dysplasia was significantly higher in protruding lesions (10%) than in flat mucosa (1.1%, p=0.038). A more significant difference in relative frequency of occurrence of dysplasia was found between groups classified by NBI colonoscopy. The relative frequency of occurrence of dysplasia was significantly higher in areas of tortuous pattern (8%) than in those of honeycomb-like

procedures have common limitations, a prolonged examination time and a need for specific preparation with exogenous material. In contrast, we found that magnifying NBI colonoscopy demonstrates surface pattern as clearly as shown previously in magnifying chromoscopy. Furthermore, the tortuous pattern under NBI colonoscopy was more sensitive than endoscopic configuration to detect dysplasia. However, it should also be noted that the specificity of tortuous pattern was lower than that of endoscopic configuration. It seems probable that both chromoscopy and NBI colonoscopy have a similar trend in the identification of dysplasia characterised by an increase in the chance of false positive results.

Although possible inter-observer variation in the determination needs to be tested, our observation seems to suggest that magnifying NBI colonoscopy is convenient and useful for cancer surveillance in UC. The value of the procedure for surveillance colonoscopy in comparison with traditional random biopsy needs to be examined prospectively in a larger number of patients.

Pulmonary embolism

Point of care test shows advantages over lab testing

UK - Inverness Medical's Clearview Simplify D-dimer rapid test is as effective in diagnosing pulmonary embolism as quantitative laboratory testing, according to a study* carried out at the Carolinas Medical Centre, N.C. USA, and presented at the European Emergency Medicine Congress in Italy. The researchers said that the Simplify test 'demonstrated similar diagnostic accuracy' as laboratory tests, and had proved to be far more versatile for rapid point of care use in emergency departments.

The test detects D-dimer in human plasma and whole blood from venous whole blood and finger-prick samples to aid the assessment of patients with suspected pulmonary embolism, deep vein thrombosis and disseminated intravascular coagulation. 'When used in conjunction with a validated pre-test probability score and diagnostic algorithm, Simplify D-Dimer can also be used for the safe exclusion of venous thrombo-embolism,' the firm reports. 'In just two simple steps, the easy to use cartridges from Inverness Medical provide reliable results in as little as 10 minutes. With in-built procedural control and the availability of separate positive and negative controls health professionals can have added confidence in reading the visual result with minimal training required.'

* Michael S. Runyon, Daren M. Beam, Matthew C. King, Edward H. Lipford, and Jeffrey A. Kline. Comparison of the Simplify D-dimer performed at the bedside to a laboratory-based quantitative D-dimer assay for the diagnosis of pulmonary embolism in a low prevalence emergency department population. *Emergency Medical Journal*. In Press.



Analyser endorsed by independent lab

An external performance evaluation has confirmed that the new Olympus AU-Connector has excellent operational capabilities, the company reports, adding: 'This compact, consolidated system, which combines high workload Olympus analysers with Intelligent Sample Management, was put to the test by scientists at a busy private laboratory in Munich, Germany.'

The AU-Connector was evaluated with differing combinations of Olympus analysers. These included two AU2700 clinical chemistry systems together and the combination of an AU3000i immunoassay analyser with an AU2700. 'In particular, the external scientists noted that both AU-Connector hardware and software were extremely easy to operate, and that start up and shutdown times were superior to any other system to date.'

Furthermore, they were particularly impressed by the prioritised STAT sample handling, as well as the detailed results and sample information delivered by the software,' Olympus adds. 'The evaluation also demonstrated that the impressive throughput target of over 600 tubes per hour can easily be

met by the AU-Connector, and the analytical performance of connected analysers was completely unaffected. Intelligent Sample Management also ensured that both analysers were always running at the highest capacity ensuring the lowest possible turn-around times. For example, when one AU2700 had its reagents replenished, the system simply routed all the samples to the other instrument thus ensuring continuous operation and maximal processing capacity.'

Intelligent Sample Management was also found to ensure 100% protection of sample integrity, by always sending

tests that may be contamination sensitive to the AU3000i first, as this employs disposable tips, Olympus points out.

'The ability to archive or sort samples into third party analyser racks after analysis is an additional feature allowing simple management of samples requiring testing elsewhere. Fully automated validation, including rerun and reflex testing without disrupting routine work was also possible due to Olympus dataWizard. Operator specific rules could also be executed through this advanced data management system and validation of all results of a sample was performed.'

IT & TELEMEDICINE

NEW

Scrutinising remote surgical progress via a PC

The digital transmission and display of surgical images on operating theatre monitors can not only support rapid co-ordination of the theatre team, but also complex patient information can be completed with additionally integrated image information obtained from diagnostic equipment and relayed to external experts who may simply be using their PCs.



Professor Gernot Duncker MD at the Martin-Luther University in Halle, Wittenberg, in Germany, simply calls up the latest images and diagnosis-relevant data from the theatre on his PC in real time and decides whether or not his personal intervention in theatre is necessary. 'This saves us a lot of time, because we no longer have to wait during the operation for someone to provide us with the required information in the form of a paper printout or similar.'

However, combining such extensive patient data from preliminary examination, diagnosis and surgical intervention, as well as ensuring high technical and manufacturer-independent peripheral compatibility, represents a big challenge in telemedicine.

Maquet - one of the few providers of telemedicine systems - reports that it has '...developed the first comprehensive telemedicine system' to smoothly integrate sources of medical images and data, storage and archiving according to international standards, and allow digital transmission to a PC. Information from all the imaging equipment connected for a particular operation is united by the system: 'Patient data or imaging material from, e.g. endoscopy, microscopy or the surgical light camera system. Images and data are continuously integrated into the theatre proceedings and made available ad hoc at the push of a button.'

Online teaching and scientific research

'Digital transfer and representation of live surgical images in our regular congresses and symposia is now also possible,' Professor Duncker added. 'Modern digital media technology in our auditoria has allowed 300 eye specialists and scientists to follow live transmission from four operating theatres, on two large screens simultaneously, in interactive teleconferences in past symposia. Our installed telemedicine system is also used for these symposia. Compared with earlier symposia, this saves us the considerable expense of hiring equipment and technicians for those two days.'

Professional Disc technology doubles capacity of HD medical recorder

Sony revealed its latest full 1440 x 1080 HD video recorder for medical professionals at the Medica trade fair in November, explaining: 'Fully compliant with medical safety standards, the PDW-75MD features a number of new functions that enhance HD workflow, including dual layer professional disc and a Clip continuous REC function.'

The PDW-75MD accepts 23.3GB single layer discs as well as 50GB dual layer discs to enable more than double the recording time from a single layer disc. In addition, the firm adds: 'The new Clip continuous REC function accelerates the process of accessing information by empowering users to tag critical scenes with "essence markers" throughout a larger single recording and even without a PC, these can be reviewed and edited on the unit. Any recording



on the PDW-75MD Professional Disc can be accessed instantly through thumbnail indexes displayed on the unit's 16:9 LCD colour screen, meaning valuable time saved from fast forwarding and rewinding content.'

Felip Garcia, European product manager at Sony Europe, added: 'Not only does it require fewer discs to record and store more superior images; it also makes editing that content easier and faster.'

Designed to offer the lowest total system cost in its class, a Professional Disc can be reused for 10,000 rewrite cycles and is readily available from various suppliers. It will also retain information stored as data files for 50 years in normal conditions, reducing the need for an expensive IT-storage system to store, retrieve and manage archived material, Sony points out.

The PDW-75MD supports existing standards, such as DV/DVCAM, for work with existing non-linear editors and open standards, such as MXF, for compatibility with new generation NLEs. New functions also include: Memory Stick Pro for version up; trigger recording over HD-SDI; and improved down-converter quality.

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

Finishing media technique johri, Weilerswist, Germany

Printed by Frotischer Druck, Darmstadt, Germany

Publication frequency bi-monthly

European Hospital ISSN 0942-9085

A member of VVA HealthCare Group

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Presently, to meet their needs for prevention of healthcare-associated infections (HAI), many countries apply a standard of one infection control practitioner (ICP) per 250 hospital beds and one epidemiologist or medical microbiologist per 1,000 hospital beds. This norm is based on the results of the SENIC study that was performed in the USA between 1970 and 1976 and published in 1985 (Haley RW, Culver DH, White JW, et al. *Am J Epidemiol* 1985; 121: 182-205).

The standard for infection control staff in hospitals

P J van den Broek (above), of the Department of Infectious Diseases at Leiden University Medical Centre, outlines reasons behind the preferred choice of investigators in The Netherlands of a new standard based on the number of hospital admissions rather than the number of beds

During these years infection control practice developed rapidly in US hospitals: in 1970 less than 20% of hospitals reported an ICP position, whereas nearly 100% did so in 1976. By correlating changes in HAI rates and infection control programmes in hospitals between 1970 and 1976 the SENIC investigators were able to show which elements were essential for an effective prevention programme. Hospitals that performed surveillance, implemented aseptic precautions actively, reported surgical wound infection rates to the surgeons, and disposed of a hospital epidemiologist and at least one ICP per 250 hospital beds, achieved a 32% reduction of HAI compared with hospitals that did not fulfil these criteria (R W Haley et al.). In 1976 the mean number of ICP in US hospitals was 0.92 full time equivalent (fte) per 250 beds and this figure was used in the statistical analysis.

The mean at that time became the standard up to nowadays despite fundamental changes in healthcare. Duration of admission became shorter, and many patients are treated in day-nursing units as out-patients. Solid organ and bone marrow transplantation and intensive chemotherapy have been introduced. New technologies enable complicated interventions in often old and seriously ill patients. The consequence of all these changes is that hospital in-patients are generally sicker now than 30 years ago. Meanwhile, in many countries working hours of healthcare workers have reduced from 40 to 36 hours per week. Such being the case the suitability of the standard for infection control staff for the present time is questioned.

In 2002 a panel of ICPs in the USA concluded that one fte per 100 hospital

beds is needed to meet the requirements (O'Boyle C, Jackson M, Henly SJ. Delphi project. *Am J Infect Control* 2002; 30: 321-333)

In 2004 ICPs in Canada determined a new standard of one fte ICP per 167 hospital beds with the help of a Delphi-like procedure after they had reached consensus about the tasks to be done by an ICP (Health Canada. Nosocomial and Occupational Infection Section. Development of a resource model for infection, prevention and control programs in acute, long term, and home care

settings: Conference proceedings of the Infection Prevention and Control Alliance. *Am J Infect Control* 2004; 32: 2-6).

In 2005 Dutch ICPs and microbiologists indicated how much time was needed to perform all infection control tasks in a model hospital with 1,370 beds, 280,000 nursing days per year, 39,000 admissions, 40 intensive care beds, and all type of medical specialties represented (Broek PJ van den, Kluytmans JAJW, Ummels LC, Voss A, Vandenbroucke-Grauls CMJE. How many infection control staff do we need in hospitals? *J Hosp Infect* 2007; 65: 108-111).

The list of tasks was based on the Canadian study. The total number of hours needed per year was calculated to be 12,589 for ICPs and 2,798 for medical microbiologist. Transformed into fte (1632 h/year) this is one fte ICP per 178 hospital beds and one microbiologist per 806 beds were needed.

The problem of a standard expressed as fte per hospital beds is that the official number of hospital beds does not reflect the actual production of a hospital, at least not in the Netherlands. Therefore, the Dutch investigators preferred a new standard with number of admissions as denominator. Using this denominator they proposed one fte ICP per 5,000 admissions and one fte microbiologist or epidemiologist per 25,000 admissions as a new standard for infection control staff. This standard should be revised every five years to ensure that the standard keeps pace with the developments in healthcare.

Contact: p.j.van_den_broek@lumc.nl



Getinge, the Swedish manufacturer of equipment and systems for hygiene, patient handling and wound care, as well as the Maquet brand of products for surgical work places, cardiopulmonary and critical care, again had a strong presence at MEDICA in Dusseldorf. Speaking with **Gabriela Eriksen** of European Hospital, **John Hanson** (above), the firm's Marketing & Business Development Director, pointed out that that Getinge's theme for

side. This saves time and money on personnel and also reduces re-washing from loading errors, because the machine gets it right. Everything is connected to our T-DOC software system so customer can prioritise and track their production and ultimately save money. Also we have a new feature in the dryer sensor, instead of drying for a fixed time, the inbuilt humidity sensor can tell when the load is dry; this saves time and energy. Reducing energy use is another major consideration for our customers today.'

He also added that the

Disinfection & sterilisation GETTING AUTOMATICALLY EASIER

the medical trade show — *Automatically easier* — was chosen to demonstrate the firm's target in infection control — 'To make our customers' disinfection and sterilisation procedures as easy and efficient as possible' Patient numbers constantly increase while budget reduce, he pointed out: 'So, this is our challenge — how we can help customers to treat more people more efficiently and cost-effectively.'

Last year at MEDICA, Getinge introduced its new Turbo washer-disinfector. 'This year,' said John Hanson, 'we have introduced new features to improve its performance even further. The machine is the world leader in efficiency. It is revolutionary in cutting processing time in half. One other advantage is our automatic loading system the Air Glide system (AGS). Instead of people having to wait by machine to load when ready you can feed the dirty instruments in one side, they are loaded automatically when the load is full and the clean ones come out the other

processing time of Getinge's automated endoscope reprocessor, the Poka Yoke, has been reduced — a complete cycle according to EN 15883-4 now only takes 22 minutes.

Asked who the decision makers are in today's hospitals for these types of products, John Hanson said that every country is slightly different: 'Nowadays, in Europe, it tends to be the higher level managers. It is a big decision. Our customers purchase this type of machine about once every 15 years, so it's very important for us that our customers make the right decision for their future use. As part of our offer, we provide "architectural support", a service whereby we ask customers to forecast what is likely to change in their own hospitals over the next 5-10 years, in terms of space and capacity and, of course, cost reduction. That's why we are world leaders in infection control. We not only provide the best machines for any size in working practice, but also planning and total peace of mind.'

Gamma interferon helps combat fungal infections

Interferon may be a strong weapon in the battle against fungal infections in immunocompromised patients, according to an article in the November issue of *Microbiology Today*.

Although fungal infections (mycoses) are rarely life-threatening in healthy patients, they cause a major problem for immunocompromised patients and those receiving chemotherapy for cancer. Treatment is becoming difficult due to fungal resistance to the antifungal therapy, the variety of disease-causing fungi found and the toxic effects of conventional therapy.

Now, scientists believe gamma interferon, a protein molecule produced by human cells in response to infections, may help to fight fungal infections. 'Immune cells called neutrophils are rapidly recruited to the site of infection and play an essential role in fungal killing,' explained Drs. Javier Capilla, Karl Clemons and David Stevens, of Santa Clara Valley Medical Centre, Stanford Medical School and the California Institute for Medical Research. 'Gamma interferon enhances the mechanisms of these cells to make them more potent killers of fungi.'

Tests on many fungal infections, including blastomycosis, candidosis and aspergillosis have shown that gamma interferon has beneficial

effects in reducing the fungus in the organs and on animal survival. But according to Dr Stevens, interferon is not the only answer. 'Therapy using gamma interferon alone has failed to clear the fungus completely from infected tissues but it has great potential to add to conventional therapy.'

'When gamma interferon was given to mice infected with *Cryptococcus* along with amphotericin B, a standard antifungal treatment, the rate of cure was significantly higher than using one therapy alone. We need to look at the route of administration, the frequency of dosing and the dosage given before we can determine fully the use of gamma interferon as an adjunctive therapy.'

There is still work to be done. 'We explored the possibility of using gene therapy for delivering gamma interferon into the nervous system to combat fungal meningitis. Studies of this type suggest a potential clinical use for specific gamma interferon gene therapy in the future. Treatment with gamma-interferon offers a new additional approach to treatment and it provides a new approach to treating difficult diseases. However, clinical trials must document the benefit for patients,' Dr Stevens added.

Source: *Microbiology Today* (November 2007)

Bacteriophages

UK — Biocontrol, which is developing the clinical use of bacteriophages to treat antibiotic resistant infections and recently won a prestigious Research and Development Grant Award from the London Development Agency, has secured a further £250,000 investment from The Capital Fund*. This, combined with funding from existing shareholders, will total £500,000.

Phages are viruses that attack and kill specific bacteria but are harmless to everything else. Bacteriophages eliminate harmful bacteria specifically when current chemical agents fail or prove ineffective.

Biocontrol has already successfully completed veterinary trials of its first product — a topically applied phage treatment that controls the *Pseudomonas aeruginosa* bacteria. Clinical trials with human patients are well underway, with positive initial results.

The company's Chief Scientific Officer, David Harper

RESEARCH FIRM GAINS VENTURE CAPITAL FUNDING

(founder of Biocontrol in 1997) said: 'Phages have real potential to combat many different antibiotic-resistant infections. Phages act like a stiletto, eliminating only the dangerous bacteria. We can identify the bacteria that are causing the disease or infection and target them with phages that will kill those bacteria and only those bacteria. This contrasts favourably with the blunt instrument approach of broad-spectrum antibiotics, which can kill a wide range of bacteria, including those that help the body, which can then leave the body open to other dangerous infections, for example, the emerging superbug *C. difficile*.'

* *The Capital Fund is a £50 million venture capital fund that backs fast growing small and medium-sized companies in the Greater London area. It is the largest of the nine UK regional venture capital funds.*

Details: www.biocontrol.ltd.uk

UNITE FOR DIABETES

260 SPECIALIST DIABETES NURSES MEET IN LEVERKUSEN

Bayer Healthcare manufactures a range of innovative products for the care of diabetics and also sponsors meetings and training sessions for nurses — particularly specialist diabetes nurses. This November, Bayer hosted the *4th European Nurses Symposium* in Leverkusen, Germany. 260 specialist diabetes nurses attended to hear talks by international diabetes experts and to share individual experiences in the support, education and daily care of newly diagnosed and longstanding diabetics.

Anne Marie Felton, president of the Federation of European Nurses in Diabetes (FEND), presented the *Unite for Diabetes* campaign, partnered by Bayer Healthcare and supported by the UN Resolution on diabetes. She announced that the decision to celebrate the 14th November, World Diabetes Day as a United Nations day, from 2007, will help raise awareness for the current goals to combat this illness — goals that include the implementation of cost-effective therapeutic strategies and the development of preventive measures.

Professor Oliver Schnell from the Diabetes Research Institute, Munich stressed the strong medical evidence supporting self-monitoring of blood glucose (SMBG) as a pillar of diabetes management. Good glycaemic control is constantly associated with better outcomes in both type 1 and type 2 diabetics and is only successfully achieved with SMBG. The recent International Diabetes Federation (Global Guidelines for Type 2 Diabetes (2005). www.idf.org) recommend SMBG as the 'minimal, standard and comprehensive care of all people with diabetes'. However, it would appear that simply monitoring blood glucose is not enough; results have to be transformed into action. Even if the patient is not going to use self-monitoring to make therapeutic changes themselves, recording their blood glucose levels allows them to follow the influences of diet and other factors on their blood glucose levels. Post-prandial blood glucose and glycaemic variations have been found to be particularly important to correct treatment modifications. (IDF - Guideline for Management of Post-meal Glucose-Information Booklet 2007. www.idf.org). Importantly, this information gives healthcare providers an accurate overview of a patient's control and adjustments in medication can be made on a case-by-case basis.

'More than 240 million people worldwide currently suffer from type 2 diabetes,' said **Dr Xavier Cos** from the Catalan Health Institute in Barcelona, adding: 'By 2025 this number will be in excess of 300 million.' He stressed the importance of therapeutic management programmes being tailored to an individual's needs, that insulin therapy is not delayed and that patients undergo thorough training so that they are empowered to control their own disease.

The role of the diabetic nurse in the prevention of type 2 diabetes was described by **Sari Harna Rodriques**, from Finland, who explained that diabetes prevention is a multidisciplinary team effort in which the nurse has a pivotal role in designing and planning patient

education. She outlined three general approaches to the prevention of type 2 diabetes; the general population, detection and screening of high-risk individuals and early detection of people with undiagnosed diabetes.

Dr Roberto Parotelli, Head of Region Europe at Bayer Healthcare Diabetes Care, firmly believes that industry has a role to support all

these projects, and underlined his company's aim to provide innovative products and services to help empower the individual. Along with partnering the Unite for Diabetes initiative, he outlined of projects in which Bayer is a partner, including the Diabetes Dream Fund, the EU-funded project IMAGE, and HOPE, an Indian diabetes educational project.



From left: Professor Oliver Schnell (Diabetes Research Institute, Munich), Dr Roberto Parotelli (Bayer Healthcare Diabetes Care), Sari Harna Rodriques (diabetes nurse from Finland), Anne Marie Felton (President of the Federation of European Nurses in Diabetes (FEND)) and Dr Xavier Cos (Catalonian Health Institute in Barcelona)

28th International Symposium on Intensive Care and Emergency Medicine



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Website: <http://www.intensive.org>

Posters: Deadline for abstract submission: December 15, 2007



JANUARY

6–10 Helsinki, Finland
MEDICINE – The Finnish Medical Convention and Exhibition
www.finnexpo.fi

17–19 Maastricht, Netherlands
5th Congress EURONEURO 2008
Contact: info@euroneuro.eu

21 London, England
'Antibiotics – Where Now?' presented by the Royal Society of Chemistry at the Royal Institute of British Architects.
www.rsc.org/antibiotics08

26–27 Athens, Greece
Two-day hepatitis meeting
Contact: tnt@tnt-executive.gr

26–27 Berlin, Germany
Onko Update 2008 www.cocs.de

28–31 Dubai, UAE
Arab Health The Arab Health exhibition and congress is the region's premier event for the Middle East, drawing together top decision-makers in the Arab world and the international medical equipment firms.
www.arabhealthonline.com

FEBRUARY

3–6 Dubai, United Arab Emirates
15th International Union Against Sexually Transmitted Infections (IUSTI) Asia Pacific Congress on Sexually Transmitted Infections and HIV/AIDS. Details: iusti@index.ae

8–9 Turin, Italy
FMAT 2008: Macula Advances in Diagnosis and Therapy
Symposiacongress@virgilio.it

13–15 Tehran, Iran
International Breast Cancer Congress
Details: crc-sbmu.ac.ir

14–17 Tehran, Iran
1st International and 6th National Congress on Quality Improvement in Clinical Laboratories
Contact: mossalaei@iqicl.org

20–23 Berlin, Germany
German Cancer Congress Contact: info@krebskongress2008.de

26 Glasgow, Scotland
Sexual Health and HIV Symposium
Royal College of Physicians and Surgeons of Glasgow. Contact: Kay.whittle@rcpsg.ac.uk

28–2 March Budapest, Hungary
Symposium on Ocular Pharmacology and Therapeutics isopt@kenes.com

MARCH

1–5 San Antonio, USA
American Academy of Dermatology Annual Meeting www.aad.org

2–3 Dusseldorf, Germany
10th International Symposium: Diagnostic and Therapeutic Endoscopy www.cocs.de

2–7 Cape Town, South Africa
WCA 2008 - World Congress of Anaesthesiologists www.wca2008.com

3–6 New Orleans, USA
PITTCON Pittsburgh Conference and Exhibition on Analytical Chemistry and Applied Spectroscopy. www.pittcon.org

5–9 San Francisco, USA
AAOS Annual Meeting American Academy of Orthopaedic Surgeons.
www.aaos.org

7–11 Vienna, Austria
ECR Annual meeting of the highly influential European Congress of Radiology. www.ecr.org

10–14 Portofino, Italy
International Comparative Programme in Hospital Management
Details: Domenico.salvatore@unobocconi.it
Or: www.sdbocconi.it/icphm

11–13 Tel Aviv, Israel
MEDAX - International Exhibition on Medical Technology Medical & Hospital Equipment and Supplies. www.stier.co.il

12–14 Poznan, Poland
SALMED International Trade Fair of Medical Equipment. www.salmed.pl

12–15 Vilamoura, Portugal
1st Iberian Congress of Internal Medicine secretariado@spmi.webside.pt

13–15 Tbilisi, Georgia
GIHE – Georgian International Healthcare Exhibition www.gihe.ge

13–16 Seoul, South Korea
KIMES International Medical and Hospital Equipment Show. www.kimes.co.kr

14 London, England
Clostridium difficile – The Super Bug Explained Symposium organised by the Health Protection Agency. This day of seminars will be led by some of the UK's top experts, and talks and discussions will be hosted by the Standards Unit, Evaluations and Standards Laboratory, at the Centre for Infections. The aim is to support the need for a standardised approach to the processing of faeces for C. difficile and cover the key issues associated with diagnostics. standards@hpa.org.

14–16 Rome, Italy
JIM 2008 Joint Interventional Meeting with emphasis on live cases. New this year: a virtual training session.
www.jim-vascular.com

14–16 Mumbai (Bombay), India
HOSPIMedica INDIA International Exhibition for Medical Equipment, Hospital Equipment and Pharmaceuticals.
www.hospimedica-india.com

18–21 Brussels, Belgium
ISICEM 28th International Symposium on Intensive Care and Emergency Medicine. Launched in 1980, and organized by the department of Intensive Care Emergency Medicine of Erasme Hospital, Free University of Brussels, in association with the Belgian Society of Intensive Care and Emergency Medicine (SIZ), this meeting has become established as one of the biggest in the field, now attracting more than 4,700 international participants.
www.intensive.org

22–24 Munich, Germany
37th Congress of the German Society for Endoscopy and Imaging Diagnostic (DGE-BV)
www.cocs.de

23–26 Jerusalem, Israel
From Concept to Cure Contact: professionalcouncils@hadassah.org

23–27 Rome, Italy
SIRM 2008 Congress of the Italian Society of Radiology.
www.congresso.sirm.org

24–28 Orlando, FL, USA
HIMSS08 Healthcare Information and Management Systems Society Annual Conference & Exhibition. www.himss.org

25–29 Antalya, Turkey
2nd International Patient Safety Congress www.patientsafetycongress.org

26–29 Milan, Italy
EAU – The 23rd Congress of the European Association of Urology
The EAU has developed into a leading event in urology. www.eaumilan2008.org

27–29 Mannheim, Germany
74th Meeting of the German Society of Cardiology (DGK)
www.dgk.org

27–30 Monte Carlo, Monaco
PCICS Europe 2008 European Symposium of the Paediatric Cardiac Intensive Care Society. Contact: pcics@kenes.com

28–2 March Singapore
International Symposium on Respiratory Viral Infections
www.themacraegroup/default.htm

29–1 April Chicago, USA
ACC – The American College of Cardiology Annual Scientific Session www.acc.org

29–2 April Wiesbaden, Germany
114th Congress of the German Society for Internal Medicine (DGIM) www.dgim2008.de

APRIL

1–4 Munich, Germany
Analytica 2008
The international trade fair and conference for instrumental analysis, laboratory technology and biotechnology.
www.analytica-world.com

3–5 CIEC Beijing, China
CHINA MED International Medical Instruments and Equipment Exhibition.
www.chinamed.net.cn

8–10 Berlin, Germany
conhIT (in the past ITeG)
Healthcare IT fair, congress, academy and networking events. www.conhit.de

9–10 Barcelona, Spain
Smart Systems Integration
European Conference & Exhibition on Integration Issues of Miniaturized Systems.
www.smart-systems-integration.org

MAY

25–27 Osaka, Japan
Barrier Free – International Rehabilitation and Care for Elderly and Disabled www.itp.gr.jp

30–1 May Syracuse, Italy
TRANSMED 16 European Mediterranean Congress about Mother & Child Health.
Contact: Kamel@medicom-international.com

30–3 May Berlin, Germany
89th German Radiology Congress
www.roentgenkongress.de

4–17 Johannesburg, S. Africa
General Medical Topics CME Cruise
Details: cruises@seacourses.com

7–10 Bucharest, Romania
RoMedical/RomPharma/RomOptik
International Exhibition of Medical Equipment and Instruments. www.rommedica.ro

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9–10 Florence, Italy
ET 2008 First European Conference on Embolotherapy. Contact: info@cirse.org

10–12 Florence, Italy
ECIO 2008 First European Conference on Interventional Oncology. Contact: info@cirse.org

10–12 London, England
30th Charing Cross International Symposium: "Vascular and Endovascular Consensus Update"
Details: info@cxsymposium.com

15–18 Geneva, Switzerland
INDEX 08 said to be the world's leading nonwovens exhibition, it will also showcase the diverse range of nonwoven applications, particularly in the medical, hygiene and personal care products industries.
www.index08.org

16–18 Luxembourg
Med-e-Tel 2008 International Trade Event and Conference for eHealth and Telemedicine. This will have a special session on ehealth and telemedicine applications in diabetes management, in co-operation with the International Diabetes Federation.
www.medetel.lu

17–19 Venice, Italy
Evivenice 2008 Venice Course on Extreme Vascular Interventions. info@evivenice.com

19–22 Shenzhen, China
CMEF Spring – China International Medical Equipment Fair.
www.cmf.com.cn

22–24 Munich, Germany
MCC Hospital World
Details: Dwright@ihf-fih.org

22–25 Berlin, Germany
125th Congress of the German Society of Surgery
www.chirurgie2008.de

23–25 Seoul, Korea
Angioplasty Summit - TCT Asia Pacific www.summit-tctap.com

10–11 Tehran, Iran
IOMC 2008. 1st International Online Medical Conference
Contact: iomc@ala.ir

13–16 Trest, Czech Republic
The 6th International Workshop on Drug Delivery Systems for Nanomedicine Nanostructures and their Biomedical Applications. Details: monika.fialova@czech-in.cz

19 Paris, France
25 Years of HIV
Contact: 25yearsHIV@pasteur.fr

13–16 Barcelona, Spain
EuroPCR The course aims to break down the barriers by inviting all interventionalists: cardiologists, surgeons, nurses, technicians, radiologists, angiologists, industry and allied healthcare partners. www.europcr.com

18–21 Buenos Aires, Argentina
XVI World Congress of Cardiology the official congress of the World Heart Federation, with presentations on new cardiovascular research and developments by international experts.
www.worldheart.org

21–24 Porto, Portugal
13th ESSKA 2008 Congress
info.wiesbaden@intercongress.de

21–2 June Civitavecchia, Italy
Cardiology Essentials and Case Studies
Contact: etener@CruisersParadise.com

21–24 Leipzig, Germany
Orthopaedie & REHA-Technik International Trade Show and World Congress for Prosthetics, Orthotics and Rehabilitation Technology.
www.leipzigmesse.de

24–25 Kastro Kyllinis, Greece
1st International Congress of Translational Oncology
Details: jng@otenet.gr

25–28 Geneva, Switzerland
2nd Geneva Forum: Towards Global Access to Health 'Strengthening Health Systems and the Global Health Workforce'.
info.genevahealthforum@hcuge.ch

31–3 Copenhagen, Denmark
Euro-anaesthesia 2008 4th Annual Meeting of the European Society of Anaesthesiology. Keynote lectures, research, complemented by refresher courses, presenting the state-of-the-art for clinical practice. Companies specialising in anaesthesiology will demonstrate products at the trade fair.
www.euroanaesthesia.org

JUNE

2–4 Birmingham, UK
UK Radiological Congress 2008
A three day multidisciplinary Congress covering all aspects of diagnostic imaging and oncology, as well as radiology informatics and service delivery.
www.ukrc.org.uk

9–19 Monte Carlo, Monaco
Seminar on Legal-Medical Issues
Details: etener@CruisersParadise.com

10–12 Tehran, Iran
The 1st International Congress of Infection in Transplantation and Cancer Details: info@idtmrc.ac.ir

11–14 Stockholm, Sweden
EAES 2008
16th International Congress of the European Association of Endoscopic Surgery. 'Endoscopic surgery – from an enigma to established clinical practice.'
www.eaes-eur.org

14–17 Milan, Italy
Heart Failure 2008 Congress
The annual meeting of the Heart Failure Association of the ESC. www.escardio.org

25–28 Barcelona, Spain
CARS 2008 – Computer Assisted Radiology and Surgery
22nd International Congress and Exhibition. www.cars-int.org

29–1 July Brno, Czech Republic
Biosignal 2008
Contact: bs2008@feec.vutbr.cz

JULY

27–31 Washington DC, USA
AACC 2008 Annual Meeting of the American Association for Clinical Chemistry. www.aacc.org

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